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Fiscal Stance and Macroeconomic Stabilization: Evidence from Indian Subnational Governments

by
Gaidimlung K. Jacob
National Institute of Public Finance and Policy (NIPFP)

and

Lekha Chakraborty
Research Scholar
Levy Economics Institute of Bard College
National Institute of Public Finance and Policy (NIPFP)

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The authors are faculty members at NIPFP, a Ministry of Finance institute, India.

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Levy Economics Institute
P.O. Box 5000
Annandale-on-Hudson, NY 12504-5000
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ABSTRACT

Against the backdrop of fiscal rules-based legislation in India, this paper examines the link between the fiscal stance and the output gap to analyze if India experiences Keynesian countercyclicality of fiscal policy. The fiscal stance is constructed as the deviation between the actual fiscal deficit and the cyclically neutral fiscal deficit. The output gap is obtained from applying the Hodrick-Prescott (HP) filter to the state-level GSDP variable. Using the System generalized method of moments (GMM) across 27 Indian states for the period 2014–15 to 2023–24, we examine the countercyclicality possibilities controlling for political economy variables, COVID-19 shocks, and debt deficit dynamics. The results revealed that the fiscal stance exhibits substantial persistence and there is countercyclicality when controlled for debt dynamics and pandemic shocks. The policy implications of our results emphasize the significance of fiscal policy in the macroeconomic stabilization function and demand management in times of crisis and uncertainty.

JEL Codes: E62, H72, H77, C23, E32

Keywords: Fiscal stance; Output gap; Countercyclical fiscal policy

INTRODUCTION

Fiscal policy can play an important macroeconomic stabilization function by expanding when private demand weakens and consolidating when the economy operates above potential. Analyzing if the subnational governments deviate from or adhere to the Keynesian perspective of countercyclical behavior remains relevant for macroeconomic management in federal systems (Alesina et al. 2008; Fuest and Xing 2018; Afonso and Carvalho 2022). Empirical evidence in the context of emerging countries shows that fiscal policy on the contrary has often been procyclical, amplifying rather than dampening output fluctuations (Gavin and Perotti 1997; Kaminsky et al. 2004).

Globally, empirical evidence suggests that the procyclicality declined after the enactment of fiscal rules. In the euro area, policy was roughly acyclical or mildly procyclical before the Maastricht Treaty (1980–1991), significantly more countercyclical afterward (1992–1998), and largely reverted after monetary union (1999–2007), with primary balances responding less to public debt. The Maastricht Treaty prescribed the European Union member states to contain their fiscal deficit-to-GDP within 3 percent. Among developing countries, Frankel et al. (2013) also find that with the fiscal rules, many have graduated from procyclicality since the 2000s, with better institutions the leading explanation. Végh and Vuletin (2015) show that tax policy is procyclical in developing countries and acyclical in industrial ones, and Ilzetzki and Végh (2008) question the direction of causality between fiscal policy and output.

The Indian evidence shows a similar shift. Studies of the long period from 1970–71 find procyclicality, especially in capital outlay, at the national level (Chakraborty and Chakraborty 2006; Mukherjee 2014; Mohanty and Mishra 2017). Studies of the FRL period show that states moved toward acyclical deficits (Raut and Raju 2019) and, in the most recent decade, countercyclical capital outlay (Rath et al. 2023). This suggests that fiscal rules and institutional change have altered state behavior, in line with the cross-country evidence on rule design (Misra and Ranjan 2019). Two gaps remain. First, many seminal cross-country studies use samples ending in the early 2000s (Lane 2003; Alesina et al. 2008), so it is unclear whether their patterns persist. Second, Indian studies concentrate on individual expenditure items, on capital outlay, or

on Union and combined government data, and their results differ across items and periods. These are the gaps the present paper addresses.

In the Indian context, since the mid-2000s, states have operated under Fiscal Responsibility Legislation that generally limits the gross fiscal deficit to 3 percent of gross state domestic product (GSDP) and targets the elimination of revenue deficits. Borrowing is regulated by the central government, with successive Finance Commissions introducing limited flexibility linked to fiscal performance and structural reforms. Contingent liabilities, including those associated with the power sector, have at times complicated adherence to numerical targets. Whether state fiscal policy has been countercyclical or procyclical in the period since 2014 remains an empirical question with implications for the macroeconomic stabilization function and the design of subnational fiscal rules.

This paper investigates the cyclicality of fiscal policy at the state level in India. It constructs a measure of the fiscal stance as the difference between the actual fiscal deficit and a cyclically neutral fiscal deficit (CNFD), estimates state-specific output gaps using the Hodrick-Prescott filter, and examines the relationship between the fiscal stance and the output gap for 27 states over 2014–15 to 2023–24, controlling for political economy variables and fiscal rules thresholds. The empirical analysis employs system-GMM methods to address persistence and endogeneity, while controlling for debt, political factors, and the COVID-19 shock. The paper also documents cross-state heterogeneity and discusses implications for rule design, including risk-based differentiation of borrowing limits. The paper is organized as follows. Section 1 reviews the related literature. Section 2 interprets data and measure fiscal stance and output gap. Section 3 presents the econometric strategy and results. Section 4 concludes.

1. REVIEW OF LITERATURE

Fiscal policy is said to be cyclical when government spending, taxation, and budget balances move systematically with the business cycle. It is countercyclical when governments expand spending or cut taxes during downturns and do the opposite during booms, thereby dampening

economic fluctuations. It is procyclical when the fiscal stance amplifies those fluctuations, for instance when spending is cut during recessions and expanded during booms (De Haan and Gootjes 2023). Fiscal cyclicality is shaped by two channels. Automatic stabilizers, such as revenues that fall in downturns and transfers that rise, loosen the fiscal stance without any policy decision. Discretionary measures involve deliberate changes in taxes and expenditure. Taylor (2000) argues that automatic stabilizers are often more effective because discretionary changes take time to legislate and implement. More recent evidence suggests that discretionary policy has gained importance as fiscal multipliers have risen (De Haan and Gootjes 2023).

Studying fiscal cyclicality matters for three reasons. First, the fiscal response to economic fluctuations determines how well the public sector contributes to short-run macroeconomic stabilization. Second, it bears on medium-term fiscal sustainability, since a government that fails to save in good times has little room to support the economy in bad times (Ramey and Ramey 1994; Alesina et al. 2008; Furceri and Jalles 2018). Third, fiscal cyclicality matters for long-run growth. Output volatility is associated with lower growth, so a procyclical fiscal stance that amplifies fluctuations can reduce growth as well as worsen downturns (Ramey and Ramey 1994). Fatás and Mihov (2003) find that volatile discretionary fiscal policy is itself associated with lower growth, which strengthens the case for stabilizing rather than amplifying the cycle. Cyclicality is therefore a diagnostic of whether fiscal policy reinforces or moderates economic volatility and whether fiscal behavior is symmetric across the cycle.

The theoretical benchmark is clear. Following Keynes (1936), and consistent with tax-smoothing arguments, the ideal fiscal policy is countercyclical; that is, it provides support during downturns and withdraws stimulus during upturns. Such a policy has a further benefit. By building buffers in expansions, governments avoid overheating and prevent public debt from ratcheting up over successive cycles (IMF 2015). The public finance literature makes a similar point about the balance sheet. Savings and fund balances act as budget slack that allows governments to stabilize their finances through the cycle while preserving liquidity and solvency (Douglas and Gaddie 2002; Hou 2013).

In practice, however, fiscal policy is frequently procyclical, which deepens downturns (Alesina et al. 2015; Bartsch et al. 2020). Procyclicality is especially common in emerging markets and developing countries (Gavin and Perotti 1997; Kaminsky et al. 2004; Talvi and Végh 2005). These are typically economies with limited access to credit in bad times (Kaminsky et al. 2004), weak institutions, and political pressures to spend when revenues are high.

These concerns apply with particular force to the Indian states. States account for a large share of general government expenditure in India, and much of the spending on health, education, and infrastructure is undertaken by them. Their capacity to stabilize is nevertheless constrained by limited revenue autonomy, dependence on central transfers, borrowing limits, and fiscal responsibility legislation. Whether state fiscal policy stabilizes or amplifies fluctuations in economic activity is therefore an open empirical question with direct policy relevance. This paper examines the relationship between the fiscal stance of Indian states and the output gap, to determine whether state fiscal behavior is countercyclical or procyclical, and to examine the other determinants of the fiscal stance of the Indian states.

Two traditions define the benchmark against which actual fiscal behavior is judged. The Keynesian theory of demand management (Keynes 1936) holds that fluctuations in aggregate demand push output away from potential, and that fiscal policy can offset them. Expansionary policy narrows a negative output gap in downturns, and consolidation contains overheating in booms, so the ideal stance is countercyclical. Neoclassical tax smoothing (Barro 1979) instead takes government spending as given and argues that tax rates should be constant over the cycle, because varying them creates avoidable distortions. Revenues then move with output, so deficits absorb temporary shocks and surpluses arise in booms (Lane 2003). Tax smoothing therefore implies acyclical tax rates and a budget balance that co-moves with output. This distinction motivates Kaminsky et al. (2004) to study policy instruments (spending and tax rates) rather than endogenous outcomes such as balances or revenue-to-GDP ratios.

Even within the neoclassical framework, the cyclicality of spending is not uniquely determined. Lane (2003) shows that public consumption should be countercyclical if it substitutes for private consumption, procyclical if it complements it, and fully smoothed if the two are separable. The

optimal pattern of public investment depends on whether public capital complements or substitutes for private factors, although execution costs may favor countercyclical timing.

Because the benchmarks predict countercyclical or acyclical policy, a large literature explains the procyclicality observed in developing countries (Gavin and Perotti 1997; Kaminsky et al. 2004). Explanations fall into three groups. Developing countries face binding international credit constraints in recessions, which force spending cuts and tax increases when the economy is weakest (Gavin and Perotti 1997; Kaminsky et al. 2004). Under the voracity effect, when power is divided among several fiscal claimants, booms intensify competition for public resources and each group spends excessively out of windfalls (Lane and Tornell 1996; Tornell and Lane 1999). Political systems with more veto points and divided control should therefore be more procyclical (Lane 2003). Talvi and Végh (2005) reach a related result through lobbying: because pressure for spending is convex in the surplus, countries with more volatile tax bases find it harder to save in booms. Alesina et al. (2008) model a self-interested government and a rational but imperfectly informed electorate. Where corruption is high, voters demand that surpluses be spent or returned as tax cuts to prevent rent extraction, making procyclicality a second-best response.

A further strand links fiscal policy to the electoral cycle. Opportunistic models predict higher spending and lower taxes around elections (Nordhaus 1975; Tufte 1978). Later work emphasizes informed voters who prefer fiscal discipline and may punish deficits (Peltzman 1992; Alesina et al. 1998; Brender and Drazen 2005). Governments may then shift the composition of spending and taxation rather than their totals (Drazen and Eslava 2010).

Traditional models consider only the output cycle. Bénétrix and Lane (2013) show that credit expansions, asset booms, and capital inflows generate temporary revenues (from property taxes, capital gains taxes, and import duties) that mask structural deficits even when the output gap is neutral. They also stress institutions. Euro membership removes independent monetary and exchange rate policy, raising the importance of fiscal stabilization, while the Maastricht criteria strengthened incentives for discipline.

The empirical literature has moved from asking whether fiscal policy is procyclical to asking why. The determinants fall into four groups. Higher output volatility raises spending procyclicality (Talvi and Végh 2005; Lane 2003), as does trade openness, especially for government investment (Lane 2003). In developing countries, spending rises with net capital inflows and is cut during capital flight (Kaminsky et al. 2004). Credit expansions can also produce temporary revenue windfalls that mask structural deficits (Bénétrix and Lane 2013).

Corruption is strongly associated with procyclical surpluses and higher government consumption in booms (Alesina et al. 2008). Political fragmentation raises procyclicality in current spending, public wages, and the primary surplus (Lane 2003; Alesina et al. 2008), while richer countries with stronger institutions are less procyclical (Lane 2003). Cross-country studies therefore control for the rule of law and freedom from corruption (Misra and Ranjan 2019).

Fiscal rules are a policy relevant determinant, and their design matters. Simple budget balance rules have not protected economies from procyclical policy, whereas cyclically adjusted or structural balance rules are associated with countercyclical policy (Misra and Ranjan 2019). In the Indian states, fiscal responsibility legislation (FRL) reduced procyclicality, particularly in development expenditure (Raut and Raju 2019). Public debt also matters, and the responsiveness of balances to debt has varied over time in the euro area (Bénétrix and Lane 2013).

Opportunistic models predict expansions around elections (Nordhaus 1975; Tufte 1978), while informed voter models predict that voters punish deficits (Alesina et al. 1998; Brender and Drazen 2005). Election dummies and natural calamities are therefore included in studies of state capital outlay (Rath et al. 2023). Because theory and evidence conflict, the effect of election years remains unresolved.

Four empirical approaches dominate in the study of cyclical fiscal policy: The cyclical components of real expenditure and real output, extracted with the Hodrick-Prescott or Baxter-King filter, are correlated. A significantly positive (negative) coefficient indicates procyclical (countercyclical) policy (Kaminsky et al. 2004; Mukherjee 2014; Mohanty and Mishra 2017). The method is simple but gives no measure of magnitude or causality. Following Lane (2003),

real spending growth is regressed on real output growth. This has been applied to the Union government (Mukherjee 2014) and to the Centre, states, and combined government (Mohanty and Mishra 2017). Following Akitoby et al. (2004), a two-step procedure separates the long-run relationship from short-run adjustment (Mukherjee 2014; Mohanty and Mishra 2017). Fiscal variables are regressed on the output gap and controls using system GMM (Blundell and Bond 1998) to handle endogeneity and persistence. Examples are Misra and Ranjan (2019) for real expenditure growth in 61 countries after 2000, Raut and Raju (2019) for real development expenditure, the gross fiscal deficit-to-GSDP ratio, and real capital outlay in the Indian states over 1990–2018, and Rath et al. (2023) for the capital outlay-to-GSDP ratio over 2011–12 to 2019–20. Alesina et al. (2008) instead instrument output with the regional output gap to address reverse causality.

Two measurement choices affect results. Policy instruments (spending, tax rates, the inflation tax) are less contaminated by automatic stabilizers than outcomes such as fiscal balances (Kaminsky et al. 2004). The cycle can be defined through a filtered output gap, a “good times” versus "bad times" split around median growth (Kaminsky et al. 2004), or a fiscal stance measured as the deviation of the actual deficit from its cyclically neutral level.

The empirical findings show that advanced and developing economies differ sharply. Kaminsky et al. (2004), using 104 countries, find spending procyclical across all categories and filters in developing countries, and countercyclical or acyclical in the OECD; the inflation tax is also procyclical in developing countries. Alesina et al. (2008), using 83 countries over 1960–2003, find surpluses countercyclical in the OECD but acyclical or procyclical elsewhere. Talvi and Végh (2005) find more procyclical policy where output and tax bases are more volatile. For 22 OECD countries over 1960–1998, Lane (2003) finds non-interest current spending mildly countercyclical, driven by transfers and interest payments, government consumption procyclical, government investment the most procyclical component, total spending roughly acyclical, and primary surpluses procyclical, as tax smoothing predicts.

In the United States, revenue fluctuations are positively associated with changes in per capita expenditure, so that state fiscal policy amplifies the cycle (Kwak 2014, 2017). Procyclical policy builds structural deficits that force cuts and tax increases in later downturns (Kwak 2017).

Empirical Evidence from India

An early study on the empirical relationship between fiscal stance and output gap in the Indian context was Chakraborty and Chakraborty (2006), which analyzed upfront the empirical question whether Indian fiscal policy had a Keynesian revolution of contra-cyclicality to macroeconomic activity and inferred that policy was countercyclical for the period 1950–51 to 1997–98. Proxying macroeconomic activity by the output gap and constructing the cyclically neutral fiscal stance using Heller et al. (1986) methodology, and using Johansen's econometric analysis using Johansen's Full Information Maximum Likelihood test of cointegration, they found that there exists a long run, stable relationship between the variables. Further, the Hsiao (1981) causality detection in asymmetric vector autoregression model revealed that there exists a feedback mechanism between fiscal policy stance and the output gap in India. The findings cautioned that the fiscal rules-based policies based on the notion that deficits induce the financial crowding out need an empirical verification in the context of emerging economies, and the significance of short-term demand management through public finance practices. This study was confined to the national level, and prior to the fiscal rules in India. We try to extend this question at the subnational level of government in India using panel data, by extending the models by Chakraborty and Chakraborty (2006) by controlling for the political economy variables as well. We construct the core variables, fiscal stance and output gap, using the same methodology as that paper.

Before turning to the construction of fiscal stance and output gap, it is important to review the other existing empirical studies of whether Indian fiscal policy, after the enactment of the fiscal rules in India in 2002, viz., the Fiscal Rules and Budget Management Act, turned procyclical at the national or subnational levels. The evidence is mixed. Mohanty and Mishra (2017), covering 1970–71 to 2013–14, find revenue expenditure, primary revenue expenditure, capital outlay, and total expenditure procyclical at the Centre and at the combined Centre-State level, with capital outlay the most procyclical. Mukherjee (2014), for the Union government over 1970–71 to

2012–13, also finds capital outlay the most procyclical, especially in the short run, which suggests that it is cut in downswings to save resources. Revenue expenditure is inelastic to output in the short run, reflecting rigidity in cutting it in bad times, and developmental expenditure is far more procyclical than non-developmental expenditure. Mukherjee (2014) argues that cutting capital and developmental spending during slowdowns is detrimental to growth and development.

Indian state-level results are more mixed and depend on the item and period. Mohanty and Mishra (2017) find no cyclical relationship between state capital outlay and output. Raut and Raju (2019) find that Fiscal Responsibility Legislation (FRL) reduced procyclicality, particularly of development expenditure. The fiscal deficit moved from procyclical before FRL to acyclical afterward, while capital outlay was acyclical in both periods. Rath et al. (2023), for 2011–12 to 2019–20, find state capital outlay countercyclical under both negative and positive output gaps.

2. INTERPRETING DATA AND MEASURING FISCAL STANCE AND OUTPUT GAP

The study utilizes panel data on macro-fiscal indicators across Indian states for the period 2014–15 to 2023–24. Fiscal variables such as outstanding debts of the states, fiscal deficit, and total revenue were sourced from the Comptroller and Auditor General of India (CAG) State Finances Reports (Table 1), while GSDP was sourced from the Ministry of Statistics and Programme Implementation (Government of India). The output gap was computed based on the potential output derived using HP filters; the cyclically neutral fiscal deficits were calculated using the Heller et al. (1986) approach. The election cycle and political stability were sourced from the Election Commission of India website. The key variables include Gross State Domestic Product (GSDP), fiscal deficit, outstanding debt, potential output, output gap, Cyclically Neutral Fiscal Deficit (CNFD) and fiscal stance (FIS).

Table 1. Measuring Variables and Data Sources

Variables		Measurement	Data Source
Dependent Variable			
	Fiscal stance (FIS)	It is the difference between actual (X) and cyclically neutral fiscal deficits (CNFD): $FIS = X - CNFD$	CAG, State Finance Account
Independent Variables			
	Output Gap	The output gap is computed as the percentage deviation of actual GSDP from its potential level.	Ministry of Statistics and Programme Implementation (Government of India)
	Outstanding debt	Outstanding liabilities/debt as a percentage of GSDP (Debt-GSDP ratio)	CAG, State Finance Account
	Total Revenue (TR)	Own-source revenue + intergovernmental transfers, per capita, expressed in natural logarithm (ln)	CAG, State Finance Account
Control Variables	Election Year	Dummy variable: 1 = state election year; 0 = otherwise	Election Commission of India
	Political Stability	Single Party = 1; Coalition Government = 0	Election Commission of India
	COVID	Dummy variable: 1 = COVID year; 0 = otherwise	–

Source: Authors' compilation

Potential output is estimated using the Hodrick–Prescott (HP) filter in STATA; a similar approach is adopted by Chakraborty and Chakraborty (2006). The HP filter, the most popular statistical filter, was propounded by Hodrick and Prescott (1997). This method obtains potential output (y_t^*) by minimizing a function, *i.e.*, the gap between actual and potential output subject to a penalty that constrains the second difference of potential output for the sample *T*, as follows:

$$Min\ \Sigma_{t=1}^{T}(y_t - y_t^*)^2 + \lambda\Sigma_{t=2}^{T-1}[(y_{t+1}^* - y_t^*) - (y_t^* - y_{t-1}^*)]^2$$

where λ is a weighting parameter or the Lagrange multiplier that determines the degree of smoothness of the trend relative to the output gap. A low value of λ produces the trend output much closer to actual output, whereas a high value of λ produces a trend output that converges to

a linear trend. Therefore, λ also determines how fast actual output is brought in line with the potential output and how long the business cycle is on average. In their original paper Hodrick and Prescott (1997) recommend some values for λ and following their standard practice, λ=100 for annual data, we computed potential GSDP for all Indian states. The output gap is computed as the percentage deviation of actual GSDP from its potential level, defined as:

$$Output\ Gap = ((Actual\ GSDP - Potential\ GSDP)|Potential\ GSDP)\ \times 100$$

To estimate CNFD we followed the Heller et al. (1986) technique.

$$CNFD = g.GSDP^{*} - t.GSDP$$

Where 'g' is the expenditure to nominal GDP ratio, 't' is the revenue-to-nominal GSDP ratio, both in a given base period. GSDP* is the potential value of GSDP. Heller et al. (1986) assumes that in the absence of discretionary policy, government revenue is unit elastic with respect to actual nominal GSDP, while government expenditure is unit elastic with respect to the trend value of real GSDP valued at current prices.

In this approach, the expenditure ratio (g) and revenue ratio (t) are fixed at their base year 2014–15 levels[2]. These fixed ratios are then used to construct a time-consistent CNFD series. This helps separate policy-driven fiscal changes from normal cyclical movements in the economy.

Fiscal stance (FIS) is the difference between actual (X) and cyclically neutral fiscal deficits (CNFD).

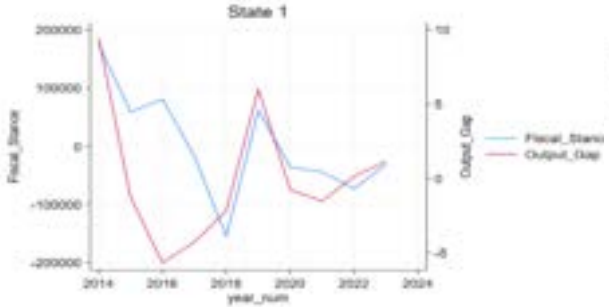
[2] 2014–15 was chosen as the base year for two main reasons. First, it is the official national accounts base year adopted by the Central Statistics Office, which ensures consistency between GDP data and fiscal variables, avoids structural breaks from later GDP series revisions, and allows better comparability over time. Second, 2014–15 predates several major economic and policy changes, including the introduction of GST in 2017, the 2019 corporate tax cuts, and the COVID-19 pandemic, and is therefore less affected by the structural shifts these changes introduced into both revenue and expenditure patterns. It is treated as a reasonable reference point on this basis rather than as a year in which output was exactly at its potential level in every state; the estimated output gap for 2014–15 is not close to zero for all states, so the base year is better understood as relatively less disrupted than as strictly neutral.

$$FIS = X - CNFD$$

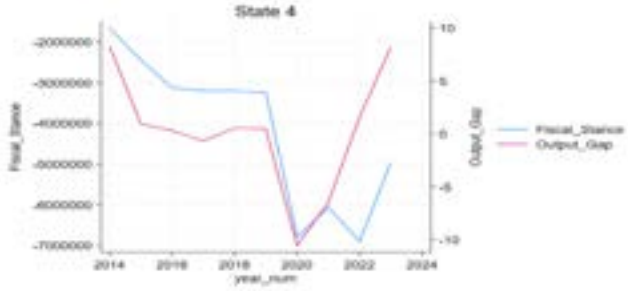
The co-movement plots of fiscal stance and output gap across 28 Indian states over the period 2014–15 to 2023–24 are given in Figure 1.

Figure 1. Co-movement of Fiscal Stance and Output Gap for Indian States over the Years (2014–15 to 2023–24)

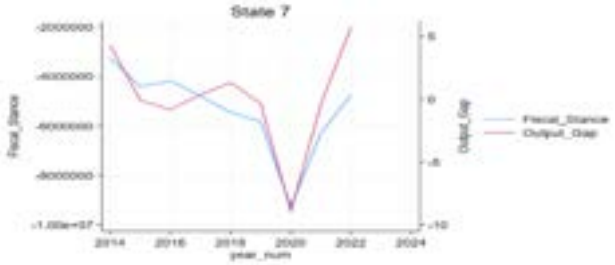
Arunachal Pradesh



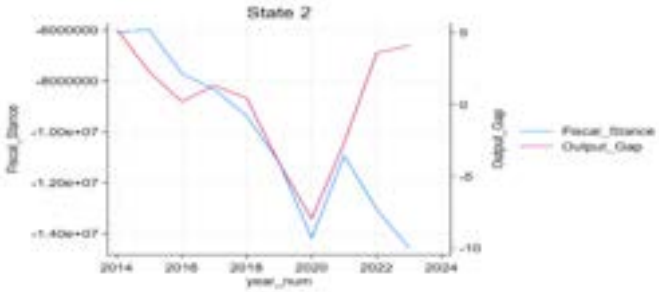
Bihar



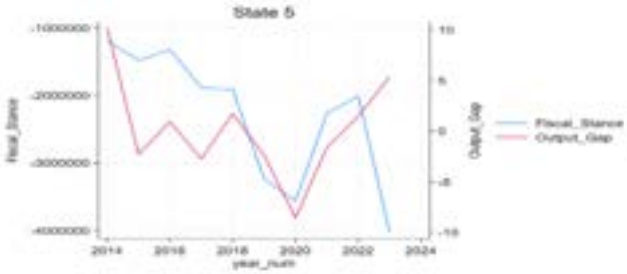
Gujarat



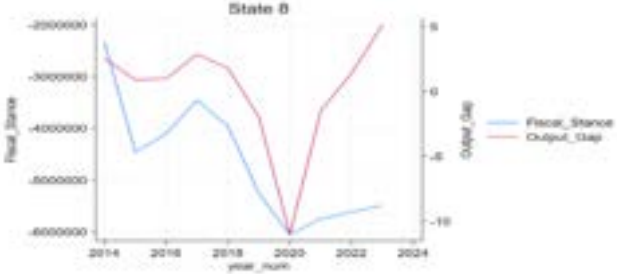
Andhra Pradesh



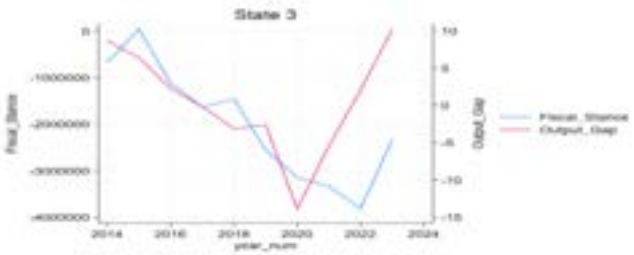
Haryana



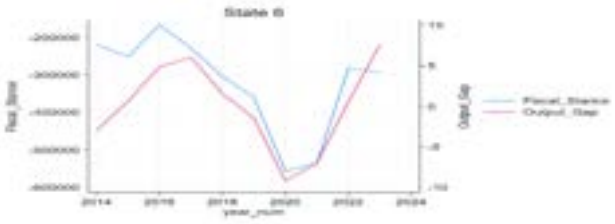
Chhattisgarh



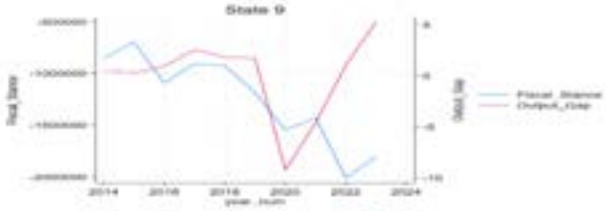
Assam



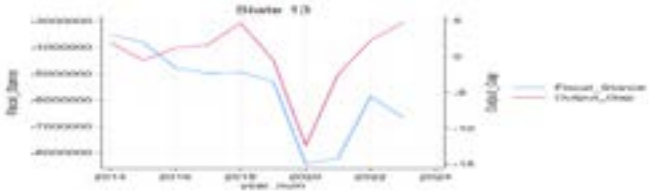
Goa



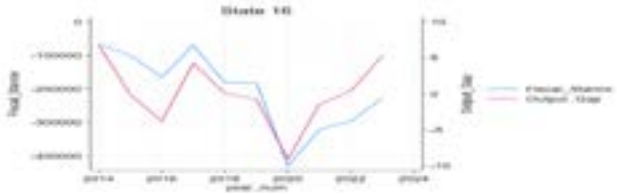
Himachal Pradesh



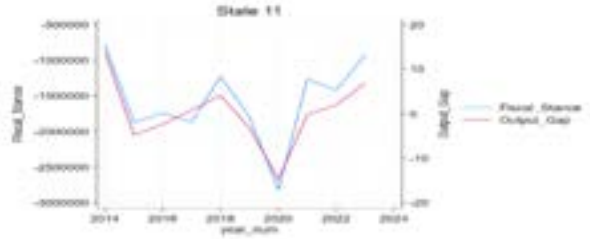
Kerala



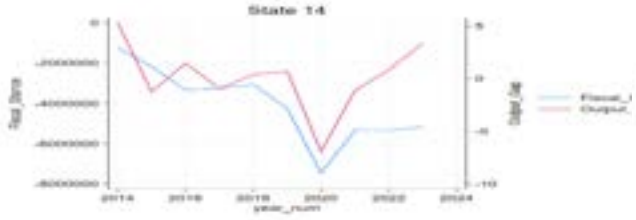
Manipur



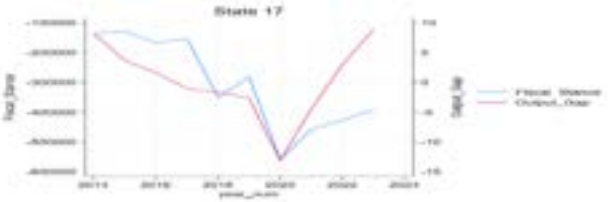
Jharkhand



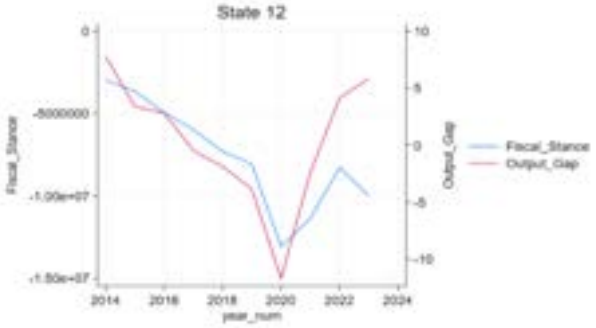
Madhya Pradesh



Meghalaya



Karnataka



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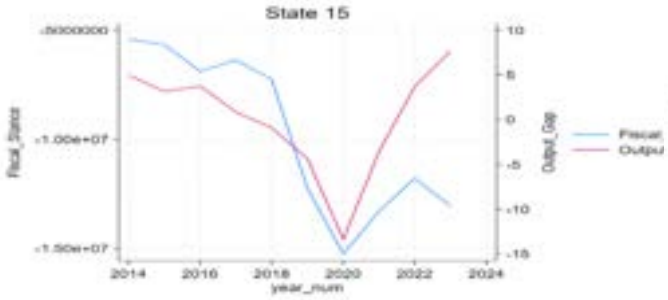

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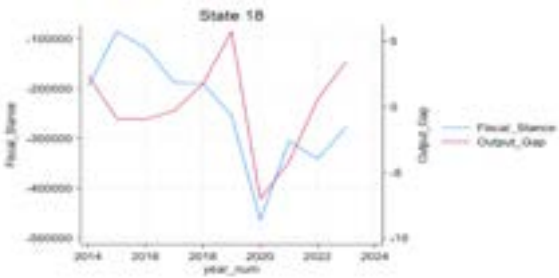

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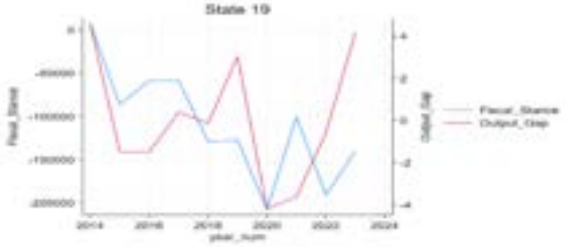

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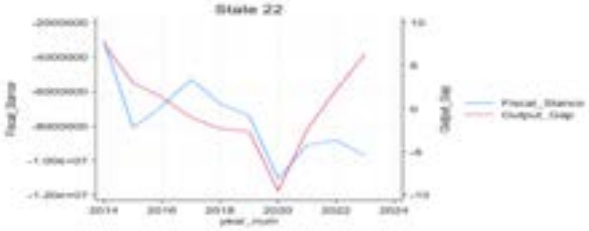

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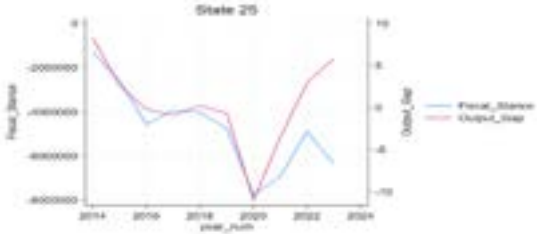

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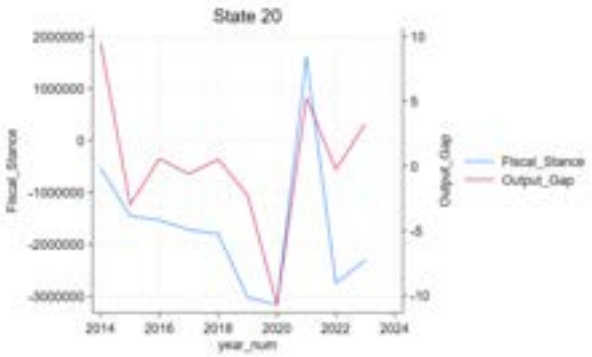

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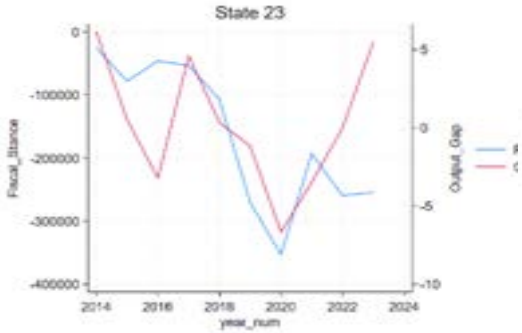

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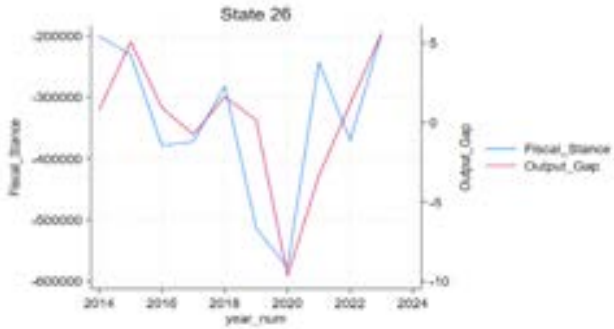

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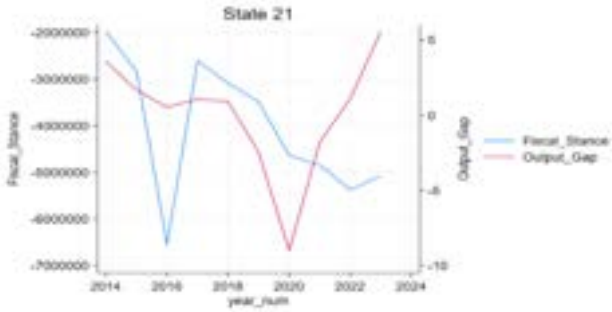
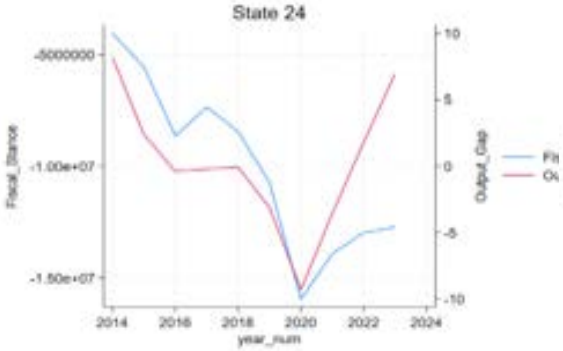
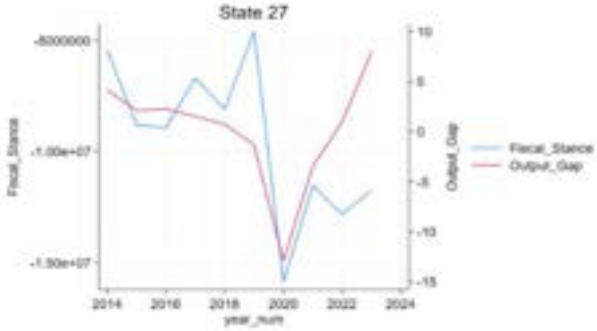


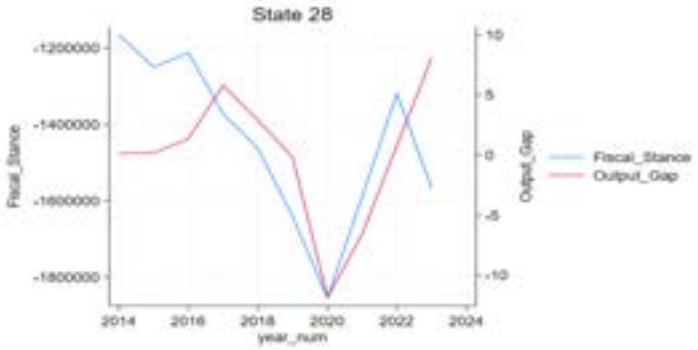
Tamil Nadu



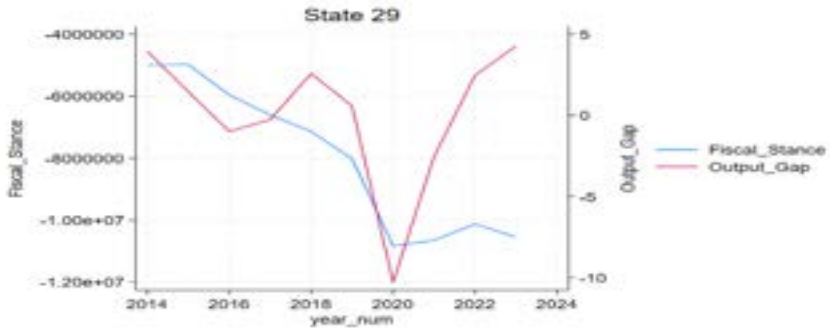
Uttar Pradesh



Uttarakhand



West Bengal



The state-level figures (Figure 1) depict the co-movement of the fiscal stance and the output gap for the period 2014–15 to 2023–24. They reveal substantial heterogeneity in the cyclical behavior of fiscal policy across Indian states, but the dominant pattern across most states is procyclical rather than countercyclical.

In the majority of states - including Andhra Pradesh, Gujarat, Haryana, Karnataka, Tamil Nadu, Telangana, Bihar, Jharkhand, Odisha, Uttar Pradesh, Madhya Pradesh, Punjab, and West Bengal - the fiscal stance and the output gap fall together and reach their lowest point in the same year, 2020–21. Since a lower fiscal stance indicates that the actual deficit fell short of its cyclically neutral level, this co-movement indicates that these states became *more* contractionary relative to the neutral benchmark exactly when output was collapsing, which is a procyclical rather than a stabilizing response. In several of these states - Andhra Pradesh, Chhattisgarh, Karnataka, Nagaland, Sikkim, Uttar Pradesh, and West Bengal in particular - the asymmetry continues into the recovery: the output gap rebounds strongly after 2021, but the fiscal stance recovers only partially or continues to fall, so that these states tightened sharply in the downturn without loosening symmetrically in the recovery.

A smaller group of states shows a genuinely different, more countercyclical or mixed pattern. In Kerala, Maharashtra, and Rajasthan, the fiscal stance and the output gap move in opposite directions for parts of the sample, particularly before 2020: the stance tightens during periods when output is stable or improving, and loosens during weaker periods, consistent with discretionary countercyclical management outside the pandemic year. Even in these states, however, the stance and the output gap still fall together in 2020–21, so the countercyclical tendency is not present throughout the full cycle.

The northeastern and special-category states - Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Sikkim - exhibit comparatively higher year-to-year volatility in both series, consistent with their greater dependence on intergovernmental transfers, narrower production bases, and structural vulnerabilities, but most still show the same procyclical trough in 2020–21 as the larger states. Himachal Pradesh and Uttarakhand show similarly fluctuating but broadly procyclical responses, reflecting the fiscal pressures associated with geographically

constrained economies and disaster-related expenditures. Chhattisgarh and Goa display noticeable swings in the fiscal stance over time, indicating sensitivity to sector-specific revenue conditions, though Goa's stance and output gap remain closely aligned throughout. Tripura is an outlier: its fiscal stance turns sharply positive in 2020–21 even as its output gap reaches its deepest trough, the opposite of every other state in the sample, and this observation should be checked for a data or classification error before being interpreted as a genuine countercyclical response.

Overall, the co-movement patterns suggest that Indian states predominantly followed procyclical fiscal policies over this period, tightening the fiscal stance relative to the cyclically neutral benchmark precisely when output was weakest, most visibly during the COVID-19 shock, and in many states failing to loosen the stance symmetrically during the subsequent recovery. A smaller set of states-Kerala, Maharashtra, and Rajasthan-display countercyclical fiscal management outside the pandemic episode, indicating that greater fiscal capacity or institutional flexibility may support stabilizing behavior even where it does not hold during the largest shocks. The observed interstate variation highlights the role of differences in fiscal capacity, debt sustainability, institutional structure, dependence on central transfers, and the sectoral composition of state economies in shaping fiscal responses to cyclical fluctuations. These visual patterns motivate the subsequent econometric analysis of the relationship between the fiscal stance and the output gap across Indian states.

3. ECONOMETRIC MODEL SPECIFICATION AND FINDINGS

Based on the theoretical and empirical discussions, we have identified and included fiscal variables and political factors in our empirical model to examine their influence on the state governments fiscal stance. Our dependent variable is the fiscal stance, which is the difference between actual fiscal deficit and cyclically neutral fiscal deficit, while our explanatory variables include the lagged fiscal stance and the output gap. We also control for outstanding debt to GSDP ratio, political stability, election cycle (1 for election years and 0 for non-election years), and COVID-19 pandemic dummy.

The estimated dynamic specification is expressed as:

$$FIS_{i,t} = \alpha + \beta FIS_{i,t-1} + \delta X_{i,t} + (\lambda_i + \varepsilon_{i,t}); i = 1, 2, \ldots T$$

Where, FIS_{it} is the Fiscal stance of state i in year t, FIS_{it-1} is the lagged Fiscal stance, $X_{i,t}$ is the vector of observable independent variables, λ_i are unobserved state-specific effects, $\varepsilon_{i,t}$ is the error term, N is the number of states, and T is the number of years.

With our panel data, which is dynamic in nature, a two-way fixed-effects model could account for unobserved state- and time-specific heterogeneity. However, our fiscal stance (FIS) is likely to exhibit substantial persistence over time, making the inclusion of lagged FIS necessary. In addition, variables such as output gap, total revenue and debt-GSDP ratio may be endogenous because of simultaneity and reverse causality with FIS. Therefore, these features of our dynamic panel data make conventional OLS and fixed-effects estimators potentially inconsistent (Roodman 2009; Chakraborty and Dash 2017).

To address these limitations, we employ the dynamic panel System Generalized Method of Moments (System GMM) estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998). System GMM combines the equations in first differences and levels within a single system.

The System GMM estimator jointly estimates the first-differenced and levels equations. Following Arellano and Bond (1991) and the System GMM formulation of Arellano and Bover (1995) and Blundell and Bond (1998), as implemented by Roodman (2009), lagged levels of the GMM-style variables are used as instruments for the first-differenced equation. In our specification, lags 2–3 are used as GMM-style instruments for lagged FIS, output gap, and the debt-GSDP ratio, which are treated as endogenous variables. The collapse option is employed to limit instrument proliferation (Roodman 2009). For the levels equation, System GMM uses suitable lagged first differences of these GMM-style variables as instruments, under the additional moment conditions required for the validity of the levels equation. Election-cycle,

political stability, and COVID-19 indicators are specified as standard IV-style instruments for the levels equation.

Before running the econometric model, we checked the statistical properties using correlation matrices and descriptive statistics. The pairwise correlations of variables are all fairly low (well under the usual 0.7–0.8 concern threshold for multicollinearity), suggesting the regressors do not duplicate each other's information to a problematic degree.

Table 2. Pairwise Correlation Matrix

Variables	Lag Output Gap	Debt-GSDP ratio	Total Revenue	Political Stability	Election Cycle	Covid2020
Lag Output Gap	1.00					
Debt-GSDP ratio	-0.16	1.00				
Total Revenue	-0.10	-0.32	1.00			
Political Stability	0.07	-0.10	0.11	1.00		
Election Cycle	-0.04	-0.03	0.00	-0.06	1.00	
Covid2020	-0.03	0.19	-0.01	0.01	-0.14	1.00

Source: Authors' computations from various sources

The fiscal stance averages about -37.8 lakh crore-equivalent with a large standard deviation (3,928,379) close to the mean itself, indicating substantial variation across states and years. The range (−15.9 million to +1.6 million) confirms that most state-years are contractionary relative to the cyclically neutral benchmark, but a few are expansionary, consistent with the state-level plots showing persistently negative stances in states like Bihar, Kerala, and Rajasthan.

Table 3. Descriptive Statistics (N=270)

Variable	Mean	Std. dev.	Min	Max
Fiscal Stance	-3783017	3928379	-15900000.00	1597162
Output Gap	0.18	4.80	-14.79	13.80
Debt-GSDP	30.29	8.38	14.10	50.85
Total Revenue	9071612	8779140	378429	47000000
Political Stability	0.61	0.49	0.00	1.00
Election Cycle	0.20	0.40	0.00	1.00
Covid2020	0.10	0.30	0.00	1.00

Source: Authors' computations from various sources

Output Gap has a mean close to zero (0.18), as expected from an HP-filtered series that should average out over the sample, with a range from -14.79 to +13.80 reflecting the sharp 2020 contraction and the subsequent recovery seen across the panels (see Figure 1). Debt-GSDP averages 30.29 percent with a fairly wide range (14.10 to 50.85), reflecting real differences in indebtedness across the 27 states (Table 3). Total revenue has a very large standard deviation (8,779,140) close to the mean (9,071,612), and a wide range (378,429 to 47 million), reflecting the large disparity in state size - bigger states like Uttar Pradesh or Maharashtra dwarf smaller ones like Sikkim or Mizoram.

Political stability (mean 0.61) indicates that roughly 61% of state-years are classified as politically stable. Election cycle (mean 0.20) indicates elections occurred in about 20% of state-years, consistent with a roughly 5-year state election cycle. Covid2020 (mean 0.10) correctly reflects that the pandemic year is 1 out of the 10 years in the panel (10%).

Table 4 presents system GMM estimates of the determinants of the fiscal stance of Indian states, defined as the deviation of the actual fiscal deficit from its cyclically neutral level, over the periods 2014–15 to 2023–24. All models are estimated using the two-step Blundell-Bond system GMM estimator with Windmeijer-corrected standard errors, and instrument counts are held well below the number of groups (27 states) to avoid instrument proliferation. Model 1 presents a parsimonious specification with the output gap and an election-cycle indicator. Model 2 retains the election and adds political stability, and pandemic controls while excluding the debt ratio, allowing us to assess the sensitivity of the election-cycle coefficient to its inclusion. Model 3 adds the debt-to-GSDP ratio, a political stability indicator, and a COVID-19 dummy for the 2020–21 pandemic year.

Across all three specifications, the Arellano-Bond test fails to reject the null of no second-order serial correlation (AR(2) p-values of 0.497, 0.568, and 0.566, respectively), supporting the validity of the lagged instruments. The Sargan and Hansen tests of overidentifying restrictions are mutually consistent and fail to reject instrument validity in every specification, and the difference-in-Hansen tests confirm the exogeneity of both the GMM-style and standard instrument subsets. We therefore treat all three specifications as valid.

Table 4. System GMM Estimates of Determinants of Fiscal Stance of Indian States

	I	II	III
Lagged Fiscal stance	0.832***	0.838***	0.843***
	(0.05)	(0.04)	(0.07)
Output gap	-68205.496*	-82960.492*	-98493.398*
	(37008.31)	(42996.07)	(55125.19)
Election cycle	-110231.11	-391222.21**	-232026.02
	(179060.90)	(162881.45)	(239164.26)
Political Stability		-202247.8	188152.47
		(283907.15)	(438344.17)
Covid2020		-2487168.22***	-3123184***
		(742215.54)	(961539.01)
Debt-GSDP			110847.470***
			(39718.14)
Constant	-822934.502***	-418609.512	-3898327.546***
	(251455.07)	(263697.56)	(1358375.740)
AR(2) p-value	0.497	0.566	0.568
Hansen p-value	0.694	0.613	0.445
Sargan p-value	0.280	0.331	0.399
Number of instruments	8	10	13
Observations	242	242	236

Standard errors in parentheses
Two-step System GMM with robust finite-sample corrected standard errors.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The output gap enters with a negative coefficient in all three specifications (Model 1: -68,206; Model 2: -82,960; Model 3: -98,493), and this sign is stable regardless of which additional controls are included. Under our sign convention, in which the fiscal stance is the actual deficit less its cyclically neutral level, a negative coefficient implies that the stance becomes more contractionary as the output gap widens (that is, as output rises further above potential) and more expansionary as the output gap narrows or turns negative. This is consistent with countercyclical fiscal behavior on average across Indian states. However, the coefficient is significant only at the 10 percent level in each specification (p = 0.077, 0.086, and 0.065, respectively) and does not reach conventional 5 percent significance in any model. We therefore interpret this as suggestive rather than conclusive evidence of average countercyclicality, and note that the consistency of the sign and the narrow range of the point estimate across differently specified models strengthen confidence in the direction of the effect even though its precision remains limited.

Interestingly, while the descriptive co-movement between the fiscal stance and the output gap is dominated by a shared, procyclical collapse during the 2020–21 pandemic (see Figure 1), the panel regression, which separately identifies the pandemic year, suggests a mildly countercyclical average response in other years, with substantial heterogeneity across states.

The lagged fiscal stance is highly persistent, with coefficients ranging narrowly from 0.832 to 0.856 across the three models, indicating that roughly 83–86 percent of a deviation from the cyclically neutral benchmark carries over into the following year. This persistence is consistent with the institutional rigidities widely documented in subnational public finance, including multi-year budgetary commitments, slow-moving capital expenditure programs, and the constraints imposed by fiscal responsibility legislation.

The COVID-19 dummy is the most robust result in the analysis. It is negative and significant at the 1 percent level in both models that include it (Model 2: -2,487,168, $p = 0.002$; Model 3: -3,123,184, $p = 0.003$), indicating a sharp and statistically unambiguous tightening of the fiscal stance relative to its cyclically neutral benchmark in the pandemic year. This finding is robust to the inclusion or exclusion of the debt ratio and political stability controls, and its magnitude and significance are stable across a wide range of alternative specifications we tested, including variation in the GMM instrument lag window (results available on request). We interpret this as reflecting the extent to which the actual deficit response to the pandemic, although expansionary in absolute terms, fell short of what the cyclically neutral benchmark implied given the depth of the 2020 output contraction -- an "insufficient expansion" rather than a literal spending contraction, since the cyclically neutral deficit itself widens automatically as output falls.

The debt-to-GSDP ratio is positive and significant in Model 3 (110,848, $p = 0.010$), indicating that more indebted states exhibited a less contractionary stance over this period, holding the cycle and other controls fixed. This result should be interpreted with some caution. It runs counter to the conventional debt-overhang prediction that highly indebted governments would consolidate more aggressively, and may instead reflect the relaxation of state borrowing limits (from 3 to up to 5 percent of GSDP) implemented in response to the pandemic, central government debt restructuring support extended disproportionately to more indebted states, or a

mechanical relationship arising because higher debt service obligations are not fully reflected in the fixed base-year expenditure ratio used to construct the cyclically neutral benchmark. Disentangling these channels is left for future work using a specification with the debt ratio entered as a predetermined rather than contemporaneous regressor.

The election-cycle indicator is sensitive to model specification. It is insignificant in Model 1 ($p = 0.544$) and Model 3 ($p = 0.341$), but significant at the 5 percent level in Model 2 once the debt ratio is excluded (-391,222, $p = 0.024$). Because all three specifications pass the same diagnostic tests, this sensitivity cannot be attributed to instrument invalidity in any one model; rather, it indicates that the estimated relationship between elections and the fiscal stance depends on whether debt dynamics are simultaneously controlled for. We report this instability explicitly rather than presenting only the specification in which the coefficient is significant, and we treat the election-cycle finding as suggestive at best, pending further investigation of its correlation with state debt profiles.

Political stability is not significant in any specification ($p = 0.483$ in Model 2; a similar result obtains in Model 3), suggesting that, within this sample and time period, it does not have a discernible independent association with the fiscal stance once the cycle, elections, and the pandemic shock are controlled for.

3.1. The Discussion of Results

These findings speak directly to the long-standing puzzle in the fiscal cyclicality literature of why fiscal policy in developing economies so often departs from the Keynesian and tax-smoothing benchmarks (Keynes 1936; Barro 1979). The cross-country evidence has generally found emerging and developing economies to be procyclical, whether through credit constraints (Gavin and Perotti 1997; Kaminsky et al. 2004), political economy pressures such as the voracity effect (Lane and Tornell 1996; Talvi and Végh 2005), or agency problems rooted in corruption (Alesina et al. 2008). Against this backdrop, the mild countercyclical signal found here for Indian states is closer to the pattern documented for advanced economies (Lane 2003; Alesina et al. 2008) than to the procyclicality typically found in developing-country panels, and it echoes the more encouraging subnational Indian evidence of recent years, in which fiscal responsibility

legislation is associated with a shift from procyclical to acyclical state deficits (Raut and Raju 2019) and state capital outlay has turned countercyclical in the post-2011 period (Rath et al. 2023). This is a notable departure from the procyclicality documented at the Union and combined Centre-State level over longer historical samples (Mukherjee 2014; Mohanty and Mishra 2017), and is consistent with the broader finding that fiscal cyclicality is not fixed but evolves with institutional reform, much as it did in the euro area around Maastricht (Bénétrix and Lane 2013) and across developing countries more generally as institutional quality improved (Frankel et al. 2013). Taken together with the state-level heterogeneity documented in the descriptive figures, in which fiscally stronger states such as Kerala, Tamil Nadu, Karnataka, and Maharashtra show markedly stronger countercyclical behavior than fiscally constrained states such as Bihar, Odisha, and Uttar Pradesh, the results also reinforce a theme common to the political-economy and institutional strands of the literature: cyclicality is not simply a national attribute but is conditioned on each government's fiscal capacity, revenue autonomy, and access to credit (Gavin and Perotti 1997; Talvi and Végh 2005). The paper's strongest single result, the pandemic-year tightening relative to the cyclically neutral benchmark, also contributes a subnational Indian data point to the wider question of how the COVID-19 shock tested fiscal stabilization capacity across countries, a question that, for state and provincial governments operating under binding fiscal rules, has received far less attention than its national-government counterpart.

These results have direct relevance for India's subnational fiscal architecture. The high persistence of the fiscal stance (83–86 percent carrying into the following year) shows that state fiscal responses unwind slowly, consistent with multi-year budgetary commitments and fiscal responsibility legislation. This strengthens the case for early, adequately sized countercyclical interventions rather than delayed or incremental ones, since a well-timed response will shape outcomes for several subsequent years.

The pandemic-year finding is the clearest policy signal. That the actual deficit response fell short of what the cyclically neutral benchmark implied, despite being expansionary in absolute terms, suggests that state borrowing limits, even after their relaxation from 3 to 5 percent of GSDP, may not have been sufficient for a shock of this magnitude. This supports building automatic

flexibility into borrowing ceilings, for example through escape clauses linked to the output gap or an explicit countercyclical buffer, rather than relying on discretionary, after-the-fact relaxation.

The counterintuitive positive link between debt-to-GSDP and a more expansionary stance also carries a policy dimension. If this partly reflects central debt restructuring support and relaxed borrowing space extended disproportionately to more indebted states, it raises a moral hazard concern: central assistance calibrated to existing debt rather than to shock severity could weaken fiscal discipline incentives in normal times.

Finally, the greater volatility of special-category and northeastern states in both output gap and fiscal stance points to a continuing need for intergovernmental transfers and Finance Commission devolution to reflect the weaker stabilization capacity of narrower, transfer-dependent economies, rather than applying uniform fiscal rules across states of very different fiscal capacity.

4. CONCLUSION

This paper examined the cyclicality of the fiscal stance of Indian states over 2014–15 to 2023–24 in relation to macroeconomic activity proxied by the output gap. Using a dynamic system GMM framework, the findings showed that the fiscal stance responds inversely to the output gap, pointing to a countercyclical tendency, when controlled for pandemic variables. However, the political economy variable proxied by the electoral cycle is found to be insignificant in the models, as well as the debt-to-GSDP ratio variable. The policy implication of the significant inverse relationship between fiscal stance and output gap for fiscal rules framework is that it reinforces the proactive role of fiscal policy for demand management in times of crisis and uncertainties.

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