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The State of the States: Federal Finance in India

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THE STATE OF THE STATES: FEDERAL FINANCE IN INDIA*

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Abstract

Fully a third of India's very considerable public debt is debt of the states, a large fraction by the standards of other federal economies. State debts vary from less than 20 percent of state GDP in Odisha, Maharashtra and Gujarat to nearly 50 percent in Punjab. The recent evolution of these variables points to continued divergence in debt burdens across lightly and heavily indebted states and bodes difficulties for the latter in meeting all but essential expenditures. In the last ten years, half of India's larger states have added more than 10 percentage points to their debt-to-state-GDP ratios. Of the rest, about half have exhibited fiscal prudence, while the other half have exhibited moderate levels of debt increase. Under the business-as-usual scenario, a majority of states will become even more indebted, and the financial condition of more and less indebted states will continue to diverge. We point to reforms to strengthen fiscal discipline at the state level and address risks associated with the states' relatively high level of public debt.

Keywords: Debt Management, Debt Sustainability, Federal Finance, Finance Commission, Fiscal Deficit, Public Debt, Contingent Liabilities, Subnational Finance

JEL Classification: E62, H6, H61, H63, H72, H74, H75, H77

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1. Introduction

In an earlier paper for the *India Policy Forum*, we analyzed general government debt in India, concluding that while public debt is worrisomely high, India faces no immediate crisis of debt sustainability. In this paper we focus specifically on the debts of the states, an oft-neglected but critically important aspect of the issue.

As we show, fully a third of all public debt in India is debt of the states. Moreover, debt ratios have risen in all but four Indian states over the last decade. The average state debt ratio of 28 percent of state GDP is high by the standards of other federal economies, where sub-national governments have limited ability to raise taxes to service debts owing to the mobility of the tax base. India has the highest sub-national debt as percent of GDP of BRICS countries (RBI's State Finance Report, 2019-20). It has the highest subnational debt as a percentage of revenue of any country (S&P Global Research 2021).

More generally, in periods when the debt ratio increases rapidly, the states are directly implicated. The states were responsible, in an accounting sense, for fully two-thirds of the increase in public debt between 1997-98 and 2003-04, more than half in the period 2014-15 to 2019-20, and a third in the COVID period 2019-20 to 2020-21, these being the main periods of rapid debt ratio increases.

With heavy debts come heavy debt service burdens. Their cost limits the ability of state governments to fund programs designed to meet social and developmental needs. They divert resources away from investments in education, infrastructure and public health. They limit the ability of state governments to fund adaptation to climate change-related risks (increased risk of monsoon-related flood in the northeast, drought in the west, cyclone risks and coastal flooding in the south).[1]

Importantly, these debt burdens, and their associated costs, differ enormously across states. Debts vary from less than 20 percent of state GDP in Odisha, Maharashtra and Gujarat, to nearly 50 percent in Punjab. As we show, not only primary fiscal balances but also interest-rate-growth-rate differentials vary dramatically across states, due to differences in both economic growth rates and the relative importance of nonmarketable debt, which bears concessional interest rates.[2] The recent behavior of these variables points to continued divergence in debt burdens across lightly and heavily indebted states. It bodes of difficulties for the latter in financing all but essential expenditures.

A first question is how heavily indebted states got into this pickle. (This is prior to the next question of how they might get out.) Deficit spending by state government is supposed to be constrained by a combination of fiscal rules and market discipline. Neither constraint has functioned adequately. Although all states have formal fiscal rules, some states are chronic violators. Moreover, there has been little variation in the interest rates on the marketable debts of different states, or between the debts of the states and debts of the union government. This lack of variation reflects heavy intervention in the market by the government's debt manager, the Reserve Bank of India. As a result, market discipline does little to restrain the more profligate states, which are effectively subsidized by their more prudent counterparts. The question then becomes what might be done to strengthen both fiscal rules and fiscal discipline, and more generally what changes in policy and institutions would help to limit the accumulation of excessive state debts.

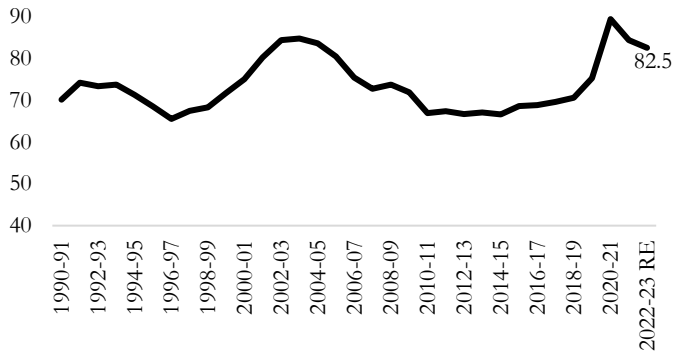
[1] The fiscal implications of climate change for the finances of different states are a bit beyond our brief, but we consider them briefly in Appendix IX.
[2] Details are in Appendix IV, Table IV.1.

2. Level and Composition of Public Debt

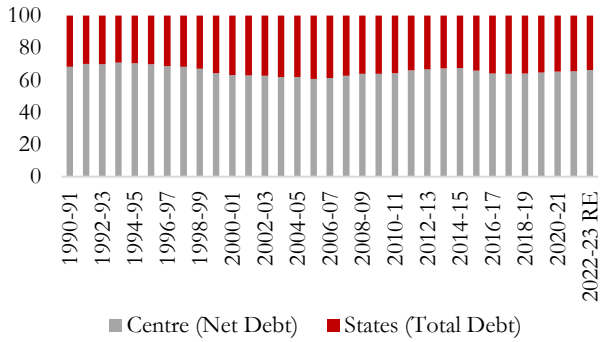
Debt is issued both by the government at the Centre and by the states. The states account for about a third of the total government debt. Their share increased from about 30 percent to 40 percent between 1991 and the mid-2000s, and has recently inched down to 34 percent of GDP aggregated across states (Figure 1).[3]

Figure 1: General Government Debt and Share of Centre and States in it

A. General Government Debt (% of GDP)



B. Share of Centre (Net Debt) and States in General Government Debt



Note: Data are from the RBI's Handbook of Statistics on Indian Economy for the Centre; and State Finances Report for the states. RE refers to Revised Estimates. The Centre's debt is net of what the states owe it.

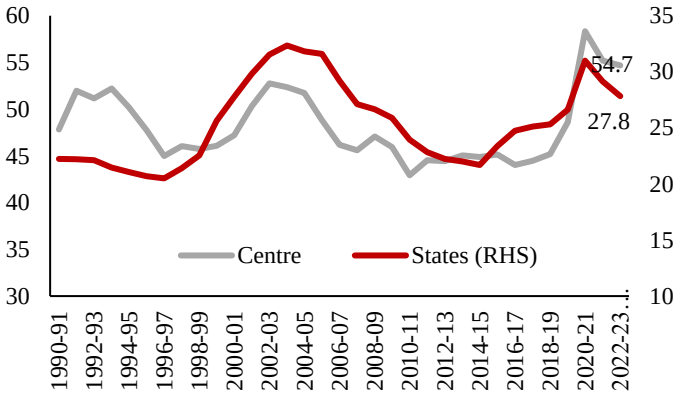
State debt ratios have comoved with that of the Centre while contributing significantly to the episodic increases in the debt of the General Government (Figure 2). We identify three episodes in the last three decades when the General Government's debt-to-GDP ratio increased sharply. These are 1996-97 through 2003-04, when the ratio increased by 19.2 percentage points; 2014-15 through 2019-20, when it increased by 8.6 percentage points; and 2019-20 through 2020-21, when due to COVID, the debt ratio increased by 14.1 percentage points within a year. Of the 19.2 percentage points increase in the debt-to-GDP ratio in the 1996-97 and 2003-04 period, the debt ratio of the states increased by 12 percentage points, whereas that of the Centre by 7.2 percentage points. Of the 8.6 percentage points increase in the 2014-15 to 2019-20 period, the debt ratio of the states increased by 4.9 percentage points, and the Centre's by 3.7 percentage points. In contrast, of the 14.1 percentage point increase during COVID, the Centre accounted for a larger amount (9.7 percentage points), with the states adding only 4.4 percentage points.

Thus, although the states account for only one third of total General Government debt, they have accounted for a significant proportion of the increases in the latter; and their debt can matter importantly for debt sustainability.

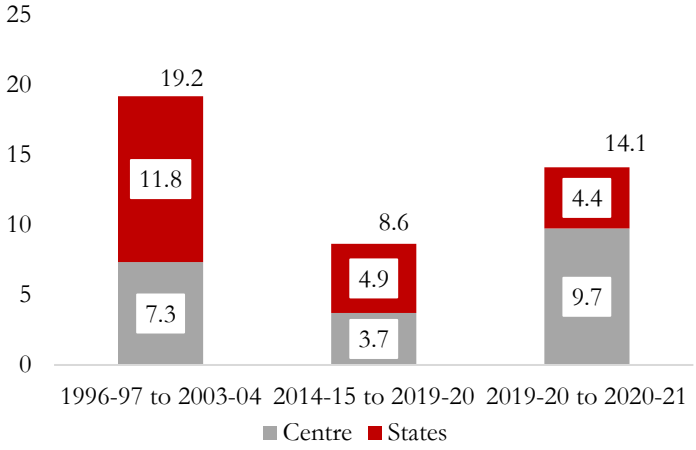
[3] Data sources are documented in Appendix I.

Figure 2: Public Debt of Centre and States

A. Public Debt of Centre and States (% of GDP)



B. Contribution to Three Phases of Surges in General Government Debt by Centre and States (% of GDP)



Note: Data are from the RBI's Handbook of Statistics on Indian Economy for the Centre; and RBI State Finances Report for the states. RE refers to Revised Estimates.

At an aggregate level, higher primary deficits, a less favorable growth-rate-interest-rate differential, and higher contingent liabilities all contributed to the rise in the states' share in General Government debt in the episodes identified above (Table 1).[4] Overall, primary budget deficits as a share of GDP have been smaller for the states. The average annual fiscal deficit for the Centre between 1990-91 and 2022-23 was 5.2 percent of GDP, compared to the states' 2.9 percent. The Centre's average primary deficit between 1990-91 and 2022-23 was 1.5 percent of GDP; against the states' 1 percent (Figure 3). The aggregate primary deficits of the states were about the same as that of the Centre until about 2008-09, but were then less than that of the Centre subsequently.

Until the mid-2000s, the states faced much higher effective interest rates than the Centre, though their effective interest rates have since declined. Average effective interest rates averaged 8.1 percent for the states and 7.7 percent for the Centre over the period 2000-01 to 2022-23.[5] While contingent liabilities of both the Centre and states declined over the last two decades, states' contingent liabilities continue to exceed those of the Centre. Rajasthan, Punjab, Telangana, Uttar Pradesh, and Andhra Pradesh stand out as states with very high contingent liabilities (as percent of their respective state GDP figures averaged from 2013-14 to 2021-22).[6] The power sector accounts for the largest share of these guarantees, accounting

[4] We further consider how the primary deficit, interest payments, nominal effective interest rate, contingent liabilities and debt levels of the Centre and states have varied over the last three decades (decadal averages) in Appendix III, Table III.1.

[5] Realizing the growing interest burden of the states, the Centre introduced a debt swap scheme in 2002-03 under which high-cost loans of the states from the Centre bearing interest rates of above 13 per cent were swapped through fresh issuances of low-cost market borrowings and securities issued to National Small Savings Fund (NSSF).

[6] As of 2021-22, the five states with highest contingent liabilities (as percent of their respective state GDP) are Telangana, Andhra Pradesh, Uttar Pradesh, Rajasthan, and Kerala. Data for state-wise contingent liabilities has been collated using CAG's (Comptroller and Auditor General) State Finances Audit Reports for the years 2013-14 till 2021-22 (the last year for which data for all states is available). RBI State Finances Report also makes

for 44 percent of the total guarantees. Other sectors are more state specific; they include irrigation and agriculture, among other items.[7] The Centre's contingent liabilities in the past have derived primarily from aid to public sector banks and Air India.

Table 1: Fiscal Variables for Centre and States during Episodes of Sharp Changes in General Government Debt

	I. 1996-97 to 2003-04		**II. 2014-15 to 2019-20**		**III. 2019-20 to 2020-21**	
	Centre	States	Centre	States	Centre	States
Change in Debt (percentage point)	52.3 - 45.0 = 7.3	32.3 - 20.5 = 11.8	48.6 - 44.9 = 3.7	26.6 - 21.7 = 4.9	58.3 - 48.6 = 9.7	31.0 - 26.6 = 4.4
Primary Deficit, % of GDP (average of period)	1.1	1.6	0.7	1.1	5.7	2.1
Growth-Interest Differential (average of period; percentage point)	1.9	0	2.6	2.4	-8.1	-8.5
Contingent Liabilities, % of GDP (average of period)	4.0	6.6	2.4	2.6	2.5	3.8

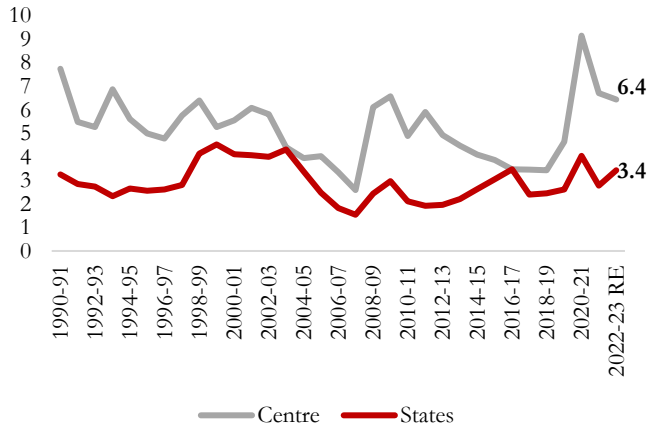
Note: For the Centre, data on deficits and interest payments are from RBI's Handbook of Statistics (downloaded from CEIC). Data for contingent liabilities, are from the Annual Report of RBI and Union Budget. For the states, data are from RBI's State Finances Report (downloaded from CEIC). Effective interest rate has been calculated as interest payments as percent of total outstanding liabilities as of the previous year.

available data for the states' contingent liabilities but there are missing data points and inconsistencies between subsequent years of data revision. Since CAG is the original source for public finance data for the states, we decided to use the latter.

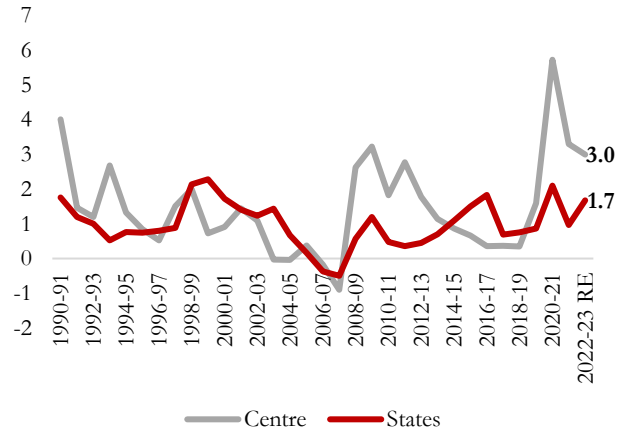
[7] See Chakrabarty and Vipra (2023), PRS India State of State Finances: 2023-24 (prsindia.org).

Figure 3: Fiscal and Primary Deficits of Centre and States

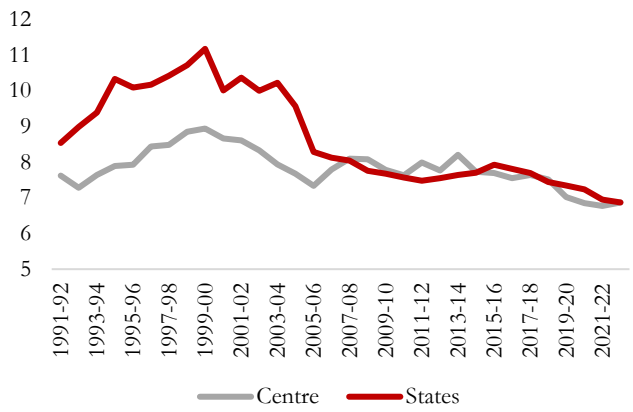
A. Fiscal Deficit of Centre and States (% of GDP)



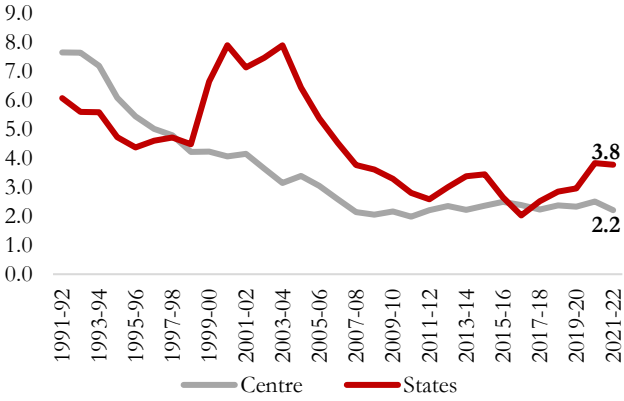
B. Primary Deficit of Centre and States (% of GDP)



C. Nominal Effective Interest Rate of Centre and States on Debt (%)



D. Contingent Liabilities of Centre and States (% of GDP)



Note: For the Centre, data on deficits and interest payments are from RBI's Handbook of Statistics (downloaded from CEIC). Data for contingent liabilities are from the Annual Report of RBI and the Union Budget. For the states, data are from RBI's State Finances Report (downloaded from CEIC). Effective interest rate has been calculated as interest payments as percent of total outstanding liabilities as of the previous year.

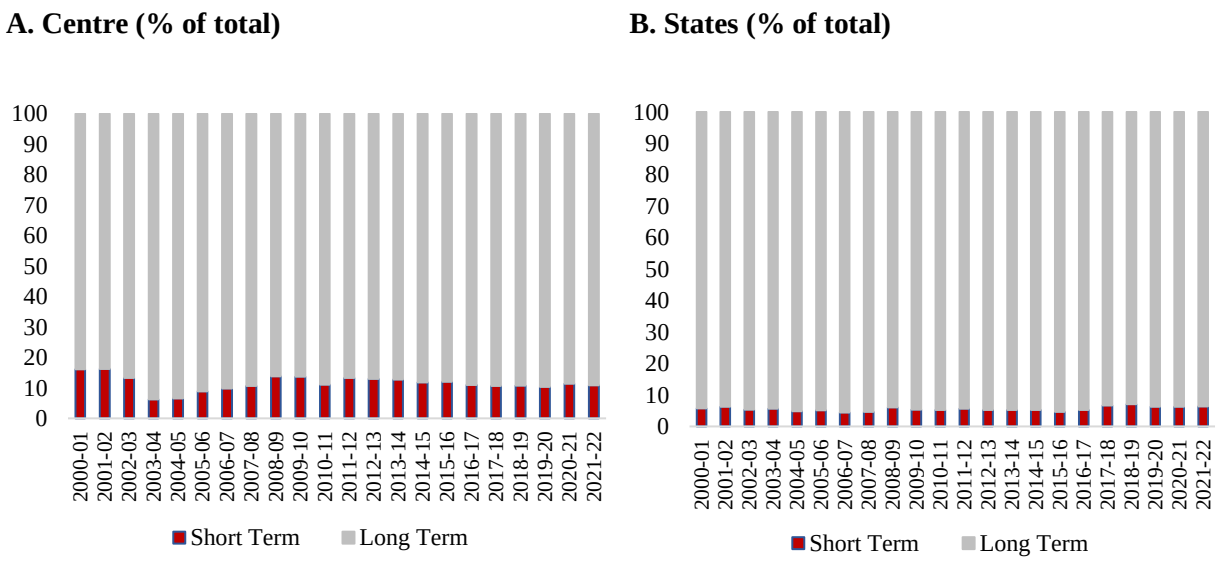
There is a large vertical gap in India. States collect only one third of total public revenues but spend about two thirds. Thus, one third of total resources are transferred by the Centre to the States. This has amounted to about 6.5 percent of GDP in recent years. Most is transferred as per the recommendation of the Finance Commission (which is constituted every five years as a constitutionally mandated body) and the rest by the Centre through various grants. The Finance Commission recommends tax sharing according to a formula focusing mostly on income distance and population size. We discuss this further in Appendix II below.

3. Debt Composition

The Centre and states finance their debts in similar fashion: long term, rupee denominated, held domestically by institutional investors, and at fixed rates.

Nearly 90 percent of General Government debt is long term (i.e., with a residual maturity longer than one year). The share of the Centre's debt that is long term has increased from 83 percent in 2000-01 to nearly 90 percent currently. Since the turn of the century, a steady 94 percent of the debt of State Governments has been long term (Figure 4).

Figure 4: Long Term versus Short Term Debt of Centre and State Governments



Note: Data are from Status Paper on Government Debt, Ministry of Finance, September 2016 (for 2000-01 to 2009-10) and April 2022 (2010-11 onwards).

Public debt is predominantly held by domestic investors (Table 2). For the Centre, the share of external debt has fallen gradually in recent years, to less than 5 percent at end-March 2022. This low share of external debt insulates the debt portfolio from currency risk, since debt sold to foreigners tends to be denominated in foreign currency. State governments are not allowed to contract external debt. External loans intended for state government projects are contracted by the Centre and on-lent to the states.[8]

Further, the debt portfolios of the Center and states are insulated from short-run interest rate volatility. States cannot issue securities with floating rates, while only 6 percent of Central Government debt is at floating rates.

Thus, both because of regulatory restrictions on holding foreign debt, foreign currency debt and debt with floating rates, and because of the Centre's implicit guarantees,

[8] As per the Status Paper (2023), "The Constitution of India under Article 293(1) empowers State Governments to borrow only from domestic sources. Further, Article 293(3) of the Constitution states that, 'A State may not without the consent of the Government of India raise any loan if there is still outstanding any part of a loan which has been made to the State by the Government of India or by its predecessor Government, or in respect of which a guarantee has been given by the Government of India or its predecessor Government.'"

state debt is perceived as equally safe as the debt of the Centre. States on average pay only a very small premium over the Centre.

Who Holds Public Debt?

The composition of investors in state debt is changing. The share of market loans in state debt has increased from about one half (51.4 percent) at end-March 2018 to about two thirds (66 per cent) at end-March 2024. Within non-marketable debt, the share of borrowings from the National Small Savings Fund (NSSF) and sundry other sources has declined (Table 2), while that from the Centre has increased.[9]

Table 2: Composition of Centre's and States' Debt

Composition of Centre's Debt (% of total)					
	2017-18	2018-19	2019-20	2020-21	2021-22
Marketable Securities	66.0	64.0	62.4	64.5	63.6
Borrowings from NSSF	15.4	16.1	17.0	17.1	17.5
Loans from Banks and Other Institutions	2.5	3.4	3.7	3.3	3.0
External Liabilities	5.3	5.1	5.2	5.0	4.7
Other Liabilities	10.8	11.4	11.7	10.0	11.2
Composition of States' Debt (% of total)					
	2017-18	2018-19	2019-20	2020-21	2021-22
Marketable Securities	51.4	53.5	57.2	60.5	61.6
Borrowings from NSSF	11.1	9.2	7.7	6.1	5.1
Loans from Banks and Financial Institutions	4.9	4.8	4.8	4.2	3.8
Loans from the Centre	3.8	3.6	3.0	5.1	7.2
Uday Bonds	4.8	4.1	3.5	2.9	2.3
Other Liabilities	23.6	24.2	23.5	20.9	19.8

Note: Data for Centre's debt is from Status Paper on Government Debt 2021-22. Its Other Liabilities include 14-day intermediate T-Bills and Compensation and Other Bonds, State Provident Fund, Reserve Funds and Deposits, Other Accounts, and Extra Budgetary Resources. States' data is from RBI's State Finances Report (December 2023). Its 'Other Liabilities' include State Provident Funds, Deposits and Advances, Reserve Funds, Contingency Funds.

After declining substantially in previous decades (from 40 percent in 2000-01 to 16 percent in 2004-05, and to a miniscule 3 percent of the total in 2019-20), loans from the Centre have increased again since 2020-21.

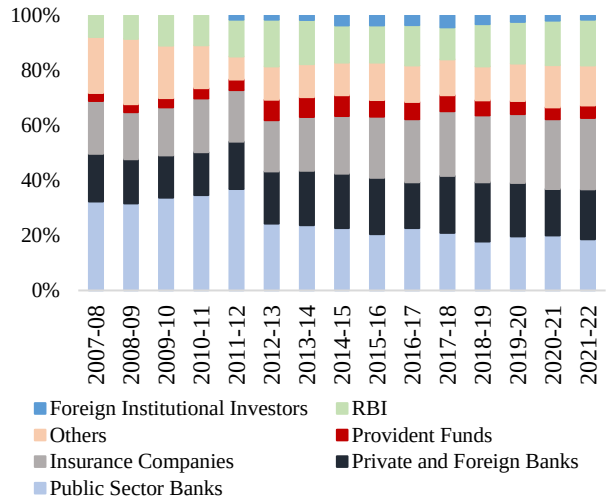
[9] States' dependence on market borrowings has increased following the recommendation of the Fourteenth Finance Commission to exclude most of the states from NSSF (Cabinet approves the exclusion of States from the investments of National Small Savings Fund from 1.4.2016 (pib.gov.in)). The National Small Savings Fund is a fund operated by a government agency, the National Savings Organization, which mobilizes funds through small savings schemes. Earlier, the states were mandated to borrow funds so collected within the respective states. Interest rates have typically been higher than the rate on marketable debt. Upon the recommendation of the Fourteenth Finance Commission, state governments were exempted from borrowing from the NSSF as of April 1, 2016. This shift away from the NSSF has lowered interest costs. Also see Mishra and Singh (2018).

With Goods and Services Tax (GST) implementation in 2017, the ability to raise revenue from goods and services shifted from origin states (where the good or service is produced) to destination states (where it is consumed). This posed revenue uncertainty for certain states. In response, the Centre imposed and collected a Compensation Cess, which was used to compensate states for revenue losses arising on account of the GST over the following five years. However, in 2019-20 and subsequently during Covid, resources thereby collected fell short, so the Central Government borrowed the requisite amounts and released them to the states and union territories via a back-to-back loan facility (on the identical terms at which the Centre borrowed). These loans by the Centre to the states in lieu of GST compensation (together with 50-year interest-free loans distributed under the scheme 'Special Assistance to the States for Capital Investment' during Covid) increased the proportion of loans from the Centre in states' borrowing portfolios.[10]

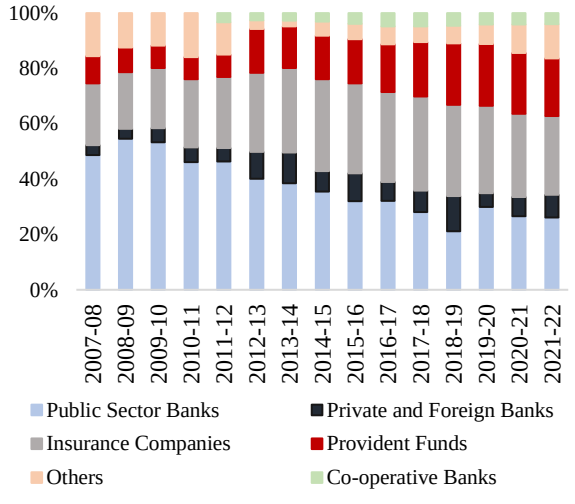
Marketable securities are primarily held by banks, insurance companies and provident funds. All three kinds of institutions have statutory requirements to invest in government bonds (Eichengreen, Gupta and Ahmed, 2023). Public sector banks were the largest category of investors in both central government and state government securities until 2014-15. Their share has declined since, in the case of state government securities, from 50 per cent in 2007-08 to 26 per cent in 2021-22, with a corresponding increase in the shares of insurance companies (to about 28 per cent in 2021-22) and provident funds (to 21 per cent in 2021-22). The share of private and foreign banks has also increased, from 3.5 per cent in 2007-08 to 8.3 per cent in 2021-22 (Figure 5). Thus, the securities of the states, like those of the Centre, are now held by a more diversified investor base, reflecting a larger and more competitive market. This has further lowered interest costs and rollover risks.

Figure 5: Ownership of Centre's and States' Marketable Securities

A. Ownership of Centre's Securities (% of total)



B. Ownership of States' Securities (% of total)



Note: Data are from Public Debt Statistics, RBI. Provident Funds are retirement funds run by the government. For states, 'Others' includes the RBI, Primary Dealers, Financial Institutions, Mutual Funds, Corporates, Foreign Institutional Investors (FIIs) and Others. For the Centre, 'Others' include Mutual Funds, Co-operative Banks, Primary Dealers, Financial Institutions, Corporates, and State Governments.

[10] RBI State Finances Report (2024, Appendix Table 12); Fifty-year loans for capex; and Loans in lieu of GST compensation

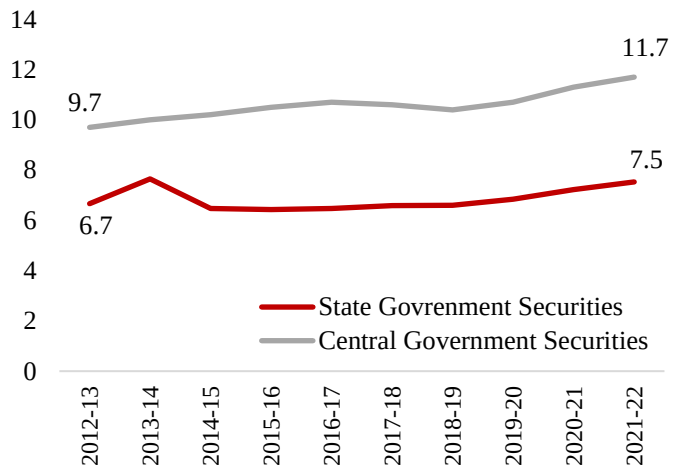
3.1. Duration of Debt

The authorities have sought to reduce rollover risk by issuing longer tenor securities. The weighted average maturity of outstanding securities has been increasing (Figure 6), while the maturity of newly issued securities has risen even higher. The weighted average maturity of dated securities of the Centre issued in 2021-22 increased to 16.99 years compared to 14.49 years in the previous year.

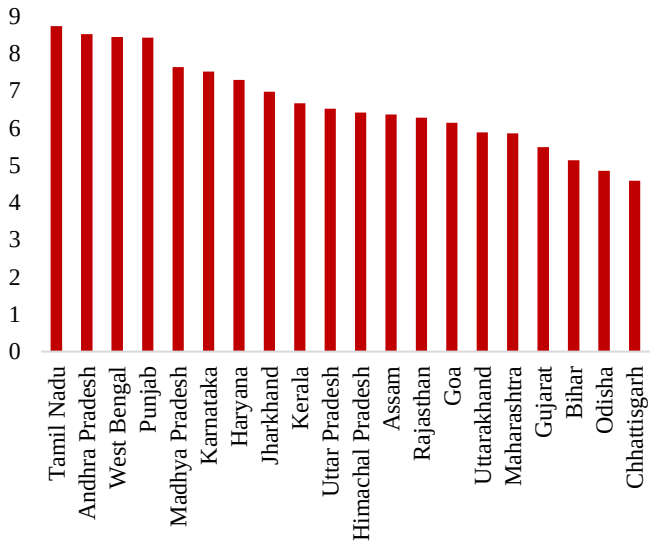
On average, the maturity of the states' debts is lower than that of the Centre and has increased more slowly. About 5 percent of outstanding securities had a maturity of less than a year as of March-end 2022. Even so, the share of states' securities with maturity greater than 10 years has increased from 3.8 percent to nearly 19 percent.[11] A number of states now issue securities of more than 20-year tenure (at end-March 2023, this was the case for 21 percent of the debt of Telangana, 16.4 percent of Tamil Nadu, 9.3 percent of Kerala, 4.4 percent of Rajasthan, 3.0 percent of Punjab, and 1.5 percent of Madhya Pradesh).[12]

Figure 6: Weighted Average Maturity of Outstanding Market Securities

A. Weighted Average Maturity (in years)



B. State-wise Weighted Average Maturity (in years, as of End-March 2022)

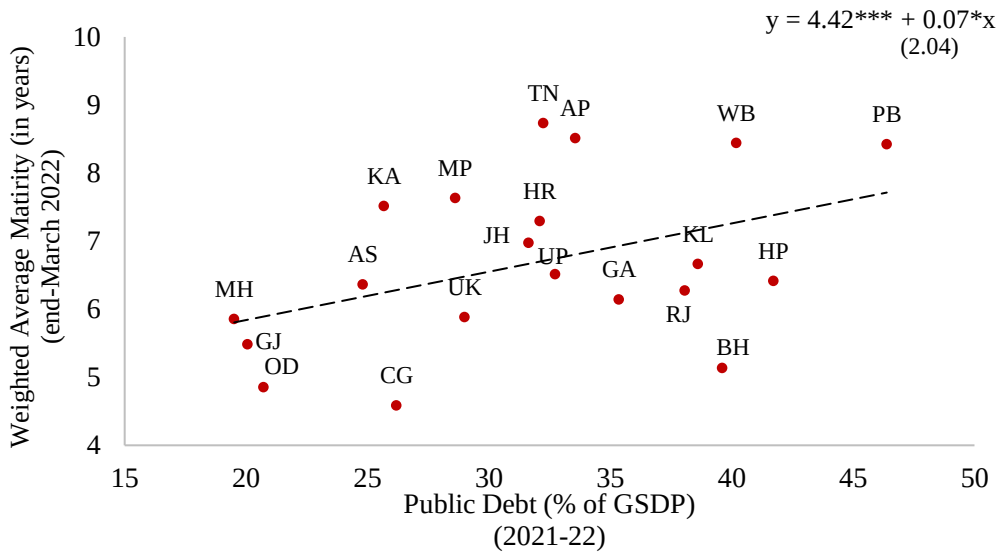


Note: Data for states are from Monthly Reviews of the Economy, Clearing Corporation of India; for the Centre, from Status Paper on Government Debt and Quarterly Reports on Public Debt Management, Ministry of Finance. Telangana, with a weighted average maturity of 15.2 years, is not included in the right panel.

[11] The Centre's short-term debt includes 14-day intermediate treasury bills, 91-day, 182-day and 364-day treasury bills; dated securities maturing in the ensuing one year; and external debt with remaining maturity of less than one year. The states' short-term debt includes market loans maturing within the next one year, Special Drawing Facility (SDF), and Ways and Means Advances (WMA); and repayment of loans to the Centre falling due in the ensuing year.

[12] RBI's State Finance Report 2024 (Table II.5).

Figure 7: Weighted Average Maturity of Securities and Level of Indebtedness



Note: t-statistic in parentheses; *, **, and **** indicate significance at 10, 5, and 1 percent levels, respectively. Telangana is not included in the figure.

Somewhat surprisingly, moreover, more indebted states actually issue longer tenor securities (Figure 7).

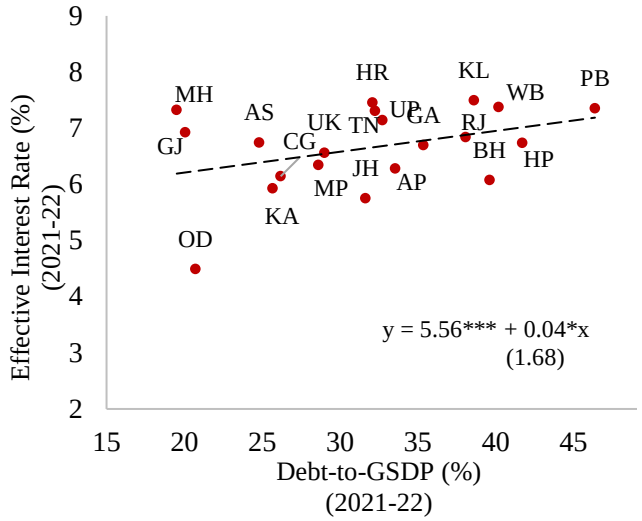
3.2. Nominal Effective Interest Rate

As we saw in the previous section, the effective interest rate (calculated as interest payments divided by the debt stock of the previous year, as in IMF 2022) of both the Centre and the states has declined from levels prevailing in the early 2000s. This fall has been steepest for the states, from an average of 10 percent in 2000-01 to 6.9 percent in 2022-23. As a result, effective interest rates facing the Centre and the states have converged. While there is some variation in effective interest rates paid by the states, this is not significantly associated with state-debt-to-GSDP ratios (Figure 8, and Appendix IV, Table IV.2).[13]

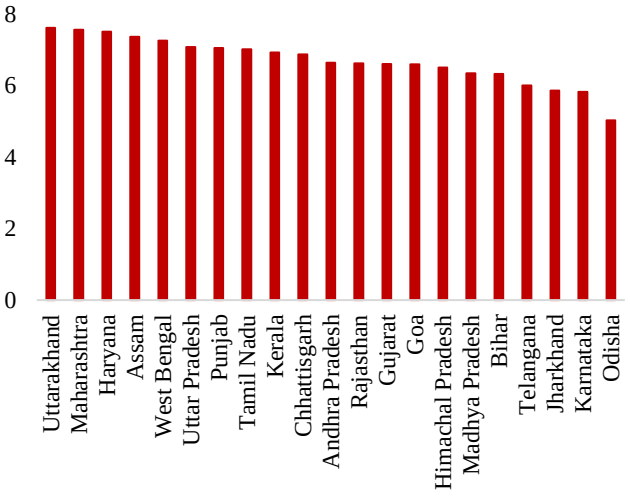
[13] In Table IV.2, we regress nominal effective interest rate on debt to GSDP one year at a time from 2014-15 to 2022-23. We do not find any evidence of a significant association between the two variables and the relationship does not exhibit any changes over time.

Figure 8: Nominal Effective Interest Rate on Outstanding Debt of States

A. Effective Interest Rate and Outstanding Debt (2021-22)



B. Nominal Effective Interest Rate (%) (2022-23)



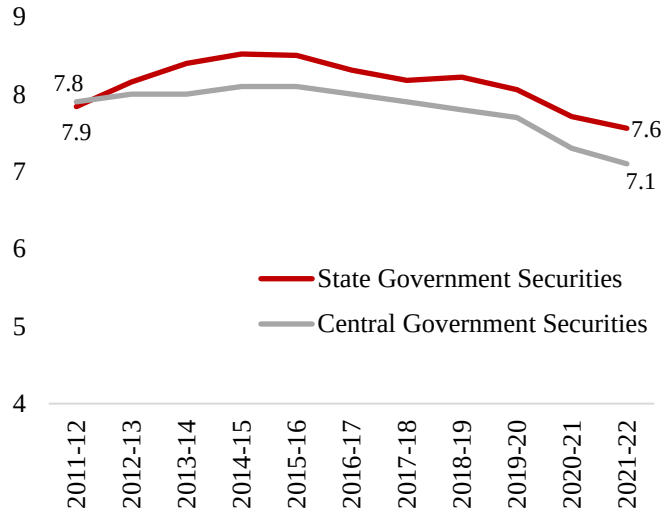
Note: Data for interest payments and debt are from RBI (downloaded from CEIC); GDP data has been taken from MoSPI. Effective interest rate is calculated as total interest payments as percent of total outstanding liabilities of the previous year.

Between 2011-12 and 2021-22, the weighted average coupon on outstanding marketable securities of both the states and the Centre declined (Figure 9A). The average yield on primary issues of securities of state governments saw a larger decline, dropping from about 11 percent in 2000-01 to 7.7 percent in 2022-23. For the Centre, the decline was from 7.8 percent to 7.6 percent. Similar to the weighted average coupon on the outstanding stock, the weighted average yield on primary issues of state governments has consistently been higher than the weighted average yield on Central Government securities. In Appendix IV (Table IV.1), we present the data for weighted average yield and effective interest rates for each state along with their nominal GSDP growth rates. The range of nominal effective interest rate is wider than the range of weighted average yield.

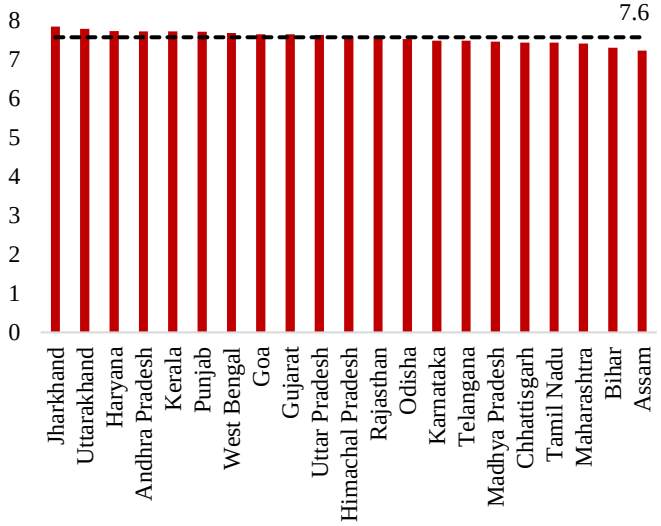
States display little heterogeneity in the rates at which they borrow (Figure 9B). Rates do not vary significantly with the level of indebtedness, the primary deficit, or the rate of economic growth. This could be due to the existence of an implicit guarantee from the Central Government; the fact that the largest investors in government bonds (public sector banks, insurance companies and Provident Funds, themselves owned by the Central Government, and not profit-maximizing entities) do not have an incentive to discriminate across states; or the fact that the securities of different states all carry identical risk weights in regulatory calculations. In addition, the RBI, by carefully scheduling the calendar of borrowing and coaxing government-owned investors to hold the bonds of the states, ensures that interest rates on state debt remain in a tight range.

Figure 9: Average Coupon Rate on Outstanding Securities

A. Weighted Average Coupon on Outstanding Debt (%)



B. State-wise Weighted Average Coupon on Outstanding Securities (%) (as of End-March 2022)



Note: Data for the states' weighted average coupon on outstanding debt are from Monthly Reviews of the Economy published by Clearing Corporation of India (CCIL); weighted average coupon on outstanding debt for Central Government securities have been taken from the Status Paper on Government Debt and Quarterly Report on Public Debt Management (multiple issues). State-wise details have been taken from the Status Paper on Government Debt 2021-22. These are nominal rates.

The RBI State Finances Report (2024) notes that the weighted average spread of securities of the states over corresponding Central Government securities is small and has declined further in recent years, from 55 bps in 2019-20 to 53 bps in 2020-21, 41 bps in 2021-22, 31 bps in 2022-23, and 24 bps in 2023-24 (until October 2023). It notes that differences across states are small: on 10-year fresh issuances of securities, the difference between the largest and smallest spread was a mere 6 basis points in 2019-20 and 10 bps in 2020-21. Spreads then narrowed further to 4, 3, and then 2 bps in the three subsequent years. Especially striking is the comparison between Gujarat and Punjab. Punjab, with a debt-to-GSDP ratio of over 45 percent, has the same average rate on its securities as Gujarat, which has a debt-to-GSDP ratio of about 20 percent (Table 3).

Table 3: Comparing Duration and Yield on Securities of Gujarat and Punjab

			New Issues of Securities in the Year			Outstanding Securities		
State	**Year**	**Debt to GSDP (%)**	**Weighted Avg. Yield (%)**	**Weighted Avg. Maturity**	**Issued Amount (Rs Cr)**	**Weighted Avg. Coupon (%)**	**Weighted Avg. Maturity**	**Outstanding Amount (Rs Cr)**
Punjab	**FY 2022-23**	46.8	7.7	18.0	28,460	7.61	10.02	2,11,901
	FY 2023-24	47.6	7.6	13.0	28,536	7.59	10.24	2,41,419
Gujarat	**FY 2022-23**	18.9	7.7	8.7	43,000	7.60	5.33	2,83,057
	FY 2023-24	18.2	7.5	7.4	22,500	7.53	4.85	2,95,005

Note: Data are as of end-March for each financial year. Debt-to-GSDP ratio has been taken from the RBI State Finances Report (Budget Estimates for 2023-24). Data for new issues is from CEIC (compiled from RBI's press release on State Government Securities Auction Results). The data pertains to only the new issue with the highest tenure in that auction for each state. To calculate the weighted average maturity and weighted average yield, the yield and maturity on each new issue is weighted by the issued amount in a financial year. Data for outstanding securities has been taken from Rakshitra report of Clearing Corporation of India.

4. Debt Levels across States

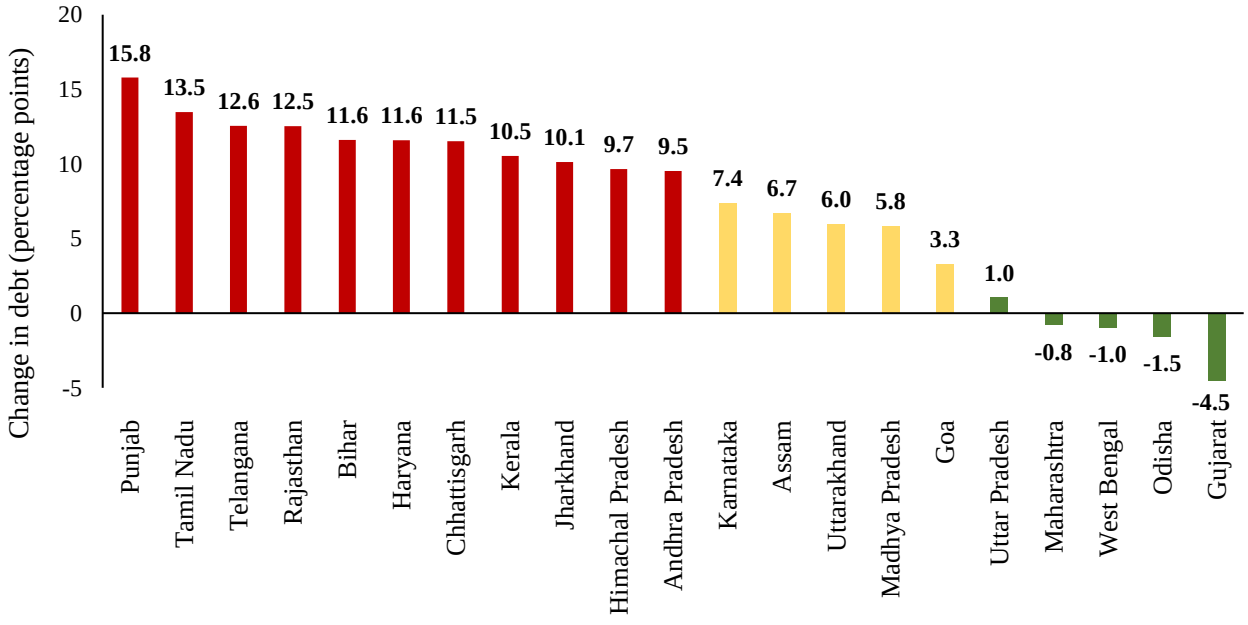
We focus on 21 largest states, that collectively account for about 96 percent of the national population and 95 percent of national GDP (Appendix III, Table III.2). There is significant heterogeneity across these states, both in the level and increase of indebtedness from 2012-13 to 2022-23. Except Gujarat, Odisha, West Bengal and Maharashtra, debt ratios have increased in all states over this period (Figure 10).

About half of the states (11) have added more than 10 percentage points to their respective debt-to-GSDP ratios over the last decade. We categorize these as 'High Increase in Debt' states. This group includes Bihar, Andhra Pradesh, Chhattisgarh, Haryana, Himachal Pradesh, Jharkhand, Kerala, Punjab, Rajasthan, Tamil Nadu, and Telangana. On average, a state in the High group added 11.7 percentage points to its debt-to-GSDP ratio, with Punjab at the top of the list, with an increase of 15.6 percentage points.

Five states, including Goa, Assam, Karnataka, Madhya Pradesh, and Uttarakhand, had moderate increases in debt ratios over the period, averaging 5.8 percentage points which are categorized as 'Medium Increase in Debt' states. The remaining five states, including Maharashtra, Gujarat, Odisha, Uttar Pradesh, and West Bengal, exhibited fiscal prudence. Their debt ratios fell or increased at most by a small amount. The average decline in debt ratios for this group, clubbed together into 'Low Increase in Debt' group was 1.4 percentage points over the decade.

A more comprehensive comparison across these groups is in Appendix V, Table V.1.

Figure 10: Change in Debt-to-GSDP in 2012-13 and 2022-23



Note: Data are from the RBI State Finances Report; and authors' calculations.

Among the correlates of the increase in debt in the last ten years, the most significant is primary deficit, followed by contingent liabilities. These patterns are borne out in the regression results reported in Table 4 (as well as in Appendix V, Table V.2). We regress

potential correlates of change in debt on a dummy variable taking on a value 1 for the states that experienced an above median increase in debt, and 0 for the states that experienced a below median increase in debt during the last decade, as per Equation 1:

$$y_i = \alpha_0 + \alpha_1 \text{Dummy for Above Median Increase in Debt}_i + \varepsilon_i \quad (1)$$

In Equation 1, i indexes states, y refers to the variables of interest potentially correlated with increase in debt, and the dummy as described above. Thus, the dummy (High Increase in Debt) takes a value 1 if the state is Bihar, Andhra Pradesh, Chhattisgarh, Haryana, Himachal Pradesh, Jharkhand, Kerala, Punjab, Rajasthan, Tamil Nadu, and Telangana; and 0 for the remaining 10 states.

Results indicate that States with a larger increase in debt have had higher primary deficits and larger contingent liabilities (these variables are statistically significant at 1 percent and 5 percent, respectively). They have also had a less favorable growth-rate-interest-rate differential (though not significantly so). Average expenditure over the 10-year period does not vary significantly between the different groups. Heterogeneity in debt outcomes is driven entirely by revenue expenditure patterns.

States in the High group spend a large proportion of their revenues on committed expenditures such as wages, salaries, pensions, subsidies, and interest payments. Such expenditure is higher for these states by 1.4 percentage points of GSDP. Committed expenditure accounts for a full 67 percent of their total revenue receipts, compared to 54 percent for the remaining states. Moreover, average committed expenditure for states in the High group is about 10 percentage points higher than that of the Low group. When we include spending on subsidies, committed expenditure as a percent of the total revenue exceeds 90 percent for some states in the High group, with Punjab being the highest with committed expenditure at 96 percent of its revenue receipts. Kerala and Haryana, with 78 percent and 77 percent of committed expenditure (as percent of total revenue receipts), respectively, are second and third highest spenders. Thus, the higher primary deficits of High group states are more an issue of more spending and suboptimal composition of their expenditures than one of lower revenues.[14]

[14] These patterns are robust to defining the dependent variable as the change in debt, rather than a discrete dummy. We regress actual change in debt to GSDP (between 2012-13 and 2022-23) on the same set of correlates as in Equation 1. The results, presented in Appendix V, Table V.2, are very similar to those obtained in Table 4.

Table 4: Accounting for Change in Debt-to-GSDP across States during 2012-13 to 2022-23

	(1)	(2)	(3)	(4)	(5)	(6)
	Change in Debt (% of GSDP) (2012-13 to 2022-23)	Primary Deficit (% of GSDP)	Real Growth Rate	Real Effective Interest Rate	Real Growth minus Real Effective Interest Rate	Contingent Liabilities (% GSDP)
States with Above Median Increase in Debt (dummy = 1)	9.48***	0.84***	-0.23	0.77	-1.00	2.75**
	(6.87)	(3.94)	(0.51)	(1.70)	(1.43)	(2.45)
Constant	2.24**	0.98***	6.18***	2.32***	3.86***	1.64*
	(2.25)	(6.33)	(18.80)	(7.11)	(7.64)	(2.02)
No. of Observations	21	21	21	21	21	21

	(7)	(8)	(9)	(10)	(11)	(12)
	Revenue Receipts (% GSDP)	States' Own Revenue (% GSDP)	Transfers from Centre (% GSDP)	Expenditure (% GSDP)	Revenue Expenditure (% GSDP)	Capital Expenditure (% GSDP)
States with Above Median Increase in Debt (dummy = 1)	0.10	-0.10	0.20	1.39	1.41	-0.02
	(0.05)	(0.15)	(0.10)	(0.71)	(0.88)	(0.04)
Constant	14.91***	7.83***	7.09***	17.61***	14.67***	2.94***
	(10.64)	(17.57)	(5.21)	(12.44)	(12.72)	(8.70)
Observations	21	21	21	21	21	21

	(13)	(14)	(15)	(16)	(17)	(18)
	Expenditure on Wages & Salaries (% GSDP)	Expenditure on Pension (% GSDP)	Interest Payments (% of GSDP)	Subsidies (% GSDP)	Pension, Wages & Salaries, Subsidies, and Interest Payments (% GSDP)	Pension, Wages & Salaries, Subsidies, and Interest Payments (% of Total Revenue)
States with Above Median Increase in Debt (dummy = 1)	0.041	0.28	0.32	0.34	1.20	9.14
	(0.06)	(0.92)	(1.38)	(1.33)	(1.31)	(1.58)
Constant	4.25***	1.76***	1.65***	0.88***	8.07***	55.90***
	(9.00)	(8.06)	(9.92)	(4.66)	(11.89)	(13.01)
Observations	21	21	21	20	20	20

Note: t-statistics are in parentheses; *, **, *** indicate significance at 10, 5, and 1 percent levels, respectively. Data for debt, deficit, revenue receipts (and its components), and expenditure (revenue and capital) are from RBI State Finances Report, averages over 2013-14 till 2022-23. Data for contingent liabilities are from CAG's State Finances Audit Report (multiple years) averages over 2013-14 till 2021-22 (West Bengal's average is for 2013-14 till 2020-21). Data for subsidies is from CAG's State Finance Accounts. Goa is dropped from columns (16) and (17) due to the unavailability of data. For 2021-22 and 2022-23, subsidies data for West Bengal is not available. Data for States' GDP is from MoSPI and State Budget (downloaded from EPWRF). For Andhra Pradesh and Telangana, averages are from 2014-15 due to bifurcation of Andhra Pradesh.

More indebted states spend a larger proportion of their revenues on debt service, not unexpectedly. Interest payments absorb up to a quarter of revenues, leaving fewer resources for core government functions (see Appendix VII, Figure VII.1). Such states display significantly higher average budget deficits and lower economic growth rates.

5. Projecting Debt Levels

Even if currently, due to the implicit guarantee of the Central Government and other institutional support, the debts of the states may appear to be safe, the same may not be true going forward. The concern is state specific: the growth prospects of heavily indebted states are likely to remain impaired; the need to transfer federal resources to them will continue; and there will be adverse implications for prudent states, which will be effectively subsidizing states with heavier debt burdens.

We use extrapolations of the debt-to-GSDP ratio as a way of thinking about debt sustainability at the state level. We use Equation 2 to project the trajectory of public debt for each state (details are in Appendix VI).[15]

$$\Delta\, b_t = \frac{b_{t-1}(r_t - g_t)}{1+g_t} + pd_t \qquad (2)$$

Here b_t is the debt-to-GSDP ratio, pd_t is the primary-deficit-to-GSDP ratio (fiscal deficit net of interest payment), g_t is growth of real GSDP, and r_t is the real effective interest rate on public debt; all in year t. $\Delta\, b_t$ is the change in debt-to-GSDP ratio between t and t-1.

We consider a baseline in which primary deficit, real GSDP growth, and the real effective interest rate are assumed to evolve at the same average rate as they did in the last ten years (i.e., during 2013-14 to 2022-23). We project the debt-to-GSDP ratio for each of the states for the next five years, from 2023-24 to 2027-28.

In a second scenario, we use the same parameters but in addition assume that contingent liabilities will be taken onto the budget at a rate of 20 percent of their stock in 2021-22 each year for the next five years.[16]

Projected outcomes are given in Table 5. Under the 'business as usual' scenarios, when primary deficit, the real growth rate and the real interest rate are expected to remain at their average levels of past ten years, a majority of states will accumulate additional debt. Debt-to-GSDP ratios are already quite high for some states; these are the same states where debt is likely to increase further (Figure 11).

[15] The exercise assumes that *g*, *r*, and *pd* are exogenous, that is, they are not impacted by the level of debt.

[16] We also conduct this exercise for the seven smaller North-Eastern states that are not included in the above sample of 21 states. The results are summarized in Appendix VI (Tables VI.2 and VI.3).

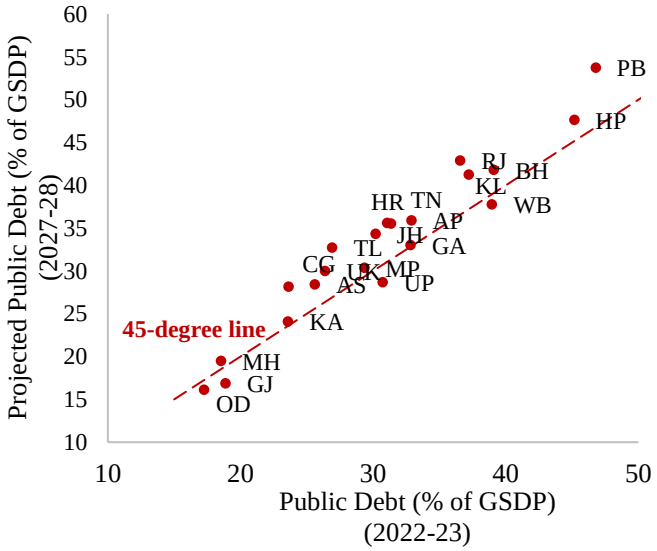
Table 5: Projected Debt-to-GSDP in 2027-28

				10-year averages (2013-14 to2022-23)				**Scenario 1: Baseline scenario**			**Scenario 2: Baseline + Contingent Liabilities are absorbed**	
	Debt/ GSDP in 2012-13	Debt/ GSDP in 2022-23 (% of GSDP)	Change in Debt/GSDP in last 10 years	Primary Deficit (pd) (% of GSDP)	Real GSDP Growth (g) (%)	Effective Interest Rate (r) (%)	Growth-Interest Differential (g-r) (percentage points)	Projected Debt/GSDP in 2027-28	Change in Debt/GDP in 2027-28 over 2022-23	Contingent Liabilities/ GSDP stock in 2021-22	Projected Debt/GSDP in 2027-28	Change in Debt/GSDP in 2027-28 over 2022-23
Andhra Pradesh	23.4	32.9	9.5	2.3	7.3	1.7	5.6	35.3	2.4	10.4	44.7	11.8
Assam	18.9	25.6	6.7	1.8	7.5	2.6	4.8	28.4	2.8	0.1	28.5	2.9
Bihar	27.5	39.1	11.6	2.0	5.7	2.0	3.7	41.8	2.7	3.9	45.4	6.3
Chhattisgarh	12.1	23.6	11.5	1.7	6.3	2.8	3.5	28.2	4.5	4.8	32.6	9.0
Goa	29.5	32.8	3.3	0.8	5.7	3.2	2.5	33.0	0.2	0.8	33.8	1.0
Gujarat	23.4	18.9	-4.5	0.3	8.1	3.6	4.5	16.9	-2.0	0.2	17.0	-1.9
Haryana	19.5	31.1	11.6	1.5	4.2	2.9	1.3	36.5	5.4	2.8	38.3	7.2
Himachal Pradesh	35.5	45.2	9.7	1.0	5.6	4.6	1.1	47.6	2.4	1.1	48.7	3.5
Jharkhand	20.1	30.2	10.1	1.5	5.0	2.8	2.1	34.3	4.1	0.2	34.5	4.3
Karnataka	16.2	23.6	7.4	1.5	7.6	1.4	6.2	24.1	0.5	1.7	25.6	2.0
Kerala	26.7	37.2	10.5	1.7	4.9	2.5	2.4	41.3	4.1	4.8	45.8	8.6
Madhya Pradesh	23.5	29.3	5.8	1.8	6.0	0.4	5.6	30.4	1.0	3.1	33.1	3.8
Maharashtra	19.3	18.5	-0.8	0.5	4.9	3.3	1.6	19.5	1.0	1.6	21.1	2.6
Odisha	18.8	17.2	-1.5	0.7	6.8	1.1	5.6	16.1	-1.1	0.9	16.9	-0.3
Punjab	31.0	46.8	15.8	1.6	5.1	4.7	0.4	53.7	6.9	3.3	57.0	10.2
Rajasthan	24.0	36.6	12.5	2.4	5.7	2.5	3.2	42.9	6.3	7.9	50.3	13.7
Tamil Nadu	17.9	31.4	13.5	1.6	6.3	3.8	2.5	35.5	4.2	4.4	39.8	8.4
Telangana	14.4	26.9	12.6	2.3	7.1	2.9	4.2	32.7	5.8	12.0	41.4	14.5
Uttar Pradesh	29.7	30.7	1.0	0.7	5.8	1.8	4.0	28.7	-2.0	8.8	36.9	6.2
Uttarakhand	20.4	26.4	6.0	1.2	4.9	3.3	1.6	30.0	3.6	0.1	30.1	3.7
West Bengal	39.9	39.0	-1.0	0.6	4.6	2.4	2.1	37.8	-1.2	0.7	38.4	-0.5

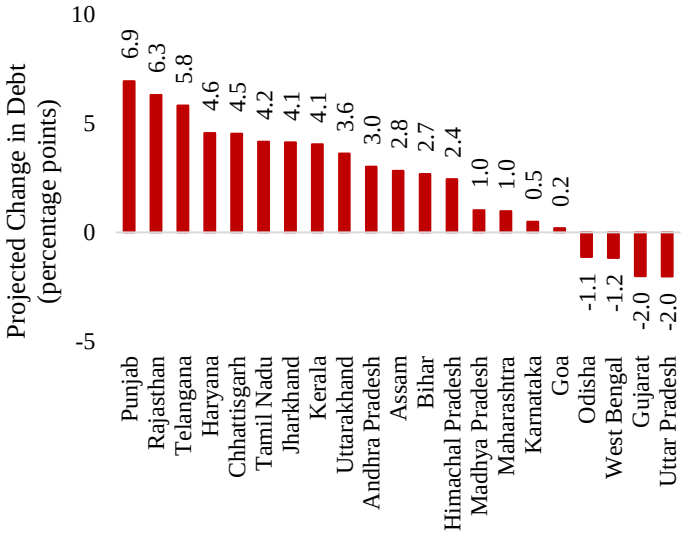
Note: Debt, primary deficit, and contingent liabilities are in percent of GSDP of the respective states. Effective interest rate has been calculated as total interest payments divided by total outstanding liabilities in the previous year. Deflator growth has been calculated as nominal growth rate minus real growth rate. For Andhra Pradesh and Telangana, data used is from 2014-15 rather than 2012-13 due to the bifurcation of Andhra Pradesh. For contingent liabilities, we have used the data for 2021-22 from CAG State Finances Audit Reports, it being the latest year for which actual data is available for all state governments (for West Bengal, it is available until 2020-21).

Figure 11: Projected Level of Debt and Increase in Debt across States

A. Public Debt in 2022-23 v/s Projected Public Debt in 2027-28



B. Projected increase in Debt-to-GDP



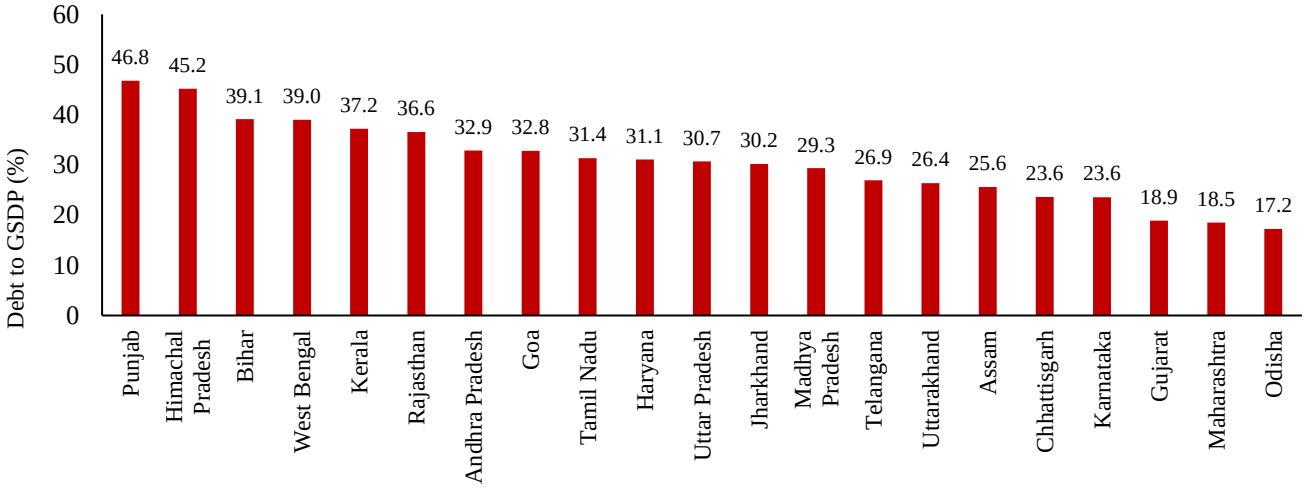
Note: Data for debt has been taken from RBI State Finances Report; and authors' calculations.

Currently almost all states have debt-to-GSDP ratios greater than 20 percent (exceptions are Gujarat, Odisha, and Maharashtra; these states will likely remain the least indebted). More than half of states have debt levels exceeding 30 percent, and two states, Punjab and Himachal Pradesh, have debts exceeding 40 percent. As projected in the baseline scenario, more states will have debt levels above 40 and even 50 percent of GSDP by the end of the period. Punjab's debt will exceed 50 percent, and four states comprising Himachal Pradesh, Rajasthan, Bihar, and Kerala will have debt ratios above 40 percent. Rankings change little when adding the materialization of contingent liabilities. (Figure 12).[17]

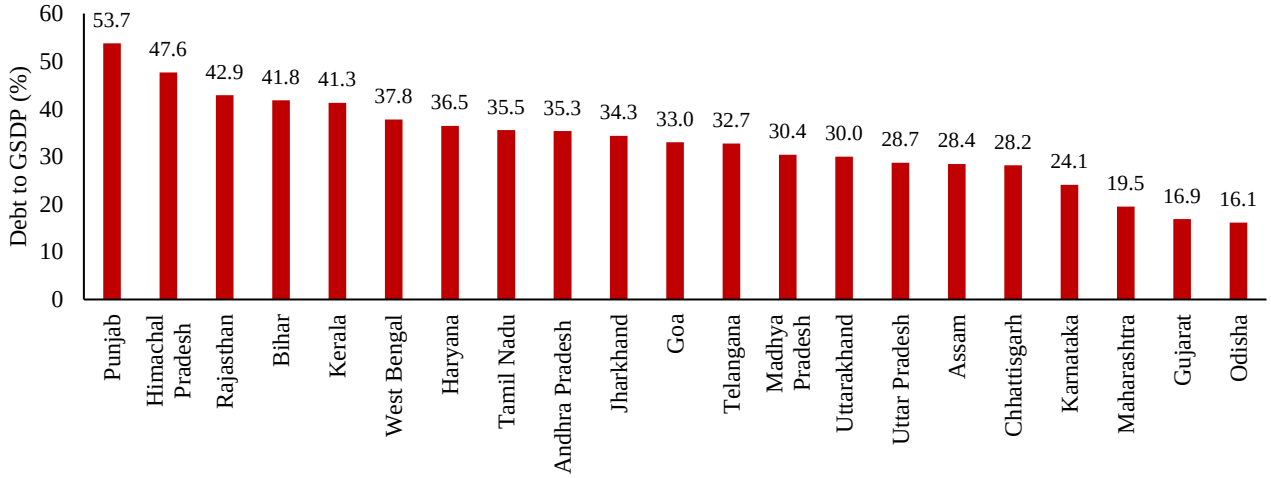
[17] Punjab's debt ratio is projected to reach 57 percent, and Rajasthan's to exceed 50 percent. Andhra Pradesh and Telangana will have debt ratios above 40 percent, while the debt ratios of Tamil Nadu, Haryana, and West Bengal will approach this figure. In contrast, the debt ratio for Uttar Pradesh would decline under the baseline scenario due to a nearly zero primary deficit and one of the most favorable growth-interest differentials. However, it is projected to increase by 6.0 percentage points in the second scenario due to a high stock of contingent liabilities.

Figure 12: Current and Projected Debt-to-GSDP across States

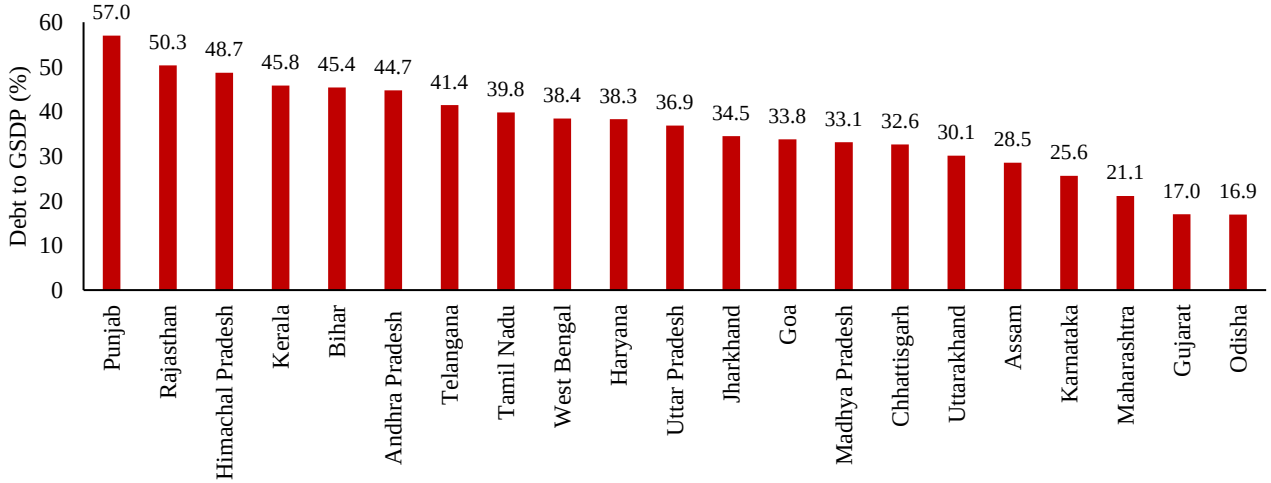
A. Debt-to-GSDP in 2022-23



B. Projected Debt-to-GSDP in 2027-28 Under Baseline Scenario



C: Projected Debt-to-GSDP in 2027-28 If Contingent Liabilities Are Absorbed Too

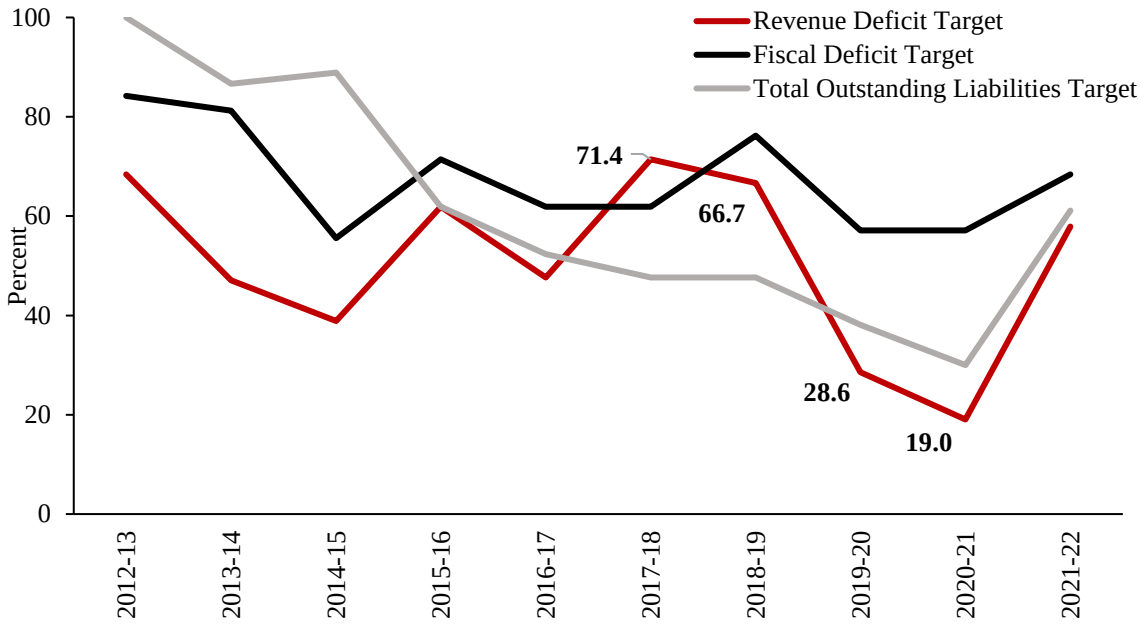


Note: Data for debt has been taken from the RBI State Finances Report; and authors' calculations.

6. Fiscal Rules

States enacted fiscal rules in the mid-2000s. Typically, these target the revenue deficit, fiscal deficit, and debt as percent of GSDP.[18] We compiled data on compliance with fiscal rules for each of the 21 states during the 10 years spanning 2012-13 to 2021-22, attaching a score of 1 for each year they complied with the rule and 0 for the years they did not. Average compliance across the three rules is calculated as a simple average of the percentage compliance of the three targets for each state (Figure 13).

Figure 13: Percentage Compliance with Each Fiscal Rule Target across States



Note: Data are compiled from CAG's State Finances Audit Reports; and authors' calculations.

Data are from CAG's State Finances Audit Reports. These reports, available annually for each state, code whether the state has met their fiscal targets or not. As per the fiscal rules (Fiscal Responsibility and Budget Management Acts) of the States, they have to issue a medium-term fiscal plan (MTFP) in their annual budgets with annual rolling targets. In addition, the Finance Commissions also suggests fiscal targets for the states. The CAG assesses compliance based on the MTFP targets if they are available. Otherwise, compliance is recorded as per the targets suggested by the Finance Commission.

[18] Some states also have a target for contingent liabilities, though we do not consider this in the analysis immediately below. Only some states have a rule for outstanding guarantees, and the data on this is patchy. Where available, it shows 100 percent compliance. Thus, we focus only on the remaining three rules. We have compiled the data for different targets from CAG State Finances Audit Reports of States from 2012-13 to 2021-22. The data for Andhra Pradesh and Telangana begin from 2014-15 and 2015-16, respectively. The CAG State Finances Audit Reports are unavailable for the following states and years: Andhra Pradesh (2014-15), Assam (2013-14), Chhattisgarh (2014-15), Goa (2013-14), Karnataka (2013-14), Maharashtra (2021-22), Tamil Nadu (2013-14), Uttarakhand (2013-14) and West Bengal (2021-22). The values corresponding to these states and years are hence recorded as missing values in the dataset. The average compliance across targets is a simple average of compliance with the three targets for each state.

Of the 21 states analyzed, 5 have compliance rates of more than 80 percent, while 5 have compliance rates of less than 40 percent. Kerala and West Bengal have the worst records, with 10 and 19 percent compliance, respectively (refer to Appendix VIII, Figure VIII.2). On average, states are found to follow their rules about 60 percent of the time. Compliance is higher with fiscal deficit targets (67 percent) and debt targets (61 percent) than revenue deficit targets (50 percent). As seen in Table 6, and further in Appendix VIII, states that are more indebted or accumulated more debt during the last decade are least compliant with their rules. Odisha and Gujarat have nearly 100 percent compliance, while Punjab and West Bengal, have less than 40 percent compliance. This correlation is established through the following equation:

$$\text{Compliance with rules}_i = \alpha_0 + \alpha_1 \text{Dummy for above median increase in Debt}_i + \varepsilon_i \qquad (3)$$

In Equation 3, i indexes states; the dependent variable, compliance with fiscal rules, refers to the percent compliance with the respective fiscal rule during 2012-13 to 2021-22; and as before, the dummy variable takes on a value 1 for the states that experienced an above median increase in debt, and 0 for the states that experienced a below median increase in debt during the last decade. The results, summarized in Table 6, indicate that a state with above median increase in debt on average has had 18.4 percent lesser compliance with all three fiscal rules.

Table 6: Increase in Debt (% of GSDP) and Compliance with Different Fiscal Rules across States during 2012-13 to 2021-22

Dependent Variable →	**(1)**	**(2)**	**(3)**	**(4)**
	Percent Compliance with Revenue Deficit Rule	**Percent Compliance with Fiscal Deficit Rule**	**Percent Compliance with Outstanding Liabilities Rule**	**Percent Compliance with all Three Rules (average)**
Dummy for Above Median Increase in Debt (dummy = 1)	-22.30 (1.66)	-24.39** (2.32)	-8.57 (0.67)	-18.42* (1.86)
Constant	62.78*** (6.45)	80.22*** (10.54)	64.25*** (6.91)	69.08*** (9.65)
Observations	21	21	21	21
Note: t-statistics are in parentheses; *, **, *** denote significance at 10, 5, and 1 percent levels, respectively. Compliance variables are averages over 2012-13 and 2021-22.				

7. Recommendations

What can be done to strengthen state finances?

First, officials should conduct a forensic analysis identifying the specific revenue shortfalls or expenditure overruns resulting in excessive budget deficits and debt increases in the fiscally worst performing states. Understanding what went wrong in the past is a first step in preventing and remedying problems that may arise in the future.

Second, state governments should improve revenue mobilization through digitalization and administrative streamlining, by broadening the tax base, raising property tax, and adopting new taxes, and by increasing privatization receipts while re-orienting spending toward capacity- and infrastructure-enhancing investment that promises to further boost states' GSDP and revenues.

Third, state governments should acknowledge the risk to the public finances posed by contingent liabilities. These should be addressed by adopting institutional reforms, such as creating self-standing debt management offices at the state level responsible for forecasting contingent liabilities and more generally for executing the state government's debt management strategy, assessing the tradeoffs associated with different strategies, and providing advice to governmental decision makers.

Fourth, to further strengthen institutional capacity, each state could create its own independent fiscal council, whose members would include academics, financial market participants and other experts. Their reports would assess the realism of state government forecasts of revenues and expenditures and offer forecasts of their own, which they would make available to the state government and the public. They would provide independent analyses of the scope for realization of contingent liabilities. The experience of other countries, including some, such as Jamaica, whose population (and therefore, stock of qualified experts) is significantly smaller than that of individual Indian states, points to the feasibility of this approach in middle-income economies. As for decentralization to the state level, the European Union has analogous arrangements in place. Under the most recent reform of its fiscal rules, the European Commission acts as a kind of quasi-fiscal council at the level of the union, receiving and assessing the forecasts of member states and offering forecasts of its own, while each member is required to create its own fiscal council at the state level to similarly assess the budgetary outlook.

Fifth, the RBI should review its policies of intervening in the markets to cap spreads on the bonds of heavily indebted states. Limiting such intervention would strengthen market discipline. To be sure, there may be reluctance to move in this direction on the grounds that states should be treated equally, on borrowing costs just like other conditions, and for fear of contagion from the bonds of poorly performing states to the bonds of others that are innocent bystanders. But without market discipline, there can be no fiscal discipline.

Sixth, the role of the Finance Commission should be reconsidered. The 15th Finance Commission was asked to recommend performance incentives for states in areas like the power sector and solid waste management (Fifteenth Finance Commission Report 2020). However, Finance Commissions have not been asked to consider overall fiscal prudence when recommending allocations. The horizontal devolution of taxes among states, awarded by the Finance Commission every five years, does not provide incentives for fiscal rectitude. Perversely, Finance Commissions are mandated to allocate more resources to states with larger revenue deficits, which is an obvious source of moral hazard and a mechanism through which errant states are subsidized.

Even more ambitiously, the Finance Commission should contemplate new procedures that withhold a portion of agreed transfers to states in violation of those fiscal rules. Such withholding would continue until credible corrective action is taken. Europe has done something similar. Thus, the original Stability and Growth Pact provided for fines against member states that violated its fiscal rules. The European Union (EU) has suspended the transfer of Structural Funds to Hungary due to the country's violation of the EU's asylum policies. At the same time, European experience points to the politically fraught nature of this approach. Member states were reluctant to fine violators of the Stability and Growth Pact on

the grounds that fines would only add to the fiscal burdens of governments already struggling with large budget deficits. They have been reluctant to withhold transfers to governments violating its rules, in all but the most egregious cases, on the grounds that the policy could be corrosive of EU solidarity. Similar issues would arise in India. We are not arguing that a policy of withholding transfers would be easy. But it is worth exploring.

Seventh and finally, there may be room for a fiscal "grand bargain," where heavily indebted states with the worst prospects receive a modicum of debt relief (a portion of their debt is transferred to the balance sheet of the central government) in return for their conceding additional Central Government oversight and even a loss of fiscal autonomy. Such bargains have worked in other fiscal federations, such as Brazil in the 1990s. After ad hoc bailouts of Brazilian states in 1989 and 1993 that encouraged the rescued governments to increase their spending and deficits subsequently, a third bailout in 1997 was conditioned on state governments committing to fiscal adjustment programs and pledging own and shared revenues as guarantees to the federal government for service of the restructured debt (Bevilaqua 2002). Thus, when Minas Gerais suspended debt-service payments in 1999, the Brazilian federal government withheld state revenues in the amount of the scheduled debt service and refused to extend a federal guarantee. These steps discouraged similar behavior on the part of other states.

These measures would strengthen the finances of State governments and put their debts on a sustainable footing. In turn, this would do much to enhance the overall fiscal stability of the Indian public sector.

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Appendix I: Data Sources

Table I.1: Sources and relevant information for all variables

Variable	Source	Time Period	Other Relevant Information
Total Outstanding Liabilities	EPWRF; RBI State Finances Report	1990-91 till 2022-23	Data for 2021-22 (Accounts), and 2022-23 (Revised Estimates) is from RBI's State Finances Report
Fiscal Deficit			
Primary Deficit			
Interest Payments			
Total Receipts			
Tax Revenue			
Own Tax Revenue			
Tax Revenue from Centre			
Own Non-Tax Revenue			
Grants from the Centre			
Revenue expenditure			
Expenditure on pensions			
Expenditure on wages and salaries			
Expenditure on subsidies	CAG State Finance Accounts (multiple years)	2013-14 till 2022-23	Goa is dropped as its data is not available. For 2021-22 and 2022-23, subsidies data for West Bengal is not available. RBI State Finances Report has the expenditure on subsidies only from 2018-19, and the data is not available consistently for all states, hence we took the data from CAG.
Capital Expenditure (Capital Outlays + Loans and Advances by State Government)	Calculated by adding the data for Capital Outlays and Loans and Advances as per the definition used by RBI's State Finances Report. Data are from EPWRF; RBI State Finances Report.	1990-91 till 2022-23	Data for Capital Outlays and Loans and Advances for 2021-22 (Accounts), and 2022-23 (Revised Estimates) are from RBI's State Finances Report
Total Expenditure (Revenue + Capital Expenditure)	Calculated by adding Revenue and Capital Expenditure		
Nominal GSDP	EPWRF; MoSPI	1990-91 till 2022-23	For 2022-23, data for Maharashtra is from its Economic Survey. 2011-12 back series has been used from EPWRF for GSDP data prior to 2011-12.
Real GSDP	EPWRF; MoSPI		
Contingent Liabilities	RBI State Finances Report (for States' Total) CAG State Finances Audit Reports for state-wise data (2013-14 till 2021-22)	1991-92 till 2021-22 (for States)	Data for 2022-23 is not available for all states from the CAG audit reports. There are missing data points and inconsistencies between subsequent years of data revision in contingent liabilities data provided in RBI State

			Finances Report. Hence, we took the data from CAG.
Effective Interest Rate	Calculated as interest payments in time period t over total outstanding liabilities in time period t-1	1991-92 till 2022-23	
Deflator Growth Rate/Inflation Rate	Calculated as nominal GSDP growth rate minus real GSDP growth rate	1990-91 till 2022-23	
Duration of Debt (Long term/Short term)	Status Paper, Ministry of Finance	2000-01 to 2021-22	Long term debt calculated as 100 - % of short term debt.
Weighted Average Maturity (in years)	Monthly Reviews of the Economy, Clearing Corporation of India (CCIL)	2012-13 to 2023-24	
Weighted Average Coupon	Monthly Reviews of the Economy, Clearing Corporation of India (CCIL)	2012-13 to 2023-24	
Weighted Average Yield	RBI DBIE	1980-81 to 2022-23	
Ownership of State Government Securities	Handbook of Statistics on the Indian Economy (RBI).	1990-91 to 2021-22	For most of the sub-components, data prior to 2007-08 is not available.
Centre's Gross Debt	Calculated as consolidated debt minus state's debt minus loans and advances from the Centre		
Centre's Net Debt	Calculated as consolidated debt minus state's debt		
Centre's Fiscal Deficit	CEIC (compiled from Union Budget)	1990-91 to 2022-23	
Centre's Primary Deficit			
Centre's Contingent Liabilities	Annual Report of the RBI, Union Budget Documents and CAG Reports	1991-92 till 2021-22	

Appendix II: Transfers from the Centre to States

Vertical Gap between Centre and State

Table II.1: Shares of total revenue and total expenditure for Centre and States across Finance Commission (FC)

	Revenues		Expenditure	
	Centre	**States**	**Centre**	**States**
12th FC (2005-06 to 2009-10)	63.9	36.1	44.8	55.2
13th FC (2010-11 to 2014-15)	61.9	38.1	43.4	56.6
14th FC (2015-16 to 2019-20)	62.7	37.3	36.9	63.1
15th FC (2021-22 to 2022-23)	63.9	36.1	41.9	58.1

Note: Centre's share is calculated as 100 minus State's shares. For each Finance Commission periods, the ratio is calculated using the formula: $\sum_t Revenue_{\ States} / \sum_t Revenue_{General\ Govt}$. For the 15th Finance Commission, the data is for two years only i.e. 2021-22 and 2022-23.

Breakdown of States' Revenue Receipts

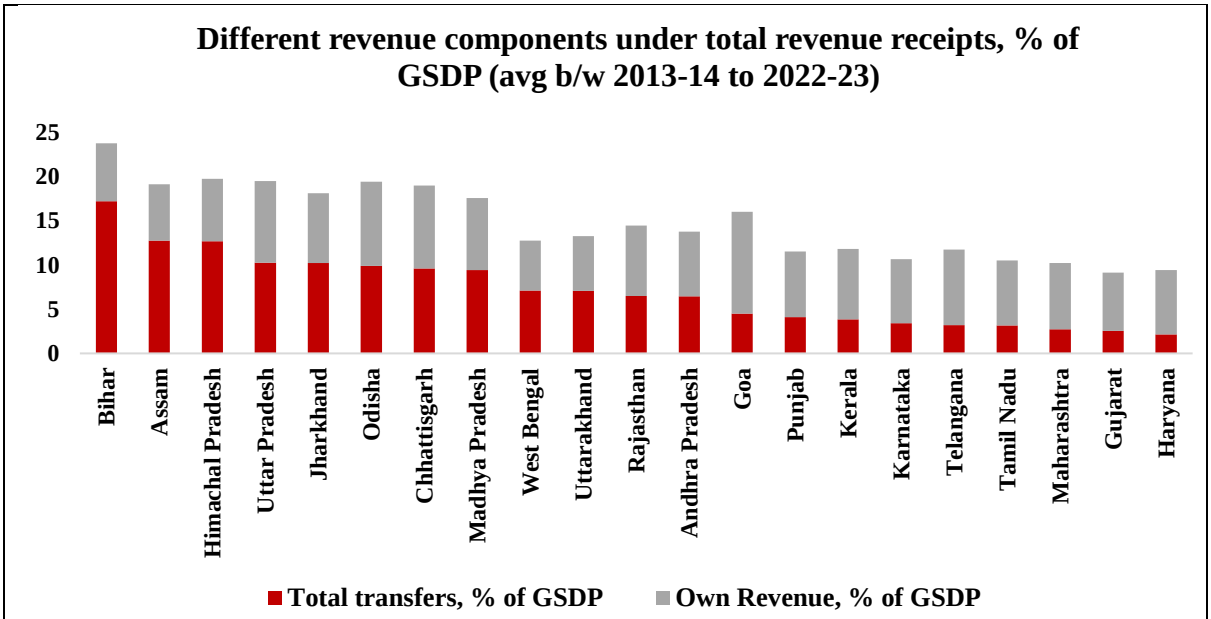
Table II.2: Revenue Receipts, % of GDP

% National GDP	**12th FC** (2005-06 to 2009-10)	**13th FC** (2010-11 to 2014-15)	**14th FC** (2015-16 to 2019-20)	**15th FC** (2021-22 to 2022-23)
States' Total Revenue Receipts (i + ii + iii + iv + v)	12.4	12.5	13.5	14.1
Own Tax Revenue (i)	5.8	6.3	6.3	6.5
Own Non-Tax Revenue (ii)	1.5	1.2	1.2	1.1
Tax Transfers (iii)	2.8	2.8	3.7	3.6
Finance Commission Grants (iv)	0.6	0.5	0.6	0.8
Other Grants (v)	1.7	1.7	1.8	2.2

Note: RBI State Finances Report for total revenue receipt, own tax revenue, own non-tax revenue and tax transfers. Union Budget for the FC grants to States from the Centre. Other grants was calculated as the difference between total revenue receipts and all other components. The nominal GDP from 2011-12 based on the 2011-12 series. For the years 2005-06 to 2010-11, the nominal GDP was spliced using the 2004-05 based series using the standard splicing method. The ratio was calculated using the formula: $\sum_t Revenue\ Receipts_i / \sum_t GDP_i$. 15th FC covers the years 2021-22 and 2022-23. 2020-21 has been dropped since a separate report was recommended by the 15th FC.

Share of Own Revenue and Transfers from the Centre by State

Figure II.1: Revenue Components, % of GSDP (average between 2013-14 and 2022-23)



Note: RBI State Finances Report for state revenue components, MoSPI for GSDP. Own Revenue includes both tax and non-tax revenues, and transfers from the Centre include tax transfers, Finance Commission grants and non-Finance Commission grants.

Table II.3: Matrix for Tax Devolution across Finance Commissions

	Criteria Weights			
Criteria	**12th FC**	**13th FC**	**14th FC**	**15th FC**
Demography	25	25	27.5	27.5
Income Distance	50	47.5	50	45
Area	10	10	15	15
Forest Cover	0	0	7.5	10
Fiscal Performance	15	17.5	0	2.5
Total	100	100	100	100

Equalization Regressions[19]

Table II.4A: Regressions for Per Capita Tax Devolution and Per Capita Income

	Dependent variable is log of per capita tax devolution (avg 2013-14 to 2022-23)		
	All States	**Larger States**	**North-East and Hilly States (NEH)**
Log of Per Capita Income (avg 2010-11 to 2012-13)	-0.12 (0.37)	-0.33** (2.72)	0.49 (0.83)
Constant	10.10*** (2.88)	12.09*** (8.89)	4.10 (0.63)
Observations	27	17	10

Note: t-statistics in parentheses; *, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

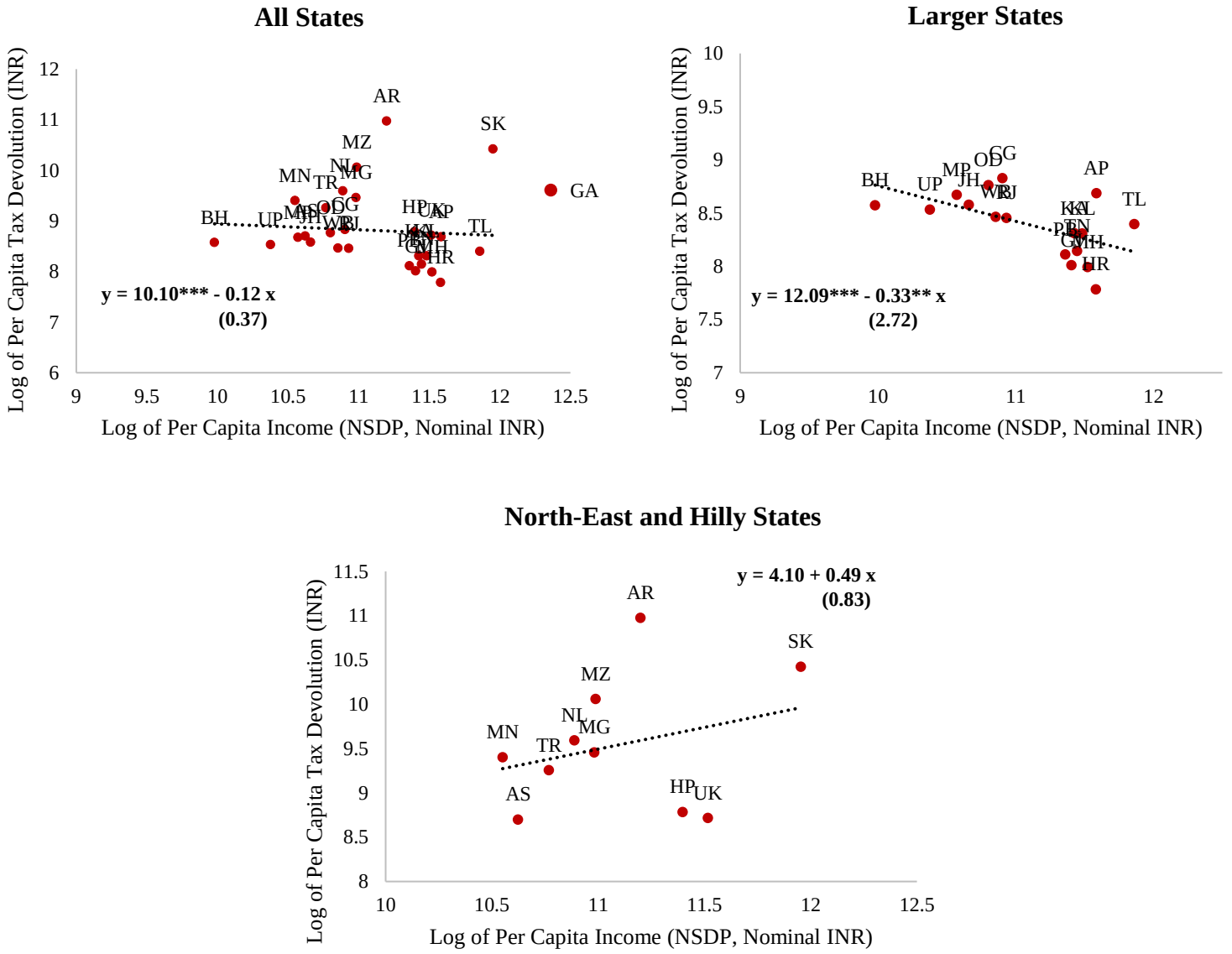
Table II.4B: Regressions for Per Capita Total Transfers (tax + FC grants + non-FC grants) and Per Capita Income

	Dependent variable is log of per capita total transfers (avg 2013-14 to 2022-23)		
	All States	**Larger States**	**North-East and Hilly States (NEH)**
Log of Per Capita Income (avg 2010-11 to 2012-13)	0.02 (0.05)	-0.10 (0.92)	0.40 (0.83)
Constant	9.27** (2.45)	10.10*** (8.14)	5.90 (1.09)
Observations	27	17	10

Note: t-statistics in parentheses; *, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

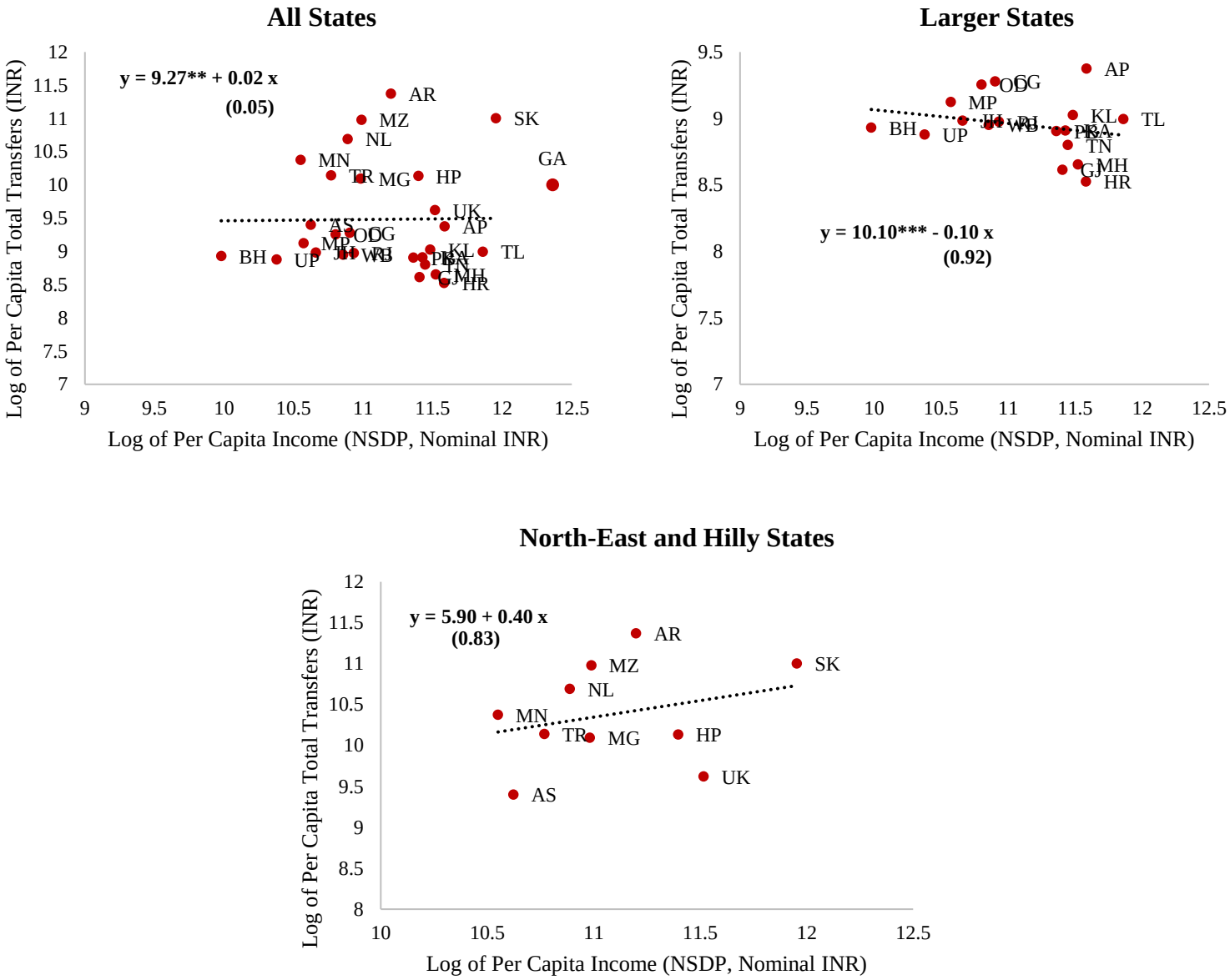
[19] The per capita figures were calculated using the formula: $\sum_t Tax\ Devolution_i \,/\, \sum_t Population_i$. Per capita tax devolution and total transfers (tax + FC grants + non-FC grants) are from 2013-14 to 2022-23, and per capita income (NSDP) are for the three prior years from 2010-11 to 2012-13 for all states, except for Andhra Pradesh and Telangana for which they are from 2017-18 to 2022-23 and 2014-15 to 2016-17 respectively. The time periods are different for Andhra Pradesh and Telangana since the data is available from 2014-15, after the bifurcation of the state. Larger states consist of: Andhra Pradesh (AP), Bihar (BH), Gujarat (GJ), Haryana (HR), Karnataka (KA), Kerala (KL), Madhya Pradesh (MP), Maharashtra (MH), Odisha (OD), Punjab (PB), Rajasthan (RJ), Tamil Nadu (TN), Uttar Pradesh (UP), West Bengal (WB), Chhattisgarh (CG), Jharkhand (JH) and Telangana (TL) (14th FC onwards). NEH states consist of: Arunachal Pradesh (AR), Assam (AS), Himachal Pradesh (HP), Manipur (MN). Meghalaya (MG), Mizoram (MZ), Nagaland (NL), Sikkim (SK), Tripura (TR), and Uttarakhand (UK). We dropped Goa and Jammu & Kashmir since the former is an outlier and the latter is now classified as a Union Territory.

Figure II.2: Per Capita Tax Devolution and Per Capita Income



Note: t-statistics in parentheses; *, **, *** denote significance at the 10, 5, and 1 percent levels, respectively. In the larger states, Goa is excluded from the linear fit and equation. NSDP refers to Net State Domestic Product.

Figure II.3: Per Capita Total Transfer and Per Capita Income



Note: t-statistics in parentheses; *, **, *** denote significance at the 10, 5, and 1 percent levels, respectively. In the larger states, Goa is excluded from the linear fit and equation. NSDP refers to Net State Domestic Product.

Appendix III: Comparing Debt, Deficit, Interest Rate and Contingent Liabilities for Centre and States and Comparing Larger and Smaller States

Table III.1 compares, for the Centre and states, some key drivers of indebtedness over the last three decades. While the states' effective interest rates were higher than those of the Centre, they have converged to similar levels over this period owing to the measures taken to consolidate states' debt. Contingent liabilities remain a concern for the states as they have not seen a consistent decline over the years, and remain higher than the Centre at 3.8 percent of GDP as of 2021-22. The states' primary deficit has been lower than the Centre in all three decades.

Table III.1: Comparing Relevant Variables for the Centre and States

	Centre	**States**	**Centre**	**States**	**Centre**	**States**
	Annual average during 1990-91 to 1999-00		**Annual average during 2000-01 to 2012-13**		**Annual average during 2013-14 to 2022-23**	
Primary deficit, % of GDP	1.6	1.2	1.1	0.7	1.7	1.2
Interest Payments, % of GDP	4.2	1.8	3.8	2.2	3.3	1.7
Fiscal deficit, % of GDP	5.8	3.1	4.9	2.9	5.0	2.9
Nominal Effective Interest rate, %	8.1	10.0	8.0	8.7	7.4	7.5
Contingent Liabilities, % of GDP, end of period (1999-00, 2012-13, 2021-22)	4.2	6.6	2.4	3.0	2.2	3.8
Debt to GDP, % (average)	48.4	22.0	47.7	27.9	48.6	25.7
Debt to GDP, % end of period (1999-00, 2012-13 and 2021-22)	46.1	25.6	44.4	22.2	54.7	27.8

Note: Effective interest rate has been calculated as interest payments as percent of total outstanding liabilities as of the previous year. The Centre's debt is net of what the states owe it. Contingent liabilities data for the Centre and states is available till 2021-22.

Sample of Larger States and Smaller North-Eastern States

Our state-level analysis focuses on the 21 largest states, accounting for about 96 percent of national population and nearly 95 percent of national GDP. We did not include seven smaller North-Eastern states, accounting for about 1.2 percent of national population and 1.1 percent of national GDP, due to their data being erratic. These states are Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura.[20] Descriptive statistics of the larger and smaller states are provided in Tables III.2 and III.3.

As seen from these tables, an average smaller state has a larger debt-to-GSDP ratio and much higher expenditure – about twice as high as that of a larger state. The higher expenditure is seen in both the revenue and capital expenditures by these states. Considering that their own revenue collection is lesser than that of a larger state, it can be concluded that the higher expenditure is enabled by transfers from the Centre to these North-Eastern states.

Table III.2: Statistics for 21 Largest States (Annual Average during 2013-14 to 2022-23)

Variable	Mean	Median	Min	Max
Debt/GSDP, %	27.9	27.2	18.5	40.6
Fiscal Deficit/GSDP, %	3.2	3.3	1.7	4.6
Primary Deficit/GSDP, %	1.4	1.6	0.3	2.4
Total Expenditure/GSDP, %	18.3	18.3	11.0	28.1
Revenue Expenditure/GSDP, %	15.4	16.2	9.0	23.2
Capital Expenditure/GSDP, %	2.9	3.0	1.4	4.9
Total Revenue/GSDP, %	15.0	13.8	9.1	24.1
Own Revenue/GSDP, %	7.8	7.4	5.6	11.6
Transfers from the Centre/GSDP, %	7.2	6.6	2.1	17.5
Share in National GDP (2022-23), %	4.5	3.7	0.3	12.9
States' Per Capita Income/National Per Capita Income (2022-23, at current prices)	1.1	1.2	0.3	1.7

Note: Data are from RBI's State Finances Report (downloaded from EPWRF); and National Commission of Population, Ministry of Health and Family Welfare. Larger states include Andhra Pradesh (AP), Assam (AS), Bihar (BH), Chhattisgarh (CG), Goa (GA), Gujarat (GJ), Haryana (HR), Himachal Pradesh (HP), Jharkhand (JH), Karnataka (KT), Kerala (KL), Madhya Pradesh (MP), Maharashtra (MH), Odisha (OD), Punjab (PB), Rajasthan (RJ), Tamil Nadu (TN), Telangana (TL), Uttarakhand (UK), Uttar Pradesh (UP), and West Bengal (WB). Data for Andhra Pradesh and Telangana begins from 2014-15.

[20] We did not consider Union Territories in the analysis.

Table III.3: Descriptive Statistics for 7 Smaller North-Eastern States Not Included in State Level Analysis (Annual Average during 2013-14 to 2022-23)

Variable	Mean	Median	Min	Max
Debt/GSDP, %	37.5	37.2	25.7	46.5
Fiscal Deficit/GSDP, %	3.3	3.1	2.9	3.8
Primary Deficit/GSDP, %	1.3	1.5	0.3	1.9
Total Expenditure/GSDP, %	40.7	43.8	24.6	59.8
Revenue Expenditure/GSDP, %	33.5	37.3	19.8	45.2
Capital Expenditure/GSDP, %	7.2	5.9	4.8	14.6
Total Revenue/GSDP, %	37.4	40.2	21.7	56.8
Own Revenue/GSDP, %	5.5	5.0	4.5	6.9
Transfers to the State/GSDP, %	31.9	35.1	15.6	50.1
Share in National GDP (2022-23), %	0.16	0.1	0.1	0.3
States' Per Capita Income/National Per Capita Income (2022-23, at current prices)	1.2	0.9	0.5	3.2

Note: Data are from RBI's State Finances Report (downloaded from EPWRF); and National Commission of Population, Ministry of Health and Family Welfare.

Appendix IV: Interest Rates and State GDP (GSDP) Growth Rates

State governments raise debt by issuing securities in the market as well as from other non-marketable sources. Of the total debt of the states, about two-third is marketable securities, while the rest consists of various other sources. The interest paid on primary issues of market securities (referred to as the weighted average yield) is quite similar across states; interest paid on total outstanding liabilities (i.e., debt from both marketable and non-marketable sources) referred to as effective interest rate, is lower but varies more across states (Table IV.1).

Table IV.1: Interest Rates and GDP Growth of the States (Annual Average between 2013-14 and 2022-23)

	I. Weighted average yield on primary issues of market securities	**II. Effective interest rate on outstanding debt**	**III. Nominal GSDP growth**
	States		
Andhra Pradesh	7.6	6.7	12.2
Assam	7.5	7.4	12.2
Bihar	7.7	6.7	10.4
Chhattisgarh	7.6	6.8	10.3
Goa	7.8	7.3	9.8
Gujarat	7.8	7.5	12.0
Haryana	7.8	8.2	11.1
Himachal Pradesh	7.7	7.8	8.8
Jharkhand	7.8	6.7	8.8
Karnataka	7.8	6.5	12.7
Kerala	7.8	7.6	10.0
Madhya Pradesh	7.8	7.1	12.7
Maharashtra	7.7	7.8	9.3
Odisha	7.4	5.7	11.3
Punjab	7.8	8.2	8.6
Rajasthan	7.7	7.6	10.8
Tamil Nadu	7.8	8.3	10.8
Telangana	7.7	8.5	12.7
Uttar Pradesh	7.8	6.8	10.8
Uttarakhand	7.7	7.2	8.8
West Bengal	7.8	8.0	10.1
Average of the states	**7.7**	**7.3**	**10.6**
Range (max-min)	**0.4**	**2.8**	**4.1**
Std. deviation	**0.1**	**0.7**	**1.4**

Note: Data for Andhra Pradesh and Telangana begins from 2014-15 due to the bifurcation of Andhra Pradesh. Effective interest rate in Column II is calculated as interest payments as percent of total outstanding liabilities as of the previous year. Both interest rates are in nominal terms.

In Table IV.2, we present results from regressing effective interest rate on debt to GSDP for the 21 states in the sample. We estimate these regressions for one year at a time. Results show that the effective interest rate does not significantly vary with debt to GSDP, and that this result has not changed over time.

Table IV.2: Nominal Effective Interest Rate and the Level of Indebtedness

(Dependent Variable is Nominal Effective Interest Rate (%))

Years →	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Debt to GSDP (%) (respective years)	0.06* (1.82)	-0.01 (0.23)	0.01 (0.52)	-0.03 (0.56)	0.02 (0.57)	0.02 (0.82)	0.02 (0.67)	0.04 (1.68)	0.01 (0.82)
Constant	6.17*** (8.19)	8.12*** (9.95)	7.45*** (11.25)	8.48*** (6.05)	6.89*** (8.36)	6.70*** (9.30)	6.74*** (8.28)	5.56*** (8.16)	6.25*** (10.92)
Observations	20	21	21	20	21	21	21	21	21

Note: t-statistics are in parentheses; *, **, *** indicate significance at 10, 5, and 1 percent levels, respectively. Data is unavailable for Telangana for 2014-15 and is unavailable for Uttarakhand for 2017-18, reflected in the number of observations being 20 in both these years.

Appendix V: Key Statistics for States Classified by Change in Debt

The level of debt as well as the increase in debt over the last decade has been heterogenous across states, as highlighted in Section 4. Instead of dividing the states into above and below median based on the change in their debt to GSDP ratio between 2012-13 and 2022-23, as in Table 4, we categorized our sample of 21 states into three groups. There are eleven states which fall in the "High Increase in Debt" category, with an increase of 9.5 percentage points or more. Five states exhibited fiscal prudence with their debt levels declining, or increasing by less than 1 percentage point of GSDP, and these are categorized as "Small Increase in Debt". The remaining five states fall in the "Medium Increase in Debt" category. Averages in Table V.1 show that the states in the "High" group have higher primary deficit and contingent liabilities, lower GDP growth, less favorable g-r, and higher expenditure, particularly revenue expenditure.[21]

Table V.1: Key Statistics of the States Classified by Change in Debt (during 2012-13 and 2022-23)

	States with Small Increase in Debt	**States with Medium Increase in Debt**	**States with High Increase in Debt**
	(averages of states within a group)		
Debt in 2022-23 % of GSDP	24.9	27.5	34.6
Change in Debt-to-GDP (percentage points)	-1.4	5.8	11.7
Primary Deficit % of GSDP	0.6	1.4	1.8
Contingent Liabilities % of GSDP	2.1	1.1	4.2
Real GDP Growth Rate (%)	6.0	6.3	5.9
Growth-Interest Differential (percentage points)	3.6	4.2	2.9
Revenue Receipts % of GSDP	14.3	15.5	15.0
State's Own Revenue Receipts % of GSDP	7.7	7.9	7.7
Transfers from Centre % of GSDP	6.6	7.6	7.3
Revenue Expenditure % of GSDP	13.9	15.4	16.1
Capital Expenditure % of GSDP	2.8	3.1	2.9
Total Expenditure % of GSDP	16.7	18.5	19.0

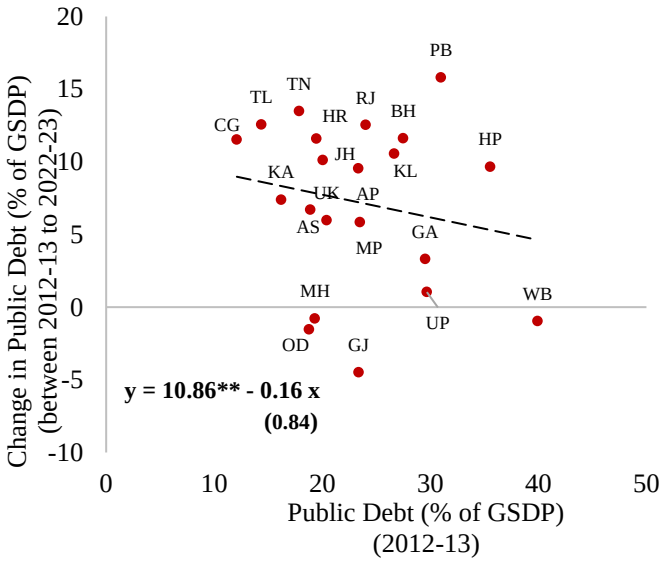
Note: All variables are averages between 2013-14 and 2022-23 unless otherwise noted. Contingent liabilities are averages from 2013-14 to 2021-22 (West Bengal's average is for 2013-14 to 2020-21 as per data availability). States in the small increase in debt category are Gujarat, Odisha, Maharashtra, Uttar Pradesh, and West Bengal; those in the medium increase in debt category are Assam, Goa, Karnataka, Madhya Pradesh, and Uttarakhand; those in the high increase in debt category are Andhra Pradesh, Bihar, Chhattisgarh, Haryana, Himachal Pradesh, Jharkhand, Kerala, Punjab, Rajasthan, Tamil Nadu, and Telangana.

[21] The average contingent liabilities of the states with small increase in debt is higher than that of those with medium increase in debt, driven entirely by Uttar Pradesh's contingent liabilities.

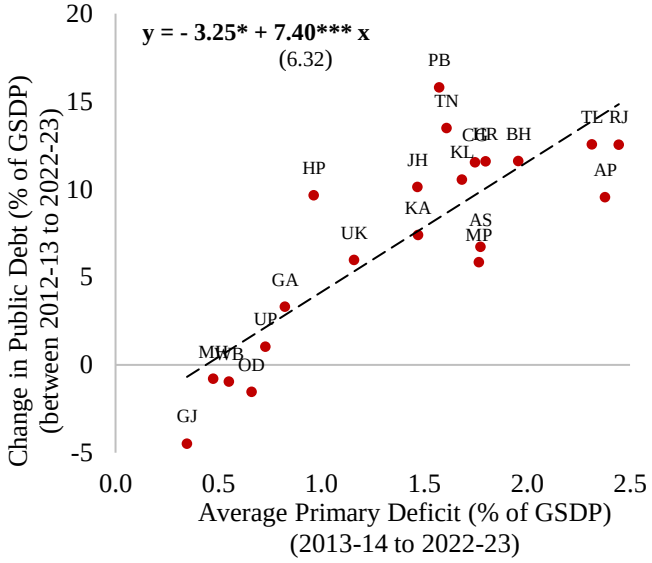
In a more continuous setting, Figure V.1 highlights the relationship between change in debt-to-GSDP during 2012-13 to 2022-23 and initial debt, and 10-year averages of primary deficit, contingent liabilities, and growth-interest differential. Results indicate that states with a higher initial debt burden did not experience a larger increase in debt in the subsequent decade; states with higher contingent liabilities and primary deficit experienced a larger increase in debt (statistically significant at 5 percent and 1 percent, respectively); the impact of a favorable g-r on subsequent increase in debt is negative but not significant.

Figure V.1: Correlates of Changes in Debt-to-GSDP from 2012-13 to 2022-23

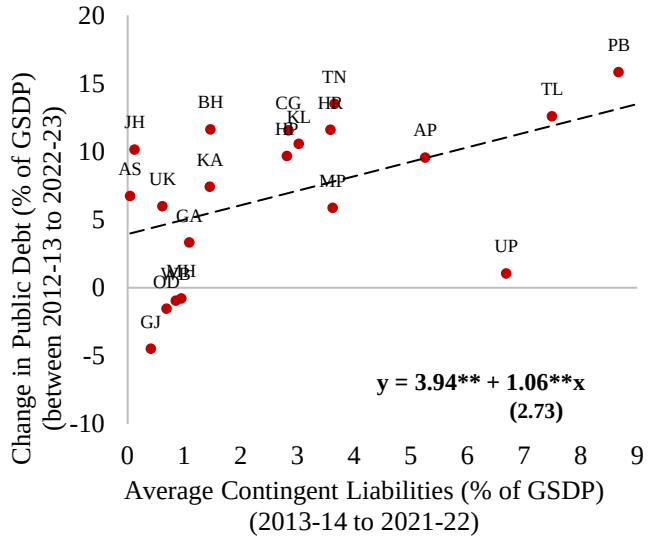
A. Public Debt (% GSDP) in 2012-13 v/s Change in Public Debt between 2012-13 to 2022-23



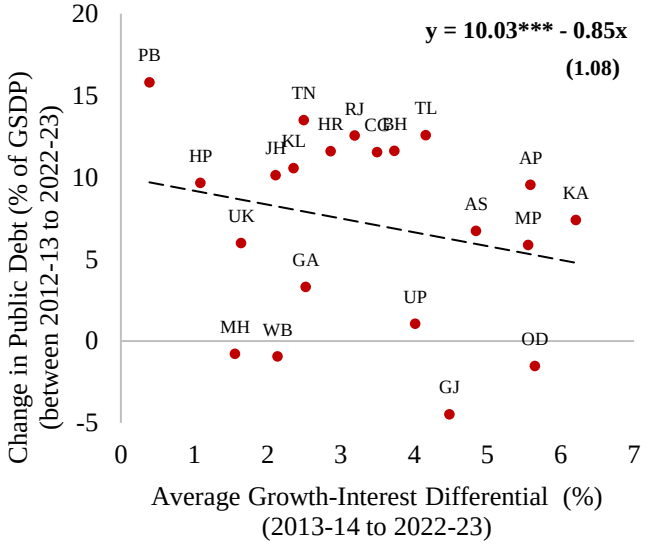
B. Primary Deficit v/s Change in Debt



C. Contingent Liabilities v/s Change in Debt



D. Growth-Interest Differential v/s Change in Debt



Note: t-statistics in parentheses; *, **, *** indicate significance at 10, 5, and 1 percent levels, respectively. Data for debt and deficit are from RBI's State Finances Report; averages over 2013-14 till 2022-23. Data for contingent liabilities are from CAG's State Finances Audit Report (multiple years); averages over 2013-14 till 2021-22 (West Bengal's average is for 2013-14 to 2020-21 as per data availability). MoSPI and State Budget for state's GDP (downloaded from EPWRF). For Andhra Pradesh and Telangana, averages are from 2014-15 due to the bifurcation of the state.

Regressions for Change in Debt

To determine whether our findings in Table 4 are robust, we define an alternate specification to Equation 1, where we test for correlates of change in debt (percent of GSDP) during 2012-13 and 2022-23, rather than for the dummy variable for High group states, i.e., we define the regression equation, as shown below.

$$\text{Change in Debt}_i = \alpha_0 + \alpha_1 X_i + \varepsilon_i \quad (4)$$

In Equation 4, i indexes the states, X refers to the variables of interest potentially correlated with change in debt, and the dependent variable is change in debt in state i during 2012-13 and 2022-23.

Table V.2 summarizes the results of these regression. As before, we see that primary deficit and contingent liabilities are significantly correlated with change in debt (percent of GSDP). Among the revenue and expenditure variables, the only statistically significant correlate of change in debt turns out to be committed expenditure (on pensions, wages and salaries, interest payments and subsidies) whether calculated as a percent of GSDP or as percent total revenue receipts (columns 16 and 17 in Table V.2). States with higher levels of committed expenditure have observed a greater increase in their debt, significant at 10 percent.

Table V.2: Correlates of Change in Debt to GSDP (%) (2012-13 to 2022-23)

	(1)	(2)	(3)	(4)	(5)
Primary Deficit (% GSDP)	7.4*** (6.32)				
Real Growth Rate		-0.56 (0.43)			
Real Effective Interest Rate			1.46 (1.24)		
Real Growth minus Real Effective Interest Rate				-0.85 (1.08)	
Contingent Liabilities (% GSDP)					1.06** (2.73)
Constant	-3.25* (1.80)	10.59 (1.34)	3.25 (0.95)	10.03*** (3.48)	4.03** (2.48)
Observations	21	21	21	21	21
Adjusted R^2	0.66	-0.04	0.03	0.01	0.23

	(6)	(7)	(8)	(9)	(10)	(11)
Revenue Receipts (% GSDP)	0.032 (0.10)					
States' Own Revenue (% GSDP)		-0.20 (0.21)				
Transfers from Centre (% GSDP)			0.06 (0.18)			

Expenditure (% GSDP)				0.24 (0.83)		
Revenue Expenditure (% GSDP)					0.34 (0.95)	
Capital Expenditure (% GSDP)						0.27 (0.22)
Constant	6.73 (1.42)	8.74 (1.16)	6.81** (2.62)	2.77 (0.50)	2.01 (0.36)	6.41 (1.63)
Observations	21	21	21	21	21	21
Adjusted R^2	-0.05	-0.05	-0.05	-0.02	-0.005	-0.05

	(12)	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**
Exp. on Wages & Salaries (% GSDP)	0.53 (0.59)					
Exp. on Pension (% GSDP)		1.73 (0.94)				
Exp. on Interest Payments (% GSDP)			2.58 (1.09)			
Exp. on Subsidies (% GSDP)				3.33 (1.48)		
Exp. on Wages, Pensions, Subsidies & Interest Payments (% GSDP)					1.08* (1.89)	
Exp. on Wages, Pensions, Subsidies & Interest Payments (% Total Revenue)						0.17* (2.06)
Constant	4.95 (1.22)	3.91 (1.05)	2.53 (0.57)	3.87 (1.43)	-2.05 (0.41)	-3.15 (0.61)
Observations	21	21	21	20	20	20
Adjusted R^2	-0.03	-0.006	0.01	0.06	0.12	0.14

Note: t-statistics in parentheses; *, **, *** indicate significance at 10, 5, and 1 percent levels, respectively. Data for debt, deficit, revenue receipts (and its components), and expenditure (revenue and capital) are from RBI's State Finances Report; averages over 2013-14 till 2022-23. Data for contingent liabilities are from CAG's State Finances Audit Report (multiple years); averages over 2013-14 till 2021-22 (West Bengal's average is for 2013-14 till 2020-21 due to data unavailability). Data for subsidies is from CAG State Finance Accounts (multiple years). Goa is dropped as its data is not available. For 2021-22 and 2022-23, data for subsidies for West Bengal is not available, but the state is included in the regressions. Data for the states' GDP are from MoSPI and State Budgets (downloaded from EPWRF). Only for Andhra Pradesh and Telangana, the averages are from 2014-15 due to the bifurcation of the state.

Appendix VI: Debt Evolution across States with Past Five-Year Averages as the Benchmark

In Section 5, we projected debt under the 'business as usual' scenarios, when primary deficit, real growth rate and real interest rate are expected to prevail at the average levels of past ten years. The derivation for the debt equation is shown below.

$D_t = D_{t-1}(1 + i_t) + PD_t$, where PD_t is the primary deficit at time t, D_t is the debt stock at time t, i_t is the nominal interest paid on past debt, and D_{t-1} is the debt stock at time t-1. We divide throughout by nominal GDP denoted by Y_t and γ_t is the growth rate of nominal GDP between t and t-1.

$$\frac{D_t}{Y_t} = \frac{D_{t-1}}{Y_{t-1}}\left(\frac{1+i_t}{1+\gamma_t}\right) + \frac{PD_t}{Y_t}$$

We can write $b_t = b_{t-1}\left(\frac{1+i_t}{1+\gamma_t}\right) + pd_t$, where debt, and primary deficit are denoted as ratios to nominal GDP. Using Fischer Equation, we further simplify it to $\left(\frac{1+i_t}{1+\gamma_t}\right) = \frac{(1+r_{t)}(1+\pi_t)}{(1+g_t)(1+\pi_t)}$ $= \frac{(1+r_t)}{(1+g_t)}$, where r_t is the real interest rate, g_t is the real growth rate, and π_t is the rate of inflation.

By taking the change in debt stock on both LHS and RHS, we obtain the following:

$$b_t - b_{t-1} = b_{t-1}\left(\frac{1+r_t}{1+g_t} - 1\right) + pd_t$$

$$\Delta b_t = b_{t-1}\left(\frac{r_t - g_t}{1+g_t}\right) + pd_t$$

Now we consider a scenario when these variables are projected to prevail at the average value of past five years (2018-19 to 2022-23). This period coincided with the COVID years, hence, it is unsurprising that for many states' five-year averages of primary deficits are higher (primary deficit is higher for 12 states, the same for 1 state, and lower for 8 states); and g-r is less favorable (it is less favorable for 14 states, same for 3 states and better for 4 states).[22] Thus, on average, projected debt levels are higher with five-year averages. Barring 6 states, projected debt to GSDP ratio of 15 states are higher than they would be in the ten-year averages case. Table VI.1 presents the results of the DSA with five-year averages.

[22] Reserve Bank of India (2020) notes that India has the highest sub-national debt as percent of GDP of BRICS countries (State Finance Report, 2019-20); while S&P Global Research (2021) notes that India has the highest subnational debt globally as a percentage of revenue.

Table VI.1 Projected Debt-to-GDP in 2027-28 (Using 5-year Averages)

				5-year averages (2018-19 to 2022-23)				Scenario 1: Baseline scenario			Scenario 2: Baseline + Contingent Liabilities absorbed	
	Debt/GSDP in 2012-13	Debt/GSDP in 2022-23	Change in Debt/GSDP last 10 years	Primary Deficit/GSDP (pd)	Real GDP Growth (g) (%)	Effective Interest Rate (r) (%)	Growth-Interest Differential (g-r) (percentage points)	Projected Debt/GSDP in 2027-28	Change in Debt/GSDP in 2027-28 over 2022-23	Contingent Liabilities/GSDP (CL) stock in 2021-22	Projected Debt/GSDP in 2027-28	Change in Debt/GSDP in 2027-28 over 2022-23
Andhra Pradesh	23.4	32.9	9.5	2.0	5.3	1.2	4.1	36.3	3.4	10.4	46.0	13.1
Assam	18.9	25.6	6.7	2.9	6.6	2.1	4.5	33.9	8.3	0.1	33.9	8.3
Bihar	27.5	39.1	11.6	2.6	5.4	1.7	3.7	44.6	5.5	3.9	48.2	9.1
Chhattisgarh	12.1	23.6	11.5	1.9	6.7	2.9	3.8	28.5	4.9	4.8	33.0	9.4
Goa	29.5	32.8	3.3	1.2	2.7	3.5	-0.8	40.4	7.5	0.8	41.2	8.4
Gujarat	23.4	18.9	-4.5	0.4	6.4	2.5	3.9	17.3	-1.6	0.2	17.4	-1.5
Haryana	19.5	31.1	11.6	1.5	4.2	2.9	1.3	36.5	5.4	2.8	39.2	8.1
Himachal Pradesh	35.5	45.2	9.7	1.1	4.1	4.5	-0.4	51.7	6.5	1.1	52.8	7.6
Jharkhand	20.1	30.2	10.1	0.8	4.5	2.2	2.2	31.0	0.8	0.2	31.1	0.9
Karnataka	16.2	23.6	7.4	1.8	5.7	0.5	5.2	26.5	2.9	1.7	28.0	4.4
Kerala	26.7	37.2	10.5	1.6	3.9	2.7	1.2	43.1	5.9	4.8	47.8	10.5
Madhya Pradesh	23.5	29.3	5.8	2.1	4.7	0.2	4.5	33.1	3.8	3.1	35.9	6.6
Maharashtra	19.3	18.5	-0.8	0.8	2.9	1.9	1.0	21.4	2.8	1.6	23.0	4.5
Odisha	18.8	17.2	-1.5	0.3	5.3	-1.2	6.4	14.1	-3.2	0.9	14.9	-2.4
Punjab	31.0	46.8	15.8	0.8	4.3	4.5	-0.2	51.3	4.5	3.3	54.6	7.8
Rajasthan	24.0	36.6	12.5	2.0	4.6	1.3	3.4	40.5	3.9	7.9	47.8	11.3
Tamil Nadu	17.9	31.4	13.5	1.8	5.3	2.9	2.4	36.7	5.3	4.4	40.9	9.6
Telangana	14.4	26.9	12.6	2.4	5.3	0.3	5.0	32.0	5.1	12.0	42.9	16.0
Uttar Pradesh	29.7	30.7	1.0	0.0	4.7	1.7	3.0	26.4	-4.3	8.8	34.8	4.0
Uttarakhand	20.4	26.4	6.0	0.6	2.0	2.8	-0.9	30.3	4.0	0.1	30.5	4.1
West Bengal	39.9	39.0	-1.0	0.9	4.0	1.9	2.1	39.2	0.3	0.7	39.9	0.9

Note: Debt, primary deficit, and contingent liabilities are in percent of GSDP of the respective states. Effective interest rate has been calculated as total interest payments divided by total outstanding liabilities in the previous year. Deflator growth has been calculated as nominal growth rate minus real growth rate. For Andhra Pradesh and Telangana, data used is from 2014-15 rather than 2012-13 due to the bifurcation of the state. For contingent liabilities, we have used the data for 2021-22 from CAG State Finances Audit Reports, it being the latest year for which actual data is available for all state governments (for West Bengal, it is available until 2020-21).

We present below the debt projections for the smaller North-Eastern states which are not included in our sample of 21 states. Table VI.2 shows the projections using the ten-year averages for primary deficit and growth-interest differential, while Table VI.3 shows the projections with five-year averages. With ten-year averages, results are more benign. Debt is projected to increase only for Meghalaya. If the states are projected to assume contingent

liabilities as well, Sikkim's debt is projected to increase as well. For the remaining states, debt is projected to decline.

On the other hand, under the five-year averages scenario, debt-to-GSDP ratio is projected to increase for all other states except Tripura; and for all the states when contingent liabilities are expected to be absorbed as well.[23] For six of the seven states, primary deficit is higher, and for five of the states, g-r is less favorable in the past five-year averages. Thus, in general, projected debt is higher when benchmarked with past five-year averages. Debt is projected to rise to upwards of 45 percent when contingent liabilities are not expected to be absorbed and even higher when contingent liabilities are expected to be absorbed. A more detailed scrutiny is important to understand the reasons why these states have added or will add more to their debt despite receiving very large transfers from the Centre each year.

[23] As can be seen below, the data for contingent liabilities for Arunachal Pradesh is zero in the CAG reports, which could be a reporting error or could be due to lack of transparency in reporting of contingent liabilities data.

Table VI.2 Projected Debt-to-GSDP in 2027-28 (Smaller North-Eastern States, 10-year Averages)

				10-year averages (2013-14 to 2022-23)				Scenario 1: Baseline scenario			Scenario 2: Baseline + Contingent Liabilities (CL) are absorbed	
	Debt/ GSDP in 2012-13	Debt/ GSDP in 2022-23	Change in Debt/ GSDP last 10 years	Primary Deficit/ GSDP (pd)	Real GSDP Growth (g) (%)	Real Effective Interest Rate (r) (%)	Growth-Interest Differential (g-r) (percentage points)	Projected Debt/GSDP in 2027-28	Change in Debt/GSDP in 2027-28 over 2022-23	Contingent Liabilities/GSDP stock in 2021-22	Projected Debt/GSDP in 2027-28	Change in Debt/GSDP in 2027-28 over 2022-23
Arunachal Pradesh	34.0	47.6	13.5	0.8	6.6	1.1	5.5	40.2	-7.4	0.0	40.2	-7.4
Manipur	49.6	43.2	-6.4	1.0	5.7	-0.3	5.9	36.7	-6.5	1.7	38.2	-5.0
Meghalaya	24.1	44.1	20.1	1.9	2.2	1.2	1.1	51.4	7.3	7.7	58.9	14.8
Mizoram	66.1	42.0	-24.1	1.8	10.3	0.4	9.9	33.8	-8.2	0.5	34.2	-7.8
Nagaland	52.7	47.9	-4.8	0.3	4.0	0.4	3.7	41.5	-6.4	0.6	42.1	-5.8
Sikkim	24.2	31.2	7.0	1.5	6.9	-0.1	7.0	28.7	-2.5	10.9	38.3	7.1
Tripura	35.4	32.2	-3.2	1.5	7.7	1.3	6.4	30.5	-1.6	1.0	31.4	-0.7

Table VI.3 Projected Debt-to-GSDP in 2027-28 (Smaller North-Eastern States, 5-year Averages)

				5-year averages (2018-19 to 2022-23)				Scenario 1: Baseline scenario			Scenario 2: Baseline + Contingent Liabilities are absorbed	
	Debt/ GSDP in 2012-13	Debt/ GSDP in 2022-23	Change in Debt/ GSDP last 10 years	Primary Deficit/ GSDP (pd)	Real GSDP Growth (g) (%)	Real Effective Interest Rate (r) (%)	Growth-Interest Differential (g-r) (percentage points)	Projected Debt/GSDP in 2027-28	Change in Debt/GSDP in 2027-28 over 2022-23	Contingent Liabilities/GSDP stock in 2021-22	Projected Debt/GSDP in 2027-28	Change in Debt/GSDP in 2027-28 over 2022-23
Arunachal Pradesh	34.0	47.6	13.5	2.8	6.4	0.7	5.7	48.9	1.4	0.0	48.9	1.4
Manipur	49.6	43.2	-6.4	2.6	3.7	0.0	3.7	48.1	4.9	1.7	49.6	6.5
Meghalaya	24.1	44.1	20.1	3.1	2.4	1.1	1.3	56.5	12.4	7.7	64.0	19.8
Mizoram	66.1	42.0	-24.1	3.0	6.8	1.5	5.2	46.2	4.2	0.5	46.6	4.7
Nagaland	52.7	47.9	-4.8	1.1	3.0	1.8	1.3	50.3	2.3	0.6	50.8	2.9
Sikkim	24.2	31.2	7.0	2.9	4.6	1.1	3.6	39.6	8.4	10.9	49.8	18.7
Tripura	35.4	32.2	-3.2	1.1	5.5	1.7	3.8	31.7	-0.5	1.0	32.6	0.5

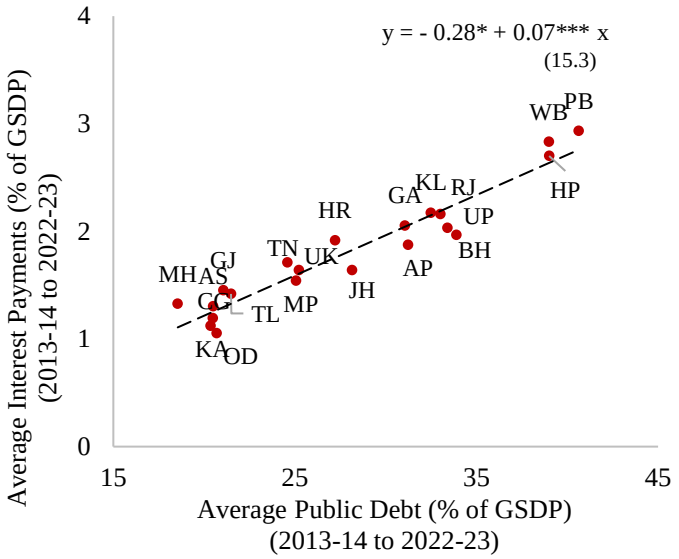
Note: (Table VI.2 & VI.3): Data for debt and primary deficit has been taken from RBI's State Finances Report; data for contingent liabilities has been compiled from CAG's State Finances Audit Reports (multiple years); and data for states' GDP is from MoSPI (downloaded from EPWRF). Deflator growth rate has been calculated as the difference between nominal growth rate and real growth rate.

Appendix VII: Debt Levels and Outcomes

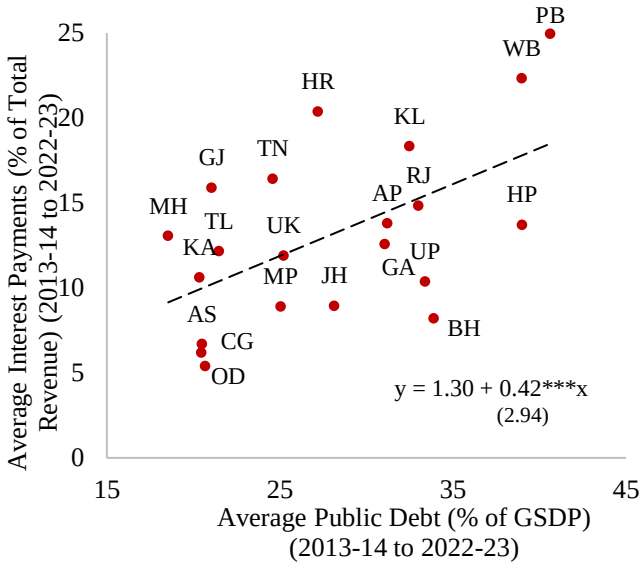
The scatter plots below show that states which have had higher average public debt in the last ten years have paid significantly larger amounts in interest payments (percent of GSDP or total revenue receipts); have had significantly higher average fiscal deficit; and a significantly lower average real growth rate.

Figure VII.1: Debt-to-GDP Ratios and Fiscal and Real Outcomes Across States

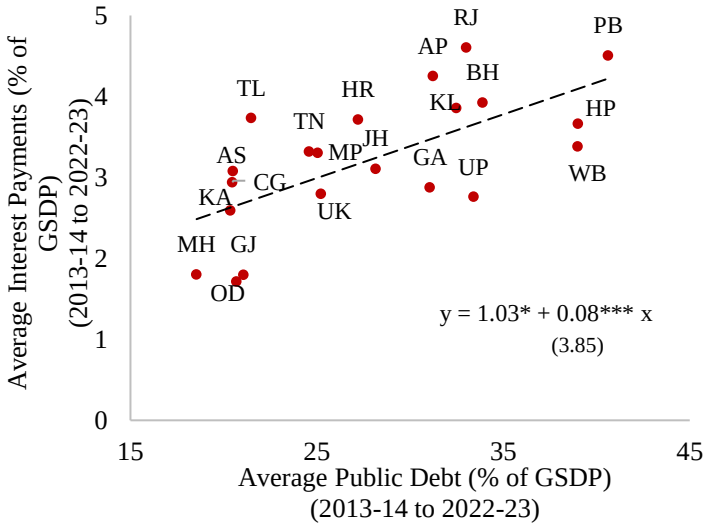
A. Level of Debt and Average Interest Payments (% of GDP)



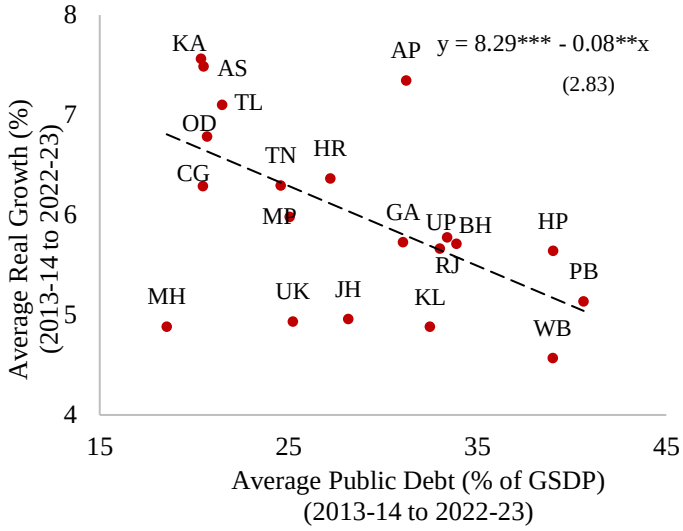
B. Level of Debt and Interest Payments (% of Total Revenue)



C. Level of Debt and Fiscal Deficit (% of GSDP)



D. Level of Debt and GSDP Growth (Real)



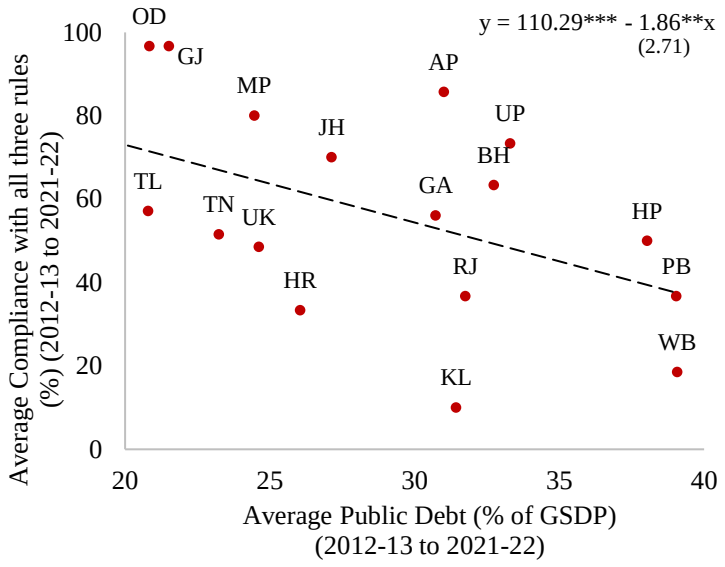
Note: Data for debt, deficit, and interest payments are taken from RBI State Finances Report; states' GDP data is from MoSPI. For all variables, averages are taken over 2013-14 and 2022-23; for Andhra Pradesh and Telangana, averages are over 2014-15 and 2022-23 due to bifurcation of the state.

Appendix VIII: Fiscal Rules across States

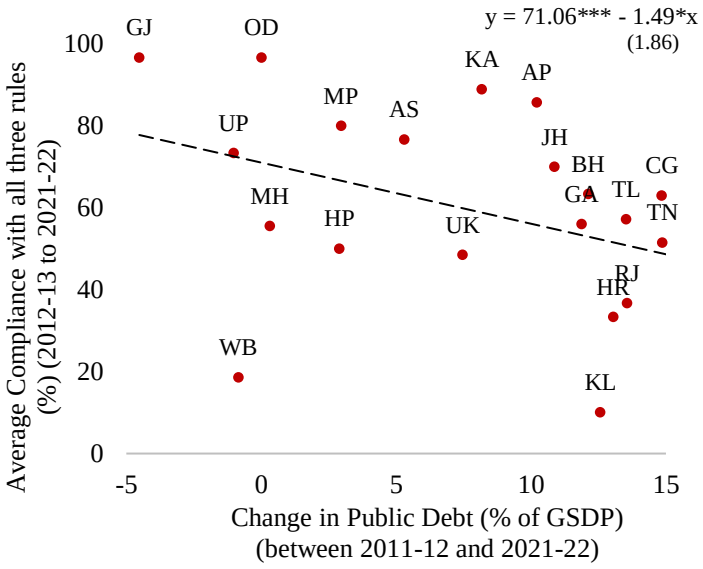
The scatter plots below (Figure VIII.1) highlight how the average compliance exhibited by states correlate with their average debt-to-GSDP ratios and change in debt-to-GSDP ratios over the last ten years. States with higher levels of average debt tend to comply less with the fiscal rules as well as states which have observed an increase in their debt levels between 2011-12 and 2021-22 comply less with the fiscal rules.

Figure VIII.1: Level of Debt or Increase in Debt vs Compliance to Different Fiscal Rules

A. Average Compliance and Average Debt (% of GSDP)



B. Average Compliance and Change in Debt (% GSDP)



Note: Data on compliance are compiled from CAG's State Finance Audit Reports; and authors' calculations.

Table VIII.1: State-wise Compliance with Different Fiscal Rules

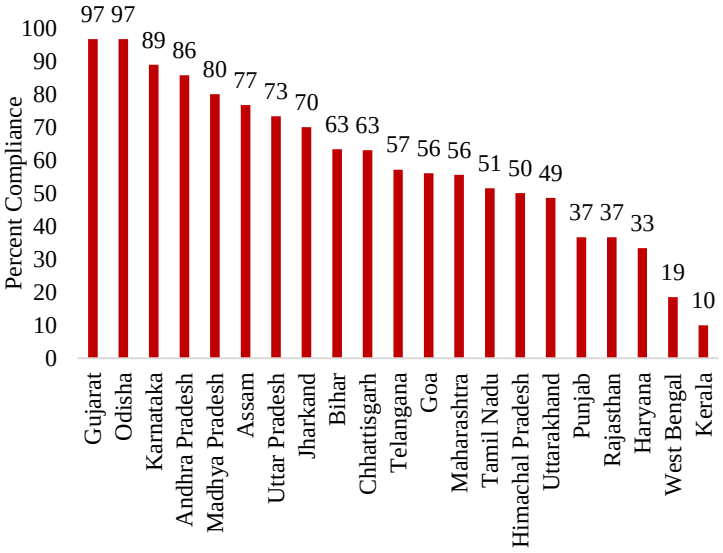
State	Percent compliance with revenue deficit rule	Percent compliance with fiscal deficit rule	Percent compliance with outstanding liabilities rule	Average compliance with all three rules
	(average between 2012-13 and 2021-22)			
Andhra Pradesh	71.4	85.7	100.0	85.7
Assam	50.0	80.0	100.0	76.7
Bihar	60.0	80.0	50.0	63.3
Chhattisgarh	66.7	88.9	33.3	63.0
Goa	66.7	88.9	12.5	56.0
Gujarat	90.0	100.0	100.0	96.7
Haryana	20.0	50.0	30.0	33.3
Himachal Pradesh	60.0	50.0	40.0	50.0
Jharkhand	80.0	70.0	60.0	70.0
Karnataka	77.8	100.0	88.9	88.9
Kerala	0.0	10.0	20.0	10.0
Madhya Pradesh	80.0	80.0	80.0	80.0
Maharashtra	33.3	100.0	33.3	55.6
Odisha	100.0	90.0	100.0	96.7
Punjab	10.0	50.0	50.0	36.7
Rajasthan	10.0	20.0	80.0	36.7
Tamil Nadu	10.0	66.7	77.8	51.5
Telangana	57.1	42.9	71.4	57.1
Uttar Pradesh	90.0	80.0	50.0	73.3
Uttarakhand	40.0	50.0	55.6	48.5
West Bengal	0.0	33.3	22.2	18.5
Average across states	**51.1**	**67.4**	**59.8**	**59.4**

Note: Data on compliance are compiled from CAG's State Finances Audit Reports; and authors' calculations.

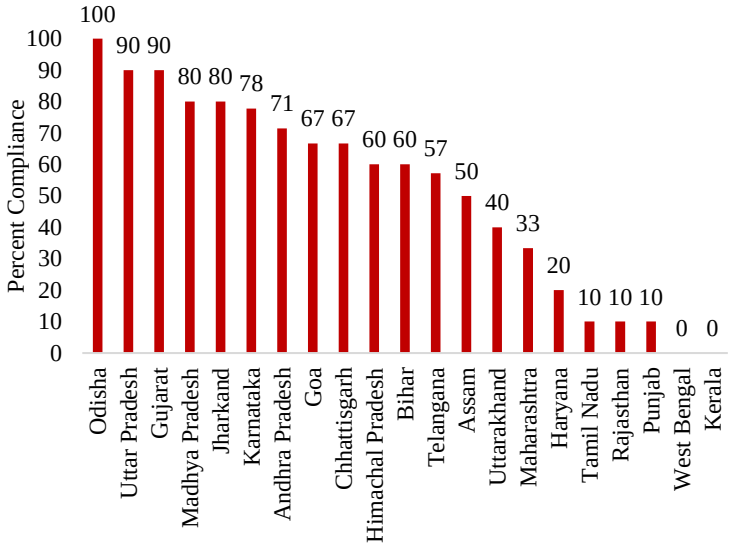
Figure VIII.2 below show the state-wise compliance with the revenue deficit rule, fiscal deficit rule, contingent liabilities rule and the average across these three rules

Figure VIII.2: Percentage Compliance to Fiscal Rules by States (Average during 2012-13 and 2021-22)

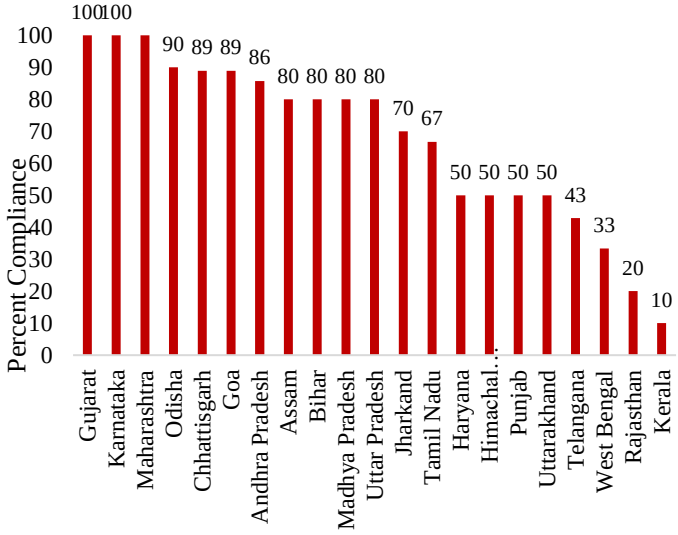
Average Compliance to All Three Rules



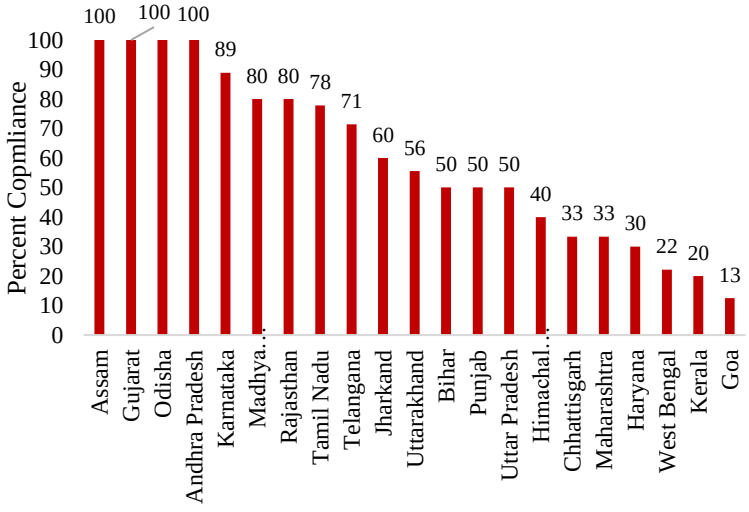
Compliance to Revenue Deficit Rule



Compliance to Fiscal Deficit Rule



Compliance to Total Outstanding Liabilities Rule



Note: Data on compliance are compiled from CAG's State Finances Audit Reports; and authors' calculations.

Appendix IX: Climate Change and its Fiscal Pressures

The Centre for Science and Environment (2024) highlights that 'India faced extreme weather events on 93 per cent of days in the first nine months of 2024, marked by heat and cold waves, cyclones, lightning, heavy rain, floods, and landslides,' resulting in significant material damages. The 15th Finance Commission noted that in recent years, India has witnessed large-scale floods in different States like Uttarakhand, Tamil Nadu, Assam, Bihar and Kerala, cyclones in Andhra Pradesh, Odisha, West Bengal and Tamil Nadu, and successive droughts in Rajasthan, Maharashtra, Karnataka, Andhra Pradesh and Telangana.

A 2019 report, "A Climate Risk Management Framework for India", by the National Institute of Disaster Management, notes the differential projected impact of climate change across different regions of the country. It projected an overall decrease in winter precipitation and increase in intensity of summer precipitation for the North-eastern region, which could increase landslides during summers and decrease in yields during winters. It also predicted an increase in temperature in the Western Ghats, combined with increased rainfall in the Northern part, which could lead to more flooding and soil erosion, an increase in the sea surface temperatures and rainfall intensity as well as a rise in the sea level. Changes in climatic conditions could increase the frequency and intensity of current extreme weather events, giving rise to new vulnerabilities and socio-economic impacts on communities. More frequent episodes of weather-related emergencies could place additional fiscal pressures on the State's resources.

The susceptibility of the Indian States to climate risks has been noted in both the RBI's State Finance Reports and the reports of the Finance Commission.

RBI (2023) notes that India's diverse topography has led to varying climate vulnerabilities across States. Indian States are among the top 50 regions globally at risk of climate change-related damage to their environment. It emphasizes that the States play a pivotal role in customizing climate actions to local needs. It recommends that the States integrate climate finance into their broader fiscal planning processes. It has also suggested that the Centre should introduce performance-based incentives for the States to make significant progress towards climate goals, including through additional grants to the States that succeed in reducing emissions or increasing renewable energy generation.

The RBI followed the same line of reasoning and recommendation in its report for 2024 and recommended the adoption of climate budgeting in order to integrate climate action into fiscal planning.

The 13th Finance Commission noted, "In India, the financing of disaster relief is an important aspect of federal fiscal relations. There are significant variations in the disaster-proneness profiles of different states and wide regional disparities in terms of levels of economic development. This implies that the coping capacity of a majority of the states to deal with disasters on their own is inadequate. This is compounded by the fact that the poorer States are often the most disaster-prone. The financing of disaster relief has, as a result, come to be firmly accepted as a joint endeavour of the Central and State Governments."

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