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The Takshashila Institution,
2nd floor, 46/1, Cobalt Building, Church St, Haridevpur,
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Sustainable Fiscal Policy in India: Post-Pandemic Challenges

M. Govinda Rao*

Abstract

The burgeoning fiscal deficit and debt sustainability in India have been a matter of concern for a long time. The levels of deficit and debt in India have been much higher than the levels seen in emerging economies. The Coronavirus Pandemic has brought the issue to the fore once again. The Russian invasion of Ukraine and the consequent sanctions have only worsened the situation. The attempts to control them by implementing rule-based fiscal policy, like in most other countries, have not been successful. The numerical targets on deficit and debt recommended by successive Finance Commissions and taken in FRBM Acts have been observed in their breach rather than compliance. The targets have been repeatedly revised and suspended, escape clauses have been invoked, and compliance, when shown, is done through creative accounting. To impart greater effectiveness to fiscal management, the paper argues for reforms in budget management and the creation of an independent institution to monitor the implementation of rule-based fiscal policy – the Fiscal Council as recommended by the Finance Commissions.

Keywords: Fiscal Policy, Fiscal Council, Fiscal Rules, Debt sustainability.

JEL Codes: H61, H62, H63, E02

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* M Govinda Rao is Counsellor, Takshashila Institution, Member, 14th Finance Commission, and Former Director, NIPFP

I. Introduction

The question of debt sustainability in India has been on the radar of policymakers for a considerable period of time. This was considered to be the main cause of the economic crisis in 1991. Despite several attempts to control deficits and debt, the problem has continued to haunt us.

Although the Constitution under Article 292 requires the Parliament to fix the volume of borrowing from time to time, formally, the rule-based fiscal policy came to be followed after the Fiscal Responsibility and Budget Management (FRBM) Act was passed in 2004. Even this could not prevent the governments from incurring large deficits and accumulating debt.

The Coronavirus pandemic, emerging from the last week of March 2020, has rendered the situation uncontrollable. The severe lockdowns in the first phase of the pandemic in the first half of 2020-21, and the reimposition of restrictions on economic activity in the second phase, drained the sources of revenue; at the same time, the large public intervention to save lives and livelihoods and the nation-wide roll-out of vaccination required significant increases in public spending, causing both deficit and debt to climb to unsustainable levels.

It is not merely the large deficits and debt that are cause for concern – the quality of deficits is equally important. The revenue deficit, which was just about 35-40% of the fiscal deficit in the early 1990s, has shot up to 70% in 2020-21. This implies that almost 70% of the borrowed funds are now used for meeting current expenditures.

Besides, even the projects financed by capital expenditures suffer from severe cost and time overruns. The Ministry of Statistics and Programme Implementation shows that, of 1521 projects worth more than Rs. 150 crore each, 380 had cost overruns and 642 were delayed. As against the original total cost estimate of Rs. 21.2 lakh Crore, the revised cost is estimated at 25.8 lakh Crore. The attempts to implement rule-based fiscal policy by enacting the FRBM Act have not been successful, and the targets recommended by the successive Finance Commissions have been observed in their breach rather than compliance.

Recent developments – both global and domestic – have only worsened the situation. The burden of saving lives and livelihoods of the people during the pandemic has pushed the deficit and debt to unsustainable levels. The flooding liquidity globally has caused a spurt in inflation rates worldwide, requiring sharp increases in interest rates in the US, UK, and Europe, with an outward surge in foreign institutional investments. The disruptions caused by the Russian invasion of Ukraine and the sanctions associated with it have sharply increased international commodity prices, causing the inflation rate to surge beyond the tolerable limit set by the inflation-targeting policy framework. Together with the liquidation of foreign portfolio investment, resulting in increased external outflows, this has set the cycle of increasing interest rates. In addition, global slowdown and recession in some advanced western countries are likely to impact exports adversely.

Given the difficult economic environment, even as the economy recovers, one of the most pressing policy imperatives will be to bring deficits and debt down to sustainable levels. The economy is in

recovery mode, and this is the time to work out a new fiscal restructuring and implementation plan. The next section discusses the question of the need for ensuring sustainable deficits and debt and gives a historical account of the problem. The third section discusses the impact of the pandemic on fiscal deficits and debt. The fourth examines the fiscal restructuring plan and the strategy to make the plan effective. Concluding remarks are presented in the last section.

II. Why Should We Worry About Large Fiscal Deficits?

Accumulation of debt creates a future liability (interest payments and repayment of the principal). If the borrowed funds are utilised to generate assets to yield returns in the future, the liability can be taken care of. Otherwise, revenues will have to be utilised for debt servicing (i.e. making interest payments), which crowds out productive expenditures. When borrowing is resorted to even to meet debt servicing, the debt will go on accumulating and the situation becomes unsustainable.

To analyse the debt dynamics, most studies apply the Domar (1944) condition, derived from the basic debt equation as below:

$$D_t = P_t + D_{t-1} [(1 + i) / (1 + G)] \dots\dots\dots(1)$$

Where:

- 'Dt' denotes the outstanding debt to GDP ratio in the current year,
- 'Dt-1' is the outstanding debt to GDP ratio in the previous year,
- Pt is the primary deficit to GDP ratio in the current year,
- 'I' is the nominal interest rate, and
- 'G' is the nominal growth rate of the economy.

The equation shows that when the primary deficit is zero, the debt-to-GDP ratio will remain stationary if the growth rate of GDP is equivalent to the effective rate of interest payable. It will decline if the growth of GDP exceeds the interest rate, and will increase if GDP growth is lower than the interest rate. The policy implication is that, to prevent a secular increase in debt-to-GDP ratio, it is necessary to compress the primary deficit and/or accelerate the growth of GDP to a level higher than the effective interest rate.

At what level is debt sustainable? This an issue on which the policymakers have to make a judgment. The ideal volume of debt depends on the capacity of the government to service the debt. In a downturn, the economy is faced with large unemployment and excess capacity, and expansionary fiscal policy supported by an increase in borrowing can result in the acceleration of growth and a reduction in unemployment. In contrast, when the economy is in the upward phase of the economic cycle, additional public spending financed by borrowed funds can put pressure on prices. The policy

stance in such an economy should be to reduce the deficits by increasing revenues or reduction in public spending.

The above discussion on debt sustainability misses the distortionary consequences of financial repression. The lower effective rate of interest on government borrowing could be the result of financial repression. The government borrows at a lower than the market rate of interest, and sustainability is achieved by distorting the financial market. Acharya (2020), in his analysis of the quest for financial stability, has convincingly shown that fiscal dominance can be the cause of several distortions in both monetary and real sectors of the economy. Government ‘dissaving’ in excess of the household sector’s financial savings adversely impacts monetary policy, banking regulation, external balance, and exchange rates.

Often, questions are raised as to why we should worry about large deficits and growing debt. Martin Feldstein (2004) provides an insightful analogy to answer this. He states:

“Fiscal deficits are like obesity. You can see your weight rising on the scale and notice that your clothing size is increasing, but there is no sense of urgency in dealing with the problem. That is so even though the long-term consequences of being overweight include an increased risk of a sudden heart attack as well as of various chronic conditions like diabetes. Like obesity, government deficits are the result of too much self-indulgent living as the government spends more than it collects in taxes. And, also like obesity, the more severe the problem, the harder it is to correct: the overweight man has a harder time doing the exercise that could reduce his weight and the economy with a large deficit and debt is trapped by increasing interest payments that cause the deficit and debt to rise more quickly. I emphasize the analogy to stress the point that budget deficits need attention now even when their adverse effects may not be obvious”.

There are at least four reasons why governments should worry about bloating debt.

1. Fiscal deficits add to the debt and increase the interest burden crowding out expenditures on productive sectors. In India, the interest payment constituted 25% of total revenues and 21% of revenue expenditures in 2019-20.
2. With an increasing proportion of the household sector’s financial savings pre-empted to finance the fiscal deficit, a lower volume of savings will be available to the private sector, thereby increasing the cost of their borrowing and financially crowding out private investments.
3. Financing the fiscal deficits through monetization can add to inflation. In India, the sharp rise in inflation in the early 1990s was attributed to the building up of large fiscal deficits due to the expansionary policy followed in the second half of the 1980s, which led to the economic crisis (Little and Joshi, 1994). The high inflation rate in the early part of the current millennium is also attributed to the burgeoning fiscal deficit following the implementation of pay commission recommendations and the increase in oil prices. This led to the adoption of rule-

based fiscal policy with the enactment of the FRBM Act in 2004. Despite this, the problem arose once again after 2008-09 when the decision was made to implement the farm loan waiver, implement Pay Commission's recommendations, and expand the coverage of the National Rural Employment Guarantee from 200 districts to the whole country.

4. Finally, credit rating agencies do not take kindly to self-indulgent governments, and downgrading can affect the cost of borrowing from abroad to the private sector.

The trend in deficits and debt are summarised in Table 1. The aggregate revenue deficit during 2015-18 was hovering around 2.5% of GDP, and with the onset of the pandemic, it increased to 3.9% in 2019-20 and 9.3% in 2020-21, before declining to 5.4% in 2021-22. The fiscal deficit increased from 7.1% in 2019-20 to 13.3% in 2020-21 due to the pandemic, and total liabilities shot up from 74.3% in 2019-20 to 90% in 2020-21.

To put the choice of India's debt ceiling in perspective, it is important to compare the evolution of India's debt with that in other emerging markets. The International Comparison of deficit and debt by the IMF in its April 2020 Fiscal Monitor shows that, even before the pandemic in FY 2019, India's fiscal deficit (at 7.4%) of GDP was the highest among emerging market economies except for Venezuela (8%). It was much higher than the average of emerging market economies (4.8%), an average of G-20 countries (5.4%), emerging market economies in Asia (6%), Europe (0.7%), and even Latin America (4.8%).

The outstanding debt in India, at 71.9% of GDP, is also an outlier and among the emerging market economies; only Brazil (89.5%), Argentina (86.8%), and – nearer home – Pakistan (83.5%) and Sri Lanka (86.8%) had higher debt-to-GDP ratios. The Debt-GDP ratio average for EMEs is 53.2%, and only Latin American EMEs had an average debt-to-GDP ratio of 70.5% which was close to India's outstanding debt.

Table 1: Trends in Deficits and Debt in India (Per Cent of GDP)

Year	Revenue Deficit			Fiscal Deficit			Liabilities		
	Centre	States	Total	Centre	States	Total	Centre	States	Total
1995-96	2.47	0.72	3.15	5.00	2.56	6.44	58.34	20.70	68.46
2000-01	3.98	2.58	6.49	5.55	4.11	9.34	60.40	27.77	74.96
2010-11	3.30	-0.04	3.26	4.89	2.11	7.00	53.17	23.96	66.88
2011-12	4.51	-0.27	4.24	5.91	1.93	7.84	53.46	22.82	67.36
2012-13	3.66	-0.20	3.46	4.93	1.97	6.88	52.55	22.23	66.65
2013-14	3.18	0.09	3.27	4.48	2.21	6.67	52.16	22.00	67.06
2014-15	2.93	0.37	3.30	4.10	2.62	6.71	51.42	21.69	66.58
2015-16	2.49	0.04	2.53	3.87	3.05	6.92	51.54	23.37	68.53
2016-17	2.06	0.26	2.32	3.48	3.47	6.92	49.54	24.75	68.77
2017-18	2.60	0.11	2.71	3.46	2.40	5.83	49.47	25.12	69.57
2018-19	2.41	0.09	2.50	3.44	2.45	5.84	49.65	25.34	70.58
2019-20	3.28	0.60	3.87	4.59	2.58	7.12	51.97	26.29	74.31
2020-21*	7.34	2.00	9.37	9.21	4.72	13.34	63.02	31.14	89.66
2021-22**	4.69	0.51	5.42	6.85	3.53	9.81	60.87	29.93	85.69
2022-23	3.84			6.44			61.01		

Note:

* denotes revised estimates for the Centre and budget estimate for the states.

** denotes budget estimate.

Source: Handbook of Indian Statistics: Reserve Bank of India (Various Issues)

III. The Pandemic, Economic Contraction and Fiscal Impact:

The lockdown brought the economy to a grinding halt, and the contraction in the economy drained the tax revenues. The fast spread of the virus has made it imperative to impose restrictions on economic activities. Besides, supply chain disruptions (partly due to restrictions on imports from China) and the unavailability of skilled migrant labour in urban agglomerations constrained full-scale recovery.

The RBI was quick in announcing a slew of measures immediately when the first wave broke out, mainly to ease supply-side constraints (in terms of ensuring liquidity, regulatory forbearance, and moratorium), and to initiate some additional measures to advance loans and extend regulatory forbearance during the second wave as well. However, the lack of fiscal space constrained the government from providing stimulus, which was just about 1.5% of GDP in the first phase and less than 1% during the second.

The most important measure by the government has been the distribution of free food grains to the vulnerable sections. The fiscal measures announced include an additional allocation to the Mahatma Gandhi National Rural Employment Guarantee and providing the Kissan Samman Nidhi,

which was already in the budget, and providing 2% of GDP additional borrowing space to the State governments in 2021-22. Of course, additional expenditures had to be incurred to augment healthcare facilities to take care of the population affected by the virus, and for the universal provision of vaccination. The free foodgrain distribution to the low-income groups has helped reduce the distress and destitution of these groups, and has been extended until December 2022.

The pandemic caused the economy to contract by 6.6 per cent during 2020-21, and the government revenues remained flat during this period. As compared to the budget estimate, the actual collection of aggregate revenue receipts in 2020-21 was lower by 11.6%. Not surprisingly, the fiscal deficit increased from 7.1% of GDP in 2019-20 to 13.3% in 2020-21, and the outstanding liabilities increased from 74.3% of GDP to 90%.

The economy was on the recovery path during 2021-22, but the second wave of the pandemic with its adverse impact on contact-intensive sectors constrained the recovery process. Nevertheless, due to the low base effect, the GDP in the economy is estimated to have grown at 8.9% in 2021-22. Consequently, the fiscal deficit-to-GDP ratio is estimated to have declined from 13.3% to 9.8% in 2020-21, and the debt-to-GDP ratio declined from 90% to 85.6% during this period.

IV. Limited Fiscal Consolidation under Rule-Based Fiscal Policy.

(i) Towards a rule-based fiscal policy

Notably, the founding fathers of the Constitution did envisage that it may be necessary for the Parliament to fix the limits on the borrowing powers of the Union government. Article 292, while assigning borrowing power to the Union government, states that the Parliament may fix the limit from time to time. In fact, since 1957, recommendations were made to fix statutorily limits on the public debt of the Union government by the Estimates Committee, Public Accounts Committee, and the Reserve Bank of India; however, these were not implemented. Even after suffering the crisis in 1991, the government's attempt to control the fiscal deficit was unsuccessful and, by 2001, the fiscal deficit stood elevated at 10.3% of GDP, almost as much as the level in 1991-92.

In this situation, the government decided to appoint a Committee under the Chairmanship of the then Secretary, Economic Affairs (E. A. S. Sharma), which prepare a blueprint for a fiscal restructuring plan. The issue of restructuring public finances in both the Union and the States was also included in the Terms of Reference to the Twelfth Finance Commission India, 2004). The Commission was asked to “...review the state of the finances of the Union and the States and suggest a plan by which the governments, collectively and severally, may bring about a restructuring of the public finances restoring budgetary balance, achieving macro-economic stability and debt reduction along with equitable growth.”

The Commission recommended that both the Union and State governments should pass the FRBM Acts, and beginning in 2004-05, progressively reduce revenue deficits to eliminate it and reduce the fiscal deficit to 3% of GDP at Central as well as State levels by 2008-09 (Twelfth Finance Commission, 2004).

(ii) Experience with rule-based fiscal policy.

These recommendations were accepted, and the rule-based fiscal policy started from 2004-05, with the enactment of FRBM in 2004 at the Union level. All the States except Sikkim and West Bengal too legislated their respective FRBM Acts. There was significant progress in the implementation of the restructuring plan until 2007-08; however, the gains in fiscal consolidation achieved until 2007-08 were frittered away in 2008-09, with the union government implementing the farm loan waiver, extending national rural employment guarantee from 200 districts to the entire country, and implementing the pay increases of government employees as recommended by the Sixth Pay Commission recommendations.

In addition, with oil prices hitting an all-time high of USD 143/barrel in July 2008, combined with the government's reluctance to increase the prices of distillates in the election year, the petroleum subsidy bill rose by almost 2.5% of GDP, putting the entire fiscal restructuring plan in jeopardy. Thus, the Centre's revenue deficit increased from 1.1% in 2007-08 to 4.5% in 2008-09, and the fiscal deficit increased by over five percentage points, from 3.1% to 8.2%.

The problem was further exacerbated by the decline in the Centre's tax-GDP ratio by more than two percentage points, from 11.8% in 2007-08 to 9.6% in 2010-11. Consequently, the consolidated revenue and fiscal deficits in 2008-09 increased to 4.4% and 10.6% respectively.

The 13th Finance Commission was asked to review the state of finances of the Union and State governments and *"...suggest measures for maintaining a stable and sustainable fiscal environment consistent with equitable growth"* (2009, P. 12). The Commission's recommendations covered the period from 2009-10 to 2014-15. The fiscal roadmap in its recommendations required the Centre to bring down the revenue deficit from 4.8% in 2009-10 to create a surplus of 0.5% in 2014-15. The fiscal deficit was to be reduced from 6.8% to 3% during the same period, with non-debt capital receipts targeted at 1% in the terminal year; with a 3% fiscal deficit, the capital expenditure was targeted at 4.5%.

By taking into account the recommended targets and the assumption about the growth of GDP, the outstanding debt was supposed to come down from 54.2% in 2009-10 to 44.8% in 2014-15. None of these targets was achieved, with the global financial crisis, elevated prices of crude oil, and consequently large current account deficits.

As far as the States were concerned, the target of 3% GSDP worked out to 2.4% of GDP of the country, as GSDP then was estimated at factor cost and the deficit estimates did not include Union Territories. The aggregate debt-to-GDP ratio of the States was to be brought down from 27.1% in 2009-10 to 24.3% in 2014-15.

While most States had complied with the targets of phasing out revenue deficits and reducing their fiscal deficit to 3% of GSDP by 2008-09, three states (Kerala, Punjab, and West Bengal) continued to have sizeable revenue deficits in 2007-08. To avoid an abrupt cut in capital expenditures on enforcing the 3% fiscal deficit target, they were given slightly relaxed targets to phase out the revenue deficits and reach the target of 3% of GSDP in fiscal deficits by 2014-15.

XThe Fourteenth Finance Commission (2013) was also asked to review the state of finances of the Union and State governments, keeping in view the roadmap recommended by the previous Commission, and suggest measures for maintaining a stable and sustainable fiscal environment to promote equitable growth and amendments needed in the FRBM Act. The Commission recommended that the Union government should compress its fiscal deficit to 3% of GDP by 2016-17 and thereafter maintain it at that level. It also recommended that improvement in macroeconomic conditions and tax reforms (implementation of GST) would enhance the tax revenues and would enable the government to eliminate completely the revenue deficit by 2019-20.

For the States, the Commission recommended that the fiscal deficit target would be 3% of GSDP and revenue deficit should continue to be zero. However, the commission allowed an additional borrowing space of 25 basis points to those States with debt-to-GSDP ratio of less than 25% and another 25 basis points to those States with interest payments of less than 10% of their revenue receipts.

Despite a sharp reduction in the price of crude oil, the Central government could not reduce revenue and fiscal deficits to the targeted levels. A new FRBM Review Committee was appointed in 2016 to revise the roadmap for consolidation; it recommended that debt should be the target and fiscal deficit should be the anchor to achieve the target. The debt target was set at 60% of GDP, to be achieved by 2023-24 (2017).

The FRBM Committee recommended that the Central government should reduce its debt-to-GDP ratio to 40%, and the States to 20%, considering that the financial saving of the households was just about 7.6% of GDP. Furthermore, the government could deviate from the target when (i) there are overriding considerations such as natural calamity and war; (ii) the government has undertaken far-reaching reforms with fiscal implications and (iii) there is a sharp decline in the output of at least 3 percentage points for 4 successive quarters. The symmetric approach was to be adopted when there is a case of increases in output.

The Fifteenth Finance Commission (India, 2020) followed an approach similar to the previous Commissions. However, it had to work under severe uncertainties posed by the pandemic, and it recommended an indicative fiscal restructuring path that was much too liberal. Even by 2025-26, as a ratio of GDP, the consolidated debt will have to be reduced (from 90% in 2020-21) to 86%, the fiscal deficit from 11.6% to 6.8%, and the revenue deficit from 5.8% to 0.4% (Table 2).

As the economy recovers from the impact of the pandemic, the nominal GDP is set to increase by about 10-12% every year. Even without much fiscal correction, the targets may be reached. Without any substantial adjustment, it is not clear how debt sustainability can be achieved by 2025-26.

Table 2: Deficit and Debt Restructuring Path by Fifteenth Finance Commission.

	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Revenue Deficit – Union	5.9	4.9	4.5	3.9	3.3	2.8
Revenue Deficit-States	-0.1	-0.4	-0.8	-1.1	-1.6	-2.4
Revenue Deficit-Total	5.8	4.5	3.7	2.8	1.7	0.4
Fiscal Deficit – Union	7.4	6.0	5.5	5.0	4.5	4.0
Fiscal Deficit – States	4.2	3.3	3.3	2.8	2.8	2.6
Fiscal Deficit – Total	11.6	9.3	8.8	7.8	7.3	6.8
Total Liabilities – Union	62.9	61.0	61.0	60.1	58.6	56.6
Total Liabilities – States	31.1	30.7	31.3	31.1	30.9	30.5
Netting (*)	4.2	3.4	2.7	2.1	1.7	1.4
Total Liabilities – Total	89.8	88.3	89.6	89.1	87.8	85.7

(*) The netting is done to exclude Union loans to States, the stock of NSSF and treasury bills held by State Governments.

Source: Report of the Fifteenth Finance Commission. Government of India; p. 375,

The Fifteenth Finance Commission (India, 2020) itself was unsure of the impact of the pandemic and the path of economic revival and stated, *“In view of the uncertainty that prevails at the stage that we have done our analysis, as well as the contemporary realities and challenges, we recognise that the FRBM Act needs a major restructuring and recommend that the time-table for defining and achieving debt sustainability may be examined by a High-powered Inter-governmental Group.”* The time is opportune for the government to work on the restructuring plan towards achieving debt sustainability.

The outbreak of the pandemic has thrown the entire fiscal adjustment process to the back burner. Now that the pandemic has been brought under control and the economic recovery has been in progress, the process of fiscal correction has to take precedence. The real GDP is expected to reach the 2019-20 level this year. However, the external environment continues to be disturbing. The Russian invasion of Ukraine and accompanying economic sanctions have not only created supply disruptions, but also have sharply increased international commodity prices. The policy responses, in terms of raising interest rates in many developed countries, have led to a surge in capital outflows from many emerging developing economies including India. The looming fear of recession in advanced economies has caused a slowdown in exports, and along with capital outflows, has caused both exchange rate instability and elevated current account deficit.

The foregoing discussion underlines the need for the Union and State governments to work on the fiscal restructuring path and time frame towards achieving sustainable public finances. Two important features seen from the experience of implementing rule-based fiscal policy so far are: (i) The governments have not shown urgency in implementing the targets set by them and (ii) the quality of adjustment leaves much to be desired.

There have been attempts to show progress in fiscal consolidation by resorting to off-budget borrowings and creative accounting. Despite recommendations by several agencies, including the Finance Commissions, to adopt accrual accounting, the cash budget system has continued.

The budgets set ambitious and often, unrealistic targets on compressing revenue and fiscal deficits; this results in unplanned expenditure cuts, unrealistic tax demands, off-budget borrowings, and postponements of accrued expenditures including contractors' bills, with overall adverse impacts on revenue and expenditure efficiency and credibility of the budgetary process.

Thus, rule-based fiscal policy, in terms of compressing the deficits and debt targets, has not been very successful in India. That said, this is not unique to India. In fact, by 2021, as many as 105 countries have adopted a least one fiscal rule and most countries have rules on debt limits and limits on expenditures and /or budget balance. However, the experiences with fiscal rules over the last three decades have not guaranteed fiscal sustainability. Frequent changes in the rules, deviations from the fiscal targets, and suspension of the rules and resorting to exceptional clauses have been common. This has raised questions on credibility.

With deficits and debt reaching unprecedented levels, the time is opportune to design new rules taking into account the lessons from the experience of implementing the rule-based policy, to make the rules simple, enforceable, and flexible in meeting exigencies. This depends on ensuring a system of proper budget management, transparency, comprehensiveness, and an effective monitoring system. Effective implementation of rule-based fiscal policy must be done within the overall system of scientific budget management and a realistic medium-term fiscal policy (Davoodi et. al, 2022, Caselii et. Al. 2022b)

V. New Framework for Comprehensiveness, Credibility and Transparency:

(i) Independent Fiscal Institutions: Worldwide Experience

Creating an independent fiscal institution to monitor the conduct of fiscal policy and reporting to the Parliament is an important innovation to impart greater effectiveness in implementing sustainable fiscal policy. This strengthens with clear commitments to fiscal adjustment path and transparent medium-term fiscal framework (Kumar and Ter-Minassian, 2007). In cases where political commitment is not strong, numerical fiscal targets could turn out to be mechanical, and may not address the quality of adjustment; it may also not be possible to stipulate counter-cyclical numerical rules. Therefore, to make the system comprehensive and transparent, and to depoliticise fiscal policy calibration, an independent fiscal institution is recommended

Fiscal councils or IFIs are given a statutory (or executive) mandate to promote stable and sustainable public finances. Hagemann (2011; p. 76) defines a fiscal council as, “...a *publicly-funded entity staffed by non-elected professionals mandated to provide non-partisan oversight of fiscal*

performance and/or advice and guidance – from either a positive or normative perspective – on key aspects of fiscal policy”.

These institutions assist in calibrating sustainable fiscal policy by making independent, objective and scientific analyses of fiscal policies for achieving the objectives of macroeconomic stability and sustainability. Their unbiased report to the Parliament helps to raise the level of debate and brings in greater transparency and accountability. They estimate the costs of various projects, programmes and policies and this helps to promote transparency and discourages populist shifts and improves accountability. Objective estimation of costs of programmes and realistic evaluation of budget forecasts help to raise public awareness about their fiscal implications and make the politicians and the public understand the extent and nature of the budget constraint.

At the end of 2021, 51 Fiscal Councils in 49 countries have been appointed to oversee the implementation of rule-based fiscal policy. While the common agenda of these institutions has been to promote sound fiscal policies as watchdogs, there is considerable diversity in the structure and functions they are assigned to perform. The important tasks they are assigned to perform include (i) independent analysis, review and monitoring and evaluation of government's fiscal policies and programmes; (ii) developing or reviewing macroeconomic and /or budgetary projections; (iii) costing of budget and policy proposals and programmes, including the proposals in the election manifestos; and (iv) advising the policymakers on various policy options.

The concept of “independence” in the case of the fiscal council is different from the one used in the case of the Central Bank. In the case of the fiscal council, independence does not imply legal separation but simply refers to operational autonomy necessary for a non-partisan approach in performing its tasks. The Councils are required to benchmark their assessments against the policy objectives of the executive. It cannot set the objectives, unlike in the case of the independent Central Banks.

While the fiscal council has the oversight objective, its functions are different from that of the auditor (comptroller and auditor general). The fiscal council plays an ex-ante role of planning and policy formulation whereas, the focus of the audit is ex-post evaluations. The fiscal council follows a macroeconomic approach whereas the auditor follows legal or microeconomic approaches.

The OECD (2013) has documented the important principles needed for successful fiscal councils under nine broad heads and these are: (i) local ownership; (ii) independence and non-partisanship; (iii) mandate; (iv) resources; (v) relationship with legislature; (vi) access to information; (vii) transparency; (viii) communication and (ix) external evaluation. These principles are important to ensure autonomy, unbiasedness, transparency, effective, and accountability of Councils. A fiscal council can be successful only when there is a broad national commitment and ownership and consensus across the political spectrum.

Independence and non-partisanship of the council are extremely important preconditions for a successful IFI. In fact, a majority of the IFIs enjoy legal protection against partisanship (IMF, 2013). Merit and technical competence are the keys to successful IFIs. They should earn respect for

professional excellence in their reports. The budget allocation to the IFIs depends upon its remit. Regardless of whether the IFI is under the authority of the legislature or the executive, it should be made accountable to the legislature.

Hagemann (2011) makes a detailed review of the country-specific studies on the effectiveness of IFIs in improving fiscal performances. The case studies of Belgium, Chile and United Kingdom show that fiscal councils contributed to improved fiscal performances. In Belgium, he concludes that the government is legally required to adopt the macroeconomic forecasts of the Federal Planning Bureau, and this has significantly helped to reduce bias in these estimates. In Chile, the existence of two independent bodies on Trend GDP and reference copper price has greatly helped to improve budget forecasts. In the United Kingdom, the Office of Budget Responsibility played an important role in restoring fiscal sustainability when the new government came to power after 2010. The cross-country evidence shows that fiscal councils exert a strong influence on fiscal performances, particularly when they have formal guarantees of independence.

(ii) Fiscal Council for India.

The 13th Finance Commission, while recommending the revised roadmap for fiscal consolidation, underlined the need for making the FRBM process more transparent and comprehensive, sensitive to exogenous shocks, and introducing mechanisms to improve monitoring and compliance. The Commission recommended the setting up of a committee to conduct an independent review of FRBM compliance, including the fiscal impact of policy decisions on the FRBM roadmap, to be presented along with the annual budget and medium-term strategy. The Commission recommended that the committee should, over time, transform itself into a full-fledged Fiscal Council (India, 2009; Para 9.65). The FRBM Review Committee too made a similar recommendation.

However, the Council appointed by the Finance Ministry would not have legislative scrutiny. Therefore, the Fourteenth Finance Commission recommended that the FRBM Act should be amended to enable the Parliament to appoint a Fiscal Council to monitor the fiscal management in the country. The Fiscal Council is supposed to bring out ex-ante fiscal implications of the budget proposals and their consistency with the Medium Term Fiscal Plan (MTFP) and rules (India, 2014, Para 14.101).

The Fifteenth Finance Commission went into the issue of strengthening the institutional process. It surmised that the previous Commissions have underlined the need to (i) strengthen the budgetary process; (ii) move towards accrual accounting and (iii) standardise and consolidate the information on key fiscal variables across all levels of government to make it comprehensive.

The indicative functions suggested for the Fiscal Council are: (i) providing multi-year fiscal forecasts; (ii) evaluating fiscal performance in relation to the targets; (iii) appropriateness and consistency of fiscal targets in the states; (iv) Independent assessment of fiscal sustainability; (v) making the assessment of fiscal policy statements under fiscal responsibility legislations; (vi) advising on the applicability of conditions applicability of escape clauses under fiscal responsibility legislations;

(vii) costing of policies and programmes with significant fiscal implications; (viii) providing analytical support to the Finance Commissions; (ix) dissemination of their report and methodology employed to arrive at conclusions to the public. It made detailed recommendations to improve the budgeting and public finance management system and an independent fiscal council. Unfortunately, this recommendation has not found favour with the Government.

VI. Concluding Remarks:

The problem of high deficits and debt continues to threaten fiscal stability and sustainability in India. The deficit and debt targets set by the Finance Commissions have seen slippages, suspensions, dilutions, modifications, and creative accounting to show better than actual results. The budget has ceased to be comprehensive, transparent, and accountable. Various types of obfuscations are done, year after year, to show lower deficits.

With the outbreak of the Coronavirus Pandemic, the entire process of debt consolidation and deficit correction has taken a beating. Now that normalcy has returned, the government will have to work out a new fiscal consolidation roadmap and implement it in a credible manner. In order to increase the credibility of the budgets, the government should make the deficit and debt numbers comprehensive and transparent. The rule-based fiscal policy should take into consideration the features of simplicity, enforceability, flexibility and comprehensiveness.

As recommended by the 15th Finance Commission, the budgetary reform should be driven by the objective of evolving a new fiscal architecture for the 21st Century, involving three important pillars namely: (i) fiscal rules across all levels of government towards achieving sustainability; (ii) a scientific public finance management system to provide comprehensive, consistent, reliable, and timely reporting of fiscal indicators that are a part of the fiscal rules; and (iii) an independent fiscal institution to assess and advise on the working of the first two pillars mentioned above.

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Does Fiscal Deficit Matter for Economic Growth Performance of Indian States? An Empirical Analysis

Binod Kumar Behera*

Hrushikesh Mallick#**

Abstract

Considering a standard economic growth model, this study tries to empirically evaluate the effects of fiscal deficits on the economic growth of 14 major Indian states from 1980-81 to 2019-20. The panel fixed effect regression establishes that gross fiscal deficit (GFD), tax revenue, and inflation rates have a significant adverse impact on economic growth. In contrast, private investment, gross enrolment ratio (GER) in primary education, and the adoption of Fiscal Responsibility Legislations (FRLs) have favourable effects; non-tax revenues, GER in secondary education, and economic policy reform (EPR) didn't show any significant effect. Where FRLs were enacted, fiscal deficits showed a positive impact on growth in the post-FRL period. Further, we find a threshold effect of fiscal deficit on growth, implying that when GFD lies within a specified threshold, it has a positive impact; beyond this limit, it impedes states' economic growth.

Keywords: Fiscal Rule, Fiscal deficit, Tax revenues, non-tax revenues, Economic growth, Indian state

JEL Codes: H2, H3, H6, H7 & E6

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* Binod Kumar Behera is a PhD research scholar at the Centre for Development Studies.

** Hrushikesh Mallick is an Associate Professor of Economics at the Centre for Development Studies, Thiruvananthapuram, Kerala.

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1. Introduction

While orthodox economic theory envisages a limited role of the government in economic activities, with the emergence of Keynesian theories, the concepts of compensatory finance¹ and government borrowing have gained the limelight in macroeconomic policy. The role of public spending has taken center stage in the Keynesian economic policy approach to enhance effective demand (Eisner, 1989). Public spending has been playing a significant role in providing adequate economic and social infrastructure and helping to improve human capital and productivity across economies (Aschauer, 1989; Easterly et al., 1993). Governments have also been mobilizing resources through borrowing, to finance excess expenditures over revenues, with the increasing number of functions they take on (Buiter, 1985).

In a federalist financial system like India, where sub-national (state) governments have major responsibilities to undertake various economic activities to provide public goods and services, their fiscal actions can affect macroeconomic performance. India's central and state governments realised revenue surpluses in the first three decades after independence, and budget documents were used to report only the budget or uncovered deficit² (Blinder and Solow 1974). Due to large fiscal and external sector imbalances, the idea of fiscal deficit made its first appearance in the economic survey of 1990-91, under the discussion of the IMF structural adjustment program. The unchecked growth of fiscal deficit created major macroeconomic problems at the central and state levels. To finance excess expenditure over the revenues, state governments cannot raise external debt unless they seek prior permission from the Centre. Even if they need to borrow from the domestic market, they need to have prior approval from the Centre, in case they already have outstanding loans from the Centre.

Before implementing Fiscal Responsibility Legislations (FRLs), some states had adopted Structural Adjustment Lending (SAL³) induced fiscal reforms to curb fiscal and revenue deficits. This has marginal beneficial impacts in improving the deficit indicators observed in SAL-implementing states (World Bank, 2005; Rao and Chakraborty, 2006). To achieve greater fiscal discipline⁴, India passed the "Fiscal Responsibility and Budget Management Act (FRBM Act) in 2003", which prescribed the limits of Gross Fiscal Deficit (GFD) as a percentage of gross domestic product (GDP) to 3% by 2008-09, and sought to abolish the revenue deficit permanently to achieve the required fiscal consolidation⁵. The FRBM Act applied to the Centre. Several states have also implemented their respective FRLs, imposing similar numerical limits on their fiscal and revenue deficits⁶. However, adopting these rules in the Indian fiscal system had its roots in the Maastricht Treaty fiscal rules of European Union (EU) countries. This rule had no theoretical rationale in its adoption to fix the ceilings on various deficit indicators in the Indian fiscal system (Rangarajan and Rao 2007). Fixing fiscal deficit ceilings to almost the same percentage levels for both the centre and states in the Indian context has been contested by many experts, given the differential economic conditions of the members of EU countries and India. The same fiscal deficit limit as a percentage of

GSDP for all the states, which seems to be quite ad-hoc, did not seem to be justified (Chakraborty, 2017).

Further, this rule-based fiscal policy (FRBM at the national and FRL at the state levels) did not specify debt-GDP targets, only a ceiling (Rangarajan and Srivastava 2005). However, the Fourteenth Finance Commission⁷ proposed setting fiscal deficit targets for the states through their FRLs, and putting the overall ceilings on debt and deficits for both levels of government. In light of the global financial crisis, these targets were subsequently revised by the Centre in its annual budget announcements, and by the FRBM review Committees, over the years. Revisions are carried out given the current and future outlook of the economy, historical outcomes, international economic developments, and global best practices⁸. However, actual deficits have continued to deviate from the targets.

The FRLs in the states had aimed at imposing fiscal discipline in two ways. Firstly, the deficit was not permitted to exceed more than three per cent of the gross state domestic product (GSDP), and the revenue deficit was required to be eliminated by 2008/09 (later, it was achieved in 2009/10). Secondly, the Twelfth Finance Commission permitted the state governments to raise funds directly from the market, assuming that this would push up the states' interest liability burden and bring in fiscal self-discipline (Economic Survey, 2016-17). The main aim of fiscal consolidation was to trim fiscal deficits to ensure high economic growth at the national and sub-national levels, as the fiscal deficit was believed to harm economic growth (Mishra and Khundrakpam 2009).

Although numerous studies have explored the relationship between fiscal policy and economic growth in India in an aggregative context (macro level), few studies help determine the threshold limit on fiscal deficits, to understand whether the impact of fiscal deficit on economic growth is symmetrical or not. Understanding this would be quite useful, at least for the fiscally weaker states, in reviewing their fiscal policy rule. Given this motivation, the present study intends to examine whether fiscal deficits have a threshold effect⁹ on economic growth in 14 major states of India.

2. Theoretical Background

There is no consensus view on the growth effect of fiscal deficit. According to the Ricardian Equivalence Theorem (RET), "the deficit in any current period is equal to the present value of future taxation" (Barro 1974). Any decrease in current government savings due to an increase in deficit causes an equivalent rise in private savings, leaving gross savings and gross investment at the national level unaltered. The discounted value of future taxes is equal to current government expenditure because, ultimately, the government collects revenue by imposing taxes. So, the taxation time does not matter (Seater 1982; Aschauer 1985).

However, the Keynesian school viewed that in underemployment and idle resources, an increase in deficit-financed government expenditure would cause an increase in output through a multiplier process, even if that expenditure is financed through borrowing (Aschauer, 1989). The rise in deficit

level would improve the profitability of private investment and accelerate economic growth (Chakraborty and Chakraborty 2006; Shen et al. 2018). This paradigm argued that "deficits have not crowded-out¹⁰ investment, rather there has been discernible crowding-in effect¹¹" (Eisner 1989).

In contrast, the Neoclassical school argued that fiscal deficit hurts growth if private saving does not fully compensate for the decline in government savings. An increase in fiscal deficits leads to a rise in lifetime consumption by postponing taxes from the current to the future. In a closed economic system, if there is full employment, any increase in consumption would cause a decline in savings. However, in an open economy context, an increase in deficit filled through external sources of borrowing may keep the level of investment and real interest rate unaltered. Still, the domestic currency may appreciate along with reduced exports.

3. Empirical literature survey

Similar to the lack of theoretical consensus among different schools of thought, the empirical findings are also relatively unclear about the growth effects of deficits. Given the three schools of thought on the relationship between economic growth and fiscal deficits—good for the economy, harmful or neutral in terms of affecting key macroeconomic variables (especially economic growth), one can also find empirical evidence supporting each of these views.

In a cross-country analysis, Nelson and Singh (1994) did not observe any significant linkage between economic growth and deficit. In particular, they observed that deficit did not significantly impact growth in Lower-Income Countries (LICs). However, an extremely weak linkage exists between these variables while pooling all the countries together. In contrast, the relation turned negative and statistically significant for middle-income countries. It is evident that the budget deficit does not have any growth effect in the short run for Saudi Arabia (Ghali 1996) and in the long run in Malaysia, Sri Lanka and the USA (Tan 2006; Velnampy and Achchuthan, 2013; Arora and Dua, 1993). However, in the Indian context, Chakraborty (2007) ruled out the relationship between economic growth and fiscal deficits in the short run. It is also found that there is no significant relationship between these variables in India from 1991-92 to 2013-14 (Bhoir and Dayre 2015).

It is observed that an increase in the real structural deficit has a positive impact on real income in the United States of America (USA) (Eisner and Pieper 1992). A similar finding is also observed during the recession (Taylor et al., 2012). Odhiambo, Lucas, and Aila (2013) concluded that fiscal deficit promotes economic growth by increasing productivity through health, education, and infrastructure in Kenya. In similar kinds of studies, it is found that fiscal deficits accelerate growth for Gambia (Onwioduokit and Bassey 2013) and Pakistan (Nayab 2015).

There exist significant positive effects of fiscal deficit on the economic growth of Nigeria during the Military regime (1985-1998); however, the same impact turned statistically insignificant during the democratic regime period (1999-2013) (Edame and Okoi, 2015). Another study by Hussain and Haque (2017) found that there is a positive relationship between economic growth and fiscal deficit

in Bangladesh when authors used Bangladesh Bureau of Statistics data; however opposite holds when they used data from a different source for the same period (1993-94 to 2015-16). Martin and Frdmanesh (1990) found that although tax revenue is inversely related to economic growth, tax is associated with higher growth when benefits are taken into account to reduce deficits. Further, there existed a positive relationship between GDP growth and government expenditure. However, it turned out to be harmful when the impact on deficits is factored in, and the expenditure coefficient is relatively lower (in absolute value) than the coefficient of taxes. Further, they found that the effect of all fiscal variables on GDP growth is strongest and qualitatively similar to the aggregate results for middle-income countries. However, opposite and insignificant results are found for low and highly-developed countries compared to the aggregate results.

In a study, Olatunji and Sunday (2012) found a positive effect of tax revenues, oil revenue, and productive expenditures on economic growth; in contrast, unproductive expenditure and the fiscal budget deficit had a detrimental impact on growth. Budget deficits are more related to real output growth than nominal output growth, as inflationary effects of fiscal deficit are not observed. However, the level of investment is negatively affected by the deficit with one and two-period lags. Hence deficit is negatively associated with real output growth (Karas, 1994). It is observed that the deficit hurts the per capita income growth via the volatility in relative price in Argentina (Avila 2011). In the case of Pakistan, a negative association between fiscal deficit and economic growth is also observed (Fatima et al. 2012; Ghani et al. 2017).

In the Indian context, Amrutha et al. (2017) observed the negative impact of fiscal deficit on growth in India. The magnitude of the adverse impact of fiscal deficit on growth is lower in the post-economic reform period than in the pre-reform period (Mohanty 2013), and Mohanty (2020) also found the same effect in both the long and short run. However, Sharma and Mittal (2019) witnessed that fiscal deficit hampers the GDP but stimulates investments in India. A negative growth effect of fiscal deficit was witnessed in the case of all the South Asian countries except Nepal. However, it was also confirmed that the fiscal deficit had a causal relation with economic growth in Bangladesh, Pakistan and Nepal, while the economic growth causal relation with the fiscal deficit for Sri Lanka and India (Navaratnam and Mayandy, 2016). Considering 16 Indian states from 2001-2016, Sethi et al. (2020) empirically verify the justification for the FRBM-prescribed fiscal deficit limit of 3%. They also witnessed a little higher threshold limit for middle- and low-income states.

4. A standard theoretical framework

Neoclassical growth theory envisages that fiscal policy determines the level of output rather than the long-run growth rate of an economy (Chamley, 1986). The theory assumes a steady state of growth rate, which is exogenously determined by the population growth rate and technological progress, and fiscal policy only affects the transition path to the steady state of growth. In contrast, the endogenous growth models with the incorporation of fiscal policy designed by Barro (1990), Barro and Sala-i-

Martin (1992), (1995), and Mendoza et al. (1997), envisaged that fiscal policy not only determines the level of output but also the steady-state of growth rate.

In this context, we present a simple theoretical growth framework underlying our empirical strategy adopted in the study to statistically uncover the relationship between budget deficit and economic growth in India. This heavily draws on the growth model of Barro (1990) and Barro and Sala-i-Martin (1992, 1995). Similar to these studies, we have adopted a simple Cobb-Douglas production function incorporating the role of fiscal policy. Thus, the production function can be represented as follows:

$$y = Ak^{1-\alpha}g^{\alpha} \dots\dots\dots(i)$$

- $\alpha \in [0,1]$
- y is the output per capita,
- A represents the total factor productivity,
- k is the private capital per capita, and
- g is the measure of fiscal policy, i.e. government expenditure on goods and services per head of individuals. The expenditure can consist of both productive and unproductive expenditures.

A government's simple, balanced budget without borrowing constraints can be represented as follows:

$$g = \tau ny + NTR + NDCR \dots\dots\dots(ii)$$

- τ is the flat tax rate which is imposed on output,
- n is the total population,
- NTR represents government non-tax revenue, and
- $NDCR$ refers to that non-debt capital receipts other than the government debt.

Theoretically, the non-tax revenue is non-distortionary, so its effect may be positive on the output. In contrast, the taxes are assumed to be distortive and would affect the output level by affecting leisure and labour supply choices and the economy's private saving and investment decisions.

Assuming an iso-elastic utility¹ function, Barro and Sala-i-Martin (1992) demonstrated that the long-run growth rate in this model φ can be expressed as:

¹ Iso-utility function is also called power utility function and a special case of hyperbolic absolute risk aversion where addition of any constant terms in the objective function doesn't change the optimal decision. Barro and Sala-i-Martin (1992) assumed that the consumer doesn't alter his decision in his life time consumption for an increase in his absolute wealth in the initial period.

$$\varphi = \lambda(1 - \tau)(1 - \alpha)A^{1/(1-\alpha)}\pi(g/y)^{\alpha/(1-\alpha)} - \mu \dots\dots\dots(iii)$$

where λ and μ are constants that reflect parameters in the utility function.

To analyse the effects of fiscal deficit on economic growth performance, we relax the assumption of the state of a balanced budget in the budget constraints and incorporate the fiscal deficit into it. Following the work of Kneller et al. (1999) and Bleaney et al. (2000), the budget constraints can be rewritten as:

$$g = d + \tau ny + NTR + NDCR \dots\dots\dots(iv)$$

Where d refers to fiscal deficit.

By following the work of Kneller et al. (1999), Amanja and Morrissey (2005) and Matthew (2009), the growth equation can be written as

$$y_i = \alpha + \sum_{i=1}^k \beta_i Z_{it} + \sum_{j=1}^m \gamma_j X_{jt} + \varepsilon_{it} \dots\dots\dots(v)$$

- y_i is the growth rate of per capita output
- X is the vector of fiscal variables, and
- Z is the vector of non-fiscal variables, such as private fixed investment and educational achievements to capture human capital,
- ε_{it} denotes the random error term.

In the case of a balanced budget, the X vector of the fiscal variable tends to be zero. With the presence of the fiscal deficit, it approaches negative values and approaches to positive values for the budgetary surpluses.

$$\sum_{j=1}^m \gamma_j X_{jt} = 0$$

One element of X must be omitted to avoid the multicollinearity problem in the model estimation. To capture the effects of fiscal deficit on economic growth, this study omits the last term of the right-hand side of equation (ii), i.e. non-debt capital receipts (NDCR), in the final estimation model. Then the final growth equation would take the following form.

$$y_i = \alpha + \sum_{i=1}^k \beta_i Z_{it} + \sum_{j=1}^{m-1} \gamma_j X_{jt} + \varepsilon_{it} \dots\dots\dots(vi)$$

The above relates to per capita income as a function of private investment per capita and government expenditure per capita. Government expenditure is decomposed into expenditure financed by tax and non-tax revenues, and another component is financed by borrowing from various sources.

Although borrowing from various sources would have different implications on the output growth of an economy since a supplemental agreement between the government of India and the Reserve bank of India in 1994 has ceased the practice of ad hoc monetisation of government debt since 1997. Therefore the fiscal deficit would predominantly capture all kinds of government market borrowings and other liabilities with a little amount of monetisation happening through ways other than ad-hoc issue of treasury bills to the Reserve Bank of India, and this is captured from the measure of fiscal deficit¹².

5. Data sources and variable descriptions

Table 1 provides descriptive statistics and highlights some other essential characteristics of the variables used in this analysis.

- Per capita income growth rate: This is computed based on a simple growth rate formula based on states' per capita state domestic product.
- Gross Fiscal Deficit: The gap between total expenditures minus net recovery of the loan over revenue receipt and non-debt capital receipts. The governments incur deficits to meet the excess expenditure over their revenue.
- Tax Revenue: It is a major part of the revenue receipts collected by taxing the people. It includes both indirect and direct taxes.
- Non-tax revenue: non-tax revenues are those receipts not generated by taxing people. It includes dividends and profits from Public Sector Enterprises such as Railway, government earnings from General Services and community services, etc., and other money such as fees, stamps, fines, penalties etc.
- Inflation rate: This rate is calculated from the GSDP deflator of the states. It is the growth rate of the implicit GSDP price deflator of the states.
- Private Investment: Since the private investment data across the states are unavailable, the credit of the scheduled commercial banks (SCBs) to the private sector based on their utilization is a proxy variable for private investment.
- Enrolment in Primary Education: It is the gross enrolment ratio (GER) of the states in the primary level of education, which includes GER in both the primary (class I-V) and upper primary (class VI-VIII) schools.

- Enrolment in Secondary Education: It refers to the GER of both the secondary and higher secondary levels of education. It is calculated by taking the arithmetic mean of the GER of these secondary and higher secondary schools across the states.

We cover the period from 1980-81 to 2019-20. We use the statistics on the state's per capita income growth rate, their respective deficits, and other fiscal variables such as non-tax revenue, tax revenue, and credit of the scheduled commercial banks from the Economic and Political Weekly Research Foundation (EPWRF). We draw data on gross enrolment rates from various states' departments of education or ministry of education and Economic survey. The variables such as private investment, tax revenue, non-tax revenue, and gross fiscal deficit (GFD) are taken as a percentage of the GSDP of the respective states.

6. Econometric methods

To empirically investigate the relationship between economic growth and fiscal deficit, the study employs two methods to check two distinct aspects of their relations. Firstly, it employs a static panel fixed /random effect model to examine the effect of fiscal deficit on economic growth. Secondly, it also utilises the panel threshold fixed effect model to investigate the non-linear relationship between these two variables. Following the theoretical model of economic growth as illustrated above, the present study specifies a model of regional economic growth to examine the effects of the fiscal deficit of Indian states on their growth performance. The model can be specified as follows:

Specification of a basic model of economic growth

Per capita income growth rate_{it}

$$\begin{aligned}
 &= \alpha_0 + \alpha_1 \text{gross fiscal deficit}_{it} + \alpha_2 \text{tax revenue}_{it} + \alpha_3 \text{nontax revenue}_{it} \\
 &+ \alpha_4 \text{private investment}_{it} + \alpha_5 \text{inflation rate}_{it} + \alpha_6 \text{education}_{it} + \alpha_7 Z_{it} + \alpha_8 \mu_i \\
 &+ u_{it} \quad \dots \dots (1)
 \end{aligned}$$

Where the above growth equation (1) expresses that the per capita income of states or regions is a function of private investment, enrolment in primary and secondary education (human capital), and the fiscal deficits of states, moreover, z stands for any other time-specific dummy capturing changes or introducing new policies. $u_{it} = \omega_i + \varepsilon_t + \epsilon_{it}$ is an idiosyncratic error term which is a linear combination of states specific error terms (ω_i), time-specific error terms (ε_t) and both time and states specific error terms (ϵ_{it}), and μ_i is the fixed effect intercept term for all the states.

6.1 Static panel random and fixed effect model

To empirically verify the relationship between economic growth and fiscal deficit among the fourteen major selected states (non-special category) of India, the empirical estimation at first is carried out using a panel data regression analysis. A panel data analysis technique provides an environment for the development of the estimation method and the theoretical result (Green, 2003). Panel Fixed effect and random effect (Generalized Least Square) models are the two most popular techniques for panel data analysis. The application of the fixed effect model or random effect model depends on whether the individual state-specific effects are correlated with the regressors in the model and whether the effect is stochastic or not (Green, 2003; Baltagi, 2008).

In this study, we employ either the fixed effect or random effect model depending on the decision emerging from Hausman's specification test (Hausman, 1978). If the value of the Hausman test statistic is significant, then the fixed effect model is the best option for the estimation as compared to the random effect model. Otherwise, the study relies on the random effect model to provide econometrically robust coefficient estimates. The study estimates three alternative variants of the above growth model represented in equation (1) using the panel data estimation technique to assess the effect of fiscal deficit on economic growth in fourteen selected states of India from 1980-81 to 2019-20. Those estimable equations can be specified with panel data specifications as follows:

Model 1: Basic Growth Model (same as in Equation 1)

$$\text{pcgsdpgr}_{it} = \alpha_{it} + \beta_1 \text{gfd}_{it} + \beta_2 \text{tr}_{it} + \beta_3 \text{ntr}_{it} + \beta_4 \text{inf}_{it} + \beta_5 \text{pri_inv}_{it} \\ + \beta_6 \text{edn_pri}_{it} + \beta_7 \text{edn_sec}_{it} + u_{it} \quad \dots\dots\dots (1.1)$$

Model 2: Basic model with the introduction of FRLs and EPR policy dummy

$$\text{pcgsdpgr}_{it} = \alpha_{it} + \beta_1 \text{gfd}_{it} + \beta_2 \text{tr}_{it} + \beta_3 \text{ntr}_{it} + \beta_4 \text{inf}_{it} + \beta_5 \text{pri_inv}_{it} \\ + \beta_6 \text{edn_pri}_{it} + \beta_7 \text{edn_sec}_{it} + \beta_8 D_1 \text{frl} + \beta_9 D_2 \text{epr} + u_{it} \quad \dots\dots (1.2)$$

Model 3: Basic model with FRLs and EPR dummies separately interacted with gross fiscal deficits

$$\text{pcgsdpgr}_{it} = \alpha_{it} + \beta_1 \text{gfd}_{it} + \beta_2 \text{tr}_{it} + \beta_3 \text{ntr}_{it} + \beta_4 \text{inf}_{it} + \beta_5 \text{pri_inv}_{it} \\ + \beta_6 \text{edn_pri}_{it} + \beta_7 \text{edn_sec}_{it} + \beta_8 D_1 \text{frl} + \beta_9 D_1 \text{frl} * \text{gfd}_{it} + \beta_{10} D_2 \text{epr} + \beta_{11} D_2 \text{epr} * \text{gfd}_{it} + u_{it} \\ \dots\dots (1.3)$$

Where,

- $pcgsdpgr$ = growth rate of per capita gross state domestic product (GSDP)
- gfd = Gross fiscal deficit as a percentage to GSDP
- tr = Tax revenue as a percentage to GSDP
- ntr = Non-tax revenue as a percentage to GSDP
- inf = inflation rate
- pri_inv = Private Investment as a percentage to GSDP
- edn_pri = Gross enrolment rate at the primary school level
- edn_sec = Gross enrolment rate at the secondary school level
- D_1frl = time dummy for fiscal responsibility legislation
- D_2epr = time dummy for EPR
- $D_1frl * gfd_{it}$ = interaction of time dummy variable for fiscal responsibility legislation with the gross fiscal deficit
- $D_2epr * gfd_{it}$ = interaction of time Dummy variable for EPR with the gross fiscal deficit.

The basic model (first model) treats the per capita income growth rate as a function of gross fiscal deficit (GFD), non-tax revenue, tax revenue along with private investment, inflation rate, and GRE at primary school and secondary school. In the second model, two-time dummy variables are incorporated into the basic panel model to examine the impact of economic reform and FRLs on the economic growth of the states. In the third model, the time dummies and their interactions with the GFD variables are augmented in the basic model to verify whether the FRL and EPR interacted with the fiscal deficit and had any differential effects on the economic growth rate of the states.

6.2 Threshold effect of fiscal deficits of states on their per capita income growth rate

This section aims to investigate if there is any threshold effect of fiscal deficit on the economic growth of states, where the relation between economic growth and fiscal deficit is likely to be different for each threshold value of a series. However, the major issue which needs to be tackled is whether the threshold value has to be determined endogenously or exogenously.

With the traditional approach, the threshold level is usually determined exogenously by choosing some arbitrary value, where it is not possible to derive the confidence interval for a given threshold value. In contrast, an endogenous threshold regression technique is more appropriate over the conventional exogenous threshold regression technique, on the ground that it determines the values and locations of the thresholds endogenously from the data, through some specific non-linear functional form of the model to capture such thresholds in the absence of information about the exogenous changes. It applies asymptotic theory to construct the appropriate confidence intervals. At

the same time, it also uses bootstrap techniques to assess the significance level of the threshold effect to test the null hypothesis of no threshold effect with linear formulation against a threshold effect with a non-linear effect.

Thus, the study chooses to use the panel threshold fixed effect method as developed by Hansen (1999); the detailed description of the analysis of this econometrics methodology has been illustrated in Appendix-A.

7. Descriptive statistics of the variables used in our analysis

The data on most of the fiscal variables are utilised from the Handbook of Statistics on the Indian economy (2021), and the statistics on state gross domestic product and state population have been taken from the Economic and Political Research Foundation. It covers the data for 14 (Non-Special Category²) states of India.

Table 1 depicts the behavioural characteristics of variables for all the 14 selected states from 1980-81 to 2019-20. It shows that the average PCI growth rate of states is around 4.87 per cent with 6.64 standard deviations, and its lowest and highest values range from 81.83 per cent to -16.62 per cent, respectively. The average gross fiscal deficit (GFD) to GSDP ratio across 14 states stands at 3.35%, varying within a range of 12.38% to -0.98% with a standard deviation of 1.62. The average tax revenue and non-tax revenue each as a proportion to GSDP constitute 9.60% and 3.72% with a standard deviation of 2.97 and 1.74 respectively, and the tax revenue and non-tax revenue varying within a range from 20.01% to 5.53% and 13.08% to 1.34%, respectively. The mean value of private investment (measured with a proxy variable of credit of scheduled commercial banks to the private sector based on its utilisation to GDP) is 29.85%, with a maximum value of 100.49% and a minimum value of 7.97%. The mean of GER for primary and secondary education are 85.27 and 40.99, respectively, with a standard deviation of 16.49 and 14.67, respectively. These variables vary from 143.15 to 46.55 and 95.05 to 9.14, respectively. The mean of the inflation rate is 6.76%, and it varies from a range of 21.45% to -29.77%, with a standard deviation of 3.89. It shows that private investment has the greatest variation reflected by its highest standard deviation value, and this is followed by gross enrolment ratios and PCI growth rate.

² The study covers only the fourteen non-special category states and excludes all the special category states which are located in the northeast of India. These states are smaller in size by their market size in terms of their GSDP and population size. As a result, with the smaller absolute size of their fiscal deficit, they are likely to register a higher deficit to GSDP ratio and bias our empirical result relating to fiscal deficit and growth. Thus, it excludes the special category states on account of their features such as (1) located in hilly and difficult terrains, (2) low population density and a sizable share of tribal population (3) strategic locations bordering the neighbouring countries, (4) economic and infrastructural backwardness and (5) non-viable nature of state finances. In addition, this study excludes newly created non-special category states as consistent time series data is unavailable. Moreover, the 14 non-special category states covered in our study cover almost more than 75% of the total geographical areas of India. The name of all those 14 states are Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Punjab, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

For exploring a better understanding on the relationship between the fiscal deficit and economic growth of the states, the trends of those two variables are presented for each state separately in figure 1(Appendix-B).

Table 1:Descriptive Statistics of the Variables

Variable	Mean	Min	Max	Std. Dev.
Per Capita Income growth rate	4.87	-16.62	81.83	6.64
Gross Fiscal Deficit	3.35	-0.98	12.38	1.62
Tax Revenue	9.60	5.53	20.01	2.97
Non-tax Revenue	3.72	1.34	13.08	1.74
Private Investment	29.85	7.97	100.49	16.50
Inflation	6.76	-29.77	21.45	3.89
Gross Enrolment at Primary Education	85.27	46.55	143.15	16.49
Gross Enrolment at Secondary Education	40.99	9.14	95.05	14.67

Note: All device indicators, including private investment, are taken as a percentage of the GSDP of respective states.

As the time for the analysis is thirty years, it is necessary to check the time series characteristics of all the variables. The panel unit-root test shows that per capita income growth rate, GFD, and non-tax revenue are stationary at the level; however, other variables such as tax revenue, inflation rate, and GRE in primary and secondary school levels are stationary at the first difference.

For the sake of the robustness of the results, we have run the pooled mean group model of the same model as specified for the static fixed-effect model by replacing the per capita income growth rate with the level of per capita income as the former is stationary at the level and latter is non-stationary at first-difference. The unit-root results of all the variables are given in Appendix C.

8. Empirical results & discussion

8.1 Results based on static panel random and fixed effect models

Table 2 provides the estimated results of these three models based on all the 14 selected Indian states for the entire sample period from 1980-81 to 2019-20. Relying on the Hausman-test criteria, which was found to consistently reject the null hypothesis of the robustness of estimates from the random effect model, all the models were estimated based on the fixed effect model.

The estimated results shows that a one per cent increase in the fiscal deficit on an average significantly reduces the per capita economic growth rates of the states by -0.76 per cent. This supports the neoclassical view on the relationship between economic growth and fiscal deficit performance, and this result is similar to the findings of the study by Karas (1994), Cebula (1995), Avila (2011), Rana and Wahid (2016), and Iqbal, Din and Ghani(2017).

All the models are estimated with the incorporation of tax rate, i.e. tax revenue to GSDP ratio, to see the growth effect of taxation. The result shows that the tax rate hurts economic growth. This result is as per the prediction of the neoclassical model of economic growth. According to the neoclassical idea, taxation curbs economic growth by distorting the major choice factors of agents, which determine the economic growth rate. This affects labour employment and capital accumulation and hence the growth productivity. This finding is akin to the findings of Skinner (1988), Easterly and Rebelo (1993), Mendoza et al. (1994), and Lee and Gordon (2005) for other countries' contexts. However, the variable non-tax revenue (which is measured as non-tax revenue to GSDP ratio) comes out to have a statistically insignificant relationship with the per capita income growth.

In all three models, the credit extended by scheduled commercial banks to the private sector based on their utilisation rate, which has been used as a proxy for private investment, showed a positive and significant impact on economic growth. This result is consistent in line with the standard theory of investment, which argues that private investment is a basic determinant of economic growth, and this result is supported by numerous other studies such as Blejer and Khan(1984), Barro(1991), Mankiw, Romer and Weil(1992) and Barro, Sala-i_Martin(1992)

Table 2 : Estimation of per capita income growth rate model

Independent Variables	Model 1(FE)	Model 2(FE)	Model 3(FE)
Gross Fiscal Deficit (GFD)	-0.76*** (0.203)	-0.54*** (0.218)	-0.94** (0.457)
Tax Revenue	-0.53*** (0.215)	-0.61*** (0.216)	-0.59*** (0.216)
Non-tax Revenue	-0.060 (0.216)	-0.068 (0.266)	-0.115 (0.267)
Private Investment	1.85** (0.611)	-1.08 (0.800)	-0.59 (0.1.641)
Inflation	-0.38*** (0.079)	-0.41*** (0.212)	-0.40*** (0.080)
Enrolment in Primary Education	0.046* (0.028)	0.033** (0.028)	0.027** (0.028)
Enrolment in Secondary Education	-0.038 (0.031)	-0.042 (0.034)	-0.049 (0.0335)
D ₁ FRL		3.78*** (1.308)	1.145 (1.994)
D ₂ EPR		1.403 (1.162)	1.10 (2.140)
D ₁ FRL*GFD			0.74* (0.412)
D ₂ EPR*GFD			0.085 (0.518)
R ² (Within)	0.10	0.12	0.12
R ² (Between)	0.0001	0.01	0.0089
R ² ((Over All)	0.05	0.06	0.06
Hausman test (Chi Square)	15.44**	14.67**	14.32**

Note: ***, ** and * denote significance at 1 per cent, 5 per cent and 10 per cent level of significance

The inflation rate is found to be significant and adversely affects economic growth. The presence of a high inflation rate increases the riskiness of long-term investment projects, and it is also considered an indicator of macroeconomic instability. As a result, it creates an adverse environment for investment. Thus, it proves that even in a developing economy context, the inflation rate reduces private investment and productivity, and ultimately it hampers economic growth (Barro, 1991; Levine and Renelt, 1992; Barro, 1995; Ghosh and Phillips, 1998; Fischer, 1993; Ambler and Cardia, 1997).

The enrolment rate and mean year of schooling are the two most commonly used variables used as a proxy for the stock of human capital. The study incorporated the gross enrolment ratio in primary and secondary school education in our model to capture the effect of human capital on economic growth. The estimation of these parameters in all the models shows a significant positive relationship between the gross enrolment ratio at primary school and economic growth (Barro and Lee, 1994). However, contrary to previous studies, our result shows that the gross enrolment ratio at secondary school level education has no significant effect on economic growth. Although this result seems surprising, it is consistent with the finding of Self and Grabowski (2004).

Given the fact that all our model estimations show that the growth effect of the fiscal deficit is negative and statistically significant at 1% level, in order to capture the policy effect on the growth the study further used two separate time dummies for two different periods such as after the economic reform of 1990-91 till 2019-20(EPR) and post FRLs period after the implementation of FRBM since 2004-05 till 2019-20(FRLs). These effects are captured and reported under Model 2 in column 3 in Table 2. The estimated results of the model demonstrate that the FRLs dummy has a statistically significant positive coefficient implying that fiscal prudence has enabled the states to economically perform better. However, at the same time, it also confirms that economic policy reform does not have any effect on the per capita income growth for the major selected states in India. Estimating the subsequent model (Model 3), the study interacts with both the FRLs and EPR period dummy variables with GFD and the results are shown in column 4 of Table 2. The estimated result reveals that although the FRLs dummy continue to significantly explain its positive contribution to states' economic growth performance in all the other two model, but it is statistically insignificant in this model 3. However, its interaction term with GFD is found to be positive and statistically significant and makes reasonable sense about it.

Further, a comparison of parameter estimates between GFD and the interaction of the FRLs dummy with GFD shows that the absolute magnitude of the interactive GFD term (0.74) is relatively lesser than the magnitude of the GFD coefficient (-0.94) alone. It indicates that the negative effect of fiscal deficit is higher than its positive effect prior to the adoption of FRLs in Indian states. Similarly, both the EPR and its interaction variable are found to have positive impacts on economic growth, although they are statistically insignificant.

8.2 Results from threshold effects

Test results on threshold effects

We examine the threshold effect model as proposed by Hansen (1999). This is applied by assuming that there may exist a non-linear relationship between economic growth and fiscal deficit. First of all, we tested for the existence of a single threshold effect and then for the double threshold effect up to triple thresholds in our per capita income growth model. Table 3 provides the test results on the threshold effect of fiscal deficit on per capita economic growth.

Table 3: Test for threshold effect of fiscal deficits on per capita income growth rate

Hypothesis	LR Statistics	P-value	Threshold Value
H_0 = No Threshold Effect	710.13	0.0000	2.3297
H_1 = Single Threshold Effect			(2.3040-2.3387)
H_0 = Single Threshold Effect	-136.05	1.000	
H_1 = Double Threshold Effect			

Note: The test result reported in the table is based on following a repeated bootstrap procedure of 1000 times for each threshold test

Table 3 reports the test result for a single and double threshold effect. The result shows that only a single threshold effect is statistically significant at 1%. In contrast, it also finds that the double threshold is insignificant, with a bootstrap p-value of 1.000. One cannot reject the null hypothesis of the existence of a single threshold effect of fiscal deficit in our growth model. Thus, we conclude that a single threshold effect of fiscal deficit exists on economic growth.

Empirical results and discussion on panel threshold fixed effect model

From a comparative perspective, Table 4 produces both estimates from linear and non-linear models. The second column of Table 3 reproduces the estimates based on the static panel fixed effect model with no threshold effect of fiscal deficit, while the third column presents the estimates based on the panel threshold fixed effect model with a single-threshold effect of fiscal deficit on economic growth. The coefficient of the variables such as tax revenue, non-tax revenue, inflation, private investment, and education at the primary and secondary school levels have similar signs as expected, and the signs are almost consistent with our initial estimates reported in Table 2. However, they vary in terms of their magnitude only.

Table 4: Threshold Effect of Fiscal Deficits on Levels of Per Capita Income

Independent Variables	Fixed Effect Model	Threshold Fixed Effect Model
Constant	-0.085 (5.689)	-3.86(2.974)
Gross Fiscal Deficit	-0.76*** (0.203)	-0.92*** (0.105)
Tax Revenue	-0.53*** (0.215)	-0.78 (0.113)
Non-Tax Revenue	-0.060 (0.216)	-0.098 (0.139)
Inflation rate	-0.38*** (0.079)	-0.003*** (0.043)
Enrolment in Primary Education	0.046* (0.028)	0.010* (0.014)
Enrolment in Secondary Education	-0.038 (0.031)	-0.030 (0.016)
Private Investment	1.85** (0.611)	1.48*** (0.477)
Threshold1(GFD< 2.3297)		0.905*** (0.024)

Note: ***, ** and * denote significance at 1 per cent, 5 per cent and 10 per cent levels of significance

Given that there exists a single threshold effect, the threshold value splits all the observations into two regimes, based on whether GFD is smaller or larger than the threshold value. These regimes are differentiated by different slope coefficients θ_0 and θ_1 .

In the first regime, when the GFD to GSDP ratio lies below 2.3297%, the slope coefficient $\hat{\theta}_0$ is 0.905, which is positively significant at 1% level. In contrast, this indirectly proves that when the GFD to GSDP ratio exceeds 2.3297, it has a detrimental effect on the economic growth rate of states with a slope coefficient of -0.92 at 1% level of significance. It is also observed that when the fiscal deficit exceeds this threshold value, not only it is the effect becomes negative, but also the magnitude of this effect is greater than the positive effect when the fiscal deficit lies within the threshold value.

From the above analysis of the threshold fixed effect model, it demonstrates that if the fiscal deficit to GSDP ratio lies within a specified limit, then it helps the Indian state economies to accelerate their pace of economic growth rates. However, once it exceeds that specified limit, then it starts to retard its economic growth. This not only provides a caution to the individual state governments in maintaining a higher level of fiscal deficits to GSDP ratio exceeding 2.33%, but also supports the individual governments' efforts towards maintaining the fiscal deficit to GSDP ratio by restricting within the maximum limit of 2.33. In this sense, setting a commonly targeted ceiling of 3% on the fiscal deficit to GDP ratio for each state may represent an overestimation compared to our approximated or estimated target value obtained through an application of the threshold regression estimation approach.

Therefore, it suggests that a uniformly specified fiscal deficit to GDP ratio for all the states through a general rule-based fiscal policy (FRBM or FRLs) is likely to significantly hamper the economic growth potential of the state economies across India. It confirms for all the states that they should specify their own individual deficit to GSDP targets to accelerate their pace of economic growth.

9. Robustness check

To check the robustness of estimated parameters, the panel ARDL model has been employed by replacing the dependent variables with levels of per capita income instead of per capita income growth rate. The application of the ARDL model would make greater sense when the dependent variable is non-stationary rather than stationary. The long-run coefficient of the ARDL model shows that GFD has a negative impact on the per capita income of the states in the long run. All other variables also come as expected and in line with the standard theory. The empirical estimation results of long-run coefficients are presented in the following Appendix-C.

10. Conclusion and Policy Suggestion

Using a panel fixed effect model for fourteen selected Indian states together for the period 1980-81 to 2019-20, the estimated results reveal that increase in GFD hampers the per capita income growth rate of Indian states. This result supports the neoclassical views about the relationship between economic growth and fiscal deficit.

Further, it also shows that the FRL policy has a positive impact on economic growth, and the EPR does not affect the economic growth of Indian states. When we considered interacting both the FRL and EPR policy dummies with the level of GFD-to-GSDP ratio, it is found that the FRLs policy dummy alone has a significant and positive impact, along with its interaction with GFD on the economic growth rate of 14 major selected states. However, it is found that the negative effect of fiscal deficit on economic growth prior to the adoption of FRLs is higher than its positive effect in the post-FRLs adoption period.

While examining the threshold effect in the panel fixed effect model, the study observed a threshold effect of GFD on economic growth. When GFD lies within the threshold limit, it has a significant and positive impact on economic growth, implying that once it exceeds this minimum limit, the fiscal deficit adversely affects the economic growth of the state economies in India. From both the linear and non-linear analyses, it can be concluded that the fiscal deficit has a positive impact on the economic growth performance of the states in the post-FRLs period. However, a much higher positive impact of fiscal deficit on economic growth can be realised by keeping the fiscal deficit within the specified threshold limit of 2.33%.

This study provides a cautious benchmark limit on the fiscal deficit to GSDP ratio for the states of India. Hence, this requires studying and determining different thresholds limit on the fiscal deficit to GSDP ratio for the different individual states. A commonly arbitrary ceiling can affect economic growth differently, as fiscal capacity can differ depending on economic capability or growth. Nevertheless, arriving at this particular limit is something quite unique to this study, and helpful for designing the future fiscal policy of states in India.

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Appendix-A

To check the presence of threshold effect of fiscal deficit on economic growth, the study employs Hansen(1999) methodology. The non-linear formulation of the threshold fixed effect model can be represented as follows.

$$gy_{it} = \alpha + \beta'X_{it} + \omega'W_{it} + \theta'h_{it}[W_1 - \tilde{W}_1] + u_{it} \quad \dots\dots\dots(2)$$

$$h_{it} = \begin{cases} \text{One if } W_1 > \tilde{W}_1 \\ 0 \text{ if } W_1 \leq \tilde{W}_1 \end{cases}$$

$$\text{And } u_{it} = \mu_i + \lambda_t + \varepsilon_{it}$$

Where,

X_{it} = the vector of non-fiscal variables such as inflation rate, private investment, and gross enrolment ratio at the secondary and primary level of education.

W_{it} = the vector of fiscal variables such as the gross fiscal deficit, non-tax revenue, tax revenue

W_1 = gross fiscal deficit (GFD to GSDP ratio)

Above Eq. (2) is a standard fixed effect panel data model, whereas the states are indexed as I , and the period is denoted by t . The error term u_{it} is the linear combination of three types of error terms, firstly μ_i represents the random error term, which is time-invariant and state-specific effects. Secondly, λ_t denotes the error term, which is state-invariant and captures the time-varying effects. Finally, ε_{it} is an idiosyncratic error term which captures both time and varying state effects. h is an indicator variable, and β , ω and θ are the parameters to be estimated by the data.

The above specification allows measuring the marginal effect of the fiscal deficit on economic growth to vary around its thresholds values, which is represented by \widehat{W}_1 . It divides the whole period into two regimes based on whether the threshold variable W_1 is smaller or larger than the threshold value \widehat{W}_1 , which is endogenously determined by the data. The regimes are differentiated based on different regression slope parameters, such as θ_1 and θ_2 . However, the necessary condition is that the threshold variable should not be time-invariant. The error term should be independent and identically distributed with zero mean and constant variance. The threshold value \widehat{W}_1 is estimated by using the least square method developed by Hansen.

Estimations of threshold fixed effect model

At first, we need to compute $S(W_1) = u(W_1)' \hat{u}(W_1)$, which is the residual sum of squares (RSS) of the model in equation (2), estimated for the threshold level \hat{W}_1 . Then the optimal threshold value is determined in the following way:

$$\hat{\tilde{W}}_1 = \underset{\tilde{W}_1}{\operatorname{argmin}} S(\tilde{W}_1). \quad \dots\dots\dots (2.1)$$

\tilde{W}_1 is estimated from Eq. (2) For all possible values of fiscal deficit, which range from minimum % of GSDP to some higher % of GSDP on an annual basis-point interval. Once the optimal threshold level \tilde{W}_1 is obtained, then the slope coefficient associated with \tilde{W}_1 is estimated $\hat{\theta} = \hat{\theta}(\tilde{W}_1)$ and the residual variance of the estimator is given by $\hat{\sigma}^2 = \frac{1}{n(T-1)} SSE_1(\tilde{W}_1)$, Where n represents the number of states and t denotes the sample periods.

Testing for a threshold effect

After obtaining the optimal threshold value, it is essential to test for the statistical significance of the threshold effect. Then the null and alternative hypotheses can be written as:

$$\begin{cases} H_0: \theta_0 = \theta_1 \\ H_1: \theta_0 \neq \theta_1 \end{cases}$$

The null hypothesis states that the coefficient of W_1 and \hat{W}_1 are the same. In other words, $\theta_1 = \theta_2$, which means there is no threshold effect of fiscal deficit on economic growth. Whereas the alternative hypothesis assumes both the coefficients are different and there exists a threshold effect of the fiscal deficit while impacting economic growth.

Under the null hypothesis of no threshold, the following model is estimated by assuming $\theta = 0$

$$gy_{it} = \beta' X_{it} + \omega' W_{it} + \theta' h_{it}[W_1 - \tilde{W}_1] + u_{it} \quad \dots\dots\dots (2.2)$$

Here we use the bootstrap method to test if the value of \hat{W}_1 shows a significant difference from zero. Asymptotic confidence intervals are simulated using the bootstrap, and the following likelihood ratio statistic is calculated,

$$LR_0 = \{S(\tilde{W}_1^0) - S(\hat{\tilde{W}}_1)\} / \hat{\sigma}^2$$

Where $S(\tilde{W}_1^0)$ denotes the RSS for the linear model without threshold effect and $\hat{\sigma}^2$ represents the estimated error variance of the model with the threshold $\hat{\tilde{W}}_1$. Hansen (1999) provides the critical value for this statistic. Likewise, another asymptotic confidence interval for $\hat{\tilde{W}}_1$ is also computed, and the following is the likelihood ratio statistic for the whole range of values of \tilde{W}_1 given as follows:

$$LR_1 = \{S(\tilde{W}_1) - S(\hat{\tilde{W}}_1)\} / \hat{\sigma}^2$$

LR_1 is equal to zero if $\tilde{W}_1 = \hat{\tilde{W}}_1$ and it is a random variable Q with the distribution function as $P(Q \leq \tilde{W}_1) = (1 - e^{-x/2})^2$. The distribution can be inverted into a given level of significance of 100

$\alpha\%$ using the likelihood ratio statistic $c(\alpha) = -2\log(1 - \sqrt{1 - \alpha})$. The null hypothesis $\theta_0 = \theta_1$ is rejected if $LR_1(\tilde{W}_1)$ exceeds $C(\alpha)$.

Using the likelihood ratio, we can estimate the asymptotic p-value. Based on Hansen's (1999) results, the distribution function has the inverse. Thus,

$$c(\alpha) = -2\log(1 - \sqrt{1 - \alpha})$$

From this, critical values are easily calculated. For a given asymptotic level α , the null hypothesis $\gamma = \gamma_0$ is rejected if $LR_1(\gamma)$ exceeds $c(\alpha)$.

If there is more than one threshold in a model, then the model can be represented as follows:

$$gy_{it} = \alpha + \beta'X_{it} + \omega'W_{it} + \theta'h_{it}[W_1 - \tilde{W}_1] + u_{it} \quad \dots\dots\dots(2.3)$$

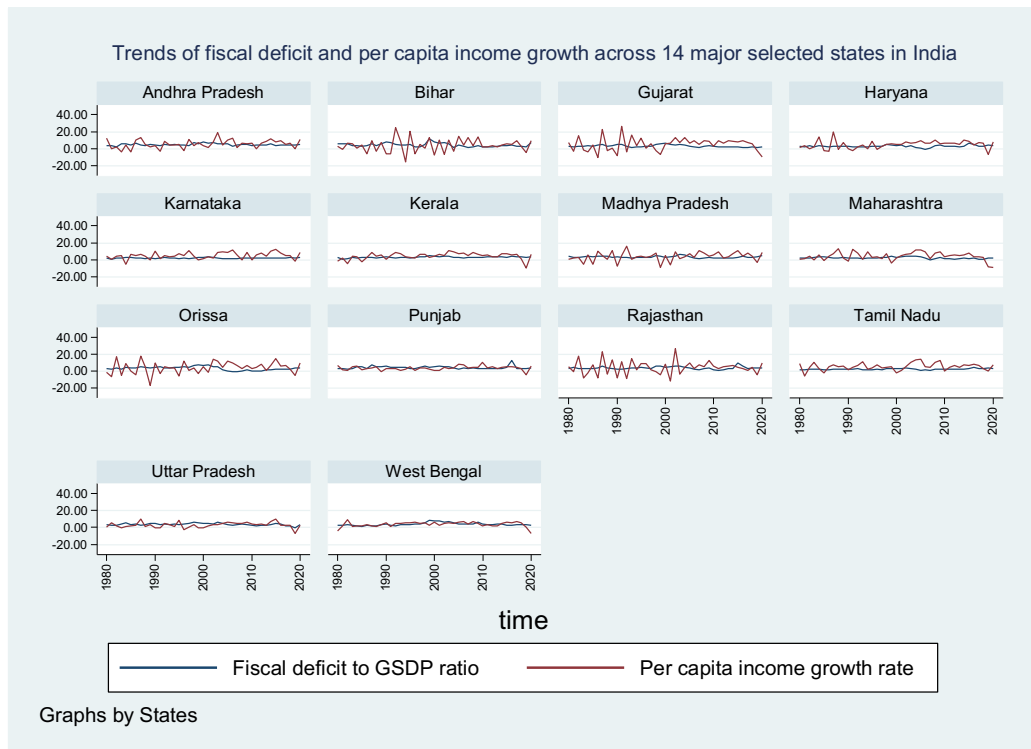
$$h_{it} = \begin{cases} 1 & \text{if } W_1 > \tilde{W}_1 \\ 0 & \text{if } W_1 \leq \tilde{W}_1 \end{cases} \quad \text{For Single Threshold Effect Model}$$

$$h_{it} = \begin{cases} 1 & \text{if } W_1 < \tilde{W}_1 \\ 0 & \text{if } \tilde{W}_1 \leq W_1 \leq \tilde{W}_2 \end{cases} \quad \text{For the Double Threshold Effect Model}$$

and, so on

Appendix-B

Figure: 1A



Appendix Table-C

Table 1A: Panel unit-root test of the required variables

Variables Name		With individual intercept			With individual intercept & trend		
		LLC	IPS	F-ADF	LLC	IPS	F-ADF
Per Capita Income Growth rate	At Level	-7.07	-10.168	157.27	-7.045**	-10.54	151.18
		***	***	***		***	***
	At 1st Dif.	NA	NA	NA	NA	NA	NA
Per Capita Income	At Level	18.73	21.44	0.00013	8.076	14.469	0.0308
	At 1st Dif.	2.647	1.014	0.46	-0.59	-4.15	76.38
		***	***	***	***	***	***
Gross Fiscal Deficit	At Level	-3.042**	-4.867* *	71.983**	-1.99***	-2.745***	47.53***
	At 1st Dif.	NA	NA	NA	NA	NA	NA
Tax Revenue	At Level	-0.359	-0.405	35.812	-2.581*	-1.587*	39.061*
	At 1st Dif.	-11.35**	-14.31**	228.86*	NA	NA	NA
Non-Tax Revenue	At Level	0.495	-1.358*	31.16	0.976	26.15	54.95*
	At 1st Dif.	-5.628**	NA	208.99**	-2.486**	169.813**	760.12**
Private Investment	At Level	2.82	4.228	8.852	-0.753	2.681	9.759
	At 1st Dif.	-10.63***	-12.84***	204.66* **	-8.795***	-11.239**	165.31***
GRE at Primary	At Level	-2.549*	-1.679*	41.052*	-0.765	-0.799	32.59
	At 1st Dif.	NA	NA	NA	7.87*	-12.935*	189.58*
GRE at Secondary Level	At Level	4.844	7.589	6.069	1.385	1.506	18.977
	At 1st Dif.	-10.17***	-12.96***	203.74***	-8.594*	-11.95*	183*94
Inflation	At Level	-0.672	-1.181	28.32	4.454	-0.142	22.54
	At 1st Dif.	-4.63*	-10.96*	169.07*	-2.453**	-8.497**	122.214**

Table 2A: ARDL-based estimates of per capita income model

Independent Variables	ARDL1 (3,2,2,2,2,2,2,2)	ARDL 2 (1,2,2,2,2,2,2,2,2)
Gross Fiscal Deficit	-4.869*** (1.9100)	-2.949*** (0.9430)
Tax Revenue	-2.005* (1.2203)	-9.0736*** (0.7981)
Non-tax Revenue	-8.3574*** (2.1745)	-3.0385*** (0.6960)
Inflation	-0.927*** (0.206)	-2.7924*** (0.8269)
Primary Education	1.689*** (0.2431)	0.5812*** (0.0931)
Secondary Education	1.961*** (0.2432)	0.7010*** (0.0980)
Private Investment	0.4205** (0.2280)	0.4517*** (0.0207)
D1_FRL*GFD		5.705*** (1.1557)
D2_EPR*GFD		0.9446 (0.5999)
ECM	-0.095*** (2.786)	-0.17*** (6.784)

Note: ***, ** and * denote significance at 1 per cent, 5 per cent and 10 per cent levels of significance, respectively; the robust standard error is given in the parenthesis bracket.

Notes

1. Compensatory finance refers to the fiscal policy measure to adjust the excess government spending over the revenue through borrowing to maintain full economic employment without inflation. In the time of the great depression, Keynes prescribed this measure as a way out of the great depression.

2. Budgetary or uncovered deficit is defined as the gap between the total expenditure and total receipts of the government (Blinder and Solow 1974)

3. Structural Adjustment Lending (SAL) is an economic reform programme undertaken by the World Bank to provide loans to a nation's central and state governments to enhance their long-term economic growth through financing projects.

4. Fiscal discipline refers to a state of an ideal balance between revenues and expenditures of the government in an economy

5. Fiscal consolidation is a fiscal policy measure which aims to reduce government imbalances in revenue and receipts and debt accumulation.

6. The sub-national governments in India have embraced the rule-based fiscal policy with the passing of “The fiscal Responsibility and Budget Management (FRBM) act”, which puts the precondition to limit the size of total liabilities and debt service liabilities. Among the Indian states, Karnataka first enacted the FRBM act in 2002, accompanied by Kerala, Tamil Nadu in 2003 and Punjab in 2004. In the subsequent years, all the other states have enacted the FRBM act to realize the incentives provided with the recommended of 12th FC. Further schemes like Debt swaps and Debt Consolidation and Relief Facilities by the national government have given incentives to the sub-national governments to maintain such fiscal commitments of FRBM.

7. The Finance Commission is a statutory, constitutional body appointed by the President of India quinquennially for the distribution of the net proceeds of taxes of the Union government between the Union and the states and establishing principles that should govern the grants in aid of the revenues of the states out of the Consolidated Fund of India. Apart from the Finance Commission, resources to the states are transferred through the Planning Commission and various ministries of the Union government. Finance Commission–recommended transfer continues to be the primary channel of resource transfer to the states.

8. FRBM Review Committee, under the chairmanship of N.K Singh, submitted its report in April 2017. It had proposed to replace the FRBM Act (2003) with a Debt Management and Fiscal Responsibility Bill (2017). It has also recently submitted another report in Jan 2020, in which it has set the target for the debt-to-GDP ratio to be at 38.7% for the central government, and 20% for the state governments together by the FY 2022 – 23. The fiscal deficit for each should be restricted to 2.5% of GDP by FY 2022 – 23.

9. Threshold effect refers to a critical value of the interest variables (independent variable), after which the effect on the dependent variable changes significantly (magnitude or sign).

10. Crowded out refers to the reaction of private investment to government investment, where the government investment, financed by borrowing, reduces the loanable funds available for private investment, driving up interest rates and reducing the level of private investment.

11. Crowding-in effect refers to the effects of government investment on private investment through which government spending enhances the productivity of private capital through the accumulation of public capital.

12. Our estimating model is majorly based on equation(vi), and we have taken the dependent variable in terms of the growth rate of per capita incomes which endogenizes the population in the model, but the independent variables are expressed as ratios to GDP instead of standardizing those

with respect to population or labour supplies. This is how our model relates to income growth with fiscal deficits and other basic variables incorporated in other standard growth models.

Understanding environmental protection expenditure in India: Trends, provision, and priority

Anindita Roy Saha*

Gargee Sarkar**

Abstract

Environmental protection (EP) refers to actions targeted to maintain or restore environmental quality associated with various economic activities through financial provision and initiatives. India's suboptimal performance in EP and climate action so far raises an enquiry into the nature of priority assigned and provisions made for environmental protection expenditure (EPE). This paper examines the recent trends of EPE in India and finds a visibly lower share of EPE in total expenditure and lower rate of growth in comparison to other heads under Classification of the Functions of the Government (COFOG). Capital expenditure on EP has been less than current while subsidy, fund transfer, loans and advances have been near zero. The allocation for environment is inadequate in comparison to other budgetary heads. India fares poorly in EPE when compared to the leading OECD countries, who are global trendsetters for EPE. The current study points at the need for identifying EPE as a core priority area for designing sustainability policies for the long run, by suitably redesigning budget allocation and fund disbursement for implementation of environmental programmes.

Keywords: Environmental protection expenditure (EPE), COFOG, OECD, budgetary allocation, sectoral share, capital expenditure, current expenditure

JEL Codes: C32, E62, H50, H53, H59, Q56, Q58

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* Anindita Roy Saha is a Professor at the Department of Economics, Indraprastha College for Women, and guest faculty at the Department of Environmental Studies, University of Delhi.

** Gargee Sarkar is an Assistant Professor at the Department of Economics, Indraprastha College for Women, University of Delhi.

1. Introduction

1.1 The idea of environmental protection expenditure

Climate action and environmental protection (EP) are becoming increasingly more important with the rising frequency of extreme events, continuous environmental degradation and the impending climate crisis. The human ecological footprint has exceeded the biocapacity and resulted in large scale loss in biodiversity, change in land use patterns, disease, death, and displacement induced by natural disasters, climate change, and environmental stress.

The idea that the growth in the world's output of final goods and services through technological progress can make economic growth an indefinite possibility, is being reconsidered. Co-existence with nature has been recognised as fundamental to human existence in an inevitably finite economy ("The Economics of Biodiversity: The Dasgupta Review," n.d.). This has resulted in an increasing need for designing policies that are focussed on sustainability and resilience of the economic and ecological systems. The need for mainstreaming EP and climate change in economic policies has gained critical importance globally.

EP refers to actions targeted to maintain or restore environmental quality through changes in consumption patterns, production techniques, treatment of residuals, and so on. It further aims at prevention of degraded land and damaged ecosystems. As per the Classification of EP Activities (CEPA 2001), there are nine major domains of EP, namely, (a) protection of ambient pollution and climate; (b) waste management; (c) waste water management; (d) protection and remediation of soil; (e) protection and remediation of groundwater and surface water; (f) protection of biodiversity and landscape; (g) noise and vibration abatement; (h) research and development (R&D) on environment and (i) other EP activities not elsewhere classified.

The aim of EP activities is to collect, treat, reduce, and eliminate pollutants and prevent further environmental degradation. Environmental protection expenditure (EPE) is the sum of capital and current expenditure on the above actions, and thus forms a part of the public budgets in terms of immediate, medium, and long-term measures for prevention, reduction, elimination, and mitigation of environmental problems emanating from human activities of production and consumption.

EP current expenditure includes the costs of operation and maintenance in process, equipment and technology in order to prevent, reduce, and dispose of pollutants and other environmental losses. On the other hand, capital expenditure for long term investment includes financial and materials cost that aim at the creation of new permanent resources and/or revamping old resources through reconstruction, extension, modernization, restoration and adaptation that help improve the degraded environmental quality (Broniewicz 2011).

The process of arranging and allocating public funds for EP and attaining sustainable development has been initiated in the Organization for Economic Cooperation and Development (OECD), European Union (EU) and many other countries where commitment to domestic and international objectives like EP have become part of national policy responses and provisioning of funds.

There are several ways by which public funds influence inclusive growth. It boosts long-term growth by increasing the economy's productive capacity, supporting the accumulation of human capital, and improving returns on private investment in addition to productivity gains (OECD 2020). EP is a major area that may be successful through effective state intervention and provisioning of funds. Through strategies like risk sharing, credit enhancement, or subsidies to reduce borrowing costs in communities that cannot pay the full costs of investments, public monies may be utilised to make it simpler to borrow money on the financial markets for environmental projects.

Therefore, good management of public expenditure programmes is a crucial component of successful and efficient environmental policy (Hepburn 2010). While EP is an issue with a plethora of legislative requirements, institutional frameworks, and transboundary arrangements, the national governments can play a critical role by spearheading adequate programs and policies along with making the requisite budgetary provisions.

Expenditures for education, health, R&D, dissemination of information, households, and environment protection, along with subsidies and social aids are accepted as expenditures for goods pertaining to significant positive externalities. Expenditures on these heads have definite impact on the macroeconomic growth process. However, studies have shown that total public expenditures increase the ecological deficit, by adversely affecting environmental quality, whereas EPE specifically can create a positive effect on it. Fundamentally, EP has the power to improve social welfare (Pearce and Palmer 2001) and thus must be considered crucial for Sustainable Development.

The content and direction of public expenditure like EPE is of crucial importance, as compared to general public expenditure per se (Basoglu and Uzar 2019). Moreover, dependence on concepts of corporate social responsibility, altruistic shareholders, and customer desires will not produce the best results when it comes to environmental conservation. Because businesses lack the incentives to absorb externalities without government involvement, relying on the 'free market' or 'knowledge provision' to provide good results in the environmental sector is very doubtful (Hepburn 2010).

It has also been found that public spending on environmental preservation may have strong positive impact during financial crises and has no negative impact on economic performance. A study using a panel econometric model carried out in eleven Central European nations showed that economic growth is positively impacted by the rise in public spending on EP. The analysis period is diverse, since it includes both the time before and the time of the global economic crisis. The findings show that during a crisis, public spending on environmental protection has a higher impact on GDP. In fact, its beneficial effects have been the best in countries whose economy have been impacted by the global financial crisis (Krajewski 2016).

Budget planning and preparation are prime levers in environmental action programmes, with green budgeting as a recent policy focus developed to align public revenue and expenditure processes towards environmental and climate goals. These may be strengthened further by transparency, industrial mandates and evaluation processes, citizen involvement, and so on.

Several studies have been conducted on public sector efficiency, the GDP effects of public spending, and the cyclical and long- and short-term relationship between government expenditure and output for the developed countries of EU (Donath and Milos 2008; Szarowská 2018). While public expenditure can be a powerful tool for mitigating uneven economic shocks and act as an automatic stabiliser in the development process (Szarowská 2013), it may be ridden with several problems in many countries. Therefore, careful designing of public expenditure, prioritization and allocation of funds according to heads is essential for effective policy implementation.

Developing countries like India face several basic economic challenges, such as poverty, inequality, malnutrition etc., and generally assign comparatively lower priority to expenditure heads like environmental management and/or protection. However, EPE is of paramount importance for maintaining environmental quality, and thereby sustaining life and livelihood for millions of people in developing societies. There are studies that have shown how municipal environmental protection spending have contributed to a decrease in industrial pollution emissions, although the benefits of governance varied between clusters of cities (Fan et al. 2022).

1.2 Objective of the study

The present desk research aims to examine the patterns of EPE in India during the current decade of the millennium, using secondary data available on national and international databases. A comparative analysis of financial disbursement on EP is made with other major heads of government expenditure in order to understand the priority of EP vis-à-vis other heads and thereby identify the policy gap, if any. Since budgetary allocation forms the basis of actual spending, a scrutiny of the budget may add insights into the fiscal priorities for environmental action.

India's performance in sustainable development may be studied as an indicator of the policy outcomes of climate action and environmental commitments, channelised through EPE. Finally, an examination of the EPE patterns in OECD countries (who have been pioneers in identifying EPE as a policy priority) may help find directions and set goalposts for future decisions regarding the same in EPE-deficient countries like India.

1.3 Methods and materials

Classification of the Functions of Government (COFOG) was developed by the OECD in order to classify the expenditure of the government according to purpose based on the System of National Accounts (SNA) (UN, Department of Economic and Social Affairs). Central government spending by function is the breakdown of expenditures based on the activities supported by governments. This internationally comparable classification system refers to the data on expenditure for general government, excluding local bodies.

The ten first level COFOG heads are general public services, defence, public order and safety, economic affairs, EP, housing and community activities, health, recreation-culture-religion, education, and social protection (OECD 2011). The second level classification splits these ten further into up to nine sub-groups (Appendix 1, table A1), such as the components of EP as listed earlier.

The National Accounts Statistics (NAS), 2021 published by the Ministry of Statistics and Programme Implementation (MOSPI), Government of India provides the detailed data for government expenditure by COFOG for the period 2011-2019 (CSO 2021). Taking this as the base, calculations have been made to examine various dimensions of EPE, such as time trend, shares in total expenditure, year-on-year rates of growth, break-up according to heads, etc.

Subsequently, a comparison is made across the ten COFOG heads, with an aim to identify the priority assigned to EPE, and a correlation matrix has been used to analyse the interrelationship between these categories of expenditure. The enquiry has been narrowed down further to five COFOG heads that are potentially growth-enhancing public expenditure: education, health, social protection, recreation-culture-religion, and environment, with an aim to understand the socio-economic priorities in India.

The general budget 2020-21 has been used to study the budgetary allocation for EP. Finally, the OECD database has been the source of data for EPE and total expenditure in the selected countries that have been compared with India in this study.

2. Expenditure on environmental protection in India

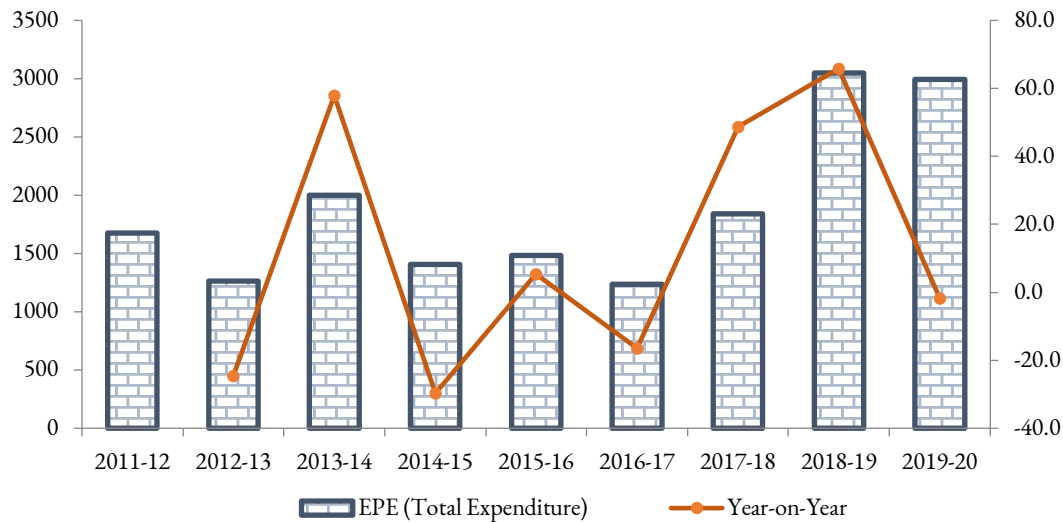
2.1 Time trend and year-on-year growth

Despite a commitment to adhere to the global goals and meet the environmental targets, India has spent a meagre amount on EPE during 2011-12 to 2019-20, with the figure remaining mostly below Rs 2000 Crores, in constant prices adjusted by the GDP deflator (figure 1).

- Except for the years 2013-14 and 2015-16, the EPE has been lower compared to previous years, with year-on-year rates of growth recorded in negative at times: -24.5% in 2012-13, -29.7% in 2014-15, and -16.5% in 2016-17.
- With a major rise of 48.7% in 2017-18 and subsequently 65.8% in 2018-19, EPE has fallen again by -1.8% in 2019-20, although the figure is higher than those in the earlier years.

The significant rise in EPE during 2013-14 and the period from 2017 to 2020 may be attributed to the launch of some environmental policy initiatives and heightened expenditure in response to extreme weather events. The launch of the environmental projects peaked around 2014-15, and later after 2017, which coincides with the end of India's suboptimal performance in the Millennium Development Goals (MDG) and the initiation of the global agenda for the Sustainable Development Goals (SDG) (United Nations).

Figure 1. EPE and year-on-year growth in India



Source: NAS, 2021

Note: EPE figures are in Rs. Crores, in constant price

At the same time, there have been frequent floods (12 in 2013-14, 15 in 2016-17, 5 in 2018-19, and 32 in 2020) and cyclonic storms (5 in 2013-14, 2 in 2016-17, 12 in 2018-19, and 7 in 2020) ravaging various parts of India during this time, along with earthquakes, landslides, wildfire, drought etc. (IDMC, 2020). These events might have drawn immediate attention to the need for climate action and environmental quality improvement.

Some of the major initiatives of the period include:

- National Afforestation Programme (launched 2014) for climate change adaptation and mitigation for vulnerable ecosystems including communities and species and for enhancement of carbon sinks,
- *Namami Gange* (2014) under National Council for Rejuvenation, Protection and Management of River Ganga (reconstituted from National Ganga River Basin Authority (NGRBA) in 2016,
- National Adaptation Fund (2015) to meet the adaptation costs in vulnerable states,
- National Clean Air Programme (2017) to tackle air pollution all over India,
- Ministry of *Jal Shakti* (2019) to manage water resources,
- *Kisan Urja Suraksha Utthan* (2019) to introduce solar energy in agriculture etc.

However, the dips in EPE in the intermediate years point at the absence of a consistent expenditure policy and systematic programme implementation for reduction and mitigation of environmental problems and strategies for restoration and adaptation of degraded environmental quality over the medium or long run.

2.2 Current and capital expenditure accounts of EPE

Disaggregated trends may be observed in terms of the components of EPE, namely, current and capital expenditures, subsidies, transfers, loans and advances etc., which are major public instruments of developmental expenditure (including EP) (Table 1).

Table 1. Environmental protection expenditure in India (Rs. Crores, in constant price)

Environmental Protection Expenditures	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Total Expenditure	1676	1264.8	1996.5	1403.4	1480.2	1236	1838.4	3048.3	2993.6
Current Expenditure	1076	843.5	1296.5	774.6	995.0	1058.4	956.0	1025.1	1308.6
<i>(% share in Total Expenditure)</i>	64.2	66.7	64.9	55.2	67.2	85.6	52.0	33.6	43.7
Capital Expenditure	600.0	421.3	700.0	628.8	484.3	177.6	747.3	1746.7	1327.9
<i>(% share in Total Expenditure)</i>	35.8	33.3	35.1	44.8	32.7	14.4	40.7	57.3	44.4
Net Investment in Stock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>(% share in Total Expenditure)</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Loans and Advances	0.0	0.0	0.0	0.0	0.8	0.0	135.0	276.6	357.2
<i>(% share in Total Expenditure)</i>	0.0	0.0	0.0	0.0	0.1	0.0	7.3	9.1	11.9
Subsidy	2.0	0.9	2.6	0.8	0.0	0.0	0.0	0.0	0.0
Current Transfers to Local Bodies	68.0	197.2	71.3	70.3	119.3	182.1	177.4	193.2	370.8
Capital Transfers to Local Bodies	12.0	0.0	0.0	0.0	0.0	0.0	0.0	19.2	2.4
Loans & Advances to Local Bodies	0.0	0.0	0.0	0.0	0.0	0.0	135.0	276.6	357.1

Source: Authors' calculation based on NAS, 2021 data

Note: EPE figures are in Rs. Crores, in constant price

At the times of spikes in overall EPE in selected years, there have been rises in capital expenditure and its share in total as well, with the highest recorded in 2018-19 (57%), followed by 2014-15 (45%). This is an exception to the trend of average shares of capital expenditure, that is generally much lower (around 35%) than current expenditure (around 65%). Capital transfer to local bodies have been almost nil during this period.

The current transfer to local bodies has grown somewhat consistently, which might have been triggered by the need to tackle immediate natural disasters and short-term environmental programmes. However, medium- and long-term policies of capital transfer to states and local bodies are required for practising fiscal federalism in the domain of EP, as much as it is needed for any other developmental investment.

The impacts of environmental mismanagement transcend state and national boundaries, making it impossible for environmental challenges to stay local. When environmental deterioration starts in one location, it spreads to a much wider geographic region, including not only local governments but

also state and federal ones, and necessitates their participation. Consequently, the idea of environmental federalism necessitates a review of the proper jurisdiction for the administration and delivery of environmental goods and services.

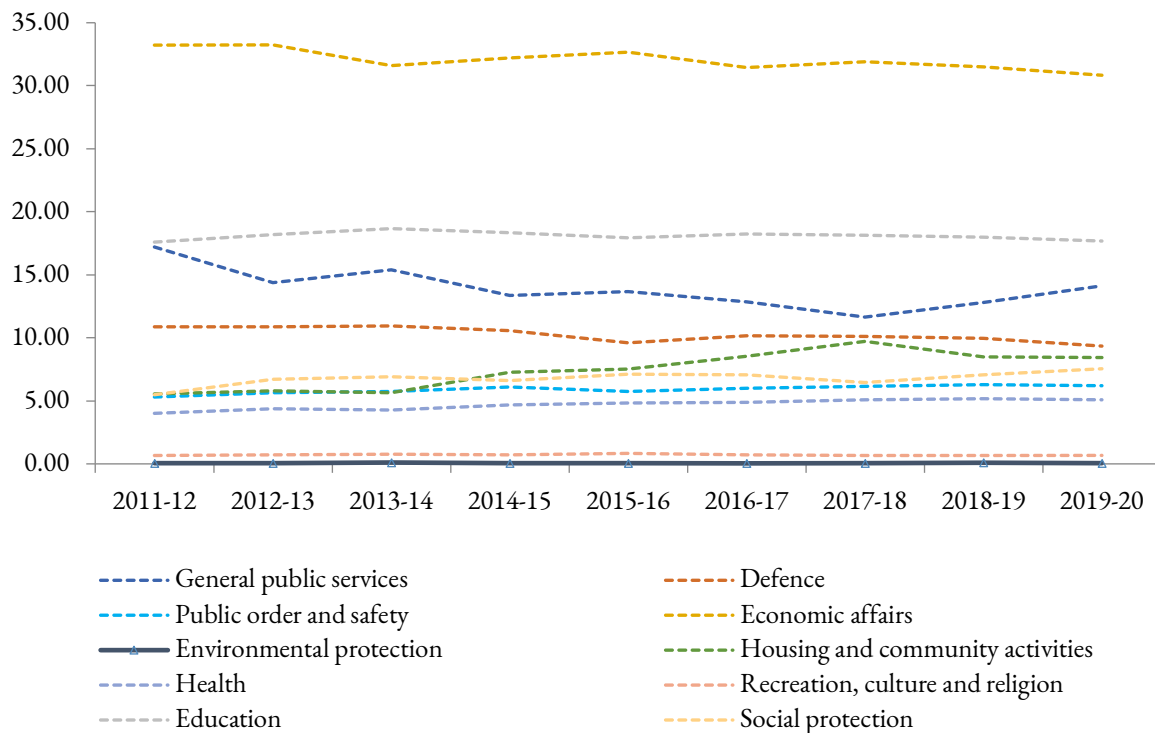
In this situation, it will be vital for the central government to play a role in regards to environmental regulation, that necessitates taking charge of those activities that have significant environmental ‘spill over impacts’ beyond jurisdictional boundaries. In accordance with the minimal standards set by the federal government, state and local governments can regulate environmental quality and services. They also need to develop and implement programmes. As a result, there is a need for distributed environmental governance at many levels of government, and federal systems are particularly well-suited to handle this task.

India surely has not built a robust system of fiscal federalism. There has been no investment in stocks during the entire period. Loans and advances have not been expended till 2016-17 and subsidy has been abysmally low and/or negligible except for a few initial years. The period from 2017-18 has recorded some loans and advances and capital transfer to local bodies, which may indicate a minor shift towards long-term investment in EP in India; however, the amounts in question remain very small.

2.3 Share of EPE in total expenditure

EPE has received the least priority among all ten heads of COFOG in India (figure 2). Its share in the total expenditure has been the lowest, at around 0.08% on an average with further dips to 0.05% in 2015-16 and 0.04% in 2016-17. The highest share recorded so far is 0.09% in both 2013-14 and 2018-19, which is way below a less-significant economic head called recreation-culture-religion that hovers around 0.6% to 0.8%.

The major economic heads are economic affairs (30-33%), general public services (12-17%), defence (around 10%), housing and communication (5- 8%) and public order and safety (5-6%). Among the socio-economic heads, education has the highest share (17-18%), followed by social protection (5-7%), health (4-5%), recreation-culture-religion (0.6-0.8%) and EPE with the lowest share (0.04-0.09%) during this period. Lower share of health expenditure is likely to aggravate the problems induced by poor environment, for the two are closely connected.

Figure 2. Share of EPE and other categories in total expenditure in India

Source: NAS, 2021

2.4 Correlation between EPE and other heads

The pattern of expenditure under the ten COFOG heads shows varying degree of interconnectedness (table 2). While the major economic heads have stronger correlation, expenditure on the socio-economic variables reveals weaker correlation among themselves. From the estimated values of the correlation coefficients, no relation has been detected between economic heads and social heads. Consequently, it would also mean that increasing social heads of expenditure will hardly impact the environment and there is no question of positive impact even so. This implies that protecting environment requires direct intervention and fund disbursement for the best results as a sustainability policy.

As observed earlier, EPE in India has been dominated by current expenditure and may have an overlap with public service, order, and safety. No correlation has been found between EPE and housing and community services, which include two essential components like water and sanitation. The degree of correlation significantly reduces when environment is compared with other socio-economic heads, namely, health, education, and social protection. There is no correlation between EPE and recreation-culture-religion. The data has already revealed a greater share of the latter in total expenditure over the entire period, thereby indicating a socio-economic bias that puts EP at a lower priority than recreation-culture-religion in particular, and other heads in general.

Table 2. Correlation matrix for COFOG expenditure heads in India

	Environmental protection	General public services	Public order and safety	Defence	Economic affairs	Housing and community activity	Health	Recreation, culture and religion	Education	Social protection
Environmental protection	1.000									
General public services	.810** (0.008)	1.000								
Public order and safety	.708* (0.033)	.809** (0.008)	1.000							
Defence	.719* (0.029)	.800** (0.010)	.992** (0.000)	1.000						
Economic affairs	.690* (0.040)	.835** (0.005)	.988** (0.000)	.977** (0.000)	1.000					
Housing and community activities	0.568 (0.111)	.702* (0.035)	.970** (0.000)	.973** (0.000)	.970** (0.000)	1.000				
Health	.681* (0.044)	.800** (0.010)	.997** (0.000)	.986** (0.000)	.995** (0.000)	.978** (0.000)	1.000			
Recreation, culture and religion	0.589 (0.095)	.769* (0.015)	.909** (0.001)	.873** (0.002)	.930** (0.000)	.884** (0.002)	.929** (0.000)	1.000		
Education	.695* (0.038)	.818** (0.007)	.997** (0.000)	.990** (0.000)	.990** (0.000)	.973** (0.000)	.997** (0.000)	.929** (0.000)	1.000	
Social protection	.694* (0.038)	.850** (0.004)	.969** (0.000)	.946** (0.000)	.963** (0.000)	.909** (0.001)	.969** (0.000)	.950** (0.000)	.976** (0.000)	1.000

Source: Authors' calculation

Note: *p<0.05, **p<0.01; figures in parentheses indicate standard errors

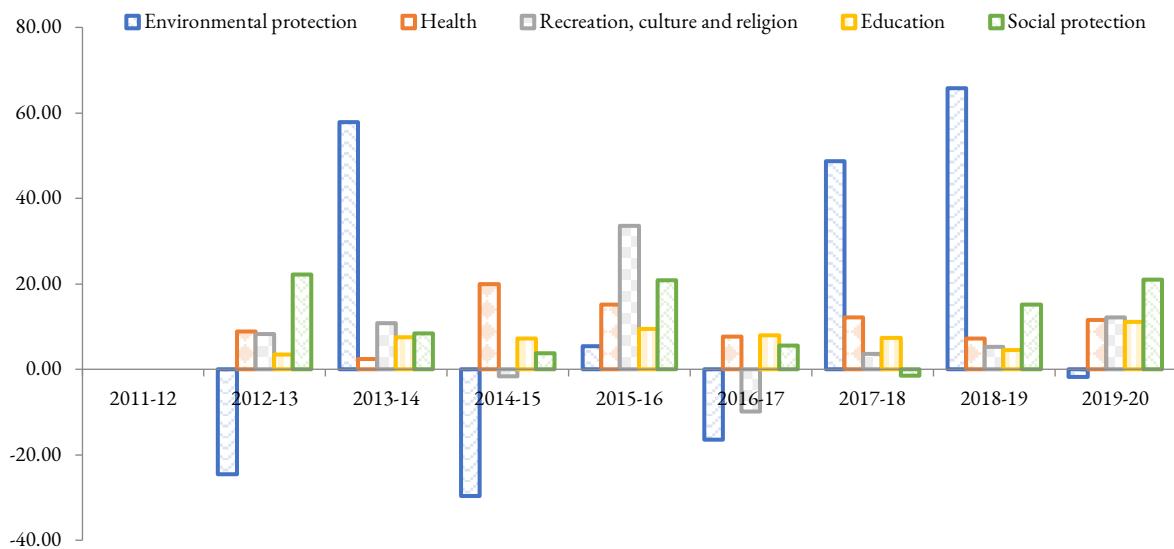
2.5 EPE and other socio-economic heads

Although the overall growth in EPE during 2011-12 to 2019-20 has been comparable (79%) with education (75%) and recreation-culture-religion (74%), the absolute amount for EPE has been significantly less. On the other hand, health and social protection have recorded higher rates of growth (122% and 140 % respectively), as well as larger absolute amounts. Moreover, the year-on-year growth of EPE has fluctuated the most among the five socio-economic variables (figure 3); as stated earlier, there have been sharp rises in EPE in 2013-14 and 2018-19, resulting in 57.85% and 65.82% year-on-year growth respectively.

EPE recorded maximum fluctuations and negative rates of growth, such as, -24.53% in 2012-13, -29.71% in 2014-15, -16.5% in 2016-17 and -1.79% in 2019-20. Expenditures on health and education have recorded positive rates of growth, varying from 2.4% to 19.9% and from 4.5% to 11% respectively. Health expenditure declined, though positive, in 2013-14 and 2018-19 whereas expenditure on education dipped in 2018-19.

Expenditure on social protection has recorded higher rates in general, with a maximum of 22.19% in 2012-13 and 21.01% in 2019-20. The remaining head -- recreation-culture-religion -- has been allocated higher shares of funds, with a growth rate as high as 33.59% in 2015-16, and a positive growth rate in most of the years (except for minor declines of -1.57% in 2014-15 and -9.8% in 2016-17).

Figure 3. Growth of expenditure on socio-economic categories in India



Source: NAS, 2021

Overall, EPE turns out to be the least prioritised head of expenditure, with major negative and minor positive rates of year-on-year growth, both among all ten COFOG categories as well as among the five socio-economic heads of developmental expenditure. While growth in education and health expenditure is an indicator of human development, deprioritised EPE may threaten the journey towards sustainable development.

3. Budgetary allocation for climate and environmental actions in India

3.1 Regulatory and financing mechanisms for EPE

The Indian Constitution initially contained no specific provision for environmental preservation, albeit it was implied in the Preamble and Directive Principles of State Policy. The concept of environmental rights (in the Fundamental Rights) and obligations (in the Fundamental Duties) have since been introduced to the Constitution as a result of the state's gradual realisation of its obligation to safeguard the environment.

The 42nd Constitutional Amendment amended the Directive Principles of State Policy to include direct environmental protection in the form of Article 48-A. According to the article, "The State shall endeavour to safeguard the country's forests and wildlife, and to maintain and promote the environment." ('Environment Protection under Constitutional Framework of India,' n.d.).

Even though the Union and the States each have a certain amount of environmental authority, the Union nevertheless has the lion's share of the decision-making power. Additionally, the State list includes the third-tier subject of local government. Although the 73rd and 74th Constitutional Amendment created a Constitutional basis of authority for local governments, they are under the power and jurisdiction of the state governments that govern them, especially in the matters related to environmental expenditure. They do not draw their authority from the Constitution itself, but rather from the State governments that govern them ('Indian Institute of Ecology and Environment New Delhi - www.ecology.edu' n.d.). In addition to the Union list, the Union government also has the upper hand in matters pertaining to the Concurrent List. Both the Parliament and the State Legislature can pass laws on concurrent subjects, but if there is a disagreement and no room for harmonic interpretation of the provisions, the legislation passed by the Parliament takes precedence. Only the Parliament has the remaining authority to enact legislation on subjects not covered by either of the other two lists, and one of these subjects is environment. When combined with the legislative authority granted by Article 246 of the Constitution and read with list I and list II of Schedule VII, the ownership of public lands and natural resources by the states defines the division of environmental and natural resource-related duties between the federal government and the states (Srivastava et al., 2012).

The Union Ministry of Environment and Forests (MoEF) was set up in 1985, and is the highest administrative body to oversee and safeguard environmental protection and establish a legal and regulatory framework for this purpose. The Environment (Protection) Act of 1986 empowers the central government to safeguard and enhance environmental quality, control and/or decrease pollution from all sources, and ban or restrict the establishment and/or operation of any industrial facility based on environmental considerations.

Section 3 of the above act enables the Union Government to take all such measures as it deems necessary or expedient for the purpose of protecting and improving the quality of the environment and preventing, controlling, and abating environmental pollution. It covers matters like protection of forests, wildlife, conserving mines, population control etc. Here too, in the instance of conflict between Union and any State government, the decision of the Union government prevails.

In the situation of national emergency, Parliament has the power to legislate the state subjects also. The division of these legislative powers is essential to make provisions which can deal with environmental problems. Currently at the federal level, four ministries, namely, the Ministry of Environment, Forest, and Climate Change (MoEFCC), the Ministry of New and Renewable Energy (MNRE), Ministry of Earth Sciences (MOES), and the Ministry of Jal Shakti (MJS) are primarily responsible for environmental policy -- and consequently for EPE (Dareen 2021).

Most environmental programmes are financed by the Centre and, to a lesser extent, by the States. Nevertheless, these are mostly overseen and managed by the state governments. Various state environmental programmes pertaining to water, land, agriculture, public health and sanitation,

preservation, protection, and enhancement of stock, as well as the prevention of animal illnesses, are funded by the Centre (Dareen 2021).

The term 'green finance' describes financial arrangements that are specifically intended for use with environmentally friendly initiatives or projects that incorporate issues of climate change. Green financing has been emphasised in India since 2007. In a notification titled 'Corporate Social Responsibility, Sustainable Development and Nonfinancial Reporting - Role of Banks' published in December 2007, the Reserve Bank highlights the significance of global warming and climate change in the framework of sustainable development ('Landscape of Green Finance in India 2022').

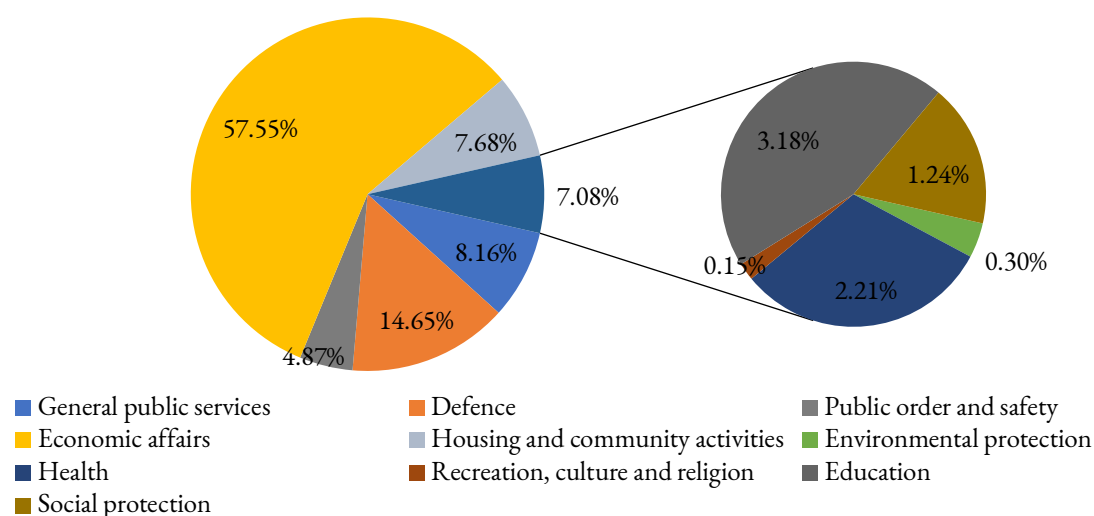
The National Action Plan on Climate Change (NAPCC) was created in 2008 with the goal of outlining the broad framework for policies for reducing the effects of climate change (Jain, 2020). As a coordinating body for the many agencies in charge of green financing in India, the Climate Change Finance Unit (CCFU) was established inside the Ministry of Finance in 2011. In May 2016, the government-backed Indian Renewable Energy Development Agency (IREDA), which promotes renewable energy projects, declared its intention to establish India's first green bank. The 'credit enhancement programme' was created specifically by India Infrastructure Finance Corporation Limited (IIFCL) to finance sustainable infrastructure projects with bond tenors longer than five years (Jain, 2020).

3.2 Recent trends in budgetary allocation

Environmental goals, such as, those of green transition, solar energy expansion, blue economy, clean air, climate adaptation and mitigation etc. need to be supplemented by adequate funding in order to steer the economy to a sustainable future. The lower priority for EP becomes visible in the budgetary provision for EP activities in India.

Despite the alarming condition of the current pandemic and occurrence of multiple climate-induced extreme events recently, the union budget of the Government of India for 2021-22 does not show the expected priority for EP. There are wide variations in the fund allocation for different ministries assigned to take up economic development across various sectors.

The Ministry of Environment, Forests and Climate Change (MOEFCC), Ministry of Earth Sciences (MOES), Ministry of *Jal Shakti* (MJS) and Ministry of New and Renewable Energy (MNRE) that are entrusted to lead short-, medium-, and long-term environmental programmes, have been allocated a remarkably low share of the budget compared to other ministries dedicated to core economic and social sectors. The total allocation, disbursement, transfer to states and funding of various programmes related to climate and environment have got a meagre share of 0.30% in the budget, out of a total 7.08% share of the five socio-economic heads (figure 4).

Figure 4. Shares of environment and other heads in budgetary allocation in India

Source: Authors' calculation based on the Union budget for 2021-22, GOI, 2021

A detailed scrutiny of the budgetary allocation reveals a clear deficiency in allotments: Rs. 2,869.93 Crores to MOEFCC, Rs. 1,897.13 Crores to MOES, and Rs. 5,753 Crores to MNRE, all of which are marginally higher than the previous allocations. MJS, which handles the high-profile *Namami Gange* project, received Rs 9,022.57 Crores for water resources, river development, and Ganga rejuvenation, as well as Rs 60,030.45 Crores for drinking water and sanitation. However, the latter is not directly related to natural resource conservation and EP (GOI 2021).

Among the total fund allocated to MOEFCC, long-term projects like National Clean Air Programme (NCAP) received Rs. 460 Crores; Central Pollution Control Board (CPCB), Rs. 100 Crores; Green India Mission - National Afforestation Programme, Rs. 246 Crores; and National Adaptation Fund Rs. 80 Crores. The total disbursement to states is not large, for example, a sum of Rs. 47,436 Crores was transferred *to all 27 states* for afforestation under the Compensatory Afforestation Fund Act (CAMPA) 2016.

Environmental education and research, which are important drivers of sustainability and lifestyle change (WBCSD 2021) have not received adequate shares too. The allocation for environmental knowledge and capacity building has decreased continuously, from Rs. 86 to 40 to 70 Crores over 2019-20, 2020-21 and 2021-22 respectively (MOEFCC 2021). The Green Skill Development Programme (2017), aimed to train 5 lakh youth in forest and environment sector by 2020-21, is funded out of the Environmental Information System (ENVIS) which had a meagre allocation of Rs. 24 Crores in 2018-19 (MOEFCC 2018).

MNRE has assigned Rs. 1,299 Crores for wind energy and Rs. 2,149 for solar power in 2020-21, which seem to be inadequate in view of the major thrust put on these sources of non-conventional and renewable energy at a time of green transition.

The fund allocated by MJS for cleaning Ganga has reduced to Rs. 800 Crores compared to Rs. 20,000 Crores at the time of its inception in 2014. Other projects of MJS, such as, River Basin

Management (Rs. 200 Crores), National Hydrology Project (Rs. 200 Crores), Flood Management and Border Areas Programme (Rs. 750 Crores) and the *Har Khet ko Pani* irrigation programme (Rs 1.050 Crores) have received insufficient funds too (Dareen, 2021).

The above examples reveal that India's key environmental and climate action programmes are inadequately funded. While climate resilience and EP are globally accepted goals, the nature of the local problems is more complex in developing countries. It requires larger funding, state initiative and efficient implementation, without which achieving the global goals are near impossible.

4. EPE of selected OECD countries as goalposts

Environmental commitments shown by the OECD countries can serve as goalposts for other countries. Prioritising EP and adequately allocating funds for the same under the COFOG framework have set global examples of how governments can design environmental policies and expenditures. Developing countries like India can gain insights by analysing the relevant data of the OECD countries, as countries closer to India's GDP do not suffice for such efficiency markers. Lack of systematically compiled data is another constraint in studying other developing countries comparable with India.

Studies have shown that countries may mimic the EPE patterns and environmental behaviour of other countries (Gallo and Ndiaye 2021). Since the OECD has been a global leader in committing to policies that foster economic prosperity, equality, opportunity, and wellbeing, it may provide lessons for the lagging countries in deciding public expenditure patterns and designing public policies.

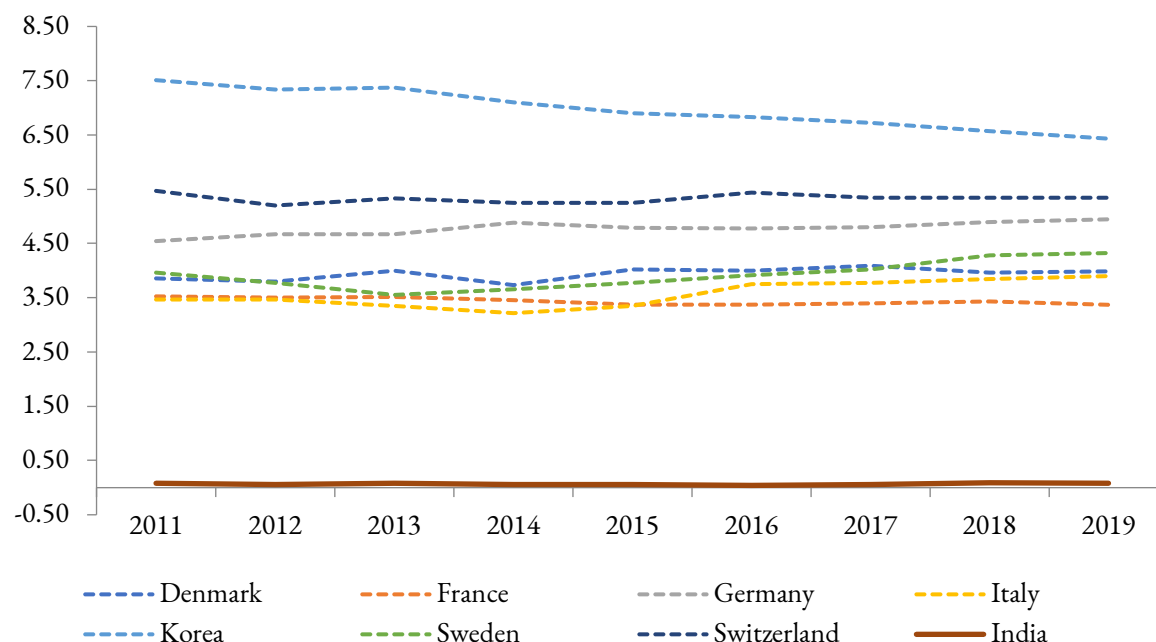
Aligning environmental considerations across all policy domains of the budget, including green budgeting and EPE, is an announced goal of the OECD through the Paris Collaborative (2017), with the larger goal of achieving the key targets of the Paris agreement (COP 21 2015). Many of the OECD countries have identified environment and climate as crucial components of budgetary provisions, almost equivalent to transport, health, and finances for other economic activities in terms of incentives, expenditures and so on, and have started to systematically reflect and/or align environmental expenditure in performance budgeting systems.

A close look at the environmental expenditure data of some selected OECD countries reveals their environmental commitment and clear patterns in budgetary allocations, which may serve as standards for countries that remain poor performers on these metrics, like India. Leading OECD countries have allocated significant shares of total expenditure on EPE: Austria (1.06%), Belgium (1.665%), Denmark (0.97%), Finland (0.565%), Germany (1.38%), Netherlands (3.32%), Norway (1.675%), Sweden (0.545%), and Switzerland (2.085%) during 1995-2014 (Basoglu and Uzar 2019).

The average shares of EPE have increased significantly thereafter in the OECD countries (figure 5). South Korea spends the highest share (around 7%) on EPE, followed by Switzerland (around 5.3%), Germany (around 5%), Denmark (around 4%), Sweden (around 4%), Italy (around 3.9%), and France (around 3%). In comparison, the share of EPE in India is at around 0.08% of the total expenditure. The data clearly shows that these countries have aligned their expenditure with the global

goals for climate action and environmental management and protection, whereas India is yet to prioritise environment in the developmental policy plans.

Figure 5. Share of EPE in total expenditure in OECD countries and India



Source: OECD, Government at a glance, 2019

5. Concluding remarks

Ensuring ecological human rights falls well within the domain of responsibilities of the government; this includes environmental management, restoration of degraded ecosystems, climate action, and so on. Good governance includes appropriate funding and financing as much as regulatory provisions in matters related to environmental quality.

This paper reveals a visibly lower priority on environment vis-à-vis other COFOG heads in India, which may be termed as an entitlement failure if access to clean environment is accepted as a basic human right. The results of the current study present a grim picture of India's environmental commitment in the form of inadequate fund allocation and a low share in total expenditure (compared to other heads in general, and social indicators in particular).

That a head like recreation-culture-religion has received greater policy attention than environment is a signal of deprioritised policy practice for climate resilience and environmental quality. The deficient budgetary allocation clearly shows what India spends on the environment, and what the major environmental heads and programmes including environmental research, education, and skill development need.

India's performance in the MDGs and SDGs remains short of the global targets. SDGs 11 to 15 and the associated indicators address the challenges related to climate and environmental actions, such as waste management in sustainable cities, sustainable consumption and production for creating a

circular economic system, abatement of pollution and environmental hazards, actions against natural disasters, protection of landscape and biodiversity etc. The actual scores show that there is a long way to achieve the target scores (SDG 11: 79/100, SDG 12: 74/100, SDG 13: 54/100, SDG 14: 56/100 and SDG 15: 66/100) (NITI Aayog 2021). The inadequate fund allocation for EPE and its low and dwindling share in total expenditure over the years may explain, at least partially, India's poor performance on SDG achievement.

Environmental programmes often fail to achieve their targets because they are underfunded and the budget planning is annual in nature. Periodic assessment and management of green budgets through a medium-term expenditure framework (MTEF) is one suggested framework for increasing efficiency in public expenditure budgeting on EP (OECD 2011). Strengthening governance in EPE may help streamline environmental management within the framework of mainstream public finance.

Neglecting EPE on maintaining environmental infrastructure and/or investing in further development for decades has led to a serious need for capital investments in EPE in India. Development of local capital and financial markets must be prioritised within the existing systems of finance, with use of intergovernmental transfers and fiscal autonomy prioritised wherever possible. Decentralised responsibility, intergovernmental transfers, and appropriate budgetary provision can result in incentivising EP, integrating climate change and environmental commitments to the fiscal federal framework (Kaur and Chakraborty 2020).

There can be additional factors at the levels of organisations, social institutions, technological advances, and so on that can influence decisions on EPE.

- Studies have shed light on the underlying micro-mechanics of how environmental justice affects company environmental investment, with timely repercussions for environmental regulators (Zhang, Yu, and Kong 2019).
- There have been studies on the role of gender on the designing of environmental sustainability strategies. Female executives in business organisations have a positive impact on the organisation's environmental performance owing to their enduring cultural ideas about religion, morals, and superstition. Their favourable attitude toward the environment translates into higher spending on sustainability (Adomako and Amankwah-Amoah 2021).
- Institutional frameworks and quality governance are supplementary factors for achieving successful outcomes of EPE in mitigating environmental degradations. Micro-level studies on the effectiveness of EPE on problems like air pollution have shown that EPE alone cannot result in improved air quality (Gholipour and Farzanegan 2017). Developing the appropriate institutional support structure under the overarching role of a welfare state is crucial for building a background for environmental quality and climate action.
- Results have also shown that the process of tracking financial flows with requisite division of biodiversity is a step in the right direction in the context of optimal resource mobilisation for EP (Rachel, Craig, and Deirdre 2021).

- A study on the Chinese economy has also found significant positive correlation between internet penetration and the government's environmental protection expenditure, indicating that it leads to responsive governance toward EP. Such results provide insights on the connection between information and communication technology (ICT) and sustainable development (Zhang, Zhang, and Gong 2022).

At a time when the international community is trying to develop strategies for reaching the agreed goals like low carbon pathway and net zero emissions, (IPCC 2021), it is critical to identify the role of the government, its expenditure patterns, and impacts on the long-term growth of developing economies like India.

With India's commitment to meet the global goals, negotiations have begun on climate action and finance mobilization dialogues (CAFMD) with other countries. If India has to take a pro-active role in the impending green transition, EP must be identified as a core priority area in formulating long-term sustainability policies and meeting funding requirements arising thereof. India must break the past trends of underfunding and deprioritizing EP and assign suitable importance to EP in its budget allocation, fund disbursement, and environmental programme implementation.

Among the various COFOG heads, especially, the ones under socio-economic indicators, EPE may be prioritized over heads such as recreation-religion-culture, which do not contribute to long-term economic growth. Expenditures on health and education are crucial for economic development and have an immediate as well as long-lasting effect on the economic growth process. The expenditures on health, education, and environment may be considered with equivalent significance. Although environment is not a contributing factor in measuring human development, it has a direct impact on human health, and thus contributes to endogenous growth of an economy.

Expenditure to protect the environment needs to be increased substantially in order to bring in parity with other heads and build a policy framework that is conducive to environmental sustainability and long-term development. It is noteworthy that heads like social protection, public order and safety, general public services have been identified as important components of public expenditure, while EPE has received the lowest share consistently. The expenditure patterns for these need to be reviewed and redesigned in order to make room for EPE.

In the face of the enduring climate crisis and environmental collapse, the world's greatest democracy must design the blueprint for simultaneously achieving economic development and environmental sustainability, despite all its structural and institutional constraints.

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Appendix

Table A1. First and second level COFOG

First level	Second level
General public services	Executive, financial, fiscal, legislative and external affairs; Foreign aid; General services; General public services; Basic R&D; Public debt transactions; General transfers between different levels of government; n.e.c.*
Defence	Military and civil defence; Foreign military aid; R&D in defence; n.e.c.*
Public order and safety	Police, fire-protection, prisons, court and legal services; R&D in public order and safety; n.e.c.*
Economic affairs	General economic, commercial and labour affairs; Agriculture, forestry, fishing and hunting, fuel and energy, mining, manufacturing, construction, transport, communication and other industries; R&D in economic affairs; n.e.c.*
Environmental protection	Waste management; Waste water management; Pollution abatement; Protection of biodiversity and landscape; R&D in EP; n.e.c.*
Housing and community activities	Housing and community development, water supply, sanitation and street lighting; R&D housing and community amenities; n.e.c.*
Health	Medical products, appliances and equipment; Outpatient, hospital and public health services; R&D health; n.e.c.*
Recreation, culture and religion	Recreation, sports and cultural services; Broadcasting and publishing services; Religious and other community services; R&D recreation, culture and religion; n.e.c.*
Education	Pre-primary, primary, secondary and post-secondary non-tertiary education; Tertiary education; Education not definable by level; Subsidiary services to education; R&D education; n.e.c.*
Social protection	Sickness, disability, old age; Surviving family and children; Unemployment, housing and social exclusion; R&D social protection; n.e.c.*

Source: OECD, Government at a glance (<https://www.oecd.org/gov/48250728.pdf>)

(*n.e.c: not elsewhere classified, for the respective head)

Reorganisation and Strengthening of the Indian Public Audit System – Reforms Overdue

T Selvaraju*

Abstract

The objective of this study is to ascertain whether the Comptroller and Auditor General of India (the Supreme Audit Institution of India) functions as per its given mandate, and whether it requires any reorganisation and further strengthening. There is conflict of interest in keeping the accounts for States and auditing them by CAG, with potential scope to adversely impact the quality of both accounting and auditing. Further, ever since 1976, CAG continues to perform entitlement functions for employees of a majority of States, without any statutory authority, thus incurring irregular expenditure. With the present level of audit coverage, all the auditable units by CAG could not be covered in a way that can provide an assurance as to the completeness and timeliness of audit. The susceptibility of public finance to the political regime, the meagre rate of expenditure (about Rs. 32 for checking of financial transactions worth Rs. 1,00,000), and significant recovery of public money at the instance of audit provide adequate justification for strengthening of audit with more human resources. Thus, reorganisation of the institution of CAG to make it an exclusive audit institution, along with strengthening it (with adequate human resources) would better serve the objective of its creation.

Keywords: Reorganisation of IAAD, Conflict of interest, Ultra-vires action of CAG, Compliance audit, Strengthening of audit

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* T Selvaraju is a retired Senior Deputy Accountant General from IA&AS

1. Introduction

Public Audit in India is carried out by the Comptroller and Auditor General of India (CAG), who heads the Indian Audit and Accounts Department (IAAD). The CAG audits all Union and State/Union Territory government offices and Central and State public sector enterprises, government autonomous bodies, and organisations significantly financed by the governments. The CAG submits their Audit Reports to the Parliament or the State/UT Legislature, depending on the entities covered in the report.

The CAG also prepares, audits, and presents Finance and Appropriation Accounts of State governments to the respective State legislatures, besides certifying the Finance and Appropriation Accounts of the Union government.

Apart from the above audit and accounting functions, entitlement functions for many State governments are also carried out by IAAD. Entitlement functions refer to maintenance of General Provident Fund accounts of government employees, authorisation of final closure of GPF accounts and pension payments on their retirement and maintenance of service sheets and issue of pay slips of some Gazetted employees. The CAG is the sole institution with the mandate and powers to audit governments in India. They are to discharge their duties as per the Constitution of India and the CAG (Duties, Powers and Conditions of Service) Act, 1971. In this study, we aim to ascertain (i) whether the CAG functions in accordance with its given authorities and mandate, and (ii) whether there is any need for reorganisation of IAAD and Public Audit practices in India.

2. History of IAAD

A brief history of the institutions of the CAG and IAAD is given below, for proper appreciation of legislative intentions and Constitutional expectations from them:

2.1 Pre-Constitution position

A post of 'Accountant General' was created by the East India Company. This position, with added function of audit, was continued as the Accountant General to Government of India (1858), Auditor General of India (1860), Comptroller General of Accounts (1866), Comptroller and Auditor General (1884), Auditor General in India (1919) and Auditor General of India (1935) under a series of Indian Councils Acts / Government of India Acts.

As per the Government of India Act (1935):

- The Auditor General of India (AGI) should perform such duties and exercise such powers in relation to the accounts of the Federation and of the Provinces, as may be prescribed (Section 166),
- The Federation's and the Provinces' accounts should be kept in such a form as may be prescribed by the AGI, with approval of the Governor General (Section 168), and

- The Audit Reports of AGI should be submitted to the Governor General of India or the Governor of the Province, who should cause them to be placed in the Federal Legislature or the Provincial Legislature, as the case may be (Section 169).

The AGI's functions were further regulated by Ordinances, orders, bye-laws, rules or regulations made by the Governor-General, under the powers conferred upon him by the Act. The Government of India (Audit and Accounts) Order, 1936, issued under the Act, entrusted the work of keeping the accounts of the Dominion and the Provinces, other than that of Defence and Railways of the Dominion, to the AGI. The Order, however, gave powers to the Governor General/the Governor to relieve the AGI from the responsibility of keeping the accounts of any service or department and of any class or character.

Thus, while audit was made an inherent function of AGI, the accounting function was entrusted to them only as a temporary arrangement; it could be withdrawn, by executive orders, at any time.

2.2 Expectation of the Constitution Assembly

The concerns of the Constituent Assembly were mainly about Audit function of CAG of India (adopted on 30 May, 1949 in lieu of AGI), as may be noted from the following speeches during discussions held therein.

(i) Dr B Pattabhi Sitaramayya:

“...no matter how perfect the Constitutions may be, no matter how numerous may be checks and balances and safeguards for the right conduct of business of the future, it is money that counts, and we have to deal with about 370 crores at the Centre and as much money in the Provinces, and if all this money is not spent aright, and if the people deliver cheap gibes at men like me who count rupees, annas and pies, and to who, every rupee means 16 annas and every anna means 12 pies, then there is no government at all worth mentioning, it is anarchy, it is chaos. It is loot. It is dacoity. And who is to control this? Is it to be man who is appointed by the Ministry that should control this? No. The Comptroller and Auditor General must be as supreme and independent as the Judges of the Supreme Court... perhaps even more so. He is not merely an Accountant-General, but he represents a judicial authority with a judicial frame of mind, and his acts must be acts of justice between what he considers to be right and what is actually done by the executive. At times he is called upon to criticise the executive and to expose it even to contempt. He should not therefore, come under the ire of the government or of any party or of the treasury or of the Finance Department. ...” (Constituent Assembly Debates, Volume XI, November 25, 1949).

(ii) Dr. Rajendra Prasad, the President of the Constituent Assembly:

“... Another independent authority is the CAG who will watch our finances and see to it that no part of the revenues of India or of any of the States is used for purposes and on items without due authority and whose duty it will be otherwise to keep our accounts in order, when we consider that our governments will have to deal with hundreds of crores, it becomes clear how important and vital this department will be.” (Constituent Assembly Debates, Volume XI, November 26, 1949).

(iii) Shri R.K. Sidhva:

“... The Auditor-General should be always independent of either the legislature of (or) the executive. He is the watch-dog of our finance... his position must be made so strong that he cannot be influenced by anyone, howsoever great they may be” (Constituent Assembly Debates, Volume VIII, May 30, 1949).

(iv) Dr Ambedkar:

“... I am of opinion that this dignitary or officer (CAG) is probably the most important officer in the Constitution of India. He is the one man who is going to see that the expenses voted by Parliament are not exceeded, or varied from what has been laid down by Parliament in what is called the Appropriation Act.” (Constituent Assembly Debates, Volume VIII, May 30, 1949).

The founding fathers of the Constitution included suitable service conditions of CAG for ensuring its functioning independent of the Parliament and Executive; however, they left the CAGs duties and powers to be decided by the Parliament to come, and only enabled the CAG to continue to perform such duties and exercise such powers as were conferred on or exercisable by the AGI immediately before the commencement of the Constitution (Article 149¹).

2.3 Post-Constitution position

As per Article 149 of the Constitution, the CAG continued the duties which they had been doing prior to the adoption of the Constitution.

- In 1953, an Act prescribing / modifying service conditions of the CAG was enacted (Comptroller and Auditor General of India (Conditions of Service) Act, 1953).
- A comprehensive enactment covering duties and conditions of service of CAG was made only in 1971 – the Comptroller and Auditor General’s (Duties, Powers and Conditions of Service) Act, 1971 -- repealing the 1953 Act and ceasing the Government of India (Audit and Accounts) Order, 1936.

- After the enactment of the CAG (Duties, Powers and Conditions of Service) Act, 1971 (hereinafter referred to as 'CAG Act'), CAG shall perform the duties only as per the that Act and other Constitutional provisions.

The CAG Act empowered the CAG to audit expenditure and receipts of Union/State/UT governments, government autonomous bodies, etc., (Sections 13 to 20) and to compile, prepare and submit annual accounts of the Union, States and Union Territories having Legislative Assembly (Sections 10 to 12). As per the provisos of Sections 10 and 11 of the Act, the President or the Governor, as the case may be, may relieve CAG from compilation and preparation of accounts of the Union and States/UT.

In 1976, the Audit and Accounting functions in respect of Union government were separated, and – by a suitable amendment of the CAG Act – the CAG was relieved of the responsibility of compiling and keeping of accounts of various Departments/Ministries of Union Government (except in respect of accounts relating to their own Department (IAAD), and with respect to pensions in lieu of resumed jagirs, lands, etc.) A separate Indian Civil Accounts Service (ICAS) was established (1st March, 1976) with Controller General of Accounts (CGA) as the head, for compilation and preparation of Accounts of the Union Government.

Similarly, CAG was relieved of preparation of Accounts of State of Goa and UT of Puducherry, in 1978 and 1989 respectively, and subsequently of the NCT of Delhi, and the work was entrusted to the relevant governments.

These accounts of the Union Government, Goa, Delhi, and Puducherry are, however, examined by the CAG as part of their constitutional and statutory audit function, and Audit certificate are issued by them to that effect before their submission to the Parliament/Legislature.

3. Conflict of interest in auditing the Accounts of State

As per the CAG Act, CAG continues to prepare the Accounts of 28 States through field offices viz., the office of the Accountant General/Principal Accountant General (Accounts & Entitlement) in these States. The audit of these accounts is conducted by another wing of IAAD viz., the office of the Accountant General/Principal Accountant General (Audit).

Accounting and Auditing of the accounts so prepared by same authority is not in consonance with global best practice. It constitutes conflict of interest, and is also against one of the basic principles of natural justice viz., one cannot be a judge of his own case. The Auditing Standards prescribed by CAG himself contemplates that the Supreme Audit Institution (CAG) should avoid conflict of interest between the auditor and the entity under audit (Auditing Standards 2002 of CAG, para 3.2(k)).

CAG, however, justifies the arrangement of accounting and auditing by him for the States, in his audit certificate appended with the Accounts concerned, as follows:

“... I am responsible for preparation and submission of Annual Accounts to the State Legislature. My responsibility for the preparation of Accounts is

discharged through the office of the Accountant General/Principal Accountant General (Accounts & Entitlement), (State name). The audit of these accounts is independently conducted through the office of the Accountant General/Principal Accountant General (Audit), (State name) in accordance with the requirements of Articles 149 and 151 of the Constitution of India and the Comptroller & Auditor General's (Duties, Powers and Conditions of Service) Act, 1971, for expressing an opinion on these accounts based on the results of such audit. These offices are independent organizations with distinct cadres, separate reporting lines and management structure."

The CAG's statement that the two offices viz., AG (A&E) and AG (Audit) are independent with distinct cadres and separate reporting lines is not fully true in essence and practice.

- The cadres up to the level of Accounts Officers/Senior Accounts Officers and Audit Officers/Senior Audit Officers in the two offices respectively are only distinct and non-transferable between the two offices.
- However, the higher posts (Deputy Accountant General/Senior Deputy Accountant General and the Accountant General/Principal Accountant General) held by IAAS officers in the two offices (A&E and Audit) are transferrable; for instance, AG (A&E) today may be posted as AG (Audit) tomorrow.

Under these circumstances, one cannot expect the Audit Officer of Audit Office to be truly independent while examining the accounts for certification, as at any time DAG (Accounts)/AG of A&E may become their superiors in the Audit office.

The next level officers at CAG's office, to whom the State Accountants General are reporting, are also transferable from Accounts wing to Audit wing and vice-versa. Under the circumstances, the adverse impact of the inter-transferability of IAAS officers doing accounting and auditing functions, as also of a possible 'feeling of belonging of the same department', on fairness in discharging their assigned duties cannot be ruled out.

Now, in the entire world, only CAG of India is holding unique position of performing both accounting (for States) and audit functions (CAG's speech during the celebration of first Audit Diwas on 16.11.2021, Press Release of CAG, cag.gov.in). No other national auditor is performing accounting function.

Way forward

Accounting and auditing might have been left to the same agency in view of convention; in fact it was presumably inevitable, as there were no alternatives at the time of enactment of the CAG Act. But it is evident, as may be noted from the provisos to Sections 10 and 11 of the CAG Act itself, that the accounting function has been entrusted to CAG only as an interim arrangement and the President or the Governors are empowered to relieve the CAG from compiling and preparation of Accounts.

With respect to the Union government, the conflict of interest was addressed in the mid-1970's, by establishing a separate institution for preparation of Union accounts – the CGA. Since this reasoning and justifications equally applies for the States, it is not clear why the arrangement of accounting and auditing of States' Accounts by the same entity is allowed to continue for several decades.

As a specialised organisation for compilation/preparation of accounts has already been established at the Union level, rather than entrusting the accounting work to each State, it would be easier and better to have a common separate specialised organisation for all State accounts. So, accounting work all States also may be entrusted to CGA. CGA may establish separate State level offices (Accountant General with ICAS officers) under their control. State Audit office may be redesignated as Auditor General with retitling of Comptroller and Auditor General of India as Chief Auditor General of India (CAG), exclusively for audit.

4 *Ultra vires* action of CAG

Article 149 of the Constitution permitted CAG to continue with the same duties and powers only till an Act of Parliament is made in this regard. Once an Act is enacted by the Parliament, the CAG shall perform only those duties and exercise those powers conferred on them by/under that Act and other provisions of the Constitution.

In the CAG Act, there is no provision for doing Entitlement functions for the employees of the Union and State governments. CAG has dispensed with maintaining of GPF accounts of employees of Union government (except those in IAAD) and employees of eight² States; however, CAG continues to perform Entitlement functions of maintenance of individual GPF accounts of employees (which may not be construed as essential for compilation and preparation of accounts) and authorisation of their final payments, authorisation of pension to them and gazetted entitlement functions for 20, 19, and 9 States respectively (Performance Report of CAG for 2019-20).

The continuance of Entitlement function for the employees of the States by CAG even after 1971 lacks statutory authority, and, as such, is *ultra vires* the Constitution. Consequently, the engagement of officers and staff for entitlement function for the States by CAG is not legally valid.

It is pertinent to note that the CAG Act itself specifically required the CAG to audit, *inter alia*, all expenditures from the Consolidated Fund of Union, and to ascertain whether the moneys shown in the accounts as having been disbursed were legally available for and applicable to the service or purpose to which they have been applied or charged, and whether the expenditure conforms to the authority which governs it (Section 13 of CAG's Act). In the absence of statutory backing for performance of the entitlement function by the CAG, the expenditures thereon since 1971 were not legally available – that is, those expenditures are irregular.

The CAG should immediately initiate action to hand over the entitlement functions to the States concerned, explaining the relevant Constitutional and legal provisions, and engage the resultant human resources for the mandated functions.

5. Importance of CAG's audit and need for its strengthening

5.1 Vulnerability of public finance

The size and complex nature of government functioning make public money susceptible for misuse at the hands of unscrupulous persons, despite various checks and balances within the system.

- The financial activity of the government starts with getting the approval of Parliament/Legislature for both collection of revenue and spending the collected money for governance and for implementation of various developmental and welfare schemes.
- The money approved by the Parliament/Legislature for expenditure would be allocated by the government to all the offices, from the apex level to subordinate and field level, for spending.
- The officer, having the delegated financial power, would accord sanction for incurring expenditure and then the Drawing and Disbursing Officer (DDO) of the office would draw the money from the Consolidated fund, where all government moneys are kept, and disburse them to the person concerned.

A corrupt government servant may, individually or in collusion with others, indulge in all sorts of deviations from the prescribed procedure, to divert the public money. Media reports on possession of huge money – in cash, bank accounts, and other properties like land and buildings, bullions, shares, etc. – with some public/government servants, disproportionate to their known sources of income are the proof for the flaws in the system. An internal audit may not have the required specialisation, or may not be allowed to detect and report such irregularities if involved persons are higher officers and in power. Only an external, specialised, independent, and statutorily empowered audit may bring out those irregularities.

Appropriately considering the vulnerability of public money, complexity of its administration, and the importance of money in governance and growth of the country, the founding fathers of the Constitution have established an independent Institution of CAG with constitutional protection as watchdog of public finance.

Thus, the CAG has a key role in ensuring the financial accountability of all those dealing with the management of public money. In the words of T.N. Chaturvedi, former CAG,

“... The Auditor General should have a strong psychological or subjective feeling of accountability which must manifest itself in the organisation and working of his office. The imaginative and purposive functioning of his office and the faith it inspires in the public mind will reinforce and also provide the continuing rationale of his office.

... As guardian of public accountability the Auditor General should hold himself out as a model institution fully conscious of his own responsibility to the people at large. He should evolve adequate internal control mechanism to ensure this wider accountability of his organisation. It is possible that some convention here or a regulation there may presently seem to restrict the character, scope and

direction of audit, but once the institution carries conviction with the people that it is both conscious of and competent to discharge its responsibilities, public opinion will, may be imperceptibly, compel the authorities to change them in public interest.

This may see irksome at times; the opposite and greater danger is the general feeling that the institution is just scratching the surface and that it is doing too little, and too late, in enforcing the accountability of audited institutions. Such a feeling, if allowed to persist, may erode the very credibility of the institution of Auditor General. Substantial and substantive approach, and not a peripheral one which tries to skirt round difficult issues, will help to maintain the institutional ethos and autonomous of the institution.”

- (T. N. Chaturvedi, Role of the Auditor General in Public Accountability, Government Auditing, Ashish Publishing House, New Delhi, 1987, pages 22-23).

5.2 Present level of audit coverage

Three types of audits are conducted by CAG viz., Financial audit, Compliance audit, and Performance audit.

- Financial audit is mainly certification of accounts
- Compliance audit is examining the regularity (compliance of rules) and propriety (observance of the general principles, governing sound financial management and the conduct of public officials) of financial transactions (Regulations 44 and 45 of Regulations on Audit and Accounts, 2020)
- Performance audit is an appraisal type to inform the stakeholders about the quality of management of public finance, and to assist the executive with better management practice for implementation of policy objectives economically, efficiently and effectively.

The mandate for Performance Audit is derived by authority given to CAG in Section 23 of CAG's Act to decide the scope of audit (Performance Auditing Guidelines, 2004, para 1.40) and conduct of Performance audit was formally accepted by the Government of India in June 2006 (Letter No. F 6(5)-B (R)/99, dated 13th June 2006 Ministry of Finance, Government of India, Brochure on CAG's (DPC) Act, 1971, page 35, cag.gov.in). Thus, the Financial and Compliance audits are the core audit functions of CAG.

The Compliance audit is being conducted based on DDOs (auditable Units). A reasonable periodic coverage of audit of every unit (annual / at least once in cycle of 5 years, based on the risk analysis) and checking of samples of transactions in the units audited (as may be decided by CAG, under Section 24 of CAG's Act) is vital, as each unit is headed by different individuals with adequate power for sanctioning and drawing of public money for spending.

Further, CAG is the sole independent auditor of the government; if a unit remains unaudited for a long period, it would prove 'audit is too late', even if it could trace all the records of transactions for

all audit trails after a gap of many years. Significant non-coverage of compliance audit for long periods would further embolden unscrupulous elements, as the deterrent effect of audit gets thinned.

As per the information in the Performance Reports of CAG for the years 2011-12 to 2019-20, the number of units audited each year during the above period were in the range of 42,192 to 57,985, with available human resources of 44,241 to 46,936. The total number of units auditable in the country by CAG is not disclosed. The data of total number of DDOs in the Union and State/UT governments is also not available in the public domain.

As per the available information with respect to Telangana State government, the number of DDOs in that State was 45,385 (the date to which this pertains is not available), excluding other commercial undertakings, autonomous bodies, etc., of the State which are also auditable by CAG (www.treasury.telangana.gov.in/ddolist.php).

This position would clearly prove that at the present level of compliance audit, all the auditable units could not be covered by CAG in a reasonable periodic cycle. This strongly suggests that the audit coverage by CAG is not complete.

5.3 Expenditure for audit

All the receipts and expenditure of the governments are to be audited by CAG. The expenditure for conduct of CAG audit (Rs. 1538.96 crore) in 2011-12 was only 0.036% of total receipts and expenditure (Rs. 42,96,047 crore) of Union and all State/UT governments (Performance Audit Report of CAG for 2011-12).

Similar data for 2018-19 was not given by CAG in the Performance Report for that year. However, from the available information, expenditure on audit function for the year 2018-19 works out to approximately Rs. 3,300 crores³, which is only 0.032% of total receipts and expenditure (Rs. 101,65,794 crore) of Union and all State/UT governments. Thus, the expenditure incurred for audit of financial transaction value of every one lakh rupees was a mere Rs. 36 in 2011-12, which further reduced to Rs. 32 in 2018-19.

There are no clear benchmarks or standards available for cost of government audit. However, considering the high risk in view of complexity of government transactions, the expenditure on audit seems to be on the lower side.

5.4 Quantum of recovery at the instance of audit

Any standards or an ideal level of expenditure on government audit is not set. However as per the statement of CAG, every rupee spent on audit resulted in realisation of Rs 10.93 to governments at the instance of audit during 2005-06, excluding the value of assurance provided, system improvement, and deterrent value. (Performance Report of IAAD for 2005-06).

Similar information for the years 2011-12 to 2019-20 were not available; however, the recoveries towards under-assessment of tax and specific loss to the exchequer made at the instance of audit during the above period were in the range of Rs 3000 crore to Rs 6,917 crore (Performance Reports

of CAG for 2011-12 to 2019-20). This may serve as an indicator of the gaps in the financial management system, besides proving any expenditure on audit would fetch more returns.

The vulnerability of public finance (para 5.1 above), the present lesser level of audit coverage (para 5.2 above), meagre expenditure on audit (para 5.3 above) and the prospects for recovering/saving of more public money by effective and more audit (para 5.4 above) give scope and justification for coverage of all the auditable units in periodic intervals based on risk factors. Strengthening of audit with more human-power to cover all auditable units and for effective audit is essential to fully serve the purpose of audit.

6. Conclusion

This article has identified a number of necessary reforms in the public accounts and auditing system in India.

Accounting and auditing of accounts by the same entity is a conflict of interest, with scope to adversely impact the quality of both accounting and auditing. The good sense of separating accounting and audit functions for the Union government prevailed in 1976. It is yet to be extended for States' Accounts.

The CAG continues to do the entitlement function for considerable number of States, without any statutory backing and thus incurring irregular expenditure to that extent. While doing such unauthorised work, the CAG is allowing a significant shortage in the mandated audit function. The significant non-coverage of audit may pose a potential risk of making the institution of CAG irrelevant, defeating the very objective of creating a supreme audit institution.

Thus, there is an urgent need for reorganisation of IAAD/CAG's functions to make it an exclusive institution for audit, for ensuring the financial accountability of all persons dealing with public finance.

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Notes

¹ Article 149 of the Constitution - the CAG shall perform such duties and exercise such powers in relation to the accounts of the Union and of the States and of any authority or body as may be prescribed by or under any law made by Parliament and, until provision in that behalf is so made, shall perform such duties and exercise such powers in relation to the accounts of the Union and of the States as were conferred on or exercisable by the Auditor General of India immediately before the commencement of this Constitution in relation to the Dominion of India and of the Provinces respectively.

² Rajasthan, Mizoram, Arunachal Pradesh, Jammu & Kashmir, Bihar (now including Jharkhand), Punjab and Sikkim

³ (Total expenditure of Rs 4778.13 crore including expenditure on Training Institutes, UN Audit, etc., - (minus) Expenditure of Rs 1477.92 crore on Accounts). Adopting the data in Union and State Finances at-a-Glance 2018-19, (total of revenue receipts Rs. 44,25,317 crore and revenue and capital expenditure - Rs 57,40,477 crore of Union and all States) (para 2.1.1 - https://cag.gov.in/uploads/combined_accounts/Union-State-Finances-Glance2018-19-0607800c98e0012-60664951.pdf)

A Primer on Decision-Making within the Government

A Book Review of *Recalibrate: Changing Paradigms* by N K Singh and P K Mishra

Rohan Pai*

We live in unprecedented times; while economies worldwide are recovering from slowdowns caused by a global pandemic, geopolitical tensions have risen due to Russia's invasion of Ukraine. Consequently, transnational concerns such as climate change have been put on the back burner, and tackling the growing energy crisis in Europe has taken priority. Central banks are choosing to tighten their monetary policies to overcome rising inflation, and public health systems remain on high alert after the disastrous mismanagement of COVID-19.

In instances like these, decision-makers in governments across the world are faced with the problem of reshaping policies to suit the current context. *Recalibrate: Changing Paradigms*, by N.K. Singh and P.K. Mishra, is a collection of articles, lectures, and blogs from two vastly experienced policy practitioners who have a deep understanding of the way governments function. The chronicles on display in this book are a good reality check for policymakers and those building an interest in the field to recognise that the world is always in flux and the conditions are never ideal.

Relying on the past experiences of two established civil servants forms a good starting point to navigate the uncertain times that lie ahead. To a certain extent, the book also provides a background on what we can possibly expect going ahead from policy practitioners within the government.

N K Singh chaired the Fifteenth Finance Commission which was constituted in November 2017. The Commission made recommendations for 2020-21 in its first report, and for the five years from 2021-22 to 2025-26 in its second report.

In the chapter covering Federalism, Singh dedicates a substantial portion to provide a basic overview of India's fiscal arrangement in the federal context. He explains that "*socio-economic trends such as technological change, rising mobility and market integration have led to dynamic federalism*" (pg. 52), and this has given rise to a need for rethinking how credible fiscal partnerships can be established.

For newcomers to public finance, Singh's frameworks are an elaborate primer on understanding the rationale behind how expenditure and revenue need to be modelled to fairly distribute it amongst

* Rohan Pai is an Assistant Programme Manager with the Defence & Foreign Affairs programme at the Takshashila Institution.

the various levels of government in a federal setup. The chapter on “Fiscal Architecture for Twenty-First Century India: Fiscal Rules, Financial Management and Institutions” makes important recommendations to strengthen the implementation system for a simple, credible, flexible, and comprehensive rule-based fiscal policy in the country.

N K Singh explains how the subsidiarity principle is an important consideration here, pointing out that expenditure responsibilities need to be assigned to local governments, as they are more sensitive to the needs of citizens. Additionally, he states that the level of government responsible for the provision of a particular product must be collecting the necessary revenue.

This hits the nail on the head with regard to the nationwide implementation of GST, which was only made possible by the States agreeing to give up their powers to impose local-level indirect taxes. If local-level governments are not empowered to collect tax revenue directly but are required to provide services to citizens, it gives rise to moral hazard and additional bureaucratic burden. As a result, there is a lack of accountability at the local level about how funds are utilised, and a delay in compensating States with their share of GST slows down action on the ground. Singh acknowledges this and calls for the GST Council to “revisit its design and decision-making process in a more fundamental way” (Pg 63).

A bigger issue arising out of the GST Council being established as a constitutional body is the clash of interests with the Finance Commission. The latter has now been forced to evaluate expenditure and revenue for a period of five years in the future, while the GST Council takes decisions regarding GST rates, exemptions, and implementation of indirect taxes. Singh appeals that a coordination mechanism must be instituted to resolve the asymmetries between the two constitutional bodies.

Similarly, he discusses the idea of instituting an independent ‘Fiscal Council’. The Thirteenth Finance Commission recommended that a committee be appointed by the Ministry of Finance, which should eventually transform itself into a Fiscal Council, with the objective to conduct an annual independent public review of FRBM compliance. The FRBM Review Committee itself (chaired by Mr. N. K. Singh) too made a similar recommendation.

However, a Fiscal Council appointed by the Ministry of Finance and reporting to it cannot be expected to be independent. The Fourteenth Finance Commission, recognising this factor, recommended the establishment of an independent Fiscal Council, which should be appointed by and reporting to the Parliament instead. This would serve the broader purpose of having a fiscal establishment that can work independently, to better manage the debt trajectory of the Centre and states.

Singh’s analysis of federalism outside the domain of the tax system is also spot-on. In his exploration of changing political systems, he observes that democracies are becoming leadership oriented. This has direct implications for cooperative federalism and affects how the electorate expects public goods to be distributed.

In fact, Union governments would prefer if this assumption took precedence, as it can lead to direct electoral gains for a party in power if their role shifts from just anchorship to direct involvement at lower levels of government. Citing these instances, Singh questions whether our constitutional frameworks need to be amended to redistribute the entries of Lists I and III in the Seventh Schedule of the Constitution, to rebuild the need for trust between the Union and the States.

Singh's sections of the book are mainly focused on acknowledging that the shifting paradigm requires a revision of existing policy and decision-making frameworks. Technological advancements are taking place at a time when global interests are constantly changing and economic interdependence between nation-states has peaked. At the same time, internal political systems are shifting in principle while socio-economic diversity is increasing.

Singh brings these challenges to the forefront, provides a foundational understanding of the issue at hand, and tops it up with his recommendations. This makes it an insightful read for young professionals who want to form a deeper awareness of what guides decision-making in the government.

Additionally, to complement this, Singh emphasises areas that are usually not given much attention, but are important to mention as they are derived from key junctures in his illustrious career. From his experience in the Prime Minister's Office (PMO), when he served as secretary to Prime Minister Vajpayee between 1998 and 2000, Singh examines how the relationship between the cabinet secretariat and Prime Minister's office (PMO) is critical. Again, in this case, he provides a foundational understanding to the reader with a comparative study of how the two are structured to function in other democracies like Australia and the United Kingdom. He brings to the limelight how the PMO as an "agent of change" and the Cabinet Secretariat as a "fulcrum of stability" are responsible for synchronising the vision of the PM and the Cabinet.

P.K. Mishra has also made significant contributions to the book, highlighting his substantial experience as a former member of the Indian Administrative Service. He has held various key positions with both the Union and Gujarat state governments, and worked as chairman of the Gujarat Electricity Regulatory Commission (GERC).

A recurring theme in Mishra's chapters remains his focus on the need to evaluate what is in the best interest of all stakeholders when multiple groups with diverse interests are involved. This adds a much-needed and refreshing touch to the book, as Mishra highlights the challenges in bottom-up, microeconomic policymaking from his past experiences. This angle seemed to be missing in NK Singh's sections as he covered the larger, macroeconomic issues.

However, apart from gripping stories from Mishra's experiences in different positions in bureaucratic and political circles, his chapters lacked the novelty of insights that Singh brings to the book. In his chapter titled 'People, Politicians and Bureaucrats', Mishra proposes a bold hypothesis upfront, that "Gujarat's socio-political milieu contributed significantly to its rapid development" (Pg. 23). The author goes on to cite multiple instances in his career working in Gujarat, where the interactions between the electorate and the government of the day proved to be a well-oiled machine. He mentions how people's awareness and proactive participation led to elected personnel from urban areas visiting government offices at taluka and district levels seeking redress of their problems. However, he fails to explain how this socio-political milieu was established in the first place.

Broadly speaking, the hypothesis does not contribute significantly to one of the larger objectives of the book either, which is to determine what steps can be taken to navigate through the rapidly shifting socio-political structure internally. Several insights could be drawn, such as democratic decentralisation to address problems locally, and genuine prioritisation by officials to solve issues

come to the forefront – but these are ideal additions to every political system. It must be debated how these can be established and sustained without spiralling into corruption and gatekeeping.

Similarly, in the chapter covering the role of technology in future education, Mishra's insights seem lacklustre. There is unnecessary attention placed on the policies, schemes, and initiatives enacted by the ruling government along with the New Education Policy 2020, and this diverts attention from the larger point being made on using technology as an enabler in education.

Credit must be given where it's due; in this case, these initiatives are products of what was achieved by the integration between education and technology. However, elaborating on the frameworks that guided the implementation of these policies would have been ideal, and could have given readers deeper insights into evaluating how stakeholders and interest groups need to be mapped while conducting bottom-up implementation.

Other prominent chapters in the book elaborate on urban local bodies and what the writers have termed as the 'third tier' of government. There is further emphasis here on subsidiarity and decentralised decision-making. Steps taken for disaster management during the Bhuj earthquake in 2001, and the COVID-19 pandemic are important sections in the book, as they give perspectives on how systematic responses are planned by the government in times of crisis.

Health, education and agriculture are analysed from a microeconomic perspective, and climate change is discussed as a prominent and rising concern that needs to be addressed immediately. The book is a must-read for those interested in learning about decision-making within the government, and young professionals keen to discover frameworks that guide policymaking.

***Recalibrate: Changing Paradigms*, by N.K. Singh and P.K. Mishra, Rupa Publications India, New Delhi, 2022. Pages (i-xviii) and 344. Rs. 777 (Hardcover), Rs. 609.37 (Kindle Edition).**

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