VI Cyclicality in the Fiscal Expenditures of Major States in India

Sub-national revenues and expenditure are generally found to move in line with business cycles in many decentralised economies. In the Indian context, however, a panel data analysis covering non-special category states during 1980-81 to 2012-13 reveals that there are differences in the cyclical behaviour across different components of government expenditure. Capital outlay displays pro-cyclicality, implying the government's tendency to cut and expand this component at the time of business cycle downswing and upswing, respectively. Primary revenue expenditure, on the other hand, is found to be acyclical, reflecting the underlying rigidity in adjusting such expenditures in accordance with growth cycles. Institutional frameworks and rules that target government spending, if formulated and implemented appropriately may, however, enable sub-national governments to undertake counter-cyclical fiscal policies in the medium-term.

1. Introduction

6.1 Cyclicality of fiscal policy refers to the direction in which the government's revenues and expenditures move in relation to output. A fiscal policy is said to be pro-cyclical if it moves with the business cycle, *i.e.,* it is expansionary during economic booms and contractionary during economic recessions. Conversely, a counter-cyclical fiscal policy is one which moves against the business cycle *i.e.,* it is contractionary during booms and expansionary during recessions.

6.2 Generally, the cyclicality of certain components of fiscal policy tends to be fixed almost by definition, due to the presence of automatic stabilisers. Tax structures which are more progressive in nature act as automatic stabilisers during business cycle upturns and downturns. Likewise in-built automatic stabilisers with respect to government transfers such as unemployment benefits tend to generate a counter-cyclical pattern as the number of claimants falls during expansions and rises during recessions.

6.3 Pro-cyclicality of fiscal policy precludes the stabilising role that is expected of fiscal policy in macroeconomic management. Theoretically, neoclassical tax smoothing, the Keynesian and the new growth theory, all advocate a counter-cyclical fiscal policy, which requires governments to lower taxes and increase spending during a downswing in the business cycle so as to augment aggregate demand; and reduce expenditure, and increase savings during an upswing in the business cycle. In practice, however, the pro-cyclicality of fiscal expenditures in many countries is so strong that it leads to deterioration in fiscal outcomes with fiscal expansions. To ensure medium-term fiscal sustainability, deficits run during economic downturns should be offset by generating fiscal surpluses during upturns. However, most economies have a tendency to adopt pro-cyclical fiscal policies during an upswing, which creates a deficit bias, fuelling debt accumulation. Moreover, countries with volatile output and dispersed political power are the most likely to run pro-cyclical fiscal policies (Lane, 2002).

6.4 Factors identified in literature to explain pro-cyclicality in fiscal policies of developing economies are: (1) formulation and implementation lags in fiscal policy combined with problems in assessing the extent of output gap; (2) heavy government spending pressures during economic booms; (3) borrowing constraints and limited access to international capital markets, forcing authorities to tighten fiscal expenditure during

economic downturns; (4) moral hazard spending behaviour of sub-national governments, reflecting the implicit and/or explicit guarantee of a bailout by the central government; (5) free rider behaviour of sub-national governments as they may benefit from nationwide market access conditions which do not differentiate between fiscally disciplined states and those which do not adhere to their fiscal rules; and (6) time inconsistency problems associated with policy decisions which are not subsequently implemented (Gutiérrez and Revilla, 2011).

2. Cyclicality in Fiscal Policy: A Review of Literature

6.5 Fiscal policies of developed economies were, in general, found to be either acyclical or counter-cyclical. In contrast, a high degree of pro-cyclicality was seen in the fiscal policies of developing economies (Gavin and Perotti, 1997; Lane, 2002; Telvi and Vegh, 2005). Halland and Bleaney (2011) generated cyclicality estimates for 85 advanced and developing countries for 1980-2004 and found that pro-cyclicality was higher, on an average, with a much wider range of variation, in developing countries than in OECD countries. A study by Ilzetzki and Vegh (2008) on government consumption expenditures of 49 developing countries showed that fiscal policies in these countries were not only pro-cyclical but also expansionary, thereby exacerbating the effects of business cycles. A pro-cyclical fiscal policy stance which exacerbated output volatility also hampered fiscal sustainability (De Ferranti *et al.* 2000 and Gavin *et al.* 1996).

6.6 Variations in cyclicality have been observed across different components of fiscal policy, *viz.,* government expenditure and revenue. Researchers have found evidence of interference with the operation of automatic stabilisers in both developed and developing economies, as the cyclical sensitivity of fiscal balances has been lower than that warranted by the existing automatic stabilisers, implying the offsetting impact of discretionary fiscal policy actions (Balassone and Kumar, 2007, as cited by Guiterrez and Revilla, 2010).

6.7 Empirical literature has, by and large, focused more on assessing the degree of cyclicality in central government revenues and expenditures rather than the revenues and expenditures of sub-national governments in multi-tier systems. Fiscal policies of sub-national governments tend to be inherently and systematically pro-cyclical due to their reliance on narrow and sensitive revenue streams, discretionary transfers from the centre and their limited access to credit markets. If spending by sub-national governments is pro-cyclical, the need to offset this spending pattern imposes an additional burden on the central government's fiscal policy. On the other hand, pro-cyclical actions by the central government could affect the cyclical behaviour of sub-national governments through inter-governmental transfers, thereby amplifying rather than mitigating the pro-cyclicality of sub-national fiscal policies.

6.8 Empirical evidence using both time-series and cross-section data at the Brazilian state level for 1991-2006, suggested the existence of pro-cyclical fiscal policies of the sub-national governments which were more pronounced during economic downturns (Arena and Revilla, 2009). Tax structures of Brazilian states – and not federal transfers – were found to be the primary cause of pro-cyclicality of state spending. However, evidence also suggested that introduction of the Fiscal Responsibility Law (and the resultant hard budget constraints) implied some dampening of the pro-cyclicality in Brazilian states' spending. Further, smaller states were found to be more pro-cyclical than larger states for all revenue and expenditure categories, with the exception of

inter-governmental transfers, where the evidence was found to be inconclusive. Transfers from the centre to the states were found to be pro-cyclically associated with changes in national GDP and not with gross state product, which could amplify the pro-cyclical behaviour of sub-national expenditures.

6.9 A study of the cyclicality of budget items, such as, overall provincial revenue, own-source revenue, grants, revenue sharing receipts, discretionary grants, expenditures and budget surplus, among provincial governments in eight federations, *viz.,* Argentina, Australia, Brazil, Canada, Germany, India, Spain and the United States, using separate panel regressions for each country, showed that while own-source taxes were generally highly pro-cyclical, contrary to common wisdom, revenue sharing and discretionary transfers were either acyclical or pro-cyclical (Wibbels and Rodden, 2010). Expenditure was found to be pro-cyclical in all the countries except in Australia. A positive co-efficient of budget surplus reveals that the US states, Canadian provinces and Australian states all attempt to smooth income shocks by borrowing during bad times and possibly saving during good times.

6.10 Studying the sources of pro-cyclicality in sub-national government spending in Argentina and Brazil, Sturzenegger and Werneck (2006) found that much of the pro-cyclicality came from the sub-national government's own tax revenues rather than tax devolution from the centre. Cross-jurisdiction evidence was found to support the claim that pro-cyclicality in spending resulted from pro-cyclical revenues, through the 'voracity effect[1]'. The findings of the above studies are summarised in Table VI.1.

3. Institutional Framework for State Government Expenditure

6.11 Two significant differences exist between sub-national government finances and central

Table VI.1: Studies on Cyclicality in Sub-national Fiscal Revenues/Expenditures

	Authors	Methodology	Sample	Results
1	Arena and Revilla (2009)	Panel regressions	1991 -2006 Brazil (27 states)	Total and primary expenditures show pro-cyclical behaviour. Expenditures on personnel have a higher degree of pro-cyclicality than maintenance and capital expenditure.
2	Sturzenegger and Werneck (2006)	Correlation, and panel regression	1992-2002 Argentina (24 provinces) and Brazil (26 provinces)	Total expenditure was found to be pro-cyclical in both Argentina and Brazil. Much of the pro-cyclicality came from sub-national governments' own tax revenues rather than tax devolution from the centre.
3	Wibbels and Rodden (2010)	Panel Regression	USA (1977-1997) Canada (1968-1997) Germany (1974-1995) Australia (1990-2001) Spain (1984-2001) India (1980-1998) Brazil (1986-2000) Argentina (1980-2001)	While own-source taxes were generally highly pro-cyclical, revenue sharing and discretionary transfers were either acyclical or pro-cyclical. Total expenditure was found to be pro-cyclical in most of the countries except Australia.

[1] Voracity effect refers to competition among interest groups for publicly controlled resources, leading to a more than proportional redistribution effect when output increases.

government finances in terms of the structure and institutional framework, which could have a bearing on the former's ability to undertake counter-cyclical fiscal policy. First, as expenditures are more decentralised than revenues, sub-national governments rely, to a great extent, on inter-governmental transfers in the form of tax devolution and grants and/or loans for a significant part of their total receipts. Second, many sub-national governments function under balanced budget rules, which requires them to refrain from accumulating deficits. Even those countries where sub-national governments are allowed to run deficits, strict limits are placed on borrowings from domestic or external sources (external funding is mostly routed through the central governments).

6.12 If government revenues are pro-cyclical, the fiscal policy response of sub-national governments in terms of spending could be expected to be pro-cyclical, particularly during a downturn, unless there are: (a) additional compensating transfers from the central government, (b) withdrawals from contingency funds, or (c) adequate flexibility in the borrowing rules for sub-national governments to respond to cycles within sustainable limits.

6.13 The ability of sub-national governments to undertake counter-cyclical fiscal policies during a downturn is determined by the level of debt and interest rates facing individual sub-national governments. Some sub-national governments may be able to provide more fiscal stimulus than others if they have created adequate fiscal space by practicing greater fiscal discipline during upswings. A minimum target for sub-national fiscal policy is avoiding unplanned cuts in developmental expenditure, even if it is unable to increase its overall expenditure due to resource constraints.

6.14 With regard to Indian states, on the resources side, they have their own revenues comprising tax and non-tax sources. Over 97 per cent of the states' own tax revenues are from indirect taxes, concentrated mostly on consumption. Taxes which are earmarked for states under the Constitution of India, *inter alia*, include, state value added tax (VAT), excise duty on liquor, stamp duty and registration fees on real estate transactions, motor vehicle taxes, entertainment taxes, and electricity duties.

6.15 Indian states also receive resource transfers from the central government in three forms – tax devolution, grants and loans. The mandated shares of total central tax collections are revised every five years on the basis of formulas set by successive Finance Commissions. The Finance Commissions also decide on the non-plan grants to be given to the states to address horizontal imbalances. States also receive plan grants distributed mainly according to their absorptive capacities and developmental needs. With the delinking of plan loans from plan grants on the basis of the recommendations of the Twelfth Finance Commission, plan loans from the centre have been discontinued from 2005-06.

6.16 Most economies place restrictions on the borrowings of sub-national governments as excessive borrowing by states not only destabilises their own economies but also threatens the finances of the centre if it is called upon to bail out the distressed states. Under the provisions of Article 293(3) of the Indian Constitution, a state has to obtain the approval of the central government for its domestic borrowings as long as it has any loans outstanding with the centre. Since all states are indebted to the centre, they are restrained from indulging in excessive borrowings. Furthermore, only the central government is permitted to undertake external borrowings.

Role of Fiscal Rules

6.17 In the interest of promoting fiscal discipline so as to achieve medium-term fiscal sustainability, several countries have instituted fiscal frameworks since the 1990s, which have been operationalised through the enactment of fiscal responsibility legislations. Apart from promoting credibility and transparency in fiscal policies, these legislations set out budgetary rules which are designed to prevent the misuse of discretionary fiscal policy which is one of the main sources of 'deficit bias' and overall pro-cyclicality of fiscal policies.

6.18 In the Indian context, all the state governments have enacted their FRBM Acts and all states except Goa[2] have amended their FRBM Acts and have adopted the annual debt targets set by the Thirteenth Finance Commission (FC-XIII). While the design of fiscal rules, as per their original FRBM Acts, varied across states, there has been a move towards standardisation in the amended FRBM Acts. Under the FRBM Acts, states are committed to gradually bridge the deficits, if any, in their revenue accounts. The central government sets annual ceilings on borrowings for each state consistent with a sustainable medium-term fiscal framework.

4. Measuring the Cyclicality of Fiscal Expenditures of Indian States

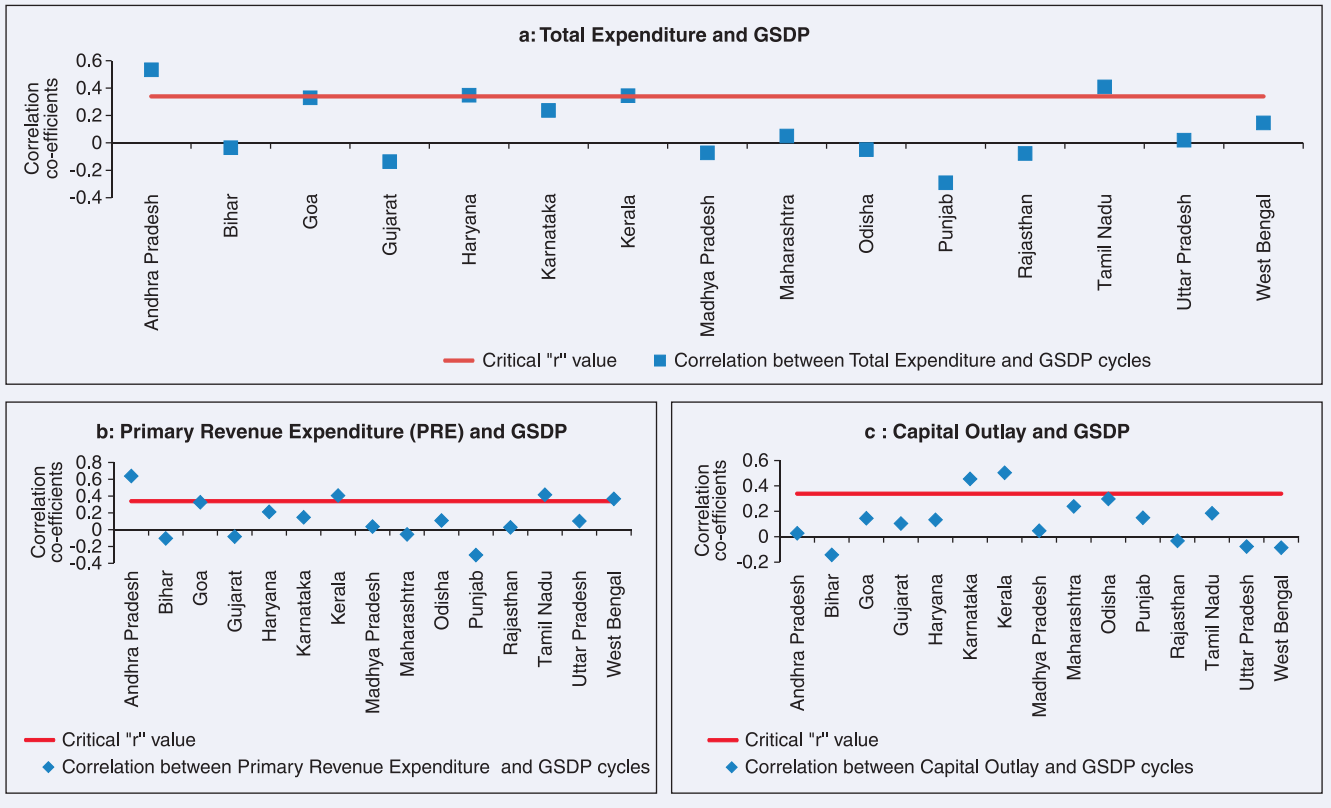
6.19 There is no consensus among researchers on how fiscal cyclicality should be measured. Economists have used different methods to empirically estimate the cyclicality of fiscal policy. The simplest way to measure fiscal cyclicality is to work out the correlation between the cyclical component of output and that of the relevant fiscal variable (Kaminsky *et al.* 2004 and Talvi and Végh, 2005). This method has been employed to test for cyclicality of fiscal expenditures of the states in India. The chosen fiscal variables are primary revenue expenditure, capital outlay and aggregate expenditure. Going by the general practice, the cyclical components of the output and fiscal variables (both in real terms) are extracted, using the Hodrick Prescott (HP) filter method, and the co-efficients of the correlation between cyclical components of the select fiscal expenditure variables of the states and their GSDP are computed.

6.20 The results of the correlation test, as given in Charts VI.1a to VI.1c, are statistically significant for only a few states. The correlation co-efficients of aggregate expenditure and GSDP for Andhra Pradesh, Haryana, Kerala and Tamil Nadu are positive and statistically significant, indicating the existence of pro-cyclicality. To exclude the impact of interest payments and repayments which are a part of total expenditure, a correlation test has been done on the cyclical components of primary revenue expenditure and GSDP which showed that the pro-cyclicality seen in the aggregate expenditure of Tamil Nadu and Andhra Pradesh is due to primary revenue expenditure. The capital outlay in these states does not exhibit any cyclicality. On the other hand, aggregate expenditure of Kerala is pro-cyclical on account of the pro-cyclical behaviour of primary revenue expenditure as well as capital outlay.

6.21 As the unadjusted correlation co-efficient may potentially be misleading when variables have different levels of volatility, many researchers prefer regression-based measures, which are generally considered to be more precise (Lane, 2002; Akitoby *et al*. 2004; and Woo, 2009). Therefore,

[2] The FRBM Act of Goa is in the process of getting amended.

Chart VI.1: Correlation Co-efficient (r) between Cyclical Components of State Fiscal Expenditures and GSDP (in real terms): 1981-82 to 2011-12



a panel regression has been undertaken to test the cyclicality of fiscal expenditures of non-special category states[3].

Panel Regression

The Model

6.22 The estimation strategy, following Granado *et al.* (2010) involves regression of log differences of state governments' per capita real capital outlay and per capita real primary revenue expenditure on log difference of per capita real GSDP and select control variables in a panel data framework. The control variables consist of primary balance as per cent of GSDP with one period lag and an election dummy reflecting the year prior to state elections. The sign of the co-efficient of lagged primary balance is likely to be positive since states with lower primary deficit or a primary surplus will have more headroom for public expenditure. A dummy variable has been introduced to represent the year prior to the state elections, under the assumption that the effect of elections will be the greatest on public service delivery in the period leading to the election. Accordingly, we estimate the following specification:

$$d(\log EXP_{i,t}) = \beta_0 + \beta_1 d(\log Y_{i,t}) + \beta_2 PB_{i,t-1} + \beta_3 D \quad \ldots\ldots (1)$$

6.23 Here, EXP is the per capita real government expenditure, Y is per capita real GSDP, PB is the primary balance to GSDP ratio and D is election

[3] The states included for the analysis are Andhra Pradesh, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

dummy. The subscripts i and t denote state and time period, respectively. β_1 measures the cyclicality co-efficient of government expenditure, *i.e.,* the elasticity of government spending with respect to output growth. A positive value of β_1 implies pro-cyclical behaviour; a value above unity implies a more than proportionate response to output fluctuations; and a negative value indicates counter-cyclical behaviour. As per our assumptions, the signs of β_2 and β_3 are expected to be positive.

The Data[4]

6.24 The panel consists of 14 non-special category states and covers the time period 1980-81 to 2012-13. For the three states of Bihar, Uttar Pradesh and Madhya Pradesh, the data on respective fiscal variables and GSDP from 2000-01 onwards also include data relating to Jharkhand, Uttarakhand and Chhattisgarh, respectively. This has been done for two reasons: first, data for Jharkhand, Uttarakhand and Chhattisgarh are available only since 2000-01, *i.e.,* the year when these states were created; second, the data for the original states of Bihar, Uttar Pradesh and Madhya Pradesh for the earlier period (prior to 2000-01) are not strictly comparable with the data for the later period (post-2000-01) when these states were bifurcated for creating the new states. The variables have been converted into real terms using GSDP deflator for the respective states.

Unit Root Analysis

6.25 Before proceeding with the estimations, the stationarity properties of the dependent, explanatory and control variables have been tested through panel unit root tests. There are different methods to carry out panel based unit root tests. While tests by Levin *et al.* (2002) and Hadri (2000) assume that there is a common unit root process across the relevant cross-sections, the tests suggested by Im *et al.* (2003) and Maddala and Wu (1999) assume individual unit root process.

6.26 The results of the panel unit root tests are given in Table VI.2. It may be seen that the tests

Table VI.2: Results of Panel Unit Root Test

	LLC t statistics	IPS W Statistics	ADF-Fisher Chi Square	Maddala & Wu PP- Fisher Chi Square
1	2	3	4	5
Variables (Levels)				
Log (Per capita capital outlay)	4.72	4.65	16.71	15.11
Log (Per capita primary revenue expenditure)	3.95	7.76	1.89	1.19
Log (Per capita GSDP)	7.68	12.10	0.21	0.12
Primary Balance (% of GSDP)	-6.16*	-5.28*	77.67*	84.51*
Variables (Differences)				
d log (Per capita capital outlay)	-16.47*	-17.29*	280.04*	312.36*
d log (Per capita primary revenue expenditure)	-21.58*	-21.54*	341.81*	356.64*
d log (Per capita GSDP)	-17.64*	-17.85*	280.24*	312.92*

Note: 1. LLC = Levin, Lin, Chu (2002); IPS = Im, Paseran, Shin (2003).
2. * indicates the rejection of the null hypothesis of non-stationarity at 1 per cent level of significance.
3. The statistics are asymptotically distributed as standard normal with a left hand side rejection area.
4. Automatic selection of lags through Schwarz Information Criteria (SIC).
5. All panel unit root tests are defined by Bartlett kernel and Newly West bandwidth.

[4] The data on select fiscal variables are taken from the Handbook of Statistics on State Government Finances and budget documents of state governments. The data on GSDP have been taken from the National Accounts Statistics of the Central Statistics Office, Government of India. The data on state election years have been taken from the Election Commission of India.

(Levin *et al.*; Im *et al.*; and Maddala and Wu) have failed to reject the null hypothesis of a unit root for each of the variables in level form. The tests, however, reject the null of a unit root in the first difference. Overall, the results reveal that the three variables, *viz.,* per capita capital outlay, per capita primary revenue expenditure and per capita GSDP in logarithmic form are non-stationary but integrated of order 1, *i.e.,* I (1). The primary balance series, which is expressed as per cent of GSDP, was found to be stationary.

Estimation Results

6.27 Equation 1 is estimated using the pooled least square technique. The estimation results are reported in Table VI.3. The model was also estimated using the two-stage least square technique (2SLS) to take care of endogeneity issues. The results obtained from 2 SLS were broadly in line with the results of the pooled least square estimations. It may be observed from Table VI.3 that the co-efficient for the growth in per capita GSDP is positive and significant for capital outlay, which indicates pro-cyclical behaviour. However, primary revenue expenditure seems to be acyclical as the co-efficient for growth in per capita GSDP is found to be statistically insignificant.

Table VI.3: Estimation Results for Cyclicality of Government Expenditure in India

Explanatory Variables	Dependent Variables	
	Per capita capital outlay	Per capita primary revenue expenditure
1	2	3
Constant		0.07** (0.00)
Per capita GSDP	0.59* (0.03)	0.04 (0.58)
Primary Balance (One period lag)	0.03** (0.00)	0.01** (0.00)
Election Dummy	0.12** (0.00)	-0.01 (0.51)
AR (1)	-0.25** (0.00)	-0.24** (0.00)
Number of states	14	14
Number of observations	428	434

Note: 1) Figures in the parentheses represent respective P values.
2) ** and * denote significant at 1% and 5% levels, respectively.

6.28 Primary balance with one period lag is found to have a significant positive impact on both capital outlay and primary revenue expenditure. This confirms that the states with lower primary deficit/higher primary surplus have more headroom for carrying out their fiscal expenditure. The election dummy is found to have a positive and statistically significant relationship with capital outlay. This indicates that states tend to undertake higher capital outlays in the year prior to state elections. Khemani (2000) also found that capital expenditure increased in the year leading up to the elections; capital spending is widely regarded as a more convenient tool for political patronage of specific groups or individuals, since new construction contracts can be given selectively.

6.29 The pro-cyclical behaviour of capital outlay reflects the state governments' tendency to cut and expand this component during a business cycle downswing and upswing, respectively (Mukherjee, 2013). The acyclical behaviour of primary revenue expenditure at the sub-national level largely reflects the underlying rigidity in adjusting such expenditure in the short run in accordance with growth cycles.

6.30 As a further extension of the analysis, the cyclical pattern of social sector expenditures of the states has been undertaken, the results of which are presented in Box VI.1. While overall social sector expenditures of the states are observed to be acyclical, education spending is observed to be pro-cyclical. The results also show that higher fiscal deficit in year t leads to lower social sector expenditure in year t+1. Transfers are also found to play an important role in influencing states' capacity to incur social spending.

Box VI.1:
Cyclicality of Social Sector Expenditure: Evidence from Indian States

Given the importance of social sector expenditure in the Indian context and considering that social sector expenditure is primarily the responsibility of state governments, it is crucial to examine the pattern of social expenditure during periods of economic volatility. This is particularly relevant in the post-crisis scenario and in the current low growth scenario that India is witnessing. There are two reasons for analysing this pattern. First, the conventional Keynesian argument in support of counter-cyclical policy for any kind of government expenditure holds for social sector expenditure as well. An increase in social spending could be used as countercyclical policy response to support aggregate demand and foster economic recovery. Second, as in the case of other developing countries, an increase in social spending in India during a cyclical downturn may be a useful policy tool for providing adequate social protection and mitigating the adverse human development implications of output shocks, and ensuring that the crises do not generate long-term harm to children, women and poor families. Thus, social spending, if undertaken efficiently and in a counter-cyclical manner, could be an important engine for promoting sustainable social and economic development.

In India, pro-cyclicality has generally been tested for central/general government revenues and expenditures. With regard to social sector expenditure, including that on education and health, across Indian states, empirical studies have, in general, used trend analysis to examine the improvement, if any, in such expenditure in the post-reforms period and its impact on the social sector in India (Dev *et al.* 2002; Joshi, 2006,). Social sector expenditure has generally been observed to have a positive impact on social outcomes and hence, enhancing such expenditure from its low levels in India is considered crucial for achieving overall human development goals (Kaur and Misra, 2003). While the literature on the cyclicality of social sector expenditure at the state level is scant in the Indian context, Darby and Melitz (2008) showed that some of the fiscal expenditure items like health, retirement benefits, incapacity and sick pay and unemployment compensation responded in a stabilising manner to business cycle fluctuations in 21 OECD countries. A recent paper shows that the government spending on education and health is pro-cyclical in developing countries and acyclical in developed countries. Furthermore, education and health expenditures follow an asymmetric pattern in developing countries; they are pro-cyclical during periods of positive output gaps but acyclical during periods of negative output gaps (Granado *et al.* 2013).

To empirically examine the relationship, we have estimated the following regression equation using panel data

$$d(\log EXP_{i,t}) = \beta_{0,i} + \beta_1\, d(\log Y_{i,t}) + \beta_2\, FD_{i,t-1} + \beta_3\, d(\log TR_{i,t}) + u_{i,t} \quad \ldots\ldots\ldots\ldots (1)$$

where β_0 represents state fixed effect which controls for heterogeneity across states, EXP denotes real social sector expenditure including that on education,[5] Y denotes GSDP in real terms, FD denotes state's fiscal deficit as a per cent of GSDP, TR denotes real gross transfers from the centre and u is an error term. The subscripts *i* and *t* denote state and time period, respectively. The co-efficient β_1 measures the degree of cyclicality of public spending. A positive value of β_1 implies pro-cyclical behaviour and a negative value implies counter-cyclical behaviour. A non-significant β_1 implies acyclical behaviour. Fiscal deficit as a per cent to GSDP and transfers from the centre have been used as control variables in line with other studies. The analysis is done for the 17 non-special category states over the period 2000-01 to 2012-13[6]. Results of the panel generalised least squares (GLS) estimation are reported in Table 1. Empirical evidence suggest that while overall social spending is acyclical in India at the state level, education spending is pro-cyclical, with the pro-cyclicality being more pronounced during upturns and being more significant for high income states.

Table 1: Cyclicality of Social Sector Expenditures: Panel GLS Regression Co-efficients

	Total Social Sector Expenditure	Education Expenditure
Constant	0.15**	0.13**
GSDP	0.20	0.41**
Fiscal deficit (Lagged)	-0.03**	-0.03**
Gross Transfers	0.18**	0.08*

Note: 1. ** and * indicate significance of co-efficient at 1 per cent and 5 per cent levels, respectively.
2. Based on the Hausman test, the fixed effect model has been chosen.

References:

Granado Javier Arze, Sanjeev Gupta, and Alejandro Hajdenberg (2013), *"Is Social Spending Procyclical? Evidence for Developing Countries"* World Development Vol.42, pp 16-27.

Balbir K and Sangita M (2003), *"Social sector expenditure and attainments: An analysis of Indian states"*, Reserve Bank of India occasional papers, Vol.24, Nos 1&2.

Balbir K, Sangita M and A K Suresh (2014), *"Cyclicality of Social Sector Expenditures: Evidence from Indian States"*, work in progress.

[5] All expenditure variables are converted into real terms using GSDP deflator.

[6] Since data for Chhattisgarh and Jharkhand is available since beginning 2000s when these states were set up, the study has been restricted to the period 2000-01 to 2012-13.

5. Conclusion

6.31 Studies on cyclicality of sub-national finances have found a preponderance of pro-cyclicality in revenues and expenditure in many decentralised economies. In the Indian context, however, the results of panel regression tests on the fiscal expenditures of non-special category states during 1980-81 to 2012-13 indicate that while capital outlay is pro-cyclical, primary revenue expenditure does not exhibit any cyclical pattern. Fiscal consolidation undertaken during 2004-08 in India, both at the central and state government levels, enabled the governments to undertake counter-cyclical fiscal policies in the aftermath of the global financial crisis. Without much headroom in the years following the crisis, it is important for the central and state governments to return to the path of fiscal consolidation. Sub-national governments seem to be ahead of the centre in fiscal consolidation, with most state governments recording surpluses in their revenue accounts and keeping their GFD targets within those stipulated by their FRBM Acts. However, it may not be fiscally prudent to build large revenue surpluses at the cost of development expenditures. If revenue surpluses are effectively used in building capital assets, this could contribute to higher growth, given the large multipliers for capital outlay, particularly at the state level.