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Quantifying the Cyclically Adjusted Fiscal Stance for India

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Quantifying the Cyclically Adjusted Fiscal Stance for India¹

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Abstract

Taking cue from recent debate in the literature, we attempt to disentangle cyclically adjusted fiscal balance (CAB) for India using methodology recommended by the IMF manual and a range of potential output estimates. Our results indicate that after initial success in containing CAB, it has increased considerably during the crisis period. Notwithstanding an increase in (positive) output gap in the post crisis period (2009-11) and subsequent increase in inflation, the CAB continued to be expansionary, with limited withdrawal of expansionary stance, albeit, a reduction in fiscal impulse. This calls for further reforms and binding framework that can withstand business cycles.

JEL: E60, H62, H69

Keywords: *fiscal policy, business cycle fluctuations, cyclical adjustment, emerging market, potential output, India*

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I. Introduction

Since the Great Depression of 1930's and popularity of Keynesian economics, fiscal policy has emerged as one of the most powerful and debated tools influencing growth-inflation dynamics. So far the fiscal stance of a sovereign has been generally analysed in terms of headline fiscal balance. However, considering the pivotal role of fiscal policy on macro behaviour over the business cycle, this practice has been vociferously criticised in policy literature. Recognising its importance, recent literature has decomposed fiscal balance into cyclical component and cyclically-adjusted fiscal balance (CAB) to analyse fiscal policy measures over business cycles.

In this vein, the IMF, which has been computing CAB for G7 countries since 1990, has published two detailed technical notes on cyclical decomposition of fiscal balances (Fedelino et. al, 2009; Bornhorst et al, 2011) and extended this analysis to emerging and developing market economics since 2010. IMF has been constantly encouraging economies to adopt and publish fiscal stance in terms of CAB. Some developed countries (e.g. United Kingdom, United States, Canada, New Zealand, Netherlands, Sweden, Switzerland) have been using CAB. In the EU, since 2005 reforms of Stability and Growth Pact, CAB has taken the centre stage of fiscal surveillance. Among the emerging and developing economies (EMDEs), however, computing fiscal stance in terms of CAB has remained limited. Among BRIC countries, there have not been many academic studies on the topic, except for Brazil. The difficulties surrounding estimation, policy analysis and comparability of CAB lies with the underlined concepts of business cycle, debate surrounding estimation of unobserved potential-output and fiscal reaction to shocks by different sovereigns, which have somewhat overshadowed this branch of literature.

Our study is an attempt to fill this gap in the literature, by analysing the cyclically adjusted fiscal stance for India using the IMF methodology, with the focus being on the 2000s so far. The Indian fiscal situation went through a dynamic path since 1990s with removal of automatic monetisation of deficit, market based instruments of government borrowings, operationalisation of a fiscal rule, initial decline and subsequent increase in fiscal deficit after the global financial crisis. The fiscal balance during this period therefore reflected the impact of both discretionary measures as well as cyclical movement in macroeconomic environments. Against this backdrop, we decomposed and analysed GoI fiscal balances in terms of cyclically adjusted balances. Our findings indicate that cyclically adjusted primary deficit rose significantly in 2008-09 after the global financial crisis, and the subsequent year saw only a part of this stimuli being gradually withdrawn. While there has been a change in fiscal stance in India in recent years, our study calls for more institutional reform in the fiscal policy that could withstand fluctuations over business cycles.

The rest of this paper is organised as follows: Section II provides a brief literature review; Section III briefs on the IMF methodology to compute the fiscal stance; Section IV gives the estimates of the fiscal stance and the impulse for India. Conclusions and policy implications are given in Section V.

II. The Concept and Review of Literature

Conventional macroeconomic wisdom says that fiscal policy could act as a stabilizing force for activity through two means: (1) the automatic channel that arises due to the natural linkage between the business cycles and government budget balances as some components of government budget react automatically to the cycle making fiscal policy automatically expansionary during downturns and contractionary during upturns and (2) the discretionary channel that refers to elective changes in government spending and taxation in response to changes in economic activity. This is most frequently adopted during recessions, when there are calls for tax cuts or new spending programs to “get the economy going again” (Horton and Ganainy (2012), Weil (2008)). Using the overall fiscal balance to assess the underlying fiscal policy can at times lead to wrong conclusions. A weakening of the budget balance can sometimes be masked temporarily by strong economic growth. Conversely, during a recession, the government balance can be overstated on account of cyclical factors. Recognising this, the concept of cyclically adjusted budget balances - that is, the fiscal balance corrected for the business cycle impact - has gained popularity. This is basically the budget balance that would be observed if the economy were operating at its potential GDP. Estimates of cyclically-adjusted budget balances provide useful information about a government’s underlying fiscal position and can be used to help guide policy actions.

In addition to correcting for the state of the economy, another adjustment which is usually made by various agencies including the IMF is correction for the effect of inflation on government interest payments. The overall balance is less appropriate as a measure of the contribution of fiscal policy to domestic demand when nominal interest payments reflect high inflation rather than high real interest rates. In this case, interest payments only compensate the private sector for the loss in real value of government bonds and do not add to domestic demand. Hence the primary balance, which excludes interest payments is a better measure. The primary balance is then adjusted for the cyclical movements on the budget to get the cyclically adjusted primary balance. Recognizing this, the IMF’s focus has been on computing the cyclically adjusted primary balance rather than overall balance as a basis for calculating the fiscal stance.

Another adjustment, which is generally made, particularly for countries whose fiscal revenues are significantly dependent on commodities, is the effect of terms-of-trade shocks. For instance, in a copper-exporting country such as Chile, adjusting for this factor is important, since otherwise movement in copper prices might influence the fiscal policy of Chile in a wrong way. This goes one step further than the

cyclically-adjusted fiscal balance and corrects for transitory factors besides the business cycle, such as terms-of-trade shocks or one-off factors (large one-time revenues, sales of concession rights, write-offs related to recapitalization of banks, and so on). This allows policymakers to compute what is called the structural fiscal balance.

International Institutions like IMF, OECD and the European Commission produce estimates of cyclically adjusted budget balances. The cyclically-adjusted budget balance (CAB) has taken the central stage in the revised EU framework for fiscal surveillance. With the 2005 reform on the Stability and Growth Pact (SGP), the balance adjusted for cyclical effects has become a key fiscal indicator. Corrected also for one-off measures and labelled then structural balance, it is the main indicator used for the assessment of country-specific medium-term fiscal objectives under the “preventive arm” of the SGP and of the fiscal adjustment imposed to Member States in excessive deficit position under the “corrective arm” of the SGP. The CAB allows for decomposing the fiscal position into the automatic reaction of the budget to changes in economic activity and the impact of discretionary fiscal policy, mostly under the control of government (Mourre et al, 2013). The Fiscal Compact signed in March 2012 further reinforces the SGP framework by necessitating countries to adopt in their constitution or other durable legislation a structural budget balance rule by 2014 (Schaechter et al, 2012). IMF has started publishing CAB for most countries in its periodic Fiscal Monitor so as to get an idea of the true fiscal position, makes projections of the CAB for different countries and also provides technical guidance/notes to member countries to compute the CAB (IMF, 2013, Fedelino et al 2009, Bornhorst et al, 2011)³. OECD has undertaken extensive research in the area of estimating potential output, output gaps and structural budget balances and adjusting fiscal balances for asset price cycles and various one-off operations (Giorno et al (1995; Girouard et al (2005); Girouard and Price (2004); Price and Thanh (2011) and Journard et al (2008).

Many advanced economies have incorporated this concept into their official functioning. For countries like Canada, United States, New Zealand, the cyclically adjusted budget balance estimates are released either by Ministry of Finance, Budget Office or the Treasury. Government of Canada in fact provides two competing estimates of CAB – one from Finance Canada and another from the Parliamentary budget Office that generally provides independent analysis to Parliament on the state of nation’s finances (Matier, 2011). Some other countries have gone one step ahead and adopted this concept into their fiscal rules. Farrington *et al.* (2008) indicate that publishing cyclically-adjusted, or structural, forecasts of the budget balance and key fiscal aggregates helps to promote transparency in the operation of fiscal policy and enhance the quality of policy decisions. Hence, there is an argument in favour of setting up the fiscal rules in terms of CAB and not general balances as in

³ In 2012, the IMF developed an excel based template so as to provide economies with a tool to help them estimate their country’s underlying fiscal position.

the case of EU as targeting CAB tends to improve the stabilizing properties of the rule i.e., making it more counter-cyclical (Bova et al 2013). Table 1 gives a list of countries that have adopted cyclically adjusted/structural balances into their fiscal rules.

Table 1: Fiscal rules based on cyclically adjusted/ structural balances

| Name of the country | Since when |
|----------------------------|-------------------------------|
| Australia | 1998 |
| Austria | 2011 |
| Bulgaria | 2012 |
| Chile | 2001 |
| Columbia | 2011 |
| Denmark | 1992 |
| Estonia | 2007 |
| Finland | 1999 |
| Germany | 2011 |
| Italy | 2012 |
| Malta | 2012 |
| Netherlands | 2012 |
| Norway | 2001 |
| Panama | First in 2002/03 then in 2009 |
| Portugal | 2011 |
| Serbia | 2011 |
| Spain | 2003 |
| Sweden | 2000 |
| Switzerland | 2003 |
| United Kingdom | 1997 |

Source: Compiled largely from Budina Nina, Tidiane Kinda, Andrea Schaechter, and Anke Weber (2012), "Fiscal Rules at a Glance: Country Details from a New Dataset", IMF Working Paper, November.

In case of emerging economies with the exception of Chile, Columbia and Panama, the concept of cyclically adjusted balances has remained mostly an unexplored area of research⁴. Studies both within and outside the Government have estimated the cyclically adjusted budget balance of the government as an alternative fiscal indicator that can contribute to more effective fiscal policy and fiscal analysis. Among the BRIC nations, none have shifted to the IMF concept of cyclically adjusted balances in their fiscal assessment/rules. Unlike China, Russia and India, there is, however, extensive research in this area for Brazil using the OECD methodology since 2006 and the IMF methodology since 2010 whereby budget balances have

⁴ Apart from the technical aspects, one probable reason could be that automatic stabilizers tend to be smaller in these economies vis-à-vis their advanced counterparts, thus, leading to a lesser difference between the actual and cyclically adjusted balances.

been adjusted for both cyclicalities of GDP and oil revenues [Mello *et al* (2006), Gobetti *et al* (2010)].

In case of India, a lot of literature is devoted to assessing the cyclical nature of fiscal policy. Empirical evidence generally points out that fiscal policy in India has been procyclical over a long period of time. This procyclicity, however, tends to have reduced in recent time periods as central government undertook significant countercyclical measures during the 2008 downturn accompanying the global financial crisis (Reserve Bank of India, 2013). Some early attempts had been made to estimate the structural balances for the period 1980s and 1990s, albeit with a simplistic technique of applying HP filter on the revenue and expenditure series to get the cyclically adjusted variables or with a different objective to show the small size of the cyclical deficit (Rangarajan and Srivastava, 2004, RBI, 2001). With debt GDP ratio remaining high then, cyclical adjustment of fiscal policy was generally considered less suitable and remained unpopular (Rangarajan and Subbarao, 2007). A more recent attempt has also been made to estimate the extent of automatic stabilizers which, was found to be about 0.5 per cent of GDP for India in 2008-09. While this was on the lower side when compared with those in the advanced economies, it was comparable with those in EMEs such as Brazil, China, Indonesia, and South Africa (RBI, 2009). The IMF since 2012 has been providing estimates of cyclically adjusted balances (as percentage of potential GDP) of several countries including India for the post crisis period.

III. Computing the Fiscal Stance - Methodology

The paper essentially draws on the methodology prescribed in the IMF Technical Notes and Manual (Fedelino *et al* 2009). The overall fiscal balance (OB) is decomposed into primary balance less interest payments. We consider primary balance, which essentially reflects whether there are enough funds to pay back at least the interest payments. Otherwise, the entity has to borrow to pay the past interest payments. Primary balance can be further decomposed into (1) cyclical primary balance, which is that part of the primary balance that reacts to the cycle and (2) cyclically adjusted primary balance, or the trend component, after adjusting for cyclical primary balances. It is the latter that represents the actual nature of fiscal policy. Interest payments are often kept out of the calculation of fiscal stance since it is neither autonomous nor discretionary in the current period, largely being a reflection of past debts. It is not “automatic” as it may not be correlated with cyclical output changes.

Accordingly, we decompose the overall fiscal balance and the changes in the same into three components, (i) the automatic response of fiscal variables to changes in output; (ii) the response of fiscal variables to changes in discretionary policy; and (iii) changes in interest payments

$$OB = PB - INT = CAPB + CPB - INT \dots\dots\dots(1)$$

$$\Delta OB = \Delta CPB + \Delta CAPB - \Delta INT \dots\dots\dots(2)$$

where *OB* is overall balance, *PB* is primary balance, *CAPB* is the cyclically adjusted primary balance, *CPB* is the cyclical primary balance, *INT* is interest payments and Δ is the difference between two consecutive years, *t* and *t+1*⁵.

In order to assess and analyse the nature of fiscal policy over the business cycle (s), instead of overall balance, we considered the cyclically adjusted primary balance, as it is independent of the output related fluctuations, fiscal policy and interest payments. We derived the cyclically adjusted primary balance from cyclically adjusted revenue and expenditure. The equation relating adjusted revenues (*R**) to actual revenues (*R*) and adjusted expenditures (*G**) to actual expenditures (*G*) can be written as

$$R_i = R_i^* (Y/Y^*)^{\epsilon_i} \dots\dots\dots(3)$$

$$G = G^* (Y/Y^*)^n \dots\dots\dots(4)$$

Where ϵ_i is the elasticity of revenue category *i* to output gap (as defined by Y/Y^*) and *n* is the elasticity of spending to output gap (as defined above Y/Y^*). It may be noted that $R_i = R_i^*$ if $Y=Y^*$. If, however, economy is booming, i.e., $Y \geq Y^*$ implies $R_i \geq R_i^*$ leading to more revenue generation and vice versa. Based on the above set of regression, the cyclically-adjusted balance (*b**) can be derived as follows:

$$b^* = [(\sum R_i^* - G^* + \xi)] / Y^*$$

$$b^* = [(\sum R_i (Y/Y^*)^{\epsilon_i}) - G (Y/Y^*)^n + \xi] / Y^* \dots\dots\dots(5)$$

where ξ is excluded revenue and spending categories such as net interest spending⁶.

The cyclically adjusted primary balance (*b**) is often measured in relation to potential output—the “natural” scaling variable, since cyclically adjusted balances measure what the fiscal balance would have been if the output had been at its potential level. While appealing in principle, given the difficulty and debate surrounding potential output, it is rarely used by policy makers and fiscal analysis is typically based on ratios to nominal GDP. Our paper attempts to analyze this tradeoff between analytical rigor, when potential GDP is used, (IMF, 2005, Fedelino et al

⁵ It may be noted that the IMF definition is expressed in terms of balances. Accordingly, primary balances equal overall balance plus interest payments. The same definition when expressed in terms of deficit, as usually used in India, primary deficit will equal overall deficit less interest payments. Both the definitions are consistent.

⁶ *R_i* = actual tax revenues for the *i*-th category of tax
*R_i** = cyclically adjusted tax revenues for the *i*-th category of tax
G = actual non-interest government expenditures
*G** = cyclically adjusted non-interest government expenditures
Y = level of actual output
*Y** = level of potential output
 ϵ_i = elasticity of revenue category *i* to output gap (as defined by Y/Y^*)
n = elasticity of spending to output gap (as defined by Y/Y^*)

2009) and convenience of commonly used indicators, when nominal GDP is used, for the Indian economy.

i) Calculating the Fiscal Stance and Fiscal Impulse

The fiscal stance quantifies aggregate demand management through fiscal policy. It attempts to measure the discretionary part of changes in fiscal policy that is independent of business cycles and interest payments⁷.

$$FS = \text{minus CAPB} \dots\dots\dots(6)$$

CAPB \leq 0 implies FS \geq 0 (expansionary)

CAPB \geq 0 implies FS \leq 0 (contractionary)

Fiscal Impulse (FI) is essentially the first difference of the fiscal stance (Heller et al, 1986) i.e.,

$$FI = \Delta FS \dots\dots\dots(7)$$

In this context, it may be noted that fiscal impulse measure is designed to determine the magnitude of the change in budgetary stance – that is whether budgets are moving towards expansion or contraction rather than what the effect of the budget is on the overall economy. Thus, a contractionary budget which becomes less contractionary and an expansionary budget which becomes more expansionary will both yield a positive fiscal impulse.

IV. Estimating the Fiscal Stance and Impulse in India

i. Data

All data on GDP at factor cost and market prices at current/constant prices and central government and combined general government expenditure, revenue and interest payments are taken from the ‘Handbook of Statistics of the Indian Economy’, published by the Reserve Bank of India. While calculation of potential output and elasticity are based on the data covering the period from 1970-71 to 2013-14, the fiscal stance and fiscal impulse has been estimated only for the post-reform period from 1990-91 onwards till 2013-14.

ii. Estimation of Potential Output and Elasticities

Before computing the fiscal stance and the CAPB for India, we need to estimate output gap (i.e., actual output relative to its potential) and sensitivity / elasticity of revenues and spending to that gap. The OECD has estimated different elasticities for different components of tax revenues. Fedelino et al 2009, however, uses constant unitary elasticity of revenue with respect to the output gap and zero elasticity of spending stating that even though an approximation, these elasticities are close to those estimated for OECD countries. For estimating the elasticity

⁷ Fiscal stance calculations implicitly assume that the impact of revenues, public consumption expenditures and public transfers on domestic demand are all equal and there are no supply side effects.

parameter for this study, we had two alternatives: (1) assuming some aggregate elasticity values based on literature (IMF way) or (2) estimating using econometric procedure component wise elasticity (OECD way). We have preferred to adopt the middle path i.e., using aggregate elasticity as done by IMF but estimating it using econometric methods. Reason being that elasticity estimates used by the IMF/OECD have not been tested for Indian data. Hence, it may be better to have an indigenous estimate of India's fiscal revenues/expenditure response to cycle. Given that this is a first ever attempt to estimate CAPB for India using this technique, we thought it better to start with an aggregate methodology and substantiate with component wise elasticity at a later stage.

As the suggested by literature, we attempt to estimate potential output, primary revenue and government expenditures normalized by potential output and corresponding revenue and expenditure elasticities. The path of maximum sustainable output consistent with stable price level is generally referred as potential output. It is unobserved and therefore debates surround the estimation of potential output, and cyclical component (i.e. the gap between actual and potential output). While there has been several methods used for the estimation of potential output, which include both univariate and multivariate approaches, we used univariate Christiano-Fitzgerald (CF) band pass method, which is a finite sample one sided approximation of the band pass filter. The main advantage of CF method is that this leads to filtered series calculation without missing observation at the beginning and end of the sample period. Moreover, these authors have demonstrated how CF-filter outperforms the Baxter-King filter at low frequency with US data.

To choose the periodicity for the band pass, we use spectral analysis of GDP growth rate and estimate potential output (Y^*) using CF methodology and the ratio series (Y/ Y^*) as a representation of cyclical component of GDP for India. After dividing each side of the equation by potential output, we take logarithm of equation (3) and (4), to estimate long term revenue (less interest receipts) and primary expenditure elasticities with respect to economic cycles. The OLS regression results are reported in the Table- 1 (column 2, 3).

Our estimate using nominal revenue and GDP at factor cost at current prices after appropriate adjustment (as in the IMF-manual) suggests a revenue elasticity of 1.5, which is statistically significantly different from zero at the conventional level (Table 2). The estimate for the expenditure elasticity, however, was not significantly different from zero. These results are in line with the estimates computed for Brazil (Oreng, 2012), the only other BRICs country to have calculated the same, but higher than the value compared with those estimated for OECD countries.

Table 2: Estimates of Revenue and Expenditure Elasticity

| | CF-method, Nominal Variables | | CF-method, Real Variables | |
|-----------------------|---------------------------------|------------------------|------------------------------|------------------------|
| | Ln(R/ Y [*]) | Ln(G/ Y [*]) | Ln(R/ Y [*]) | Ln(G/ Y [*]) |
| (1) | (2) | (3) | (4) | (5) |
| C | -2.4 | -1.4 | -2.4 | 1.9 |
| Ln(Y/Y [*]) | 1.5** | 0.08 | 1.8* | -0.4 |
| R ² | 0.27 | 0.01 | 0.25 | 0.01 |

Estimated $\ln(R^*/Y^*) = c + \varepsilon \ln(Y/Y^*) + \zeta$; where ε is the elasticity. Similarly for Govt. Spending. R_i^* = cyclically adjusted tax revenues for the i -th category of tax; G^* = cyclically adjusted non-interest government expenditures; Y = level of actual output; Y^* = level of potential output; ε_i = elasticity of revenue category i to output gap (as defined by Y/Y^*); n = elasticity of spending to output gap (as defined by Y/Y^*). Estimates for ε_i and n are long run elasticities, exogenous dummy variable used for post 1985 period; residuals for the revenue equations didn't have unit root at conventional level of significance.

The evidence of elastic revenues could be a reflection of the growing formalisation of the Indian economy. The share of tax revenues to total revenue receipts in India has increased from 72 per cent in the 1990s to 75 per cent in the 2000s to about 84 per cent during first three years of the current decade. It also largely depends on the nature and the structure of the tax system. The personal income tax is generally progressive, being characterised by a statutory rate, which rises with income. Corporation tax is also generally progressive. For indirect taxes, two opposite effects weigh on the value of the elasticity. On the one hand, ad valorem indirect taxes such as the value added tax may have a progressive element to the extent that higher rates apply to more income-elastic parts of the base. Specific taxes, which are determined by real consumption only and do not account for price movements, may be regressive. The low value of expenditure elasticity, on the other hand, suggests that the sensitivity of the share of public expenditures (ratio of public expenditure to potential output) to output gap is limited in India during the sample period under considerations⁸.

⁸ This is in line with international estimates. OECD that has estimated this elasticity only for the unemployment benefits assuming that rest all expenditures do not fluctuate with output in an automatic manner finds it to be close to zero or small. The IMF has assumed this elasticity to be zero stating that most of the cyclical spending is not correlated to the output gap, with the exception of items like unemployment benefits, which represent a small share of total spending in most countries, if at all (Fedelino, 2009). This elasticity is also assumed to be zero for Brazil (Oreng, 2012). In case of India, given large revenue component of expenditure and negligible automatic expenditure component, zero elasticity is observable. It may be noted that this result does not rule out the possibility of discretionary expenditures responding to output fluctuations with their corresponding multiplier effect on output.

While the above estimates are on the basis of macroeconomic variables in current prices, we also estimated the same equations at real values, i.e. after deflating revenue and expenditure using GDP deflator and by using GDP at factor cost at constant prices, estimating potential GDP from the same. Among the estimated elasticities, while the revenue elastic was positive and significantly different from zero, the expenditure elasticity was statistically not significantly different from zero suggesting inelastic government expenditure pattern over the business cycle⁹.

We also use Hodrick-Prescott (1980s) smoothing procedure-which is widely used among the macroeconomists to estimate long term trend component-as an alternative measure of potential output. This also ensures comparability with IMF data as IMF uses HP filter based potential output. As HP-methodology is often criticized in the presence of end of the sample extreme observation (Hervey and Jaeger, 1993), we also use frequency power rule of Ravn and Uhlig (2002) which recommended using a power value of 4 in the HP-penalty factor (λ) specification. These estimates help us to generate alternative of steady state level of output (or potential output) for Indian economy. Finally, we used unobserved component method (UCM) approach Harvey (1989) to separate a stochastic trend component (potential output) and a cyclical component. Watson (1986) and its application by Bordoloi *et. al* (2009) and Vineet, the trend component is assumed to follow a random walk with a drift and the stationary cyclical component is a AR(2) process¹⁰. These alternative estimates of potential output help us to generate alternative scenarios of fiscal stance and impulses for India and to examine robustness of our conclusions. The multivariate options to estimate potential output is to estimate aggregate production functions with suitably adjusted estimates of the levels of different factors of production or structural VaR method. However, in an emerging economy context with large informal sector and unorganized labour employment, estimates using these methods have been avoided.

iii. Computing the Fiscal Stance and Impulse for India

Based on the output gap as calculated above and the estimated elasticities of revenues and expenditures to output gap, the cyclically adjusted revenues and cyclically adjusted overall and primary expenditures for India has been computed for the period 1990-91 to 2013-14 using equations 3 and 4¹¹. Considering that it is the central government that is more pro-actively involved in pursuing expansionary fiscal policies during recessions and vice-versa, our analysis is generally restricted to the

⁹ A deflator based on Government final consumption expenditure (base 2004-05=100) was also tried. The estimated elasticities turned out to be close to those estimated using GDP deflator.

¹⁰ $Y_t = Y_t^* + \zeta_t$

$Y_t^* = \alpha + Y_{t-1}^* + \eta_t$

$\zeta_t = \phi_1 \zeta_{t-1} + \phi_2 \zeta_{t-2} + \varepsilon_t$

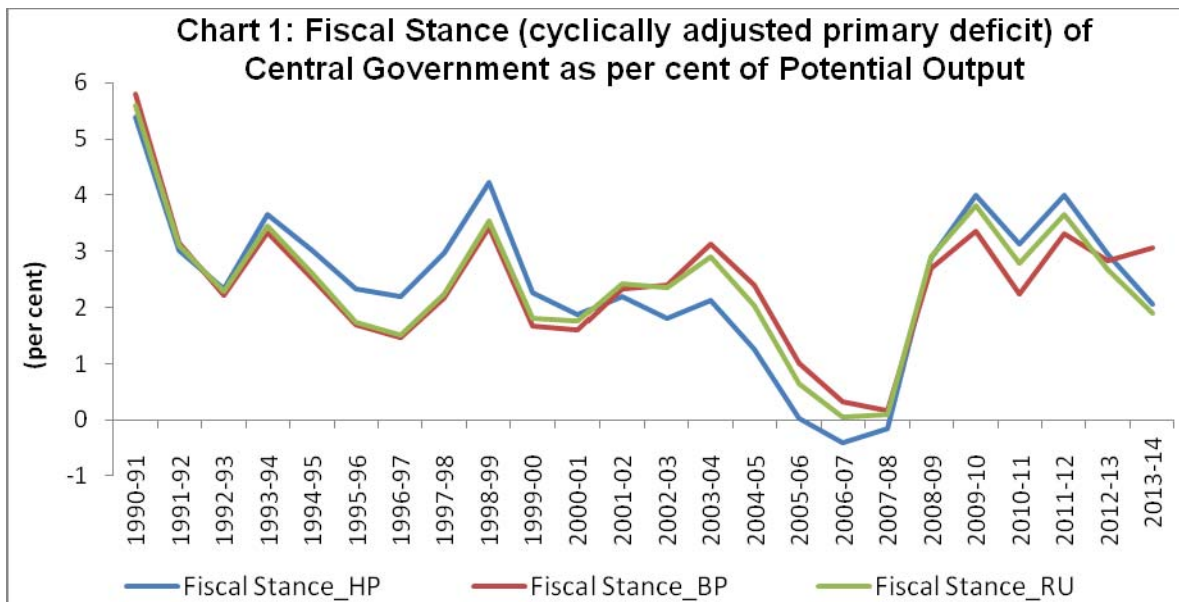
¹¹ It may be noted that in doing so, the IMF methodology has been used whereby on the revenue side, total revenue receipts has been taken and on the expenditure side, total expenditures and total expenditures less interest payments have been taken to compute overall and primary balances.

analysis of the central government budget balance. Using equation 5, cyclically adjusted primary balance for the central Government has been computed. Then, equations 6 and 7 are used to arrive at the fiscal stance and fiscal impulse for India. Results are shown in Charts 1 and 2.

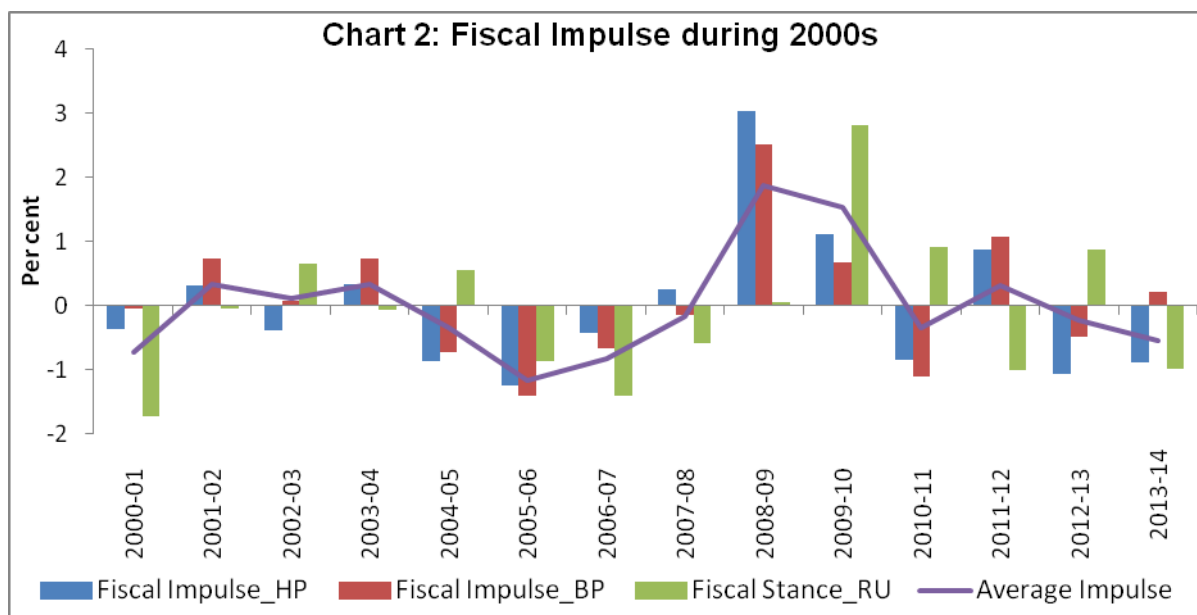
Chart 1 shows that India's fiscal stance as reflected by the cyclically adjusted primary deficit (CAPB) continued to reduce its expansionary stance during the immediate post-reform period till about 1996-97. This broadly matches with the fiscal dynamics in India. Post BoP crisis of 1991, India went in for broad based economic reforms including fiscal reforms. Containing the deficit was one of the key structural adjustments undertaken by the Indian Government at that time which helped reduce fiscal deficit. A sharp increase in government salaries and pensions in line with pay commission recommendations starting 1996-97 halted the process of fiscal improvement until about 2003-04 that got reflected in the fiscal stance for this period which marks a sharp increase using both the approaches. With the enactment of the FRBM Act 2003 by the Government, fiscal discipline was brought about in a gradual manner¹². Looking at the fiscal stance, it clearly remained close to zero implying neutral fiscal stance during 2006-07 and 2007-08. The fact that CAPB was close to zero during this period also rules out all apprehensions that fiscal consolidation seen in this period was associated with high growth.

In the aftermath of the global financial crisis, the Union Government in line with global trends adopted fiscal stimulus measures to counter the loss of confidence that could have rapidly caused a downward spiral in the domestic economy. Accordingly the fiscal stance also changed gears from being neutral to very expansionary in 2008-09 with the levels of expansion being close to 1997-98 levels, in cyclically adjusted terms. The size of the discretionary fiscal stimulus varied in the range of 2.7-4.0 per cent of the potential GDP during 2008-09 to 2009-10. Notwithstanding slight moderation since then, the expansionary fiscal stance of the central government has continued in subsequent years as well even though growth rebounded. Discounting the impact of growth on revenues and correcting for interest payments, primary balance was still above ₹ 2 trillion, close to about 2.4-3.3 per cent of potential GDP during 2010-12. Even though growth has slowed down in the last two years, the space for loosening fiscal policy in response to a growth slowdown is limited because of the slow withdrawal of stimulus post crisis. Focus has to be then on high-multiplier items such as indirect taxes and backlogged capital projects, rather than additional subsidies. During 2013-14, if the budget estimates are realized, it would reduce the expansionary fiscal stance by about 1 per cent. However, in terms of fiscal stance based on Band-pass output gap approach, which is our baseline approach, the stimulus withdrawal as projected for 2013-14 may not be significant.

¹² Central Government was ahead of its target when it was able to achieve a fiscal deficit to GDP ratio of 2.5 per cent in 2007-08 (ahead of the target of 3 per cent of GDP).



The change in fiscal stance that essentially shows the fiscal impulse given to the economy remained close to zero or negative during most of 2000. However, since 2008-09 it increased, reached its peak, and remained strong during 2008-10 (Chart 2). Although the fiscal stance remains expansionary post 2008-09 (Chart 1), the fiscal impulse shows some toning down in the recent period, thus providing some comfort.



iv) Comparability with Official data

As mentioned earlier, we have followed in this paper the IMF methodology to calculate the cyclically adjusted primary balance. It may be noted that these are not strictly comparable with that of the gross primary deficit of the central Government for two reasons: (1) because of the way the revenues are taken, some of the non-debt capital receipts such as disinvestment proceeds, small savings/provident funds etc are included as part of official primary balance and (2) the scaling variable used in the official primary balance is actual output as against potential output for IMF

methodology. In order to ensure comparability with official data, fiscal stance was calculated for India adjusting for (1) above for the central government¹³. Results are reported in Table 3. This clearly shows that after exhibiting primary surpluses in 2007-08, central fiscal position deteriorated in 2008-09 because of the fiscal stimulus measures. Adjusting for the growth slow-down in 2008-09, deterioration in primary balances was lower. The difference is due to the operation of automatic stabilizer which is found to be about 0.3-0.5 in 2008-09. This is in line with earlier estimates of automatic stabilizer for India for 2008-09. Gradually, however, the positive gap between actual primary balance and cyclically adjusted one is getting reduced, and at times it is higher than actual primary balance indicating that after adjusting for cyclical affects, fiscal stance could be more expansionary than what the official data shows. Also, the withdrawal of stimulus since 2008-09 could be lower than what is observed till about 2012-13. However, by all estimates and the official data, stimulus withdrawal is quite high as per budget estimates 2013-14.

Table 3: Primary Deficit Indicators: Official vs Cyclically Adjusted

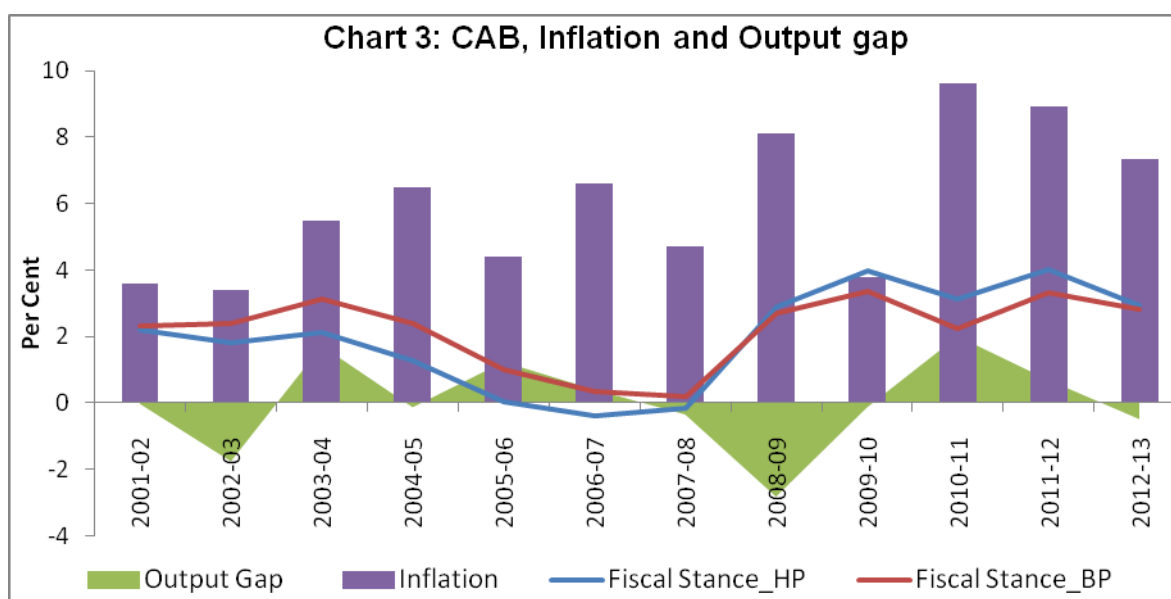
| | Official Primary Deficit# | Fiscal Stance_BP* | Fiscal Stance_HP* | Fiscal Stance_RU* |
|--|---------------------------|-------------------|-------------------|-------------------|
| 2006-07 | -0.2 | 0.1 | -0.6 | -0.1 |
| 2007-08 | -0.9 | -0.8 | -1.2 | -0.9 |
| 2008-09 | 2.6 | 2.1 | 2.3 | 2.3 |
| 2009-10 | 3.2 | 2.8 | 3.4 | 3.2 |
| 2010-11 | 1.8 | 1.5 | 2.4 | 2.0 |
| 2011-12 | 2.7 | 2.5 | 3.2 | 2.9 |
| 2012-13 | 2.0 | 2.4 | 2.5 | 2.3 |
| 2013-14 | 1.5 | 2.1 | 1.0 | 0.9 |
| #: Official primary balance is scaled by actual output | | | | |
| *: fiscal stance is scaled by potential output. | | | | |

v) Fiscal Stance, Output Gap and Inflation

The impact of fiscal deficit on economic growth has been extensively debated in the literature. While Keynesians support the positive 'crowding in' impact of fiscal deficit (i.e., increase in fiscal deficit due to public sector investment, especially in infrastructure, stimulates growth in the private sector), classical economists argue that it crowds out private investment through an increase in interest rates and could have considerable inflationary impact on the economy, depending on supply bottlenecks. In an open economy, higher public investment leads to higher capital inflows and a real appreciation of the currency, which results in lower net exports and, again, a reduction in economic activity (Kumar and Soumya, 2010). Research in the Indian case shows that public investment in manufacturing appears to adversely affect private investment. However, government expenditure on infrastructure crowds in private investment (RBI, 2001).

¹³ Total capital receipts less market borrowing has been added.

In retrospect, looking at the 5-years period, 2008-09 to 2012-13, cyclically adjusted primary balance clearly indicates an expansionary fiscal policy pursued by the Government. Growth after rebounding for two years 2009-10 and 2010-11 has moderated since 2011-12. There has been a significant moderation in investment, particularly infra investment, which is considered more productive. Thus, while the negative output gap as witnessed during the crisis times has reduced significantly; the fiscal stance continues to be expansionary, with very limited withdrawal of stimulus, albeit with a reduction in the impulse (Chart -3). It may be mentioned that India has experienced high and persistent inflation during 2010-12, notwithstanding global slowdown and depressed commodity prices. Inflation has somewhat ebbed in 2012-13, though remaining above the Reserve Bank's comfort zone.

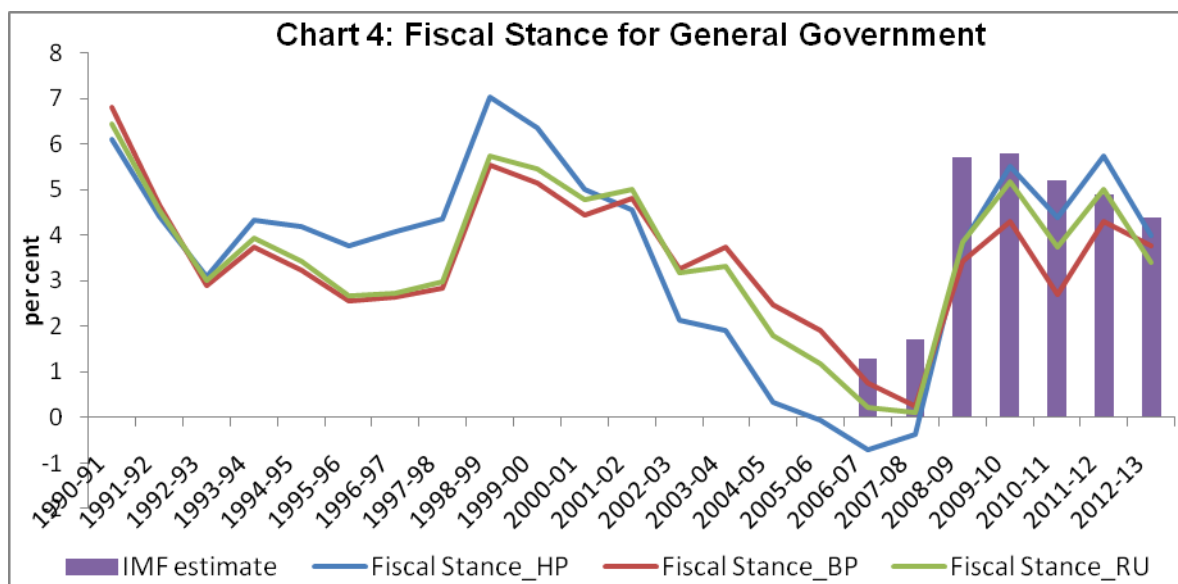


vi) Robustness check: Comparability with IMF data

The IMF has started giving cyclically adjusted primary balance for India (General Government) in its last few Fiscal Monitors along with other countries, though it uses a common set of elasticity estimates for the emerging market economies¹⁴. To check the consistency of our estimates with the IMF estimates, we compared and found that cyclically adjusted overall balance (CAOB) for the general government in the post crisis period is in the range of 9-10 per cent, broadly in line with the IMF estimates given in its Fiscal Monitor, April 2013¹⁵. Moreover the Cyclically adjusted primary balance (CAPB) is found to be expansionary for general government to the tune of 4-5 per cent of potential output during post crisis period, broadly in line with IMF estimates (Chart 4).

¹⁴ Besides, the exchange rate impact could also be there, as the IMF converts all data (fiscal and output data) into US \$ terms for comparability across countries.

¹⁵ As State Government data is available till 2012-13, the general government analysis is restricted till this period.



While the analytical merits to this exercise are many, there are certain technical limitations to this exercise. First, this approach depends significantly on the potential output estimates, which are used to identify the cyclical component of revenue and expenditures. Recognising this, this paper has tried to use different approaches to estimate potential output. Even though numbers differ, the broad trend and the broad orders of magnitude remain the same across approaches.

V. Conclusions and Policy Implications

We have attempted to disentangle the impact of business cycles on government budgets using the IMF methodology of calculation of the fiscal stance. Fiscal stance as reflected in the cyclically adjusted primary deficit rose significantly in 2008-09 as government eased fiscal policy aggressively in reaction to global financial crisis and the consequent slowdown of the Indian economy. Subsequent years have seen only part of this stimulus being withdrawn. Quantifying the fiscal stance for India, one observes that it increased from zero in 2006-07 to about 3-4 per cent in 2008-10. In the subsequent period 2010-12, it continued to remain around 3 per cent of potential GDP, as per different estimates. The budget estimates for 2013-14, if achieved will somewhat reduce the extent of fiscal expansionary stance. However, the fiscal deficit for the first nine months indicates that for government to meet its deficit targets, significant expenditure compression might be required in the coming months. Improving the quality of expenditures and speeding up the tax reforms are the way out to achieve fiscal consolidation in the current low growth phase.

The fiscal impulse, that essentially reflects the change in fiscal stance, is toning down in recent years, which is a positive development given that inflation remains high. Thus, there is considerable merit in continuing with the Government policy of tightening fiscal stance given the fact that there is scope for it. This calls for further institutional reforms to provide a more binding framework of fiscal rules that can withstand business and electoral cycles (RCF, RBI, 2013). An expansionary

fiscal stance continuously for about 5 years reduces the space for a revival in private spending, without quickly rekindling inflationary pressures. Thus, an enduring reduction in fiscal deficits can reduce fiscal dominance and enable monetary policy to play a better role as have been emphasized in the monetary policy documents of the Reserve Bank and various other RBI publications.

Going forward, one could explore and estimate different elasticities for different components of revenues/expenditures to get the cyclically adjusted revenues as has been done by OECD.

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