Revised Report

MACROECONOMIC AND FISCAL POLICY SIMULATIONS FOR THE 16TH FINANCE COMMISSION

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Executive Summary

In this study an attempt has been made to understand the macro-fiscal relationships in the case of India. With the help of a structural macroeconometric model framework that broadly takes care of demand side relationships, following an eclectic approach, empirical model is estimated for India with the help of annual data from 1993-94 to 2023-24. The main focus of this empirical model is to undertake some policy simulations relevant for the 16th Finance Commission period, i.e., for 2026-27 to 2030-31. Based on some assumptions on exogenous and policy variables, in addition to base case scenario, four policy scenarios are estimated. They are i) empirically estimate the fiscal roadmap (at the general government level) that is consistent with the amended FRBM Act of 2018 for the 16th FC period; ii) estimate possible macro outcomes if India could (or needs to) revert back to original FRBM act of 2003; iii) estimating deficit path consistent with debt path proposed in Union Budget 2025-26; and finally, understand the macro-fiscal implications of implementation of 8th Central Pay Commission award on growth and fiscal parameters.

Empirical results suggest that the present FRBM (Amendment) Act of 2018 is not internally consistent with growth and debt objectives as relaxation of revenue deficit target, compared to original Act of 2003, could lead to lower growth and also do not lead to reduction in public debt. Instead, reverting back to original FRBM Act of 2003 with targets on both fiscal deficit as well as revenue deficit should reduce the general government public debt to 75 per cent. This means over a 10 per cent reduction in public debt during the 16th Finance Commission period is feasible if Union government sticks to 2003 FRBM Act.

Unlike previous Commissions, as the 16th Finance Commission need to endogenise the anticipated 8th Pay Commission award, simulation has been carried out assuming a 15 per cent increase in other revenue expenditures (other than transfer payments) from 2026-27. This scenario results in slightly higher GDP growth, but with higher inflation, while the fiscal parameters expand leading to higher public debt and widening current account deficit. Fiscal deficit increases to 8.91 per cent from 7.62 per cent in the terminal year while Debt/GDP ratio in the terminal year increases to 86.80 per cent compared to 82.41 per cent in the base case. However, as the formation of a Pay Commission is delayed, it appears that wage revisions could not be implemented before 2028-29. Hence, simulations are carried by endogenising shocks in 2028-29 with first two years' arrears (2026-27 and 2027-28) is spread across next two years. In such situation, our results suggest that there could be spikes in all the variables of concern, with fiscal deficit (general government) reaching to double-digits for two consecutive years and settle at 9.32 per cent in 2030-31. Revenue deficit is expected to increase to 3.61 per cent (compared to 1.97 per cent in the base case) in the terminal year. Consequently, the general government public debt increases to 87.7 per cent against 82.5 per in the base case of no wage revision. These results suggest that early implementation of wage revision could ensure some stability in both macro and fiscal parameters. Accumulated pay revision shock in 2028-29 is expected to result in spikes in all the variables of interest.

As the Union government proposes to anchor public debt instead of deficit parameters, this study tried to derive the deficit path consistent with debt and growth path. The results

suggest that derived deficit path is only a necessary condition while it is also important to assess with respect to distribution of fiscal deficit between government capital expenditure and revenue deficit. Otherwise, as our results suggest, one would end up either in lower GDP growth or in higher public debt levels, or both. Overall, our results show that targeting the public debt levels at 75 per cent, with 50 per cent for Union and 25 per cent for States and with reverting back to original FRBM Act could ensure in excess of 7 per cent growth with stable inflation.

MACROECONOMIC AND FISCAL POLICY SIMULATIONS FOR THE 16TH FINANCE COMMISSION

1. INTRODUCTION

Indian economy has undergone major structural changes over the past four decades ever since reforms are initiated. The economy's remarkable transformation into one of the world's largest emerging markets has been driven by significant structural reforms, shifts in fiscal & monetary policies, substantial public investment, policies that encouraged private sector participation and a massive external sector reforms. In 1992, India's GDP stood at approximately US$ 270 billion, and is projected to surpass US$ 4 trillion in 2025-26. While the global economy is projected to grow at 3.0 per cent in 2025 and 2026 (WEO Update, July 2025), India is expected to continue its relatively strong growth trajectory that started since Covid-19. The provisional estimates suggest India's real GDP growth at 6.5 per cent in 2024-25 and as per projections of Economic Survey, 2025, India could register a growth between 6.3–6.8 per cent in 2025–26 (MOSPI, 2025; Economic Survey, 2025). Further, the IMF also projected that India could become third largest economy by 2030, only after the United States and China.

Despite this strong performance with respect to growth, India's fiscal position remains a matter of concern. The Union government has emphasized fiscal prudence while maintaining growth-supportive spending (Economic Survey, 2025). However, challenges such as higher fiscal deficits, a high debt-to-GDP ratio, and relatively low tax/GDP ratio continue to limit fiscal space (EY, 2025). Further, the Indian economy faces both domestic and external headwinds. Domestically, delayed revival in private investment, reduced household savings, increasing public and private debts are testing the limits of fiscal capacity. These challenges have been intensified in the post-pandemic period, during which large-scale fiscal stimulus measures were adopted to counter the economic fallout of COVID-19. This led to a substantial expansion of public expenditures that has put further pressure on the government exchequer. Externally, inflationary pressures, volatile capital flows, restrictive trade policies, and geopolitical uncertainties pose further risks to macroeconomic stability (Economic Survey, 2025).

In this context, fiscal policy plays a critical role in balancing the dual objectives of supporting economic growth and maintaining macroeconomic stability. As India aspires to become Viksit Bharat, a developed economy, by 2047, a well-calibrated fiscal strategy

will be essential for fostering long-term investor confidence, facilitating infrastructure development, and promoting inclusive growth.

India's fiscal policy framework has gradually evolved to respond to such challenges. The economic reforms of the early 1990s marked the beginning of a shift toward expenditure rationalization and broad-based tax reforms. This culminated in the adoption of a rule-based framework by adopting the Fiscal Responsibility and Budget Management (FRBM) Act in 2003, aimed at ensuring fiscal discipline and sustainability. However, exceptional events at different times as well as anticipated/unanticipated shocks necessitated countercyclical fiscal responses, often resulting in temporary deviations from fiscal consolidation path.

This study undertakes a comprehensive empirical assessment of India's fiscal policy framework with four key objectives for the 16th Finance Commission period. First, it aims to estimate a medium-term fiscal roadmap aligned with the amended FRBM Act (2018) requirements at the general government level for the 16th Finance Commission period. Second, the study will analyse potential fiscal outcomes under alternative scenarios, including a reversion to the original 2003 FRBM provisions. Third, it will evaluate the implications of shifting from deficit to debt-based fiscal targeting, as envisaged in Union Budget 2025-26, by simulating various debt trajectories and their associated conditions regarding fiscal deficits, revenue deficits, GDP growth, and inflation dynamics. Fourth, given that 16th Finance Commission period also coincide with implementation of proposed 8th Pay Commission recommendations that have significant fiscal costs, this study assess the impact of Pay Commission recommendations on macro-fiscal parameters.

The rest of the study proceeds as follows. Section 2 comprises of a brief review of the trends in Indian Economy. Section 3 provides a review of the existing literature on the proposed research issues. Section 4 presents the focus of the study followed by the data sources and assumptions in section 5. Section 6, which is the main section, deals with theoretical model as well as methodology followed in the study. Section 7 presents the empirical findings under various scenarios, while Section 8 concludes with key takeaways and policy implications.

2.   BRIEF REVIEW OF THE INDIAN ECONOMY

2.1.   India's Growth Profile

At present India is the world's fourth largest economy in terms of nominal GDP (US Dollars), and ranks third globally when measured by purchasing power parity (PPP) (WEO, 2025). It has exhibited remarkable economic resilience in the face of both global headwinds and domestic structural constraints, culminating in a robust post-pandemic recovery. With a growth of 8.2 per cent and 6.5 per cent 2023-24 and 2024-25, respectively, India continues to be the fastest growing large economy in the world. Going forward, as per IMF projections, it will continue to be the fastest growing economy in the next three years as well. For 2025-26, as per the first quarter data, India has registered a growth of 7.8 per cent, much higher compared to consensus forecasts of below 7 per cent. This resilience in growth especially after pandemic as well as unfriendly global developments suggest a strong domestic sector as well as robust economic policies that are adopted in post-pandemic period. It may be noted in Figure-1 that even the simple trend growth[1] appear to move upward since the pandemic.

Figure-1: Real GDP Growth and Trend Growth
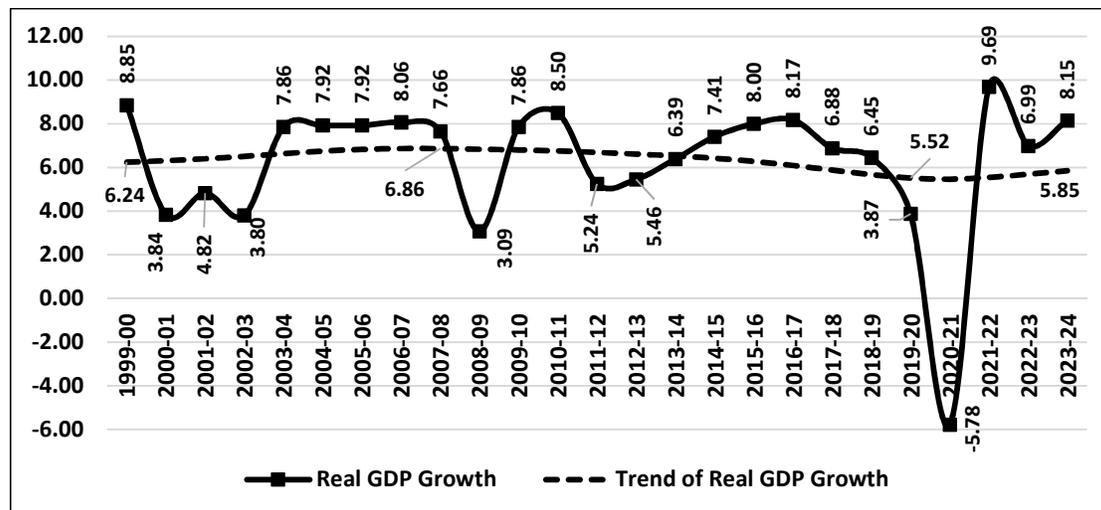
Source: MOSPI, Authors own calculation

On the inflation side, unlike advanced countries where some have stared at double-digit inflation and stagflation in some cases, India has managed to contain inflation within its target range for a large part. Currently, the inflation is just around 2 per cent (for August 2025). In some sense, India could balance growth and inflation as well as ensured

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[1] Trend growth is computed using HP filter.

macroeconomic and financial market stability. Even on the external account, there is stability with current account deficit (CAD) continue to be within the manageable limits. Currently it is estimated at 0.6 per cent (of GDP in 2024-25). To appreciate these outcomes better, one may look at what happened during the post global financial crisis in 2008. Like all other countries, India ended up with double-digit inflation for over two years with current account deficit hitting as high and unsustainable as 6 per cent in 2012-13, that led to instability in both domestic as well as external account. This eventually led to run on the Rupee in 2013 when tapper tantrum gripped the world markets.

What led to such positive outcomes on the macro front despite the economy faced a once in a life-time crisis of Covid-19 compared to the previous crisis of 2008? Unlike the response to 2008 crisis, this time around, India adopted a pragmatic policy both on monetary as well as on the fiscal front. While the fiscal stimulus was certainly the policy option to stimulate aggregate demand, and was also followed in post-2008 and by all the countries, it is the quality of fiscal stimulus that was different in the post-Covid period compared to post-2008 crisis. This time around, in the post-Covid period, India adopted fiscal stimulus through enhancing government capital expenditure, unlike in post-2008 when revenue expenditures were used as a strong fiscal stimulus policy. As discussed in a number of studies that estimated fiscal multipliers, quality of expenditures matters for expansionary fiscal policy[2]. In other words, while fiscal stimulus is expected to have positive impact on nominal GDP growth, the distribution of nominal GDP growth between real GDP growth and inflation depends on the nature of fiscal stimulus. These studies argued, based on partial analysis, fiscal stimulus through expansion in revenue deficit to a larger extent is inflationary, while fiscal stimulus through government capital expenditure should enhance real output with almost no (in some cases lower) impact on inflation. However, it is also important to understand that fiscal multipliers are dynamic and size of multipliers depend on various conditions and one such condition is the presence of economic cycles. In other words, there are non-linearities when it comes to impact of public expenditure shocks on growth. Auerbach and Gorodnichenko (2011, 2012) is one of the earliest to assess such non-linearity and applies for post-2008 period. Sachdeva et al (2023 and 2024) precisely undertakes such exercise in the Indian context

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[2] Studies by Bose & Bhanumurthy (2013) and Jain & Kumar (2013) are the earlier ones to differentiate the growth impacts of fiscal policies. These studies have found larger multipliers in the case of public investments compared to a multiplier of lower than one in the case of revenue expenditures.

and suggest the size of the fiscal multipliers are non-linear and time varying. Further, the size of the multiplier also depends on economic cycle with higher multipliers during economic downturn while lower during upturn. But even over the economic cycle, these studies suggest that government capital expenditure multiplier is far higher compared to revenue expenditures. In sum, Table-1 gives a broad empirical understanding of the relationship between fiscal stimulus through government capital and revenue expenditures as well as its impact of growth and inflation. Again, as shown in our earlier studies, increase in government capital expenditure will not only have positive impact on growth it is also expected to crowd-in private investments. Further, these studies have also shown that positive impact of government capital expenditure on output is not limited to the year of expenditure but over few years[3]. On the other hand, government revenue expenditures, excess of revenue receipts, is broadly inflationary and also expected to crowd-out private investments. In the post-Covid period, as government followed enhancing capital expenditure, this strategy alone appears to have ensured stability between growth and inflation through increase in overall investments.

Table -1: Tale of Two Identities

Fiscal Deficit	**= Government Capital Expenditure +**	**Revenue Deficit**
⬇	⬇	⬇
Nominal GDP growth	**= Real GDP growth**	**+ Inflation**

It may be noted in the trends in overall investments in Figure-2 that, post-Covid, there is an increase in both total investments as well as private investments, thus suggesting that post-Covid fiscal policies actually led to increase in total investments and, hence, leading to higher GDP growth with low and stable inflation. Indeed, investment rate (based on gross fixed capital formation) has crossed 30 per cent, higher since 2008 crisis[4].

Intrinsically, as discussed in Mundle et al (2011) (and subsequently in Bhanumurthy et al (2015, 2019)) that there is a clear trade-off between fiscal deficit, and especially revenue deficit, with private investments. This is made clear from the trends in deficits and investments as presented in Figure-3 where private investment rate and deficits appear to

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[3] Bose & Bhanumurthy (2013) estimated a cumulative multiplier of over 4 for the government capital expenditure with positive multipliers generated for 7 years.
[4] With 'Valuables' and 'Change in stocks', the investment rate is over 32 per cent in the last two financial years. For Q1 of 2025-26, investment rate is at 32.2 per cent.

be mirror images with private investment peaking in 2007-08 while revenue deficit goes down to zero. And fiscal stimulus through expansion in revenue deficit in post-2008 has only crowded-out private investments. Similar diverging trends seen even during the Covid and post-Covid period.

Figure-2: Trends in Investments
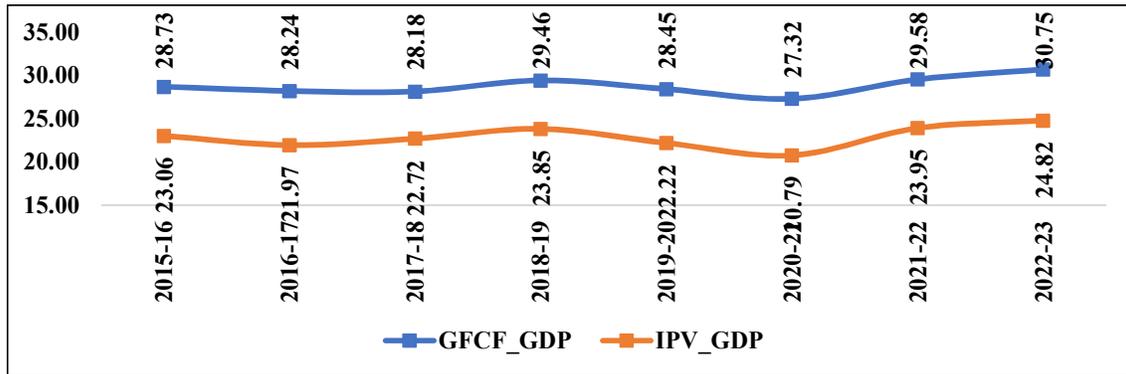
Source: MOSPI, Authors own calculation

Figure-3: Deficits and Private Investments (as % of GDP)
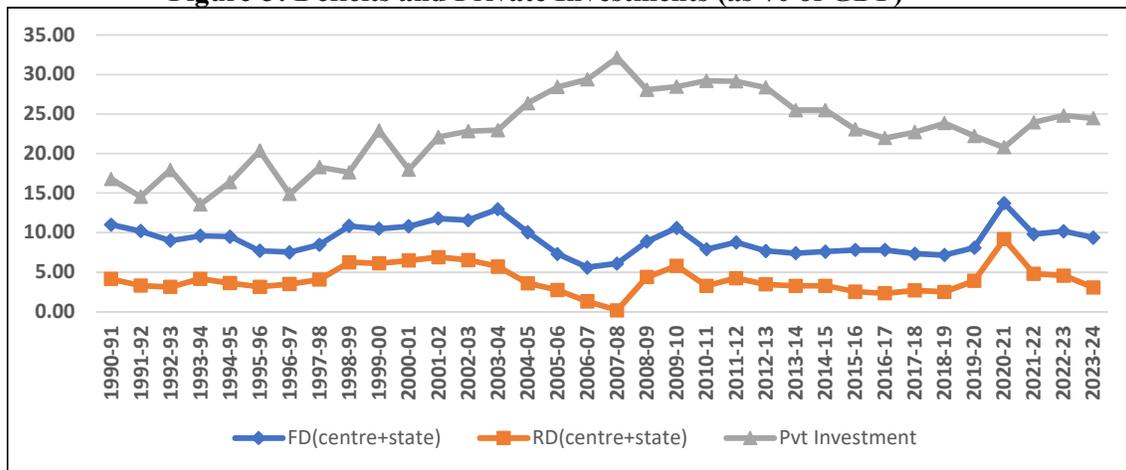
Source: RBI

Figure-4: Trends in CPI Inflation

Source: RBI

On inflation front, as shown in Figure-4, CPI inflation by and large was within the band of 2 to 6 per cent. Currently, for the month of August 2025, inflation is as low as 2.07 per cent, well below the median target of 4 per cent as suggested by the monetary policy framework. For the end of the 2025-26, RBI projects the inflation of 4.4 per cent. But in the first year of 16th Finance Commission period, i.e., 2026-27, inflation is projected to be at 4.9 per cent (see minutes of RBI Monetary Policy Committee, August 2025).
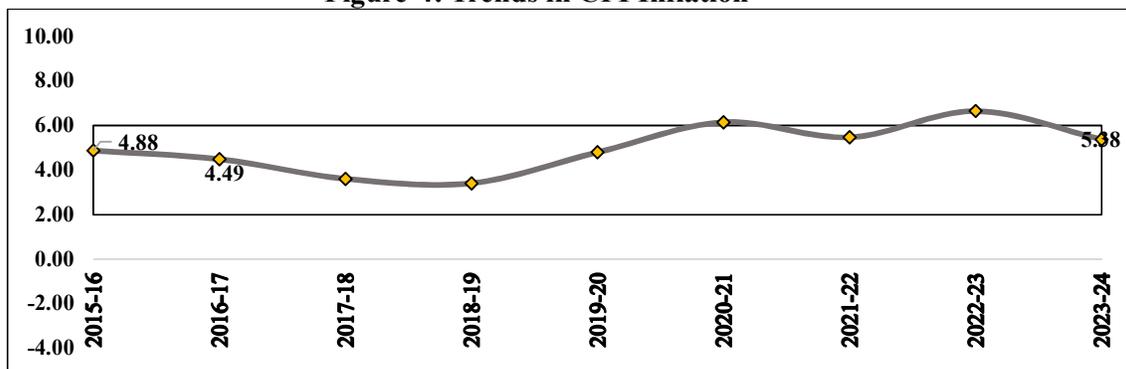
2.2. Fiscal Policy: Trends and Evolution

Since the early 2000s, India's fiscal landscape has experienced significant transformations, driven by policy shifts such as the enactment of the Fiscal Responsibility and Budget Management (FRBM) Act at the union and state levels, the implementation of the Goods and Services Tax (GST), and countercyclical measures adopted to address the Global Financial Crisis (GFC) and the COVID-19 pandemic induced slowdown. At the turn of the millennium, India was facing high fiscal deficits, mounting public debt, and an unsustainable fiscal trajectory (Acharya, 2000; Rao 2018). The implementation of the FRBM Act, designed to bring fiscal discipline, was a turning point in India's fiscal management.

a. Evolution of the FRBM Framework

Efforts to institutionalize FRBM framework formally began in 2000 with the formation of a committee chaired by E.A.S. Sarma. This led to the enactment of the FRBM Act in 2003, a milestone in India's fiscal governance (Roy and Kotia, 2018). The Act aimed to instil fiscal discipline by setting binding targets: reducing the fiscal deficit to 3 per cent of GDP by 2008-09 and called for a progressive reduction of public debt over the medium term. It also set an ambitious goal of eliminating the central government's Revenue Deficit (RD) by March 31, 2008. Similar goals were also enacted at the state level. These goals echoed the growing consensus on sustainable public finances, supported by recommendations by Fuller Capital Account Convertibility Committee (2006) chaired by SS Tarapore and by the 12th and 13th Finance Commissions. This was subsequently reiterated in 14th Finance Commission. But in the 15th Finance Commission, which had to deal with Covid concerns and subsequent fiscal stimulus measures, broadly continued the FRBM Review Committee (2017) recommendations.

In light of evolving macroeconomic realities, the FRBM Review Committee (2017), chaired by Shri N.K. Singh, proposed a phased reduction in the revenue deficit and introduced a long-term fiscal anchor. This led to the amendment in 2018 that shifted focus from deficit ceilings to debt sustainability, targeting a central government debt-to-GDP ratio of 40 per cent by 2024–25, the target of achieving balance on revenue account was given up altogether. Thus, the amended Act continued to emphasize fiscal deficit relative to GDP while adding debt-GDP ratio as anchor. The COVID-19 pandemic precipitated a significant rise in public debt, with consolidated government liabilities peaking at 89.3 per cent of GDP with union government debt reaching 62.7 per cent by 2020-21, as policymakers deployed countercyclical fiscal measures to cushion the economic downturn. While subsequent years have seen a gradual reduction in these debt ratios - with general government debt declining to 83.4 per cent and union government debt to 58.7 per cent by 2023-24 - they remain substantially elevated compared to pre-crisis levels and far from FRBM Review Committee (2017) recommendations. This persistent debt overhang continues to shape fiscal policy choices. More recently, the 2025-26 Union Budget proposed a new fiscal consolidation strategy focused on reducing the debt-GDP ratio to 50±1% by 2030-31, which is the terminal year of the 16th Finance Commission period. However, this path may face headwinds from anticipated shocks such as the implementation of the 8th Pay Commission recommendations in addition to any unanticipated shocks that economy might face.

While short-term economic pressures may hinder immediate progress toward this goal, the Union government, through its policies, has reaffirmed its commitment to fiscal consolidation as a core component of its macroeconomic strategy that brings down the debt-GDP ratio closer to 50 per cent by the end of 16th Finance Commission period from the present level of 58.7 per cent[5].

a) Trends in Fiscal indicators

As shown in Figure-3, while FRBM Act (2003) helped to reduce both fiscal and revenue deficits both at the union as well as at the general government level, post-2008, there was a sharp slippage in all the fiscal indicators due to fiscal stimulus. As argued earlier, post-2008 fiscal stimulus period led to a double-digit inflation compromising the real output

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[5] For 2024-26, Union Government estimates debt-GDP ratio of 57.1 per cent and projects at 56.1 per cent for 2025-26. From there, as per the proposed debt path, union government expect decline of at least 1 per cent every year (on an average) in debt-GDP ratio and reach 50+/-1 by 20230-31.

growth[6]. As large part of fiscal stimulus was irreversible, it only posed significant long term fiscal challenges, as structural weaknesses such as inflationary pressures, high oil prices, and vulnerabilities in the banking sector constrained reverting back to fiscal consolidation path. Post-2015, there were three more major events in the form of demonetization, the introduction of the Goods and Services Tax (GST) in 2017 and the COVID-19 pandemic that impacted India's fiscal landscape. Although these measures gradually improved tax compliance and digitization (Kumar, 2024; Panagariya, 2022; Das et al., 2023), their immediate impact constrained fiscal consolidation efforts (Rao, 2022). Some studies have argued that the informal sector, heavily reliant on cash transactions, faced severe disruptions following demonetisation, leading to a contraction in demand, lower consumption, and slowed GDP growth (Dev and Sengupta, 2023; Bhattacharya et al 2017). Government revenues were temporarily affected due to declining business activity and initial GST implementation challenges, contributing to fiscal stress. Persistent deficits over time led to a substantial accumulation of debt (Rao, 2018), highlighting the need for fiscal consolidation to avoid inflationary pressures, crowding out of private investment, and unsustainable debt servicing (Acharya, 2000). As shown in Figure-5, despite the major events, the trends in fiscal parameters for centre was improving until Covid-19 period. Both fiscal deficit as well as revenue deficit seen a decline and primary deficit, which is the net of interest payments, has declined to as low of 0.35 per cent in 2018-19. However, Covid-19 policies have led to spikes in fiscal parameters. But what is more striking is, unlike in post-2008 period, the spikes in fiscal parameters is limited to only one year when growth plummeted to negative territory and recovered quickly. Despite fiscal stimulus for three years through Aathmanirbhar Bharat packages, fiscal parameters, especially both revenue deficit and primary deficit, have shown declining trend. Another positive trend is the gap between fiscal deficit and revenue deficit, which is the government capital expenditure, has only widened over the last three years and is at 3.5 per cent GDP, higher than the 3 per cent as suggested in the original FRBM Act of 2003.

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[6] Ra0 () argued that fiscal stimulus during 2008 crisis was more than warranted and some of the stimulus have even preceded collapse of Lehman Brothers in September 2008.

Figure-5: Deficit Indicators of Central Government (in % of GDP)
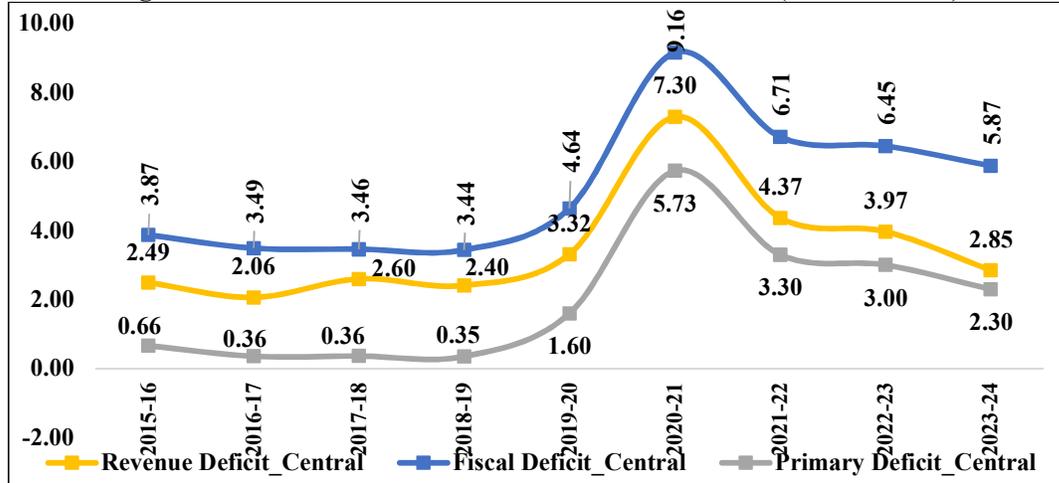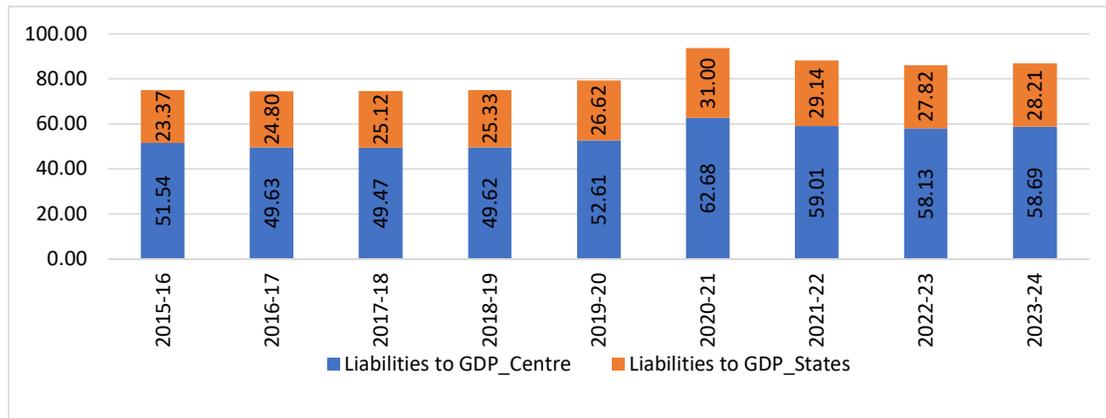

Source: RBI

Following deficit parameters, the public debt numbers also breached their targets with general government debt burden reaching 89.34 per cent of GDP during 2020-21 and remaining significantly above the pre-COVID trajectory. These debt levels are well above the targeted sustainable levels (Kaur & Mukherjee, 2012; Srivastava et.al, 2021). The debt levels of the union government surged to 62.68 per cent in 2020–21, driven by pandemic-related borrowing (Figure-6). Although it has declined slightly post-pandemic, it still stood at 58.69 per cent in 2023–24, indicating persistent fiscal pressures. The states' debt levels have also increased from 23.37 per cent in 2015–16 to 28.21 per cent in 2023–24. Notably, the increase in state debt has been more gradual compared to the Union that spiked during 2020-21. Over the years, India's fiscal policy has evolved from a narrow focus on deficit reduction to a broader emphasis on long-term debt sustainability, recognizing that sound public finances are essential for sustained economic growth. This shift has led to a more strategic approach, where managing the debt burden takes precedence over short-term fiscal targets[7].

Concerns about the quality of fiscal deficits persist, as the share of revenue deficit in fiscal deficit remains significantly higher for the central government (48.45 per cent) in 2023–24. While this marks an improvement from pre-pandemic levels, the relatively high proportion indicates that a large part of the central government's borrowing is still being

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[7] "Statements of Fiscal Policy as required under the Fiscal Responsibility and Budget Management Act, 2003", Budget 2025-26, gives alternative paths of the debt-GDP ratio with nominal GDP growth assumptions of 10.0 per cent, 10.5 per cent and 11.0 per cent and under three levels of fiscal consolidation i.e., mild, moderate and higher.

used to finance recurring expenditures rather than capital expenditure. Almost 80 per cent of the total expenditure at the general government is spent under revenue expenditure (Figure-7).

Figure-6: Outstanding Liabilities of Centre and States (in %)

Source: RBI

Figure-7: Expenditure Patterns of General Government (in %)
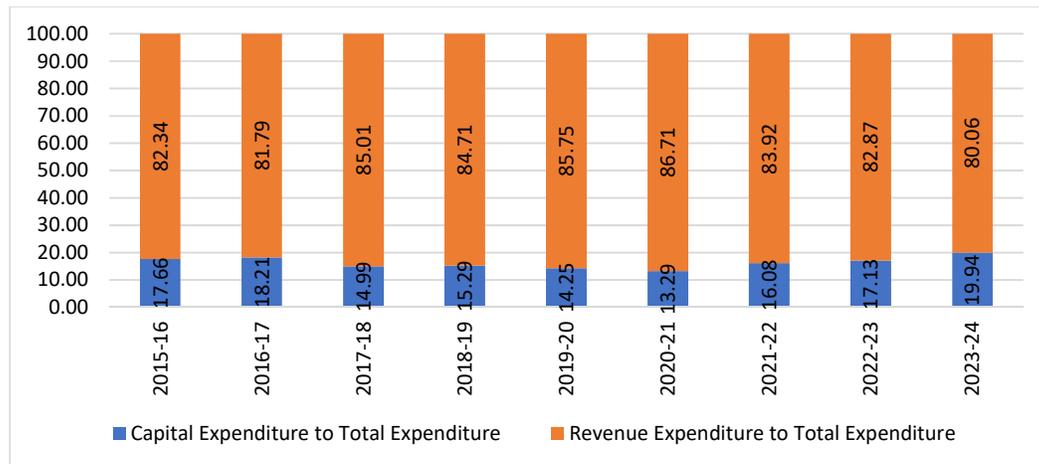
Source: RBI

The rising burden of debt servicing became a key concern for policymakers. Over the years, the ratio of interest payments to total revenue expenditure have remained consistently high (except for 2020-21), averaging around 21 percent (Figure-8) for the period 2015-16 to 2023-24. This increase is likely explained by the significant increase in revenue expenditure during the pandemic, as the government increased its spending on health and welfare measures. However, the ratio has been rising again in the post-pandemic years, reaching 21.95 percent in 2023–24, highest level after 2007-08.

Figure- 8: Interest Payments of the general government (in %)

20.93 20.76 21.22 20.95 20.60 19.25 20.59 20.21 21.95
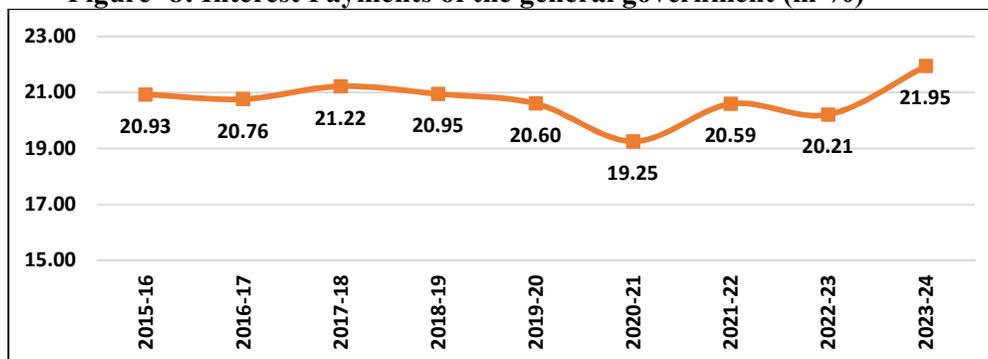
Source: RBI

Figure-9: General Government Capital Expenditure (as ratio to GDP)
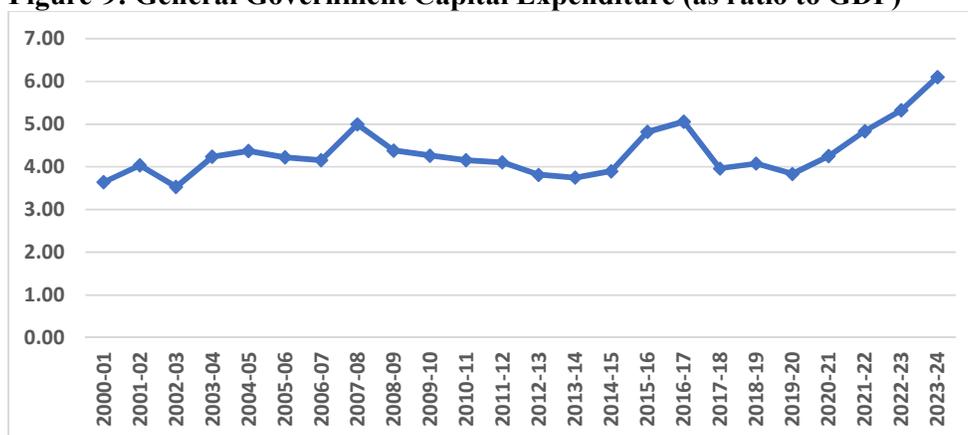
Source: RBI

One parameter that needs to be mentioned is the share of government capital expenditure as a ratio to GDP. Against many arguments that FRBM Act is more seen in breach than adherence, a look at Figure-9 could suggest a different picture. Share of general government capital expenditure has seen a sharp increase from just about 4 per cent in pre-Covid period to over 6 per cent by 2023-24. For 2024-25, after adding Central Government capital expenditure grants to states, it is estimated at 6.4 per cent, much higher than original FRBM Act target of 6 per cent. Such shift towards more government capital expenditure in the post-Covid period is expected to have expansionary impact on growth. However, a sustainable fiscal policy will require a stronger focus on managing public debt, improving tax compliance, and enhancing expenditure efficiency. But the tax to GDP ratio has only increased by 4.9 per cent over the last 25 years (Figure-10). Despite efforts to streamline subsidies, increasing the tax-to-GDP ratio—currently lower than in comparable emerging markets—remains critical (Churi, 2025; Ranjan and Ramesh, 2022).

Figure- 10: Total Receipts and the Tax Receipts of General Government (in %)
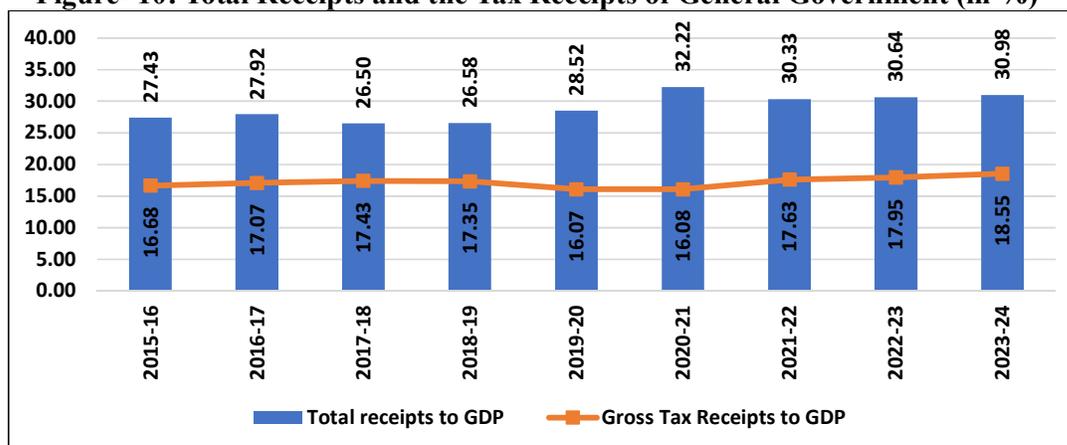
Given these trends in expenditures in revenues, the evolving fiscal framework of having public debt, instead of deficits, as an anchor introduces flexibility to respond to economic shocks through counter-cyclical policies while remaining committed to long-term fiscal consolidation. This shift aligns with global trends, where fiscal policy is increasingly assessed not solely through deficit reduction but through a broader focus on debt sustainability and macro stability. However, as debt is a stock, it has to be anchored through flow variables, i.e., deficits.

As our earlier studies as well as the empirics in the post-Covid period have shown, the FRBM framework that prioritises government capital expenditure will continue to play an important role in shaping fiscal policy in India. However, fiscal policy will need to evolve further to address the changing macroeconomic environment. Going forward, India will need a flexible, yet credible, fiscal framework that allows for policy interventions in times of economic distress while maintaining long-term fiscal discipline.

Despite extensive research on fiscal policy and macroeconomic outcomes in India, gaps remain in understanding their dynamic interlinkages, particularly in the evolving macroeconomic context. Given recent shifts in fiscal strategy, including the increasing focus on public debt sustainability, the effectiveness of counter-cyclical interventions, and the evolving role of fiscal rules, a comprehensive empirical examination is essential. This report seeks to bridge this gap by analysing key policy questions relevant to India's current macroeconomic landscape, offering insights into the dynamic interactions between fiscal policy and macroeconomic outcomes.

3. REVIEW OF LITERATURE

The theoretical foundations of fiscal policy have evolved through three key paradigms. The classical tradition, rooted in Say's Law, posited that markets naturally achieve full employment, rendering fiscal intervention redundant (Yadav et.al, 2014). This view was overturned by Keynesians, who argued that in the presence of price rigidities and demand shortfalls, deficit-financed public spending could stimulate output via multiplier effects (Elmendorf & Mankiw, 1999; DeLong & Summers, 2012). In developing economies, this approach was seen to accelerate capital accumulation and accelerate growth (Krishnamurthy, 1984).

The neoclassical resurgence challenged this view by emphasizing the long-term costs of debt. Modigliani (1961) and Diamond (1965) warned that excessive public borrowing could depress savings and elevate interest rates, while Saint-Paul (1992) and Buchanan (1958) stressed the intergenerational burden. The Ricardian equivalence hypothesis (Barro, 1974; Singh, 1999) further argued that rational agents would offset fiscal stimulus through increased savings, although empirical support remains limited (Ball & Mankiw, 1995; Elmendorf & Mankiw, 1998).

India's fiscal policy framework continues to evolve in response to the persistent tension between short-term growth requirements and long-term debt sustainability. While some studies have argued that the present fiscal arrangement of 40 and 20 per cent by Union and States, respectively, are not consistent with a uniform 3 per cent fiscal deficit target at each government (Srivastava et al. (2021)), some studies have argued for targeting surplus on the primary account in order to achieve debt stabilisation (Rangarajan and Srivastava, 2005)). Indeed, a dissent note by Arvind Subramanian in the FRBM Review Committee (2017) also argues for targeting primary deficit instead of fiscal deficit or revenue deficit. Despite some of these comments, the FRBM Act has served as a critical institutional mechanism that enforced fiscal discipline (especially on states), mandating transparent fiscal and debt management practices to ensure long-term stability (Mohanty, 2017). However, persistent high deficits, and inefficient expenditures continue to hinder growth potential, underscoring the need for comprehensive fiscal reforms that address not just deficit targets but also the quality of public spending and revenue generation (Singh & Srinivasan, 2004; Economic Survey, 2007). Existing studies present mixed evidence on fiscal deficit's impact on growth and the effectiveness of fiscal rules.

However, quality of public spending and its impact on growth is highlighted only by few studies that focused on analysing size of fiscal multipliers. These insights assume particular relevance in India's post-pandemic fiscal context, where successive budgets (from 2022-23 through 2025-26) clearly prioritizing government capital expenditure expansion to counter slowing private investment.

Current fiscal policy framework faces significant structural challenges in terms of deficit compression as well as expenditure switching from revenue expenditure to capital expenditure in order to bring down debt levels. One way to address is following the Rangarajan and Srivastava (2005) that proposed a two-phase strategy for debt management: adjustment phase and stabilisation phase. In the adjustment phase reduce fiscal deficit gradually until the revenue deficit is eliminated. In the stabilization phase, maintaining a 6 per cent fiscal deficit would lower the debt-to-GDP ratio and also interest payments. This could create more fiscal space for social sector expenditures, ensure sustainable fiscal consolidation and macroeconomic stability. The debate mirrors earlier findings presented in Ando et al. (2024) that argued successful fiscal consolidations typically occur during economic upswings through growth-friendly expenditure reallocation rather than blunt austerity.

On the question of whether debt or deficit to be an anchor, the conclusions from existing studies are ambiguous. However, the summary of recent evidence indicates that while numerical targets provide necessary anchors, sustainable fiscal management ultimately depends on structural reforms that enhance both expenditure quality and revenue efficiency, implemented through rules-based frameworks that permit cyclical flexibility without compromising long-term sustainability.

The path forward requires multi-dimensional policy innovation. Mishra and Patel (2024) examine India's fiscal and debt challenges, highlighting the challenges posed by high interest payments constraining fiscal space, elevate borrowing costs, and crowd out social spending. Their findings indicate that larger and prolonged debt surges correlate with weaker macroeconomic outcomes, including lower growth and investment. They also emphasize that fiscal consolidation, particularly through expenditure reforms rather than investment cuts, can effectively reduce debt without significantly harming growth. Srivastava (2025) highlights the risks associated with India's rising debt-to-GDP ratio, noting that sustained high borrowing requirements could crowd out private investment.

The study argues that achieving fiscal consolidation within the current trajectory is challenging, especially given the expenditure pressures such as wage revisions. A shift toward a more sustainable fiscal framework is necessary to ensure macroeconomic stability, prevent excessive reliance on external capital inflows, and safeguard long-term growth. Taken together, these studies highlight the urgent need for a well-calibrated fiscal strategy that balances growth imperatives with debt sustainability. In the next section, a brief discussion about the focus of the present study is provided.

4. Focus of the Study

Macroeconomic stability in India has long been underpinned by the principle of *sound public finance*. Recognizing this, successive Finance Commissions have been mandated not only to recommend the vertical and horizontal distribution of resources but also to advise on broader fiscal management issues in the interest of sound finance, as empowered by Article 280(3)(d) of the Constitution. As for the 16th Finance Commission, unlike the previous finance commissions, there is no specific matter has been referred to in the terms of reference under the clause (d) of Article 280 to explain what sound finance means. Thus, it is open to the Commission to consider any matter relating to centre and state finances in the interest of sound finance. It is in this backdrop that this study tries to bring out some macro-fiscal challenges that the 16th Finance Commission could face during its award period and what the Commission could suggest in order to address the issue of 'sound finance'.

In order to proceed further, we associate the concept of sound finance to the performance of four major fiscal variables – Public debt, Revenue deficit, Fiscal deficit, and Interest payments. As we can see, all of these were addressed in the original Fiscal Responsibility and Budget Management (FRBM) Act of 2003, enacted with the aim of reducing the fiscal deficit and eliminating the revenue deficit by 2008. Over time, evolving macroeconomic conditions and development priorities prompted amendments to this framework. A significant transformation occurred with the amendment of the FRBM Act in 2018. The revised framework moved away from revenue deficit targeting and instead introduced explicit ceilings for general government debt—40 per cent of GDP for the Centre and 20 per cent for the States—to be achieved by FY2023. This shift had signified a change in the definition of sound finance, with greater emphasis placed on overall debt sustainability rather than focusing on deficits.

Figure-11: Union Budget-2025-26: Proposed Debt Path

Note: Mild/Moderate/High case refer to degrees of fiscal consolidation
Source: Union Budget 2025-26
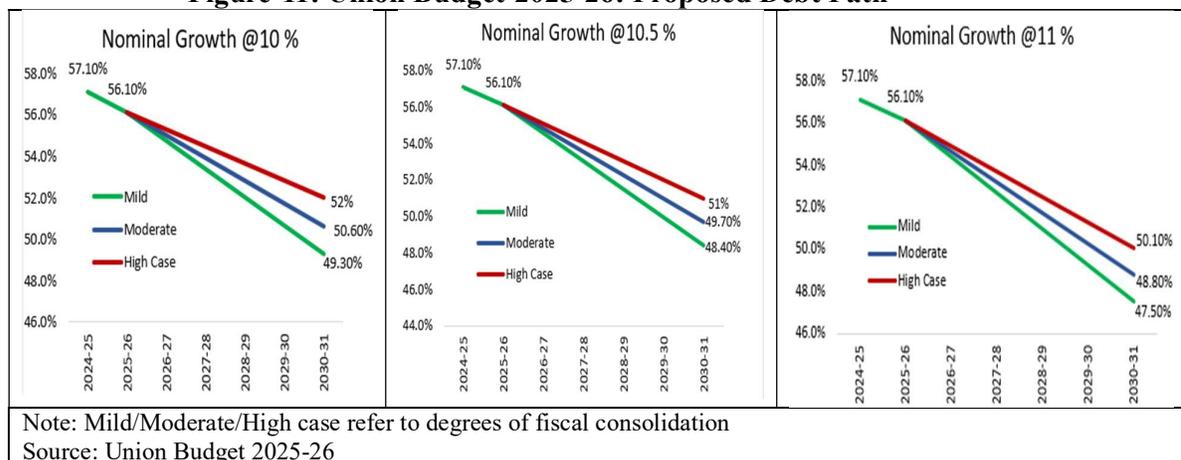
The fiscal strategy outlined in the Union Budget for 2025-26 continues along this revised trajectory. From 2025-26, the government proposes to prioritize debt stabilization instead of fiscal deficit path. Formal fiscal deficit targets beyond 2025-26 have not been specified in the medium-term framework. The proposed debt path under three different nominal GDP growth scenario with three cases of mild, moderate and high degrees of fiscal consolidation suggest that by the end of 16th Finance Commission award period, the central government debt should be 50+/-1 per cent of GDP (see Figure-11). As the way we understand, as debt being a stock variable, to anchor debt there is a need for policy instruments that are flow variables. And this ultimately leads to fiscal policy instruments that are flows and they are expenditures and taxes. This evolution in fiscal policy raises important analytical questions about its macroeconomic implications.

While targeting debt sustainability is crucial, the composition of deficits, particularly the distinction between revenue and capital expenditure plays a key role in shaping growth, investment, and inflation outcomes. The absence of a revenue deficit target may have implications for the quality of fiscal adjustment and hinder long-term debt sustainability. This study sees the original FRBM Act, 2003, as the path to sound finance and explore the macro-fiscal relations under different fiscal consolidation paths, along with simulating the impact of exogenous shocks both domestic and external. Using a structural macro-econometric model tailored to the Indian economy, this study seeks to address the following objectives:

i. To empirically estimate the fiscal roadmap (at the general government level) that is consistent with the amended FRBM Act of 2018 for the 16th FC period.

ii. Look at the possible outcomes if India could (or needs to) revert back to original FRBM act of 2003.

iii. Targeting debt instead of deficits at the Union government level - different debt paths could be simulated and the conditions there of in terms of fiscal deficit, revenue deficit, GDP growth as well as inflation.

iv. Understand the macro-fiscal implications of implementation of 8th Central Pay Commission award on growth and fiscal parameters.

To address these objectives, the study performs several policy simulations based on different fiscal frameworks and exogenous shocks. These simulations will help evaluate how the proposed fiscal strategies and external shocks could impact major macroeconomic variables such as growth, investment, inflation, and debt sustainability. The proposed policy simulations include four key scenarios. First, the effects of adhering to the FRBM (Amendment) Act, 2018, which emphasizes fiscal deficit targeting, while ignoring revenue deficit, will be evaluated. Second, the macroeconomic implications of reverting to the original FRBM Act, 2003, focused on eliminating the revenue deficit and reducing fiscal deficits to 6 per cent (for general government), will be assessed. Third, the simulations will model alternative debt trajectories under the current fiscal framework, as suggested in the Union Budget 2025-26, to examine the medium-term effects on deficits, growth, inflation, and other macroeconomic variables. Fourth, and finally, the fiscal and macroeconomic consequences of implementing the 8th Pay Commission recommendations, leading to higher revenue expenditures, will be estimated.

5. DATA AND ASSUMPTIONS

The model is estimated using annual data from 1993–94 to 2023–24, with due attention paid to time series properties and standard diagnostic checks. Each equation is estimated independently and finalised after taking care of all the time series properties. All equations and identities are solved simultaneously for the latest period and ensure Root Mean Square Percentage Error (RMPSE) is less than 5 per cent, except for exports forecast which is below 10 per cent.

Key sources of data include National Account Statistics (NAS), Database on Indian Economy (RBI), Handbook of Statistics on Indian Economy (RBI), Agricultural Statistics at a glance, Petroleum Planning and Analysis Cell, Ministry of Finance's debt status paper, etc. The back series GDP estimates with 2011-12 base is collected from NSO, the Ministry of Statistics and Programme Implementation (MOSPI). The data on other economies like OECD, advanced economies, Middle-east and North Africa, United States and China are collected from the World Development Indicators Database (World Bank) and World Economic Outlook Database (IMF).

The key assumptions of the model are:

i.   The GDP growth forecasts of advanced countries are assumed to follow the latest forecasts provided by the International Monetary Fund (IMF).

ii.   The import-weighted average tariff is assumed to remain constant at the current level for the baseline.

iii. International oil prices forecast (based on the weighted average of the Indian basket) are taken from the World Bank's commodity price forecast.

iv.   The buoyancy of direct and indirect taxes assumed at 1

v.   Rainfall is assumed to be normal during the forecast period, implying no major weather-related shocks to prices.

vi.   In the model, total investments are assumed to be financed by domestic savings as well as the current account deficit, and this is one of the closers in the macro model.

vii. Non-debt capital receipts are assumed to stay constant at the levels recorded in the most recent year.

In the next section theoretical model and methodology used for estimating the model is discussed

6.   MODEL AND METHODOLOGY

The macroeconomic simulations undertaken for the 16th Finance Commission are based on an extended version of the core macroeconomic model developed in Mundle et al (2011) and revised in Bhanumurthy et al., (2015, 2019). Rooted in the Klein-Goldberger tradition of structural macroeconometric modelling, the model is built as a simultaneous equations system on the demand side and serves as a tool for evaluating the macro-fiscal implications of various policy alternatives. It provides policymakers with a transparent and adaptable analytical framework to assess the likely consequences of alternative fiscal

strategies and the macroeconomic impacts of shocks such as global growth, oil prices, weather shock, etc.

The baseline model features a modular structure with four interconnected blocks: macroeconomic block, fiscal block, monetary block and external block - comprising 22 equations. There are 15 behavioural equations and 7 identities. Before we discuss each equations, it is important to highlight that in the model there are exogenous variables, policy variables as well as variables in growth rates and they are denoted with bar [$\bar{x}$], with a hat [$\hat{x}$], and with a dot [$\dot{x}$], respectively

Macroeconomic Block

The nominal aggregate demand in the economy in period t (Y_t) is given by:

$$Y_t = C_t + I_t^p + I_t^g + G_t + B_t^T + L_t \tag{1}$$

Where C_t is private consumption expenditure, which is assumed to be a positive function of disposable income, I_t^p is private investment demand, I_t^g is public investment, G_t is government consumption expenditure, B_t^T is the trade balance (both goods and services), and L_t is net inflow of invisibles (especially remittances). In other words, sum of B_t^T, and L_t is the net current account balance.

The rate of change in aggregate price level, i.e, inflation ($\dot{p}_t$) is modelled as a function of liquidity (growth in broad money supply (M3)), cost-push factors (e.g., international oil prices, exchange rate), and rainfall.

$$(\dot{p}_t) = \phi((\dot{M3t}), (\overline{e_t}), \overline{p_t^0}, \bar{V}_t) \tag{2}$$

Where $M3_t$ is the growth rate of broad money, $\bar{e}_t$ is the exchange rate, $\overline{p_t^0}$ is the weighted average of world oil prices in the Indian basket and $\bar{V}_t$ deviation in rain-fall from normal in period t.

Private investment, broadly an accelerator type function, is assumed to depend on the cost of capital as well as the crowding-in effect of public investment, and the expected capacity utilization rate. Hence, the private investment rate ($\frac{I_t^p}{Y_t}$) in period t is given by:

$$\frac{I_t^p}{Y_t} = \psi(r_t, \frac{I_t^g}{Y_t}, \frac{z_t^e}{z_t^c}) \tag{3}$$

where r_t is the cost of borrowing from the domestic credit market (average lending rate in period t). $\frac{I_t^g}{Y_t}$ is rate of public investment in year t, Z_t^e is the expected real demand 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.

$$Z_t^c = \frac{1}{k} \times K_{t-1} \tag{4}$$

Where k is the capital-output ratio and K_{t-1} is the real capital stock at the beginning of period t.

$$K_{t-1} = K_{t-2} + 1/p_{t-1}(I_{t-1}^p + I_{t-1}^g) \tag{5}$$

Expected real output (Z_t^e) is estimated through adoptive expectations and is given as follows:

$$Z_t^e = Z_{t-1} + \Delta\widetilde{Z}_t \tag{6}$$

Where Z_{t-1} is real output of the previous period (i.e., period t-1) and $\Delta\widetilde{Z}_t$ is the expected change in real output in period t. $\Delta\widetilde{Z}_t$ is derived through a quadratic form as below.

$$\Delta\widetilde{Z}_t = f(\Delta Z_{t-1}, \Delta^2 Z_{t-1}) \tag{7}$$

Where ΔZ_{t-1} is the change in real output in period t-1 and $\Delta^2 Z_{t-1}$ is the second difference of real output in the period t-1. $\Delta Z_{t-1} > 0$ and $\Delta^2 Z_{t-1} < 0$.

Fiscal Block

In this model, we use general government and all the fiscal data used comprises both Union and State governments. The way fiscal statistics are presented, it is not easy to derive general government statistics from Centre and States statistics and one needs to make some adjustments[8]. The derived revenue expenditure (E_t) of the general government.

$$E_t = TR_t + \hat{E}_t^R \tag{8}$$

Where TR_t is the transfers to the private sector in year t and $\hat{E}_t^R$ rest of the revenue expenditure of the combined government in year t.

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[8] See Bhanumurthy et al (2019) for more details on adjustments made to derive general government fiscal data from Union and States data.

As fiscal accounts and national accounts differ marginally, both conceptually as well as estimations and is difficult to reconcile, a link equation is estimated where nominal aggregate government current consumption expenditure (G_t) is given by:

$$G_t = f(\hat{E}_t^R) \tag{9}$$

In the case of government revenues, they are largely determined by revenue base, which is broadly the nominal GDP, and the revenue buoyancy ($\hat{\beta}$), which is an exogenous variable. Thus, the total revenue of the general government is given by:

$$T_t = f(Y_t, \hat{\beta}) \tag{10}$$

Similar to government consumption, the general government's public investment is represented as a function of capital expenditure of government (Union and States) in period t, which is a policy variable:

$$I_t^g = f(\hat{S}_t^g) \tag{11}$$

The fiscal deficit for general government (Union and States combined), F_t is given by:

$$F_t = E_t + \hat{S}_t^g - T_t - \hat{N}_t^g = D_t^g + \Delta \hat{O}_t^g \tag{12}$$

Where $\hat{N}_t^g$ is non-debt capital receipts of the government (dis-investment decision of government etc.) in period t, D_t^g total borrowing of the government in period t and $\Delta \hat{O}_t^g$ change in fiscal reserves in period t.

External Block

The trade balance in terms of domestic currency in period t (B_t^T) is given by:

$$B_t^T = X_t - M_t \tag{13}$$

Where X_t and M_t are the value of exports (both goods and services) and value of imports (both goods and services) in period t, respectively.

Theoretically, export demand is expected to depend on exchange rate and the income growth of destination countries. However, exchange rate turned out to be insignificant and, hence, the final export demand function is determined by average import tariffs, which measure the competitiveness of Indian products, and the income of advanced countries, which account for the bulk of Indian exports. Hence, we have

$$X_t = f(\hat{U}_t, (\overline{Y_t^a}))$$ (14)

Where $\hat{U}_t$ is the import weighted average tariff rate in period t and $\overline{Y_t^a}$ is the GDP of advanced countries, an exogenous variable.

The import function is given by:

$$M_t = f(e_t, Oil, Y_t)$$ (15)

Where e_t is the nominal exchange rate (INR /US\$), and Y_t is nominal GDP in period t. As India depends heavily on world oil and oil import bill being a big component of imports, we add oil prices as an exogenous variable in determining imports.

The nominal exchange rate (INR /US\$) is given by:

$$e_t = f(J_t)$$ (16)

Where J_t is net capital inflow in period t, which is given by:

$$J_t = f(\overline{Y}_t^{US}, \overline{Y}_t^c, Y_t)$$ (17)

Where $\overline{Y}_t^{US}$ GDP of United States of America in period t, an exogenous variable and $\overline{Y}_t^c$ is GDP of China in period t, an exogenous variable.

The net invisibles (L_t) is assumed to be a function of incomes of advanced economies ($\overline{Y_t^a}$) and the incomes of Middle-East region ($\overline{Y}_t^{me}$), these two regions being the major sources of remittances for India.

$$L_t = f(\overline{Y_t^a} + \overline{Y}_t^{me})$$ (18)

Monetary Block

Broad money supply in period t ($M3_t$), given the value of the money multiplier, is given by:

$$M3_t = \overline{\gamma}_t \times H_t$$ (19)

Where H_t is the high-powered money supply in period t and $\overline{\gamma}_t$ is the exogenously given money multiplier. The high-powered money is assumed to be a function of market borrowing by central (MB_t) and foreign exchange reserves of the Central Bank ($\overline{FOREX_t}$), i.e.,

$$H_t = f(\overline{FOREX_t}, MB_t)$$ (20)

Flow Chart for the Theoretical Model

Finally, the nominal rate of interest, r_t, in the economy is represented as a function of the policy repo rate, inflation and the volume of general government borrowing from the market, which acts like the potential crowding out element.

$$r_t = \xi(INF_t, \hat{\iota}_t, MB_t) \tag{21}$$

One of the major relationship in this macro-fiscal framework is the linkage between fiscal and monetary policy. In the present model, government market borrowing has a direct impact on cost of borrowing, which will feed into private investment function in equation (3). And further, market borrowing is determined by the extent of general government fiscal deficit and is specified in equation (22)

$$MB_t = f(ft) \tag{22}$$

All the above specified equations are estimated separately. It is also important to mention that all these above equations are calibrated based on theoretical understandings as well as empirical validity in the case of India.

All the equations and cause and effect relationships are presented in the flow chart above and are estimated separately. The estimated equations are presented in appendix-1. In the next section, the results based on all the simulations are presented.

7. Policy Simulation Results

Before we present the simulation results, some empirical issues need a discussion. The theoretical model that is presented in section 6 are individually estimated by using the annual data from 1993-94 to 2023-24. Each equation is tested for all its properties and accordingly adjustments have been made to derive robust parameters. For instance, wherever we find the presence of autocorrelation, AR(1) or lagged dependent variables have been used to address the issue. Similarly, we have addressed the issue of coefficient of determination estimates by relooking at the dependent variables. One major issue in these estimations are the error behaviours that are not been explained by the independent variables. As we have used the data for over 31 years and that has seen a number of shocks, structural shifts as well as change in the theoretical behavior as well, deriving the underlying relationship between endogenous and exogenous variables becomes quite challenging. To overcome these issues, in many of the estimated equations, dummy variable has been used to capture such outliers in errors as well as shocks. For instance, for both 2008 crisis as well as Covid-19, dummy variable has been adjusted in each estimated equation. Hence, the dummy variable that is used in the estimations by and large capture the error behavior and is similar to the logic of Error Correction Mechanism in the time series analysis. For the same reason, the estimated parameters in the equations are at best long term coefficients after adjusting for short term errors. Another issue is with respect to the significance of the variables used in the equations. Since, the estimated model is used for various policy simulations, in some cases, although the variable (especially exogenous variables) is not highly significant, we had to retain in the equation in order to undertake simulations.

In the case of inflation, CPI (combined) data is used especially when it became a monetary policy anchor since 2016. However, the data for CPI (combined) is available

only from 2010. Since, the sample is from 1993-94, prior to 2010 inflation based on CPI (Industrial Workers) has been used and this is same as used in Urjit Patel Committee report that led to flexible inflation targeting regime in India in 2016 (RBI 2014). In the case of public debt, while there are three definitions existing in India[9], we use the outstanding liabilities data from the RBI. All the estimated equations and abbreviations for each variable used in the model are presented in appendix.

After finalizing all the estimated equations, all these equations are put together as a model that includes identities. The whole model consists of endogenous variables that include variables of interest and exogenous variables that consist of policy variables and variables that are external in nature. All these equations are solved in Eviews software by using Gauss-Siedel algorithm. The model is solved for latest five years with an expectation that if the model could track all the endogenous variables and its turning points in the latest period, the model could be used for out of sample forecasts. At this stage some more iterations is made on the individual equations depending on the forecast error that the model generates. As a thumb rule, a model is acceptable if it generates Root Mean Square Percentage Error (RMSPE) less than 5 per cent at individual equations level. Except for exports forecast, where the model generated error of less than 10 per cent, all the forecasts are found to be below 5 per cent.

For the out of sample forecasts, we need to make assumptions on all the exogenous variables as well as dummy variables that are used in the individual equations. In the case of dummy variables, it is assumed that there are no errors or shocks in the dependent variables. Rainfall for out of sample is assumed to be normal while for the exogenous variables such as GDP of USA, China, Middle East, and advanced countries we use IMF forecasts. Import duty is assumed to be at the present level, which is at 12 per cent as per WTO estimates, while oil prices are assumed at US$ 70 per barrel for the forecast period. Similarly output-capital ratio is assumed at the present level of 0.318. Foreign exchange reserves, which is highly volatile to estimate, is assumed to grow at 6 per cent per annum as per the average growth in the last ten years. Revenue buoyancy is assumed to be at one. Based on these assumptions, the model is simulated for the out of sample period, 2024-25 to 2030-31, while the results are presented for 2026-27 to 2030-31, which is the

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[9] There are three sources and three different definitions for public debt data – Indian Public Finance Statistics (IPFS), Government Debt paper, and from RBI. While each source follows different definition, this study uses the broadest definition followed by RBI. (IPFS is also not been updated after 2017-18).

16th Finance Commission award period. For 2024-25, for most of the variables actual data has been calibrated while for 2025-26 model forecasts are used.

As discussed earlier, the study undertakes four policy simulations in addition to base case. In all the scenarios, forecasts for variables of interest, namely, GDP growth, inflation, investment rate, current account deficit, fiscal deficit, revenue deficit and outstanding liabilities are presented. In all the cases, to understand the broad path, forecasts for first and terminal year of 16th Finance Commission period as well as the average of five years is presented.

Baseline Projections

In this case, also known as business-as-usual scenario, all the exogenous variables are assumed to follow the current trend with assumptions on external variables that are taken from IMF forecasts. As shown in Table-2, over the 16th Finance Commission period, the average GDP growth is projected to be around 7 per cent while inflation to be range bout between 4.5 and 5 per cent for whole period. On the fiscal side, as we assumed as a business as usual, both fiscal deficit and revenue deficit is only reducing marginally in the terminal year while outstanding liabilities see a marginal drop from 85.04 to 82.41 per cent, which works out a drop of 0.5 per cent every year on an average. Current account deficit continues to be at a manageable level of below 2 per cent. However, this is higher than compared to 2024-25 level, which is below one per cent.

Table-2: Base case outcomes for 2026-27 to 2030-31 (%)

Year	GDP Growth	Inflation	Investment Rate	CAD/ GDP	FD/ GDP	RD/GDP	Liability/ GDP
2026-27	7.24	4.87	34.37	1.89	8.13	2.22	85.04
2030-31	6.93	4.58	34.67	1.55	7.62	1.97	82.41
Average for 16th FC	7.06	4.72	34.58	1.67	7.95	2.18	83.78

In the next scenario, we assess the impact of 8th Central Pay Commission award on the outcome variables.

Scenario-1: Impact of 8th Central Pay Commission award

Unlike the 15th Finance Commission, the present Commission need to endogenise the anticipated fiscal shock of 8th Pay Commission award on the macro-fiscal parameters.

The fiscal shocks depend on the extent of hike and its timing of implementation. Similar to our analysis for the 14th Finance Commission, which had to absorb the 7th Pay Commission impact, in this study also, we assume a 15 per cent hike in other revenue expenditures other than private transfers (the precise hike in other revenue expenditure during the 7th Pay Commission is 14.2 per cent). Since the implementation is from 2026-27, in the simulations, fiscal shock is given to other revenue expenditure other than transfer payments. The share of other revenue expenditure in total revenue expenditure being 55.4 per cent, the shock is given to this share while retaining the transfer payments estimates derived in the baseline scenario and the results are presented in Table-3.

Table-3: Impact of 8th Pay Commission Award (15 per cent raise in other revenue expenditure from 2026-27)

Year	GDP Growth	Inflation	Investment Rate	CAD/ GDP	FD/ GDP	RD/GDP	Liability/ GDP
2026-27	7.33	4.92	34.28	1.91	9.40	3.49	86.13
2030-31	7.02	4.64	34.58	1.75	8.91	3.26	86.80
Average for 16th FC	7.23	4.78	34.50	1.79	9.23	3.46	86.54

Compared to base case, all fiscal parameters show expansion. As the shock is given on the revenue expenditure side, revenue deficit on an average increases by about 1.2 per cent both in the initial year of shock and also in the terminal year. The liability/GDP, that takes the stock of rise in revenue expenditures due to Pay Commission, increases by about 4.4 per cent by the terminal. As the Pay Commission award and the 16th Finance Commission award coincide, this could be the actual base case for the Commission to work on its debt-deficit path for the five-year period of the Commission. In this case, both GDP growth as well as inflation increases compared to base case although not very substantial. Similarly, CAD/GDP also widens marginally.

In terms of actual implementation, given that the notification is still not being issued for formation of 8th Pay Commission, it is expected that the wage revision could not be implemented in the first year, i.e., in 2026-27. As the process is highly consultative and is expected to take over two years from the time of formation of the Commission, we tried to simulate the shock from 2028-29 with arrears for two years (2026-27 and 2027-28) spread across next two years. In the revised estimates, the model suggests that fiscal deficit (for general government) could exceed over 10 per cent for two consecutive years

and settle at 9.32 per cent in the terminal year. Revenue deficit is expected to increase to 3.61 per cent compared to 3.26 per cent in the terminal year. Consequently, the liability/GDP increases to 87.7 per cent against 82.5 per in the base case of no wage revision (it was 86.8 per cent when wage revision is implemented from the first year, see Table-3). In this case both GDP growth, inflation, and current account deficit are marginally higher in the terminal year. These results suggest that early implementation of wage revision could ensure some stability in both macro and fiscal parameters. Accumulated shock in 2028-29 is expected to result in spikes in all the variables of interest.

Scenario-2: Reverting to FRBM (Amendment) Act, 2018

In the past, successive Finance Commissions were mandated with suggesting a fiscal consolidation road map for the Union and State Governments. However, the 16th Finance Commission's Terms of Reference did not explicitly mention this mandate while suggesting that the Commission's recommendations need to ensure 'sound finance' at both the tiers of government. In this regard, here, an attempt has been made to recalibrate the fiscal parameters consistent with the FRBM (Amendment) Act of 2018, which is applicable only for the Union Government. Under this Act, it is only mandated to ensure 3 per cent fiscal deficit and 40 per cent liability/GDP ratio at the Union Government. In the case of states, Medium Term Fiscal Plans as approved by the State legislatures are mandated, under which states have to achieve 3 per cent fiscal deficit, zero revenue deficit as well as 20 per cent debt/GDP ratio. As the model is worked at the general government level, here, we undertake simulations to reduce the fiscal deficit to 6 per cent by the terminal year while retaining the revenue deficit as generated by the base case. The results in Table-4 clearly suggest that 2018 FRBM (Amendment) Act is growth retarding.

Table-4: Reverting to FRBM (Amendment) Act 2018 (6% FD/GDP by 2030-31)

Year	GDP Growth	Inflation	Investment Rate	CAD/ GDP	FD/ GDP	RD/GDP	Liability/ GDP
2026-27	6.82	4.84	34.13	1.82	7.50	2.22	84.76
2030-31	5.74	4.48	32.78	0.69	6.01	1.96	80.62
Average for 16th FC	6.19	4.65	33.52	1.24	6.79	2.17	82.75

While fiscal deficit is brought down to 6 per cent, and this is possible only through compressing government capital expenditure that declines from 5.3 per cent to 4.05 per cent in the terminal year (for general government). This can be seen in the investment rate falling by 2 percentage points. And this has strong growth implications as in this scenario there is a fall of over one percentage point in the GDP growth with terminal year expected growth at 5.74 per cent compared to the base case of 6.93 per cent. This fall in growth brings down the CAD/GDP to 0.69 per cent from 1.55 per cent in the base case. However, though marginal, the liability/GDP ratio falls closer to 80 per cent. As seen in these estimates, reverting to 2018 FRBM (Amendment) Act, while it helps in limiting the liability/GDP ratio, it has contractionary impact on growth. In the next simulation, we try to understand the outcomes of reverting back to original FRBM Act, 2003, that has targets on fiscal deficit, revenue deficit as well as on liability/GDP.

Scenario 3: Reverting to original FRBM Act of 2003

The FRBM Act of 2003 mandated three targets at the Union government: fiscal deficit at 3 per cent, revenue deficit at zero and a gradual reduction in additional liabilities. And similar Act was also passed by all the state governments under Medium Term Fiscal Plans. As discussed in the introduction section, while the Union Government implemented the fiscal consolidation roadmap from 2003-04 onwards and could reach its targets by 2007-08 (see Figure-3), following global financial crisis and subsequent fiscal stimulus led to wide deviation from the targets. Since then, these targets were pushed forward and finally ended with the amendment of the Act in 2018. However, as seen in Figure-3, the adherence to FRBM Act indeed led to crowding-in of private investments and that was also the high growth period ever achieved in the post-independence period. As the core philosophy of the FRBM roadmap is the expenditure switching from revenue expenditure to capital expenditure (and certainly not the expenditure compression mechanism, as many researchers assume) and following the fiscal multipliers estimated by various studies, such expenditure switching only result in larger output growth while reducing the public debt in the medium to long term. As shown in Mundle et at (2011) based on their study for the 13th Finance Commission, the targets on fiscal deficit, revenue deficit as well as public debt are internally consistent with higher growth and stable inflation[10]. However, due to unanticipated shocks, especially when those shocks need

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[10] Mundle et al (2011) showed that out of the three targets, working on just one target, i.e., reducing revenue deficit to zero by the end of 13th Finance Commission award period resulted in below 6 per cent

fiscal stimulus, there is bound to have a risk on achieving FRBM targets as it is. But, as argued in Bose & Bhanumurthy (2013), even if there is a risk on achieving revenue deficit target, it is necessary to ring-fence government capital expenditure target of 3 per cent, which is the difference between fiscal deficit and revenue deficit. While there are critiques of such policy strategy, one could look at the fiscal policy strategy adopted since the Covid-19 in India. Despite the risk on the revenue deficit being expanded due to Aathmanirbhar Bharat package (fiscal stimulus for Covid-19), the Union Government extended its focus on expanding capital expenditure for the last three years and continue to do in the current fiscal year as well. Further, the Union Government is also incentivising state governments through the interest free 50-year loan for capital expansion. This fiscal strategy is the main reason for India continue to be fastest growing large economy with very low inflation since Covid-19 despite no conducive external economic conditions. With this background, in the next scenario, an attempt has been made to understand the outcomes if India reverts back to original FRBM Act of 2003.

In this scenario, we try to gradually reduce the general government fiscal deficit to 6 per cent and revenue deficit to zero by the terminal year, 2030-31. The simulation results are presented in Table-5. It may be noted that, compared to base case, the GDP growth reaches closer to 8 per cent, which is not experienced after the 2008 crisis, with the liability/GDP falling sharply from 84.53 per cent to 75.01 per cent, almost 10 percentage points drop in five years. This high growth is contributed by increased in public capital expenditure and that led to crowding-in of private capital expenditure, pushing the overall investment rate of 36.41 per cent. In this scenario, one risk is that CAD/GDP widens to 2 per cent, but this is within the sustainable level that many studies have estimated.

Table 5: Reverting to FRBM Act of 2003 (6 per cent FD and 0 per cent RD)

Year	GDP Growth	Inflation	Investment Rate	CAD/ GDP	FD/ GDP	RD/GDP	Liability/ GDP
2026-27	7.94	4.87	34.78	2.02	8.13	2.22	84.53
2030-31	7.68	4.51	36.41	2.17	6.09	0.2	75.01
Average for 16th FC	7.79	4.68	35.68	2.05	7.02	1.2	80.41

Based on these above results, this study strongly suggests for reverting to original FRBM Act, 2003, targets. However, as discussed earlier, any shocks to an economy could be

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fiscal deficit, below 70 per cent public debt (as per cent of GDP) and also to over 8 per cent GDP growth. This suggest that FRBM targets are internally consistent with higher GDP growth.

addressed by relaxing the revenue deficit while continuing the focus on having at least 6 per cent public capital expenditure (general government) every year. In such scenarios, it will not risk sharp expansion in public debt while also enabling relatively quicker reversion toward long term fiscal targets. Against this, the Union Budget (2025-26) suggests an alternative fiscal policy where the anchor would be public debt and not the deficit as proposed in FRBM Act. Accordingly, it has suggested three different debt paths depending on the three nominal GDP growth assumptions (10, 10.5 and 11 per cent, see Figure-10). In the next scenario, we attempt to assess the growth and fiscal outcomes of such public debt path.

Scenario-4: Targeting Public Debt (as per Union Budget 2025-26 proposals)

In the latest Union Budget (2025-26), the Union government shifted its fiscal policy anchor and suggested public debt as its anchor and also suggested flexibility with three different nominal GDP growth assumptions as well as the degree of fiscal consolidation, namely, mild, moderate and high degree of consolidation. Overall, it suggested nine different options of public debt paths to be achieved by 2030-31 (see Figure-10). However, it is important to highlight that while public debt could be the policy anchor and being a stock variable, the focus of the policy makers while preparing medium term debt path need policy instruments that are of flow in nature. Hence, we still need the deficit path corresponding to the proposed debt path. In Table-6, as the debt path is only for the Union government, the corresponding fiscal deficit path for the Union government is derived. While doing this, one assumption that is made here is that there is no more off-budget liabilities in the Union accounts and this has been the major hallmark of the Union government since 2021-22.

Table-6: Proposed fiscal path consistent to debt path

	10% nominal growth			10.5% nominal growth			11% nominal growth		
	Mild	**Moderate**	**High**	**Mild**	**Moderate**	**High**	**Mild**	**Moderate**	**High**
2024-25	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84	4.84
2025-26	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
2026-27	4.20	4.00	3.80	4.33	4.08	3.83	4.36	4.11	3.86
2027-28	4.22	3.90	3.68	4.24	3.96	3.69	4.24	3.97	3.69
2028-29	4.15	3.80	3.56	4.14	3.84	3.55	4.12	3.82	3.52
2029-30	4.07	3.70	3.45	4.05	3.72	3.40	4.00	3.68	3.35
2030-31	4.00	3.60	3.03	3.85	3.46	3.06	3.88	3.48	3.09

Table-7 presents the estimates only for the terminal year, i.e., 2030-31.

Table-7: Simulations based on various public debt path (terminal year estimates)

Nominal GDP growth	Real GDP Growth	Inflation	CAD/ GDP	FD/ GDP	RD/GDP	Liability/ GDP
10.74	5.92	4.81	1.1	6.0	1.5	78.5
11.0	6.83	4.6	1.5	6.9	1.1	79.6
11.61	7.01	4.49	1.6	6.0	0.1	75.7

The simulations are carried for three different nominal GDP growth assumptions. These results suggest that proposed debt path is only and an anchor and there is a need for instrument, a deficit path, in order to understand its implications on growth, inflation and CAD. However, estimates for terminal year suggest that nominal growth assumptions with debt path, with an implicit deficit path, appears to be internally inconsistent. While proposed debt path suggest a drop of over 6 to 9 per cent reduction in Union government public debt, our results suggest that any sharp reduction in debt path needs a nominal growth of over 11.5 per cent that will also result in 7 per cent real growth. In all the scenarios, it appears that bringing down the general government debt levels below 75 per cent needs sharper adjustments on fiscal and revenue deficit. In Table-7 we may note that fiscal adjustment consistent with original FRBM Act, 2003, is one clear pathway for achieving below 75 per cent public debt with 7 per cent real GDP growth, and sustainable CAD of 1.6 per cent. In this scenario, implicitly though, state government debt could be between 25 to 27 per cent after adjusting for 48 per cent debt for Union Government. These results strongly suggest that 16th Finance Commission could target 75 per cent public debt by the terminal year while distributing Union and states at 50 per cent and 25 per cent, respectively.

8. Summary and Conclusion

Main focus of this study is to undertake some macro-fiscal policy simulations for India for the 16th Finance Commission period, i.e., 2026-27 to 2030-31. A simple structural macroeconometric model has been built in a Klein-Goldberger tradition by using the annual data from 1993-94 to 2023-24. Apart from the base case, four policy simulations are undertaken and they are: i) estimating the fiscal consolidation roadmap that is consistent with the amended FRBM Act of 2018; ii) what if India wants to revert back to original FRBM act of 2003; iii) with public debt being anchor, as proposed in Union Budget 2025-26, what could be the consistent deficit and growth path; and finally, as 16th Finance Commission need to absorb the Central Pay Commission award, model is used

to quantify the macro-fiscal implications of implementation of 8th Central Pay Commission award.

Empirical results suggest that the present FRBM (Amendment) Act of 2018 is not internally consistent with growth and debt objectives as relaxation of revenue deficit target could lead to lower growth and also do not lead to reduction in public debt. Instead, reverting back to original FRBM Act of 2003 with targets on both fiscal deficit as well as revenue deficit should reduce the general government public debt to 75 per cent. This means over a 10 per cent reduction in public debt in the five-year period of 16th Finance Commission.

Unlike previous Commission, the 16th Finance Commission faces the anticipated fiscal shock in the form of wage revisions under 8th Pay Commission award. This study undertakes simulations by assuming a 15 per cent increase in other revenue expenditures (other than transfer payments). This scenario results in slightly higher GDP growth, but with higher inflation, while the fiscal parameters expanding leading to higher public debt and widening current account deficit. However, timing of implementation does matter for fiscal parameters. As our results show, delay in implementation could lead to large spikes in fiscal parameters with a double-digit fiscal deficit for at least two years. This could also delay the smoothening of debt path as proposed by the Union Government in the latest Budget.

As the Union government proposes to anchor public debt instead of deficit parameters, this study tried to derive the deficit path consistent with debt and growth path. The results suggest that derived deficit path is only a necessary condition while it is also important to assess the extent of distribution of fiscal deficit between government capital expenditure and revenue deficit. Otherwise, as our results suggest, one would end up either in lower GDP growth or in higher public debt levels, or both. Overall, our results show that targeting the public debt levels at 75 per cent, with 50 per cent for Union and 25 per cent for States and with reverting back to original FRBM Act could ensure in excess of 7 per cent growth. Such scenario will also ensure manageable level of inflation and current account deficit.

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ESTIMATED EQAUTIONS

1) $\text{CAPINFLOW} = -223452.37 + 0.01 * \text{YMP} + 3384.73 * \text{USGDP} + 234123.68 * \text{DUMCAPITAL}$
   $\quad\quad\quad\quad\quad\quad (70246.88) \quad\quad (0.002) \quad\quad\quad (1014.79) \quad\quad\quad\quad (14005.27)$

   $Adj\ R^2 = 0.96 \quad\quad\quad\quad\quad\quad \text{DW Stat} = 1.73$

2) $\text{D(CAPSTOCK)} = 30938.70 + 1.06 * \big(\text{IPU}(-1) + \text{IPV}(-1)\big) + 3991473.75 * \text{DUMCAPSTOCK}$
   $\quad\quad\quad\quad\quad\quad\quad (52852.12) \quad (0.02) \quad\quad\quad\quad\quad\quad\quad\quad\quad\quad (126235.5)$

   $Adj\ R^2 = 0.99 \quad\quad\quad\quad\quad\quad\quad\quad \text{DW Stat} = 1.85$

3) $\text{CPR} = 5220.21 + 0.27 * (\text{YMP} - \text{DTAX}) + 0.63 * \text{CPR}(-1) + 701633.72 * \text{DUMCPR}$
   $\quad\quad\quad\quad (9380.67) \quad (0.01) \quad\quad\quad\quad\quad\quad (0.02) \quad\quad\quad\quad (28905.64)$

   $Adj\ R^2 = 0.99 \quad\quad\quad\quad\quad\quad \text{DW Stat} = 1.86$

4) $\text{CPU} = 11085.21 + 0.13 * \text{ECURR} + 0.77 * \text{CPU}(-1) + 150203.19 * \text{DUMCPU}$
   $\quad\quad\quad\quad (4462.17) \quad\quad (0.02) \quad\quad\quad (0.04) \quad\quad\quad\quad (10305.66)$

   $Adj\ R^2 = 0.99 \quad\quad\quad\quad\quad \text{DW Stat} = 1.95$

5) $\text{DTAX} = -38057.70 + 17136.22 * \text{B1} + 0.15 * \text{D(YMP)} + 93299.45 * \text{DUMDTAX} + 0.89 * \text{DTAX}(-1)$
   $\quad\quad\quad\quad (4769.32) \quad\quad (2188.52) \quad\quad (0.004) \quad\quad\quad\quad (12972.42) \quad\quad\quad\quad (0.01)$

   $Adj\ R^2 = 0.99 \quad\quad\quad\quad \text{DW Stat} = 1.34$

6) $\text{DZYF} = 248717.99 + 0.47 * \text{DZYF}(-1) - 0.21 * \text{D}\big(\text{DZYF}(-1)\big)$
   $\quad\quad\quad\quad (110226.9) \quad (0.24) \quad\quad\quad (0.20)$

   $Adj\ R^2 = 0.06 \quad\quad\quad\quad\quad \text{DW Stat} = 1.99$

7) $\text{ECAP} = -11847.04 + 0.19 * \text{REVREC} + 0.21 * \text{ECAP}(-1) + 260535.60 * \text{DUMECAP}$
   $\quad\quad\quad\quad (5234.72) \quad\quad (0.0157) \quad\quad\quad\quad (0.077) \quad\quad\quad (15241.29)$

   $Adj\ R^2 = 0.99 \quad\quad\quad\quad\quad \text{DW Stat} = 2.03$

8) $\text{ECURR} = 58978.81 + 1.13 * \text{REVREC} + 1265403.65 * \text{DUMECURR}$
   $\quad\quad\quad\quad (16996.84) \quad (0.0074) \quad\quad\quad (64726.25)$

   $Adj\ R^2 = 0.99 \quad\quad\quad\quad\quad \text{DW Stat} = 1.60$

9) $\text{ER} = 41.03 + 7.30e - 05 * \text{CAPINFLOW}$
   $\quad\quad\quad (2.57) \quad (1.18e\text{-}05)$

   $Adj\ R^2 = 0.55 \quad\quad\quad\quad\quad\quad \text{DW Stat} = 1.30$

10) $\text{D(EXPORT)} = 278013.24 + 0.25 * \text{D(ADVGDPLEV)} - 8869.50 * \text{DUTY} + 925444.35 * \text{DUMEXPORT}$
    $\quad\quad\quad\quad\quad\quad (33288.83) \quad (0.108) \quad\quad\quad\quad\quad\quad (1518.812) \quad\quad\quad (68090.32)$

    $Adj\ R^2 = 0.92 \quad\quad\quad\quad\quad\quad \text{DW Stat} = 1.92$

11) $\text{GCPI} = -0.11 + 34.45 * @\text{PCH(M3)} + 0.002 * \text{OIL} + 0.47 * \text{D(ER)} + 5.93 * \text{DUMCPI}$
    $\quad\quad\quad\quad (1.177) \quad (6.104) \quad\quad\quad\quad (0.00084) \quad\quad (0.083) \quad\quad\quad (0.597)$

$$Adj\ R^2 = 0.83 \qquad\qquad \text{DW Stat} = 1.05$$

12) $@PCH(GDPDEFLATOR) * 100 = \begin{array}{c} 0.92 \\ (0.479) \end{array} + \begin{array}{c} 0.74 * GCPI \\ (0.0664) \end{array} + \begin{array}{c} 4.32 * DUMGDPDEF \\ (0.509) \end{array}$

$$Adj\ R^2 = 0.85 \qquad\qquad \text{DW Stat} = 1.52$$

13) $IMPORT = \begin{array}{c} -48617.09 \\ (126187.7) \end{array} + \begin{array}{c} 0.22 * YMP \\ (0.0067) \end{array} + \begin{array}{c} 1458.05 * OIL \\ (85.605) \end{array} - \begin{array}{c} 8816.93 * ER \\ (3267.9) \end{array} + \begin{array}{c} 518908.18 * DUMIMPORT \\ (52384.89) \end{array}$

$$Adj\ R^2 = 0.99 \qquad\qquad \text{DW Stat} = 1.17$$

14) $INDTAX = \begin{array}{c} -56925.35 \\ (7978.544) \end{array} + \begin{array}{c} 32799.95 * B2 \\ (5100.192) \end{array} + \begin{array}{c} 0.16 * (CPR + CPU) \\ (0.0010) \end{array} - \begin{array}{c} 8.37 * OIL \\ (20.169) \end{array} + \begin{array}{c} 143965.99 * DUMINDTAX \\ (11965.18) \end{array}$

$$Adj\ R^2 = 0.99 \qquad\qquad \text{DW Stat} = 1.92$$

15) $INVISIBLE = \begin{array}{c} -47652.94 \\ (30151.94) \end{array} + \begin{array}{c} 0.02 * (ADVGDPLEV + MEGDPLEV) \\ (0.009) \end{array} + \begin{array}{c} 1.10 * INVISIBLE(-1) \\ (0.032) \end{array} + \begin{array}{c} 209828.28 * DUMINVISIBLE \\ (13155.71) \end{array}$

$$Adj\ R^2 = 0.99 \qquad\qquad \text{DW Stat} = 2.45$$

16) $IPU = \begin{array}{c} 17079.78 \\ (6703.6) \end{array} + \begin{array}{c} 0.24 * ECAP \\ (0.035) \end{array} + \begin{array}{c} 0.92 * IPU(-1) \\ (0.029) \end{array} + \begin{array}{c} 182033.25 * DUMIPU \\ (16678.22) \end{array}$

$$Adj\ R^2 = 0.99 \qquad\qquad \text{DW Stat} = 1.20$$

17) $\dfrac{IPV}{YMP} = \begin{array}{c} -0.58 \\ (0.089) \end{array} + \begin{array}{c} 1.27 * \dfrac{IPU}{YMP} \\ (0.846) \end{array} - \begin{array}{c} 0.002 * LR \\ (0.0022) \end{array} + \begin{array}{c} 0.77 * RATIO2 \\ (0.118) \end{array} + \begin{array}{c} 0.05 * DUMIPV \\ (0.0069) \end{array}$

$$Adj\ R^2 = 0.88 \qquad\qquad \text{DW Stat} = 2.29$$

18) $LIAB = \begin{array}{c} 19795.67 \\ (8102.5) \end{array} + \begin{array}{c} 0.94 * FD \\ (0.034) \end{array} + \begin{array}{c} 1.01 * LIAB(-1) \\ (0.0043) \end{array} + \begin{array}{c} 294290.94 * DUMLIAB \\ (14990.89) \end{array}$

$$Adj\ R^2 = 0.99 \qquad\qquad \text{DW Stat} = 2.03$$

19) $LR = \begin{array}{c} 11.54 \\ (2.083) \end{array} - \begin{array}{c} 0.01 * GWPI \\ (0.088) \end{array} + \begin{array}{c} 0.07 * REPO \\ (0.269) \end{array} - \begin{array}{c} 1.93e-06 * MB \\ (4.26e-07) \end{array}$

$$Adj\ R^2 = 0.52 \qquad\qquad \text{DW Stat} = 0.81$$

20) $LR = \begin{array}{c} 11.33 \\ (0.178) \end{array} + \begin{array}{c} 0.97 * @PCH(GCPI) \\ (0.531) \end{array} + \begin{array}{c} 3.30 * @PCH(MB) \\ (0.685) \end{array} + \begin{array}{c} 9.03 * DUMPLR \\ (0.491) \end{array}$

$$Adj\ R^2 = 0.92 \qquad\qquad \text{DW Stat} = 1.34$$

21) $M0 = \begin{array}{c} 105026.43 \\ (16981.89) \end{array} + \begin{array}{c} 0.73 * FOREX \\ (0.037) \end{array} + \begin{array}{c} 0.23 * MB \\ (0.069) \end{array} + \begin{array}{c} 219726.13 * DUMM0 \\ (27183.39) \end{array}$

$$Adj\ R^2 = 0.99 \qquad\qquad \text{DW Stat} = 1.68$$

22) $M3 = \begin{array}{c} 36447.07 \\ (12677.71) \end{array} + \begin{array}{c} 0.47 * M0 \\ (0.057) \end{array} + \begin{array}{c} 1.00 * M3(-1) \\ (0.0114) \end{array} + \begin{array}{c} 361273.61 * DUMM3 \\ (17890.03) \end{array}$

$$Adj\ R^2 = 0.99 \qquad\qquad \text{DW Stat} = 1.62$$

23) $\text{MB} = -37050.76 + 0.26 * \text{MB}(-1) + 0.86 * \text{FD} + 325291.39 * \text{DUMMB}$

$(9186.99) \qquad (0.032) \qquad\qquad (0.030) \qquad\qquad (31411.24)$

$Adj\ R^2 = 0.99 \qquad\qquad \text{DW Stat} = 1.48$

24) $\text{NONTAX} = 21474.06 + 0.03 * \text{YMP} + 91507.74 * \text{DUMNONTAX}$

$(3581.06) \quad (0.00029) \qquad (6021.006)$

$Adj\ R^2 = 0.99 \qquad\qquad \text{DW Stat} = 1.36$

25) $\text{ZYF} = 95488.72 + 0.88 * \left(\dfrac{\text{YMP}}{\text{GDPDEFLATOR}}\right) * 100 \ + 0.03 * \left(\dfrac{\text{YMP}(-1)}{\text{GDPDEFLATOR}(-1)}\right) * 100$

$(21957.17) \qquad (0.029) \qquad\qquad\qquad\qquad (0.031)$

$Adj\ R^2 = 0.99 \qquad\qquad\qquad \text{DW Stat} = 0.80$

ABBREVATIONS

ADVGDPLEV	Nominal GDP Advanced Economies (Dollar)
B1	Direct tax buoyancy
B2	Indirect tax buoyancy
CAD	Current account deficit
CAPINFLOW	Capital inflow
CAPREC	Capital Receipts
CAPSTOCK	CAPITAL STOCK
CHINAGDP	GDP index of China
CPI	Consumer price Index
CPR	Private Consumption Expenditure
CPU	Government Consumption Expenditure
ECAP	Capital Expenditure
ECURR	Revenue Expenditure
ER	Exchange Rate
EXPORT	Export of goods and services
EY	Ernst and Young
FC-XV	Fifteenth Finance Commission
FD	Fiscal Deficit
FOREX	Forex Reserves
FRBM	Fiscal Responsibility and Budget Management
GCF	Gross Capital Formation
GDP	Gross Domestic Product
GDPDEFLATOR	GDP Deflator
GFC	Global Financial Crisis
GFCF	Gross Fixed Capital Formation
GROSSTAX	Gross Tax Revenue
GST	Goods and Services Tax
IMPORT	Import of goods and services
INTERESTPAY	Interest Payment
INVISIBLE	Net Invisibles
IPU	Government Investment
IPV	Private Investment
LAF	Liquidity Adjustment Facility
LIAB	Total Liabilities
LR	Lending Rate
M3	Broad Money supply
MB	Gross Market Borrowing
MEGDPLEV	Nominal GDP Middle-east and North Africa (Dollar)
MOSPI	Ministry of Statistics and Programme Implementation
NDCRCEN	NDCR Centre
NETEXPORT	Net export of Goods and services
NPA	non-performing asset
OECDGDP	Nominal GDP OECD (Dollar)
OIL	Oil price Index
OILPRICE_USD	International Price of Oil and Petroleum
OILSUBSIDY	Subsidies on oil to marketing companies
PD	Primary deficit
PPP	Purchasing Power Parity

RBI	Reserve Bank of India
RD	Revenue deficit
REPO	Repo Rate
REVREC	Revenue Receipts
ROIGSEC	ROI on government securities
TOTALEXP	Total Expenditure
TOTALREC	Total Receipts
TRADE_BAL	Balance of Trade
USD	US Dollar
USGDP	GDP index of US
USGDPCURR	US GDP at current prices
WEO	World Economic Outlook
WPI	Wholesale price Index
XIII FC	Thirteenth Finance Commission
YF	GDP current Factor Price
YMP	GDP current Market Price
ZYF	GDP Constant Factor Price
ZYMP	GDP Constant Market Price