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Debt Sustainability of A Sub-national Government:

An Assessment of the State Finances of Uttar Pradesh

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Abstract

Serious deterioration in government fiscal finances in the late 1990s and early 2000s asked for prudent fiscal management. The fiscal deterioration of 1990s and 2000s led to elevated levels of debt liabilities at both the national and sub-national level. Uttar Pradesh (UP) fiscal position during 1990s and 2000s was one of the most vulnerable. Fiscal and revenue deficit and debt levels were appallingly high creating unmanageable pressure on fiscal finances. The UP government has enacted its FRBMA in 2004 with the aim to arrest rising deficits and debt which mandated reduction in deficit and debt levels within a limit in a given time frame. The sustainability analysis has been made in the current study to capture the effect of reforms on debt position and to assess sustainability of debts in pre and post FRBMA years.

Key Words: Debt Sustainability, Sub-national Government, State Finances, FRBM Act.

JEL Classification: H62, H63, H72.

I- Introduction

"*The history of crisis modeling in international macroeconomics reveals that each successive wave of crises exposes possibilities for crisis that were overlooked in earlier analysis.*"

P. Krugman, (2006, 26)

With the growing literature on public economics, the debate on *pros and cons* of fiscal debts is also growing. It is argued that debts, particularly, fiscal debts are not undesirable, especially, in developing countries like India where revenue resources are seriously constrained. There is general consensus among the researchers that there is need to contain debt within manageable limits (e.g. Maastricht Treaty 1991) rather than eliminating it at any economic cost. Rangarajan and Subbarao (2007) argued *'It must be acknowledged upfront that fiscal deficits are not bad per se. In fact, they may be necessary, even desirable in some situations. The issues, therefore, are not whether or not there should be fiscal deficit, but its appropriate level.*' Endorsing the philosophy of manageable level of debts, there are several studies focusing on finding manageable or, particularly, sustainable level of debt at national and sub-national level.

One distinct feature that has emerged from the recent literature is that the sustainability of sub-national government (SNG) debts is equally important with sustainability of national government debt. The debt sustainability of SNGs is more crucial, especially, in a political setup like India. Conuto and Liu (2010) stated three main factors for this escalating importance of SNG debt sustainability. First, in the process of decentralization, sub-national governments are increasingly entrusted with large expenditure responsibilities with limited freedom to raise revenue through user charges or market borrowings. Secondly, state governments are in immense pressure of supplying quality social and economic infrastructure elevated from rapid urbanisation and catching up by the states in overall development.

This has obligated the sub-national governments to undertake large borrowings. As debt servicing cost as well as benefits derived from the using infrastructure is spread across the generations, the inter-generational equity issue comes into the picture. Lastly, they stated that private capital has become an important source of sub-national finances and often compete with bank loans. In the context of India, in the nineties almost all the SNGs went through a difficult phase of state finances. In the post reform period, fiscal health, both at the Centre and in the states, had weakened progressively since the mid-90s. The combined fiscal deficit of the Centre and the states which was 9.3 percent of GDP in the 1990-91 declined to 6.3 percent in 1996-97 before returning to 9.0 percent in 1998-99 mainly owing to the impact of the Fifth Pay Commission award. The impact of year-on-year deficits shows up in the stock of debt and interest payment indicators. The debt-GDP ratio of the Center and states combined had increased from 64.9 percent in 1990-91 to 79.5 percent in 2005-06. Likewise, the ratio of interest payments to GDP had increased from 4.4 to 5.8 percent reflecting both higher debt stock as well as higher average interest rate (Singh 2004; Rangarajan and Subbarao 2007).

Following the philosophy of growth inductive fiscal management and to reduce stock of debt, Indian government has adopted fiscal rules strategy by enacting long awaited Fiscal Responsibility and Budget Management Act (FRBMA) in 2003 for prudent fiscal management. This act mandated the Central government to curtail its deficits and debts within prescribed limits. SNGs were also incentivised to adopt their own FRBMAs. The different Finance Commissions have offered various incentives *viz.* Debt Swap Scheme (DSS) and Debt Consolidation and Relief Facility (DCRF) to the SNGs which were linked to their adoption of FRBMA and fiscal performance. Acting in the response, almost all the SNGs have enacted their respective FRBMAs.

Against this background the current study aims to study the fiscal performance of the state in post-FRBMA period i.e. 2004-05 to 2012-13 and to assess the sustainability of debt position of the Uttar Pradesh government during the period of 1991-2012, especially, in the light of state's FRBMA and incentives linked therewith. The data for the current study is taken from the reports *Handbook of Statistics on State Government Finances – 2010, State Finances: A Study of Budgets (various issues)* published by Reserve Bank of India (RBI) and Uttar Pradesh government Budget papers. The gross state domestic product (GSDP) data is recorded from the Uttar Pradesh Government's *Rajya Aay Anuman (State Income Estimates) Reports*. However, the continuous income series at constant prices at one base year is not available. Besides, the State WPI series available in public domain has base year 1970-71. Hence, a continuous income series has been prepared through reverse splicing method. The current income values have been deflated by GSDP deflators (See Appendix 1 for detailed methodology).

The rest of the study is organised in the following manner. Section II presents a brief review of recent studies on state finances and debt sustainability. Section III gives an overview of fiscal reforms in the State alongwith FRBM Act/Rules-2004 and revision in the target dates as mandated by *Thirteenth Finance Commission (ThFC)*. In the IV section, state's key fiscal indicators with emerging trends in revenue and capital accounts in post-FRBMA period have been analysed. Section V gives an overview of debt and interest burden of the state. In section VI an outline of different measures to assess sustainability is discussed followed by empirical testing and elucidation of results. The final section VIII concludes the paper.

II- Review of Literature

Sustainability is a term that has been frequently used in the scholastic literature but with different connotations under different circumstances (Balassone and Franco 2000, Chalk and Hemming 2000). Customarily, fiscal sustainability has been assessed in terms of indicator analysis. This framework was first developed by Domar (1944) *which states that a necessary condition for sustainability is that growth rate of income must exceed the interest rate*. Subsequently, Buiter (1985) suggests a sustainable policy as one which is capable of keeping the ratio of public sector net worth to output at its current level. Broadly, sustainable level of debt refers to the level which can be serviced through future revenue without hampering the productivity and solvency of the government.

In the context of India, the analysis of debt sustainability assumed critical importance during the late 1980s, with sharp fiscal deterioration both at national as well as sub-national levels. However, most of the studies on debt sustainability in the Indian perspective have tended to be confined to the Central government finances or to state finances only at a consolidated level *viz.* Seshan (1987), Buiter and Patel (1992) Pattnaik (1996), RBI (1999, 2001, 2002 & 2013), Pattnaik, Prakash, & Misra (2004). Some of the recent studies on debt sustainability of states are worth mentioning here. Prasad, Goyal and Prakash (2003) were one of the initial authors focusing on the debt sustainability of the Indian states. They warned about the pace of debt rise and argued the policy responses would only reduce debt by 1-2 percent only. In a report submitted to the Twelfth Finance Commission by the Dholakia, Mohan and Karan (2004) addressed two main issues: first, defining sub-national debt to bring comparability across the SNGs and second, state-wise assessment of debt sustainability. Taking debt/GSDP ratio and debt/states own revenue ratio, they found yawning deterioration in SNGs debt position. Decomposing fiscal deficit into growth and fiscal behaviour components, they found that fiscal stance adopted by the SNGs was highly unsustainable. Regarding Uttar Pradesh, the Report suggested that although the current debt position is unsustainable but amenable to correction over time in fiscal stance, however, vulnerability is high because of risk posed by elevated levels of contingent liabilities.

Similar findings were reported by Rajaraman, Bhide and Pattnaik (2005). They noted a steep rise in debt/GSDP ratio of SNGs during 1992-2002. Uttar Pradesh was ranked among the group of second category states having high unsustainable levels of debt. Rath (2005) analyzing the fiscal development in Orissa found low level of development the root cause for poor tax base and tax revenues. Consequently, the state was largely dependent upon ways and means advances from the Reserve Bank of India (RBI) to meet their routine expenditures. The debt position of the state was above sustainable level. Sawhney (2005) found that fiscal position of the Punjab government was in difficult situations during 1990s. Tamilnadu also faced unsustainable level of debts during 1990s and in the early 2000s (Ianchovichina, Liu and Nagarajan 2007).

II.1 Approaches to Measure Debt Sustainability

Different approaches have been used to assess sustainability in different studies. Mainly three approaches are very common *viz.* Domar debt sustainability condition, sustainability indicators analysis and present value budget constraint approach (Buiter and Patel 1992; Khundrakpam 1998; RBI 1999, 2001, 2002 & 2013; Pattnaik, Prakash, & Misra 2004). Domar debt sustainability condition says that growth of income must exceed interest rate on outstanding debt, whereas, sustainability indicators analysis measures sustainability taking different revenue and capital account parameters into account. On the other hand, present value budget constraint approach looks at the sufficiency of future surpluses to meet out the current stock of debt. Some other methods like tax gap approach developed by Blanchard (1990) and Chouraqui *et al* (1990) was used by Pattnaik (1996), model based approach by RBI (2013) and Pattnaik, Prakash, & Misra (2004).

Nevertheless, it is clear that SNGs have had tough time regarding state finances during late nineties and early of 2000s. However, assessing debt sustainability at sub-national level is a very complex task. Inability to use seigoniorage finance, legal constraints to employ new taxes to raise revenue, lesser control over cost of borrowing and returns and dependence on central transfers pose some peculiar set of problems in assessing SNGs debt sustainability. SNGs also differ in their fiscal strategies, resource requirements, and level of development necessitating for tailor made fiscal reforms for each SNG. It is evident that though, some efforts have been made to capture debt sustainability at the sub-national level, yet, state specific detailed studies, by and large, are absent. While the issue of debt sustainability is a concern across all the states, their heterogeneity in terms of size, level of income and their financial position measured by various fiscal indicators and ability to raise resource on their own calls for varied policy initiatives (Rajaraman, Bhide and Pattnaik 2005).

III- Fiscal Reforms in the State and the FRBM Act

Major fiscal reforms in the Uttar Pradesh started during the mid-nineties. To tackle with the fiscal crisis of 1990s the state government issued a *White Paper on the Fiscal Situation* in conjunction with the budget of 1998-99. As per the White Paper, unprecedented high growth in revenue expenditure, low rate of capital formation, low returns on government investment and growing indebtedness were the major reasons for fiscal crisis. To improve state finances, the Paper suggested increasing user charge on the social services offered by the state government and restructuring of public sector units. Under the umbrella of the World Bank, the UP prepared a detailed programme of economic reforms including fiscal reforms including fiscal administration, restructuring of public sector units, power sector reforms, governance and civil reforms. In fact, UP was the first sub-national government to get a fiscal restructuring loan from the World Bank.

With 2000-01 budget, the UP government announced its Medium Term Fiscal Reform Policy (MTFRP) as part of the Memorandum of Understanding signed with Ministry of Finance, Government of India to get financial assistance for fiscal restructuring plan. The MTFRP aimed to reduce the fiscal deficit/GSDP from 7.5 percent to 3.3 percent during the period of 1998-99 and 2004-05. It was also planned to achieve primary surplus of 1 percent of GSDP from a deficit of 3.5 percent during the same period. However, major breakthrough came in 2004-05, when UP government enacted Fiscal Responsibility and Budget management Act.

Sub-national governments were directed and incentivised to consolidate their fiscal health under the legislative framework of the central FRBM Act. With the aim of ensuring fiscal solidity and sustainability while enhancing the scope of improving social and physical infrastructure as well as human development, the government of Uttar Pradesh has passed *Fiscal Responsibility and Budget Management Act in February 2004*. It emphasises, for this purpose, the need for achieving revenue surplus, attenuation in fiscal deficit and prudent management of debt. It envisioned limit on fiscal and revenue deficits as well as government guarantees. It envisaged fiscal targets for the state government to be achieved in the given time frame.

In particular, the State Government shall reduce revenue deficit to nil within a period of five financial years beginning from the Ist day of April 2004 and ending on the 31st day of March, 2009; reduce fiscal deficit to not more than three per cent of the estimated GSDP within the period referred to in the previous; not to give guarantee for any amount exceeding the limit stipulated under any rule or law of the State Government existing at the time of the coming into force of this Act or any rule or law to be made by the State Government subsequent to coming into the force of this Act; ensure within a period of fourteen financial years, beginning from the initial financial year on the 1st day of April, 2004, and ending on the 31st day of March, 2018 that the total liabilities at the end of the last financial year, do not exceed twenty-five per cent of the estimated Gross State Domestic Product for that year.

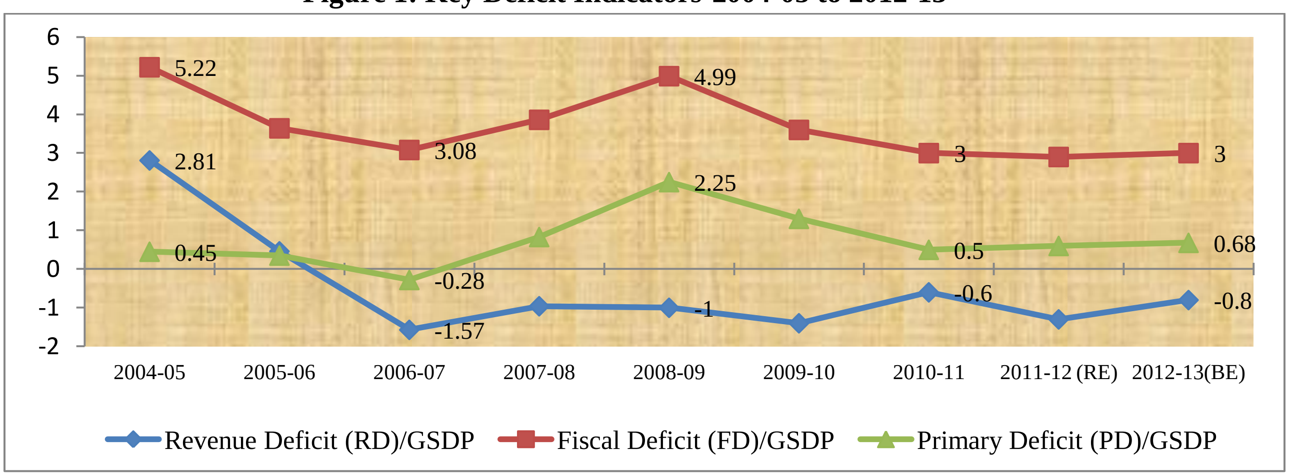
With the aim of achieving the targets within given time frame, Uttar Pradesh government started well and was much on the way of fiscal consolidation (table 1). Even, it recorded revenue surplus before the target year. However, all the state governments got off-track from fiscal consolidation path because of unprecedented effects of *Sixth Pay Commission Award*. Almost every state government finds tough to meet targets on time and were unable to achieve them. Simone and Topalova (2009) argued '*the fiscal consolidation has since been fully reversed, owing to a combination of spending measures introduced prior to the onset of the global crisis, a soaring subsidy bill, fiscal stimulus packages in response to the crisis, and a cyclical downturn in tax revenue*'. However, negative effects of the financial crisis and pay commission recommendations on the fiscal health of the governments are weakening now, and state governments, again, are reverting to their commitment of fiscal consolidation.

In 2011-12, all the SNGs as well as U.P. government announced their budgets aimed at resumption of fiscal consolidation process. The focus was more on expenditure control management against the backdrop of the rollback of fiscal stimulus measures and the tapering off of the impact of the Sixth Pay Commission Award. All States, with the exception of Goa, have amended their Fiscal Responsibility and Budget Management (FRBM) Acts/ Rules. Under the amended Acts, the State governments are aiming to eliminate revenue deficits and to bring about gradual reductions in fiscal deficit and debt levels latest by 2014-15, as was recommended by the *Thirteenth Finance Commission (ThFC)* (RBI 2012). Although, Uttar Pradesh government has not clearly mentioned revised revenue deficit target but stated to resume fiscal deficit of not more than 3 percent of estimated GSDP for every year from 2011-12 to 2014-15 and the total debt stock as percentage of GSDP to be maintained at 46.9 percent (2011-12), 45.1 percent (2012-13) and 41.9 percent (2014-15).

IV- State Finances in the Post-FRBM Period

As evident from the figure 1, there is an unanticipated turnaround in the state's finances after the introduction of fiscal rules based budget policy. All deficit indicators fell during the period 2004-05 and 2006-07 indicating State's commitment to consolidate its fiscal health as mandated by FRBM Act.

Figure 1: Key Deficit Indicators-2004-05 to 2012-13



It recorded surplus in the revenue account in the financial year 2006-07 (as against the target of zero revenue deficit up to 2008-09) and since then, continuously has a revenue surplus with slight deviations during in the post FRBM Act period. Adoption of the fiscal restraints resulted in the lower fiscal deficit of the state which declined upto 2006-07 to 3.08 percent but rose to 4.99 percent in 2008-09 (shooting-off the target of 3 percent of GSDP) because of sixth pay commission award.

Now, when the economy is on the recovery mode, fiscal deficit is declining and it is expected that in the financial year 2011-12, it would be around 2.90 percent of GSDP as against the target of 3.00 percent in the year 2014-15 as per revised dates. Knowing the fact that deficit aggregates are the outcome of the fiscal performance of the State, an analogous question may be asked that the twist in the fiscal health of the state government should be attributed to receipts' (revenue and/or capital) side or expenditures' (revenue and/or capital) side factors. A deeper look will get into the real matter. In next few paragraphs, an attempt has been made to find the reasons behind the turnaround in the fiscal health of the Uttar Pradesh government.

On revenue account, the U.P. government has performed well, revenue deficit turned into revenue surplus and the state government managed to maintain it throughout the period starting from the fiscal year 2006-07. This turnaround can be attributed to both receipts as well as expenditure side. While receipts have recorded rapid growth and it increases by 5 percentage points approx. during 2004-05 to 2011-12, expenditures have shown moderate increase of about 1 percent only during the same period (See Graph-2).

Table 1: Select Fiscal Indicators for Uttar Pradesh – 2005-13

Year	RD/GFD	CO/GFD	NL/GFD	NDE/AD	IP/RE	OTR/RE	ONTR/RE	GT/AD
2004-05	53.8	43.5	2.7	28.5	26.6	32.2	6.1	37.3
2005-06	12.6	86.4	1	35.5	19.5	40.5	6.3	41.4
2006-07	-51	145.4	5.5	33.3	18.8	41.3	11.7	41.9
2007-08	-25	122.9	2.1	31.1	16.6	38.3	8.9	43.8
2008-09	-9.1	108.9	0.1	29.3	15	37.7	8.9	41
2009-10	-37.7	134.2	3.5	34.1	13.4	37.9	15.2	40.6
2010-11	-20.30	117.50	2.8	36.4	13.2	38.4	10.4	43.9
2011-12 RE	-42.70	138.90	3.8	33.5	11.5	39.2	10.5	45.2
2012-13 BE	-27.30	125.10	2.2	35.1	10.9	40.6	9.3	44.2

Note- RD- Revenue Deficit; GFD- Gross Fiscal Deficit; CO- Capital Outlay; NL- Net Lending; NDE- Non Development Expenditure; IP – Interest Payments; Own Tax Revenues; ONTR- Own Non-Tax Revenues; RE- Revenue Expenditure; GT- Gross Transfer; AD – Aggregate Disbursement. Source: *State Finances: A Study of Budgets – Various Issues, Reserve Bank of India.*

Figure 2: Revenue Receipts *Vs.* Expenditure

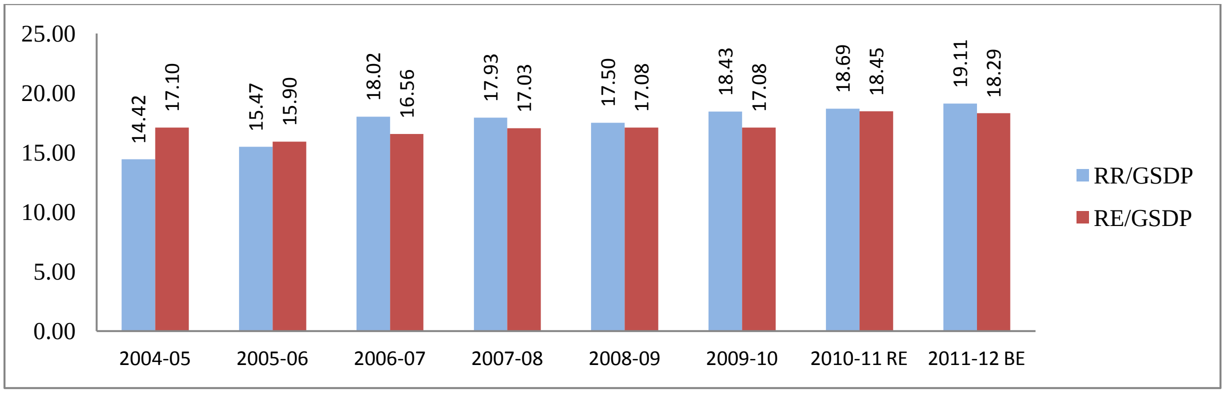


Figure 3.1- Tax Revenue (% of GSDP)

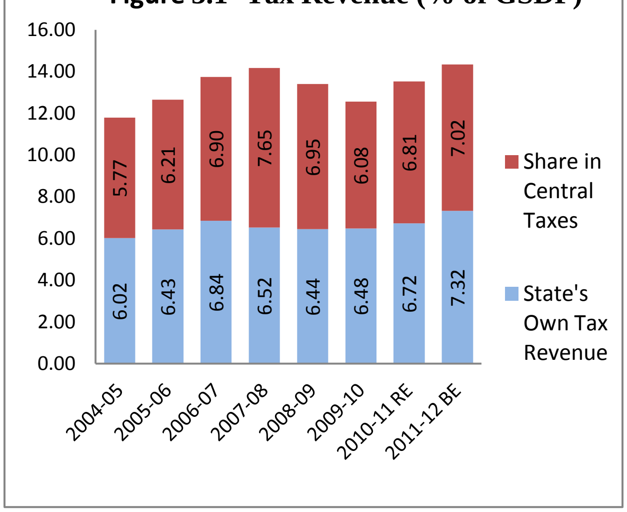
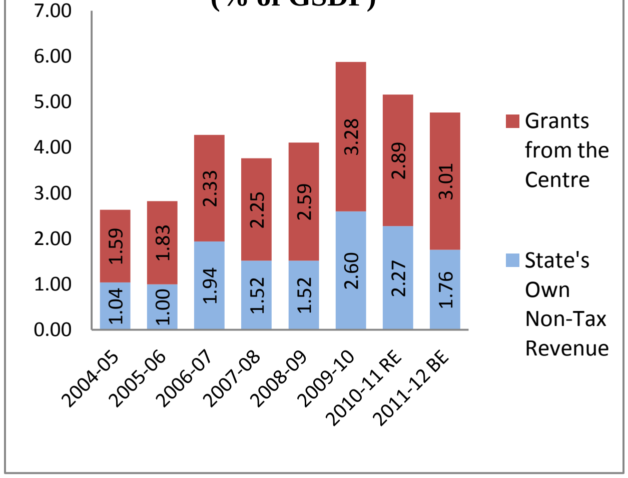


Figure3.2- Non- Tax Revenue (% of GSDP)



The increase in revenue receipts is basically pushed by both spurts in tax revenue as well as non-tax revenues. The states own tax revenue and share in central taxes are almost equally contributing to total tax revenue and have grown intandem with each other. However, in the case of non-tax revenue, grants from the center comprise about 3/5th of the total non-tax revenue. Though, there is substantial rise in both grants from the center as well as state's own non-tax revenue. Non-tax revenue just became double during 2004-05 to 2009-10, after there is bit decline due to slowdown in the economy.

On the other hand, while the state government was able to curtail its expenditures, it also became successful in diverting financial resources on development activities from non-development activities in post-FRBM period. The expenditure on development activities increased from 7.69 percent to 9.88 percent during 2004-05 to 2011-012. The resources have been made available by cutting expenditures on non-development activities as expenditures decline from 8.73 to 7.64 percent during the same period.

Figure 4: Revenue Expenditure

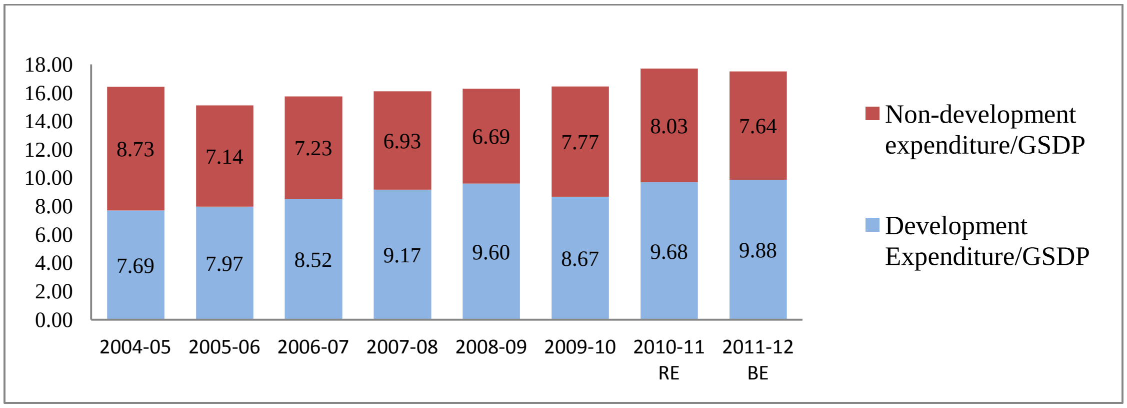
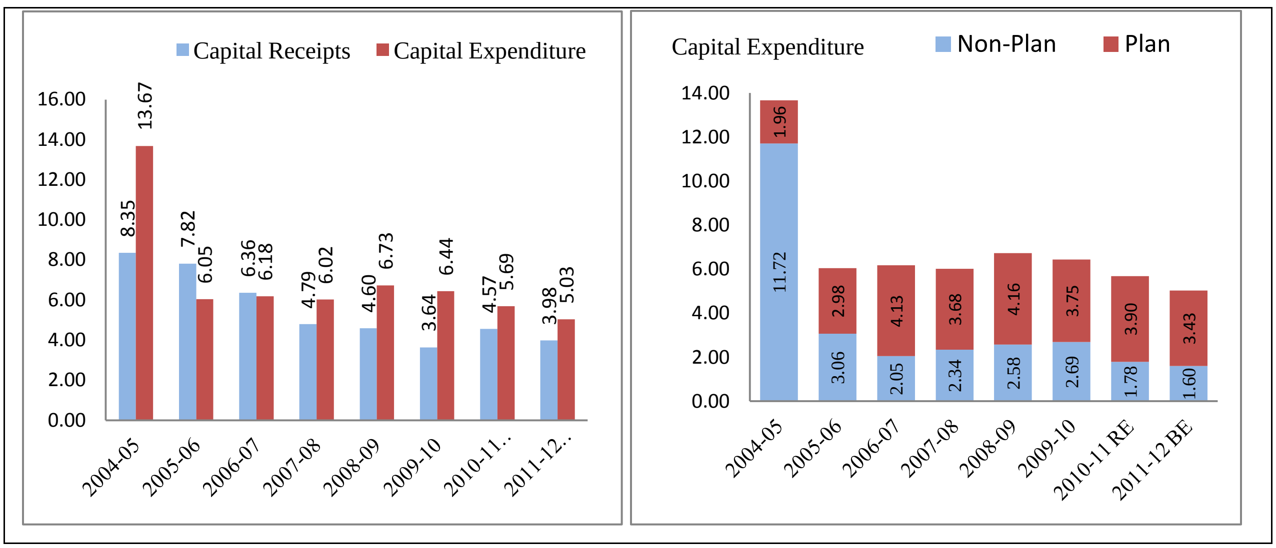


Figure 5: Capital Account (% of GSDP)



On capital account, both receipts and expenditure as percent to GSDP have significantly gone down. Capital receipts and expenditure came down from a high level of 8.35 and 13.67 percent in 2004-05 to 3.98 and 5.03 percent in 2011-12 respectively. However, the state is spending more on plan programmes than non-plan items. The non-plan expenditure decreases to 1.60 percent in 2011-12 as compared to 3.06 percent in 2005-06. On the contrary of this, the plan expenditure rose to 3.43 percent in 2011-12.

V- Debt Burden and Interest Liability of the State

As a consequence of good performance on revenue and capital receipts and moderate increase in revenue and capital expenditure, the debt burden of the state is on the decrease as evident from the debt-GSDP ratio and, consequently, the interest payments as percent of GSDP have also been declining. Table 2 illustrates the impact of public debt on the fiscal health of the state. In the year 2004-05, almost 40 percent of the revenue receipts went into payment of interest and remaining left to pay for other routine expenses. However, as percent of revenue expenditure, interest payments, consumed about 30 percent. But there has been decline in both - interest payment as percent of revenue receipts and revenue expenditures in post-FRBM Act period upto 2008-09, after that there has been a trivial improvement in the both.

The increase in interest payment during 2009-12 is the impact of monetary tightening (high lending rates creating more interest liability) and launching of fiscal stimulus to diminish the impact of the slowdown (forced the State to borrow more). As per revised dates for attaining fiscal rules, the state was supposed to maintain 46.9 percent debt-GSDP ratio in 2011-12 but UP is much ahead of the target. However, to achieve the target of reducing debt-GSDP ratio to 25 percent upto financial year 2017-18, the UP government needs to reduce its debt on an average by 2.18 percent of GSDP every year.

Table 2: Total Outstanding Debt and Interest Liability of the State (%)

Year	Outstanding Debt/ GSDP	IP/GSDP	IP/RR	IP/RE
2004-05	54.7	4.55	37.67	31.76
2005-06	52.2	3.10	25.88	25.17
2006-07	52.5	3.12	22.03	23.97
2007-08	49.9	2.82	20.21	21.28
2008-09	46.9	2.56	16.96	17.82
2009-10	43.5	2.29	17.48	18.86
2010-11	40.0	2.35	12.79	13.20
2011-12 (RE)	38.7	2.17	10.84	11.50
2012-13 (BE)	37.2	2.28	10.46	10.86

Note: RE- Revised estimates; BE- Budget Estimates; IP- Interest Payment; RR- Revenue Receipts; RE- Revenue Expenditure. Source: Calculated from the RBI data.

It is important to note that the reduction in debt and interest burden is effected by two factors. First and obvious reason is that fiscal rules policy and better economic performance. The second and equally significant is the relief given by the national government through DSS and DCRF schemes. The idea of granting debt reliefs was mooted by the different Finance Commissions

(FCs). However, from the Ninth FC, the commissions were mandated to review the debt conditions of the SNGs and to suggest curative measures. Ninth FC linked debt relief in relation to plane loans to performance in respect of investment made in infrastructure projects and improvements in financial and managerial efficiency. Next two FCs i.e. tenth and eleventh, associated debt relief with fiscal performance. However, Twelfth FC linked debt relief facility explicitly to rule based fiscal reforms. Moreover, incorporating heterogeneity aspects, the Twelfth FC suggested state specific approach in providing debt relief.

The central government launched two debt relief schemes *viz.* DSS and DCRF. DSS was in operation from 2002-03 to 2004-05 only. It was amide to swap high cost loans into low cost loans. It enabled SNGs to repay high cost loans contracted from the center, through low cost market borrowings and proceeds from small savings. Consequently, loans were swapped through additional market borrowing of the state and their net small savings proceeds at the prevailing interest rate over a period of three years ending in 2004-05 as per the laid conditions.

Table 3: Debt Amount of Uttar Pradesh Adjusted under the DSS and DCRF

(Amount in billions)

DEBT AMOUNT ADJUSTED UNDER DEBT SWAP SCHEME -2002-03 to 2004-05			
Outstanding high cost loan as on March 31, 2002			160.98
Outstanding high cost loans/outstanding debt as of end march 2002			16.80 %
Year	**Additional Open Market Borrowings**	**Small Savings Loans**	**Total**
2002-03	14.48	5.73	20.21
2003-04	30.88	17.98	48.86
2004-05	15.86	26.91	42.77
Total Debt Swapped till March 2005	61.22	50.62	111.84
DEBT RELIEF AND INTEREST RELIEF ON ACCOUNT OF THE DCRF – 2005-06 to 2009-10			
	Debt Consolidation		212.80
	Debt Relief		31.90
	Interest Relief		39.10

Source: State Finances: A Study of Budgets -2012-13, RBI.

On the other hand, the DCRF was recommended by the Twelfth FC. It had two components – Debt Consolidation and Debt write-off. Debt consolidation was offered for all central loans from the Ministry of Finance taken by the SNGs until March 31, 2004 and outstanding as on March 31, 2005 into fresh loans of 20 years to be repaid in 20 equal installments carrying an interest rate of 7.5 percent provided SNG concerned enacted its FRBMA. Repayments due from states during the period 2005-06 to 2009-10 on these loans were eligible for write-off. The total loans of UP swapped during the 2002-03 to 2004-05 amounted to Rs. 111.84 billion (16.80 percent of total outstanding debt), out of which Rs. 61.22 billion was through additional open market borrowings and Rs. 50.62 small savings loans. Additionally, during 2005-06 to 2009-10, the UP government was able to consolidate Rs. 212.80 billion and Rs.71.00 billion were written-off.

However, there were some pre-requisites to be eligible for the schemes. The amount to be written-off was linked to the absolute reduction of the revenue deficit reduced in each successive year during the award period as per prescribed formula. Besides, if a SNG was able to reduce revenue deficit to zero by 2008-09, the central repayments due from the SNG during the Twelfth FC award period were to be written-off. The facility excluded two categories of loans- loans in the form of the NSSFs investment in state government special securities and central loans given to state for centrally sponsored schemes other than the Ministry of Finance.

VI- Debt Sustainability at Sub-National Level: Analytics and Analysis

The debt sustainability of Uttar Pradesh government has been assessed by applying three commonly used approaches *viz.* Domar sustainability condition, sustainability indicators analysis, and present value budget constraints approach.

VI.1 Domar Debt Sustainability Condition

According to the Domar stability condition, to stabilize debt/GDP ratio (d/Y) rate of interest should be lower than the output growth ($r < g$). One of the basic conditions of Domar debt sustainability is that the level of primary deficit should remain the same or declining. As the fiscal deficit (F) is the total borrowing (net of repayment) required to service inherited debt and cover the primary deficit (P) (Rajaraman, Bhide, and Pattnaik 2005). The Domar stability condition has been defined as:

$$y - r > 0 \tag{1}$$

$$r_t = (IP)_t / (OD)_{t-1} \tag{2}$$

where:

y = Growth of GDP

r = Average interest rate

IP = interest payment

OD = Outstanding debt

t = Time period

Equation 1 and 2 imply that the debt/GDP ratio (d/Y) is stable if the GDP growth (g) exceeds the interest rate (r) on government debt. As fiscal deficit in a year is the current primary deficit plus interest liability inherited on the outstanding debt stock. Thus:

$$F_t = P_t + i^*D_{t-1} \tag{3}$$

In terms of ratio of GSDP (for the sub-national governments)

$$f_t = p_t + \frac{iD_{t-1}}{GSDP_{t-1}(1+n)} \tag{4}$$

$$f_t = p_t + \frac{id_{t-1}}{(1+n)} \tag{5}$$

Where pt = PD/GSDP in year t

n= growth rate of GSDP

f = FD/GSDP

Further, the total debt stock is added by the fiscal deficit incurred in a year, thus:

$$d_t = \frac{iD_{t-1}}{GSDP_{t-1}(1+n)} + f_t \tag{6}$$

Taking the above relationship, it can be rephrased as:

$$f_t = d_t - d_{t-1} = p_t + \left[\frac{D_{t-1}(1+i)}{GSDP_{t-1}(1+n)} - \frac{D_{t-1}}{GSDP_{t-1}}\right] \tag{7}$$

If the primary deficit is zero, and i = n, the difference between d_t and d_{t-1} will be reduced to zero and debt will be stabilised. Thus, with a zero primary deficit, borrowing to pay interest on inherited debt will not raise the debt stock as long as i = n. Reinstating the sustainability condition as:

$$d_t - d_{t-1}= d_{t-1}(i-n)+p_t \tag{8}$$

The case for debt stabilization is [d_t - d_{t-1}=0] and if it is zero. Then, we need:

$$p_t = - d_{t-1}[i-n] \tag{9}$$

It means that it is possible to stabilize debt with a positive primary deficit if growth in GSDP is sufficient to compensate primary deficit after covering up interest. However, if the interest rate is higher than the GSDP growth rate, a zero primary deficit will not be adequate, then, a negative primary balance will require for debt stabilization.

VI.2 Present Value Budget Constraints Approach

Sustainability of debts requires that the future primary surpluses must be sufficient to repay the current outstanding stock of debt. As per the present value budget constrains criterion, a state government's debt is sustainable if the outstanding debt stock level does not exceed the sum of present values of current and future primary surpluses. Under this approach, the testing of the sustainability requires discounting of nominal stock of government debt backwardly to a given date with a discount rate. Then, the discounted series is tested for stationarity. If the series is stationary, the debt is sustainable and vice-versa. In our case, the outstanding debt has been discounted by the weighted interest rate on state government dated securities.

VI.3 Indicator Analysis

Economists often argue that Domar debt sustainability is a narrow view to look at wide-ranging debt sustainability issue. Alternatively, a set of sustainability indicators has been developed to review the debt sustainability (Rajaraman, Bhide, and Pattnaik 2005; RBI 2013). In the following table, alternative conditions are set out to capture the different aspects of debt sustainability. The potential aspects with their symbolic representation reflected by the alternative indicators have also been mentioned in the table.

Table 4: Sustainability Indicators

Sn.	Indicators	Symbolic Representation	Interpretation
1	a. Rate of growth of GDP (Y) should be more than rate of growth of debt (D)	Y-D>0	Assess the sustainability in aggregate terms and test the essential condition that growth of income must exceed growth of debt and rate of interest.
	b. Real output growth (y) should be higher than real interest rate (r)	y-r>0	
2	a. Primary deficit (PD) should not be rising faster than GSDP	PD/GSDP<0	Tests the sustainability from the point of view of revenue account. Additional condition that primary deficit must be declining and sufficient surplus must be generated to repay current debt stock. There should be positive primary revenue balance.
	b. Primary revenue balance (PRB) should be in surplus and adequate enough to meet interest payments (IP) [PRB-IP>0]	PRB/GSDP>0	
		[(PRB-IP)/GSDP] > 0	

3	Proportion of repayments (REP) to Gross Borrowings (TGB) should be falling over time [REP/TGB ↓↓↓]	REP/TGB ↓↓↓	Measures debt trap situation. If the interest payment and repayment exceed total gross borrowings, economy said to be in debt trap.
4	a. Interest payments (IP) and repayments (REP) adjusted for primary revenue balance should not exceed total gross borrowings (TGB)	[(IP+REP-PRB)/TGB]<1	
	b. Total net borrowing (TNB) as a ratio of total gross borrowing (TGB) should be declining	TNB/TGB↓↓↓	
5	a. Interest burden defined by interest payments (IP) to GDP ratio should decline over time	IP/GSDP↓↓↓	Interest payment as proportion to GSDP, revenue receipts, as well as revenue expenditure should be falling over time. More resources should be left for making payment on other productive purposes.
	b. Interest payment as a proportion of revenue expenditure should decline overtime	IP/RE↓↓↓	
	c. Interest payment as a proportion of revenue receipts should fall over time	IP/RR↓↓↓	
	d. $OD/Y(r-y)-PD/Y<0$	$OD/GSDP*(r-y)-PD/GSDP<0$	
6	Return on capital investments (ROC) should be equal to or less than cost of borrowings (COB) [ROC≥COB]	$ROC = IR_t/OFA_{t-1}$	Asses the sustainability from the perspective of capital account. The return on investment must be greater than the cost of borrowings. It also shows the extent of fiscal susceptibility of debt trap.
		$COB = IP_t/OD_{t-1}$	
		$IR_t/OFA_{t-1} - IP_t/OD_{t-1} \geq 0$	

Note: IR- Interest Receipts; OFA - Outstanding Financial Assets.

VII- Analysis of The Results

VII.1 Domar Debt Sustainability

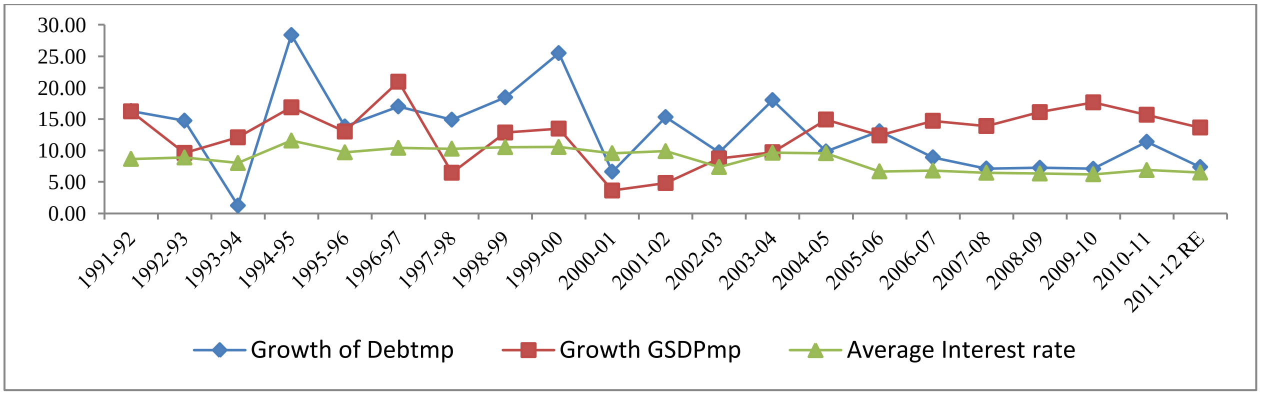
In the table 5, Domar debt condition has been tested taking GSDP growth and interest rate at current prices as well as at constant prices (2004-05=100). The movements in the average interest rates *vis-a-vis* nominal GSDP growth reflect that the Domar stability condition has been fulfilled for the post FRBMA enactment years since 2004-05. The average interest rate declined upto 2009-10 after that marginal increase has been recorded. The GSDP has grown with abysmally low growth rate during 2000-03 both at current and constant prices, however, after 2003-04 the state has recorded double digit growth in nominal terms. Looking at the nominal GSDP growth and nominal interest rates, as income growth rate is consistently higher than average interest rate after 2002-03, the evidence confirms strong sustainability in time period since FRBM Act is enacted.

Table 5: Domar Condition for Debt Sustainability for Uttar Pradesh in the Post FRBM Act Period (in %)

Year	At Current Prices		At 2004-05 Prices		Primary Deficit as percent of GSDP (p)	$d_{t-1}(i - n) + p_t \leq 0$	
	GSDP Growth Rate (n)	Average Interest Rate (i)	GSDP Growth Rate (n)	Average Interest Rate (i)		At Current Prices	At 2004-05 Prices
2000-01	3.63	9.57	2.19	9.43	1.50	265.7	323.74
2001-02	4.82	9.89	2.17	9.64	0.88	232.9	342.83
2002-03	8.72	7.37	3.72	7.03	1.18	-66.8	168.00
2003-04	9.73	9.63	5.27	9.24	2.87	-1.9	204.52
2004-05	14.92	9.57	10.48	9.20	0.43	-292.1	-69.38
2005-06	12.39	6.68	6.51	6.33	0.33	-298.4	-9.17
2006-07	14.72	6.80	8.07	6.41	- 0.26	-416.2	-87.45
2007-08	13.89	6.45	7.32	6.08	0.78	-370.3	-61.41
2008-09	16.10	6.33	6.99	5.83	2.05	-456.4	-52.13
2009-10	17.65	6.22	6.58	5.63	1.28	-494.5	-39.79
2010-11	15.68	6.89	7.81	6.42	0.50	-346.4	-54.28
2011-12 RE	13.65	6.49	6.04	6.05	0.55	-271.6	1.01
2012-13 BE	-	6.73	-	-	0.68	-	-

Note: t is time period. Source: Calculated from RBI and U.P. Government data.

Figure 7. Debt Sustainability Indicators (%): 1992-2012



Note: Debtmp- Outstanding debt at market prices; GSDPmp- GSDP at market prices.

However, Domar sustainability condition is not sufficient but is a necessary condition. According to the contemporary literature, fiscal sustainability rule requires real growth rate to go over real interest rate and primary balance to be non-negative for the debt/GDP ratio to be stable. Thus, the necessary condition is that real interest rate should be lower than real GDP growth and the sufficient condition is that adequate primary surplus should be maintained to finance debt services. As discussed above, levels of primary deficits (PD) should remain unchanged or declining, however, in the case of U.P. except 2007-08 and 2008-09, the primary deficit declined in comparison to previous year's level.

The comparison between real GSDP growth rate and real interest rate suggests that it is only after 2004-05, the GSDP growth exceeds interest rate. Although, the difference between GSDP growth and interest rate is not very high but sustainability condition [d_{t-1} (i - n) + $p_t \leq 0$] is met out for the post-FRBM period except 2011-12. In spite of this, GSDP is growing with sufficient higher rate than average interest rate which corroborates Domar debt sustainability for U.P. in post FRBM period. Patnaik, Prakash and Mishra (2005) found weak debt sustainability for the Center and all states combined during pre-FRBM years. The results of our study also confirm weak debt sustainability for Uttar Pradesh in pre-FRBM years, but evidence suggests strong debt sustainability in post-FRBM period.

VII.2 Present Value Budget Constraint Approach

As per the Present Value Budget Constraint approach, the sustainability has been tested by applying the Unit Root Test on the present discounted value of the outstanding debt for the whole period (1990-91 to 2011-12) as well for two sub-periods (Pre-reforms period - 1990-91 to 2000-01 and Post-reforms period - 2001-02 to 2011-12) to capture the policy implications of FRBMA on outstanding debt. The results are given in the following table:

Table 6: Augmented Dickey Fuller Test Result

Augmented Dickey Fuller Test (ADF)	Test Statistics (τ)	Interpolated Dickey-Fuller		
		1% Critical Value	5% Critical Value	10% Critical Value
1990-91 to 2011-12 (N = 21)	-1.043 (0.7373)	-3.750	-3.000	-2.630
1990-91 to 2000-01 (N=10)	0.400 (0.9815)	-3.750	-3.000	-2.630
2001-02 to 2011-12 (N=10)	-2.386 (0.1459)	-3.750	-3.000	-2.630

Note: Values in the parenthesis are p-values.

Source: Author's calculations on the basis of RBI data.

As revealed from the results that for the null hypothesis of a unit root could not be rejected either at 1 percent or 5 percent level of significance for the whole period and even for sub-periods. However, in the post-reforms period, there is some evidence of weak sustainability as series becomes stationary at 15 percent level of significance. Therefore, since the present discounted values of outstanding debt is non-stationary at 1 or 5 percent level of significance, the debt position of the state found to be highly unsustainable under the case of strong sustainability (Pattnaik, Prakash, and Misra 2004). However, the result also offers a hope that the adoption of fiscal rules strategy is beneficial as high un-sustainability has turned into weak sustainability.

VII.3 Sustainability Indicators Analysis

For the purpose of the sustainability indicators analysis, the whole time period is divided into four phases- 1991-92 to 1996-97, 1997-98 to 2003-04, 2005-05 to 2008-09 and 2009-10 to 2011-12. While first two phases represent pre-FRBM period, on the other hand, the latter two represents post-FRBM period. The values are period averages of the different phases. As per the sustainability indicators, the fiscal position of the state during pre-FRBM period was unsustainable as indicated by most of the indicators. During the pre-FRBM years, real GSDP growth was lower than the real interest rate. Against of this, there has been significant improvement in the post-FRBM years. The compulsory condition of sustainability that GSDP growth should be greater than growth of debt and interest rate has been fulfilled during the post-FRBM years. However, the additional condition that primary balance to be non-negative has not been met out in the whole period of analysis.

Table 7: Indicator Analysis (Uttar Pradesh)

Sn.	Indicators	Symbolic Representation	1991-92 to 1996-97	1997-98 to 2003-04	2004-05 to 2008-09	2009-10 to 2011-12
1	a. Rate of growth of GDP (Y) should be more than rate of growth of debt (D) b. [Y-D>0]	Y	14.79	8.52	14.40	15.66 (13.24)
		D	15.24	15.50	9.24	8.61 (8.92)
		Y-D>0	-0.45	-6.98	5.17	7.05 (4.32)
2	Real output growth (y) should be higher than real interest rate (r)	Y	4.25	3.38	7.87	6.81
		R	8.67	9.23	6.77	6.03
		y-r>0	-4.41	-5.84	1.10	0.77
3	a. Primary deficit (PD) should not be rising faster than GSDP	PD/GSDP<0	1.60	2.16	0.67	0.78 (0.75)
	b. Primary revenue balance (PRB) should be in surplus and adequate enough to meet interest payments (IP) [PRB-IP>0]	PRB/GSDP>0	-1.15	0.50	-3.16	-3.30 (-3.25)
		IP/GSDP	2.94	3.86	3.23	2.27 (2.27)
		[(PRB-IP)/GSDP] > 0	-4.09	-3.37	-6.39	-5.57 (-5.52)
4	a. Proportion of repayments	REP/TGB ↓↓↓	26.77	28.82	55.21	34.60

	(REP) to Gross Borrowings (TGB) should be falling over time [REP/TGB ↓↓↓]					(39.55)
	b. Interest payments (IP) and repayments (REP) adjusted for primary revenue balance should not exceed total gross borrowings (TGB)	[(IP+REP-PRB)/TGB]<1	1.31	0.93	2.12	1.83 (1.79)
	c. Total net borrowing (TNB) as a ratio of total gross borrowing (TGB) should be declining	TNB/TGB↓↓↓	0.73	0.71	0.45	0.65 (0.60)
5	a. Interest burden defined by interest payments (IP) to GDP ratio should decline over time	IP/GSDP↓↓↓	2.94	3.86	3.23	2.27 (2.27)
	b. Interest payment as a proportion of revenue expenditure should decline overtime	IP/RE↓↓↓	18.10	22.37	19.30	12.71 (12.25)
	c. Interest payment as a proportion of revenue receipts should fall over time	IP/RR↓↓↓	20.47	29.79	19.86	12.02 (11.63)
6	OD/Y(r-y)-PD/Y<0	OD/GSDP*(r-y)-PD/GSDP<0	155.83	260.65	-54.19	-30.68 (-23.18)
7	Return on capital investments (ROC) should be equal to or less than cost of borrowings (COB) [ROC≥COB]	ROC = IR_t/OFA_{t-1}	5.27	3.50	13.08	9.61 (9.86)
		COB = IP_t/OD_{t-1}	9.54	9.69	7.16	6.53 (6.58)
		$IR_t/OFA_{t-1} - IP_t/OD_{t-1} \geq 0$	-4.27	-6.19	5.91	3.08 (3.28)

Note: a. Values in parenthesis are average of 2009-10 to 2012-13(BE). The values for 2011-12 and 2012-13 are revised estimates and budget estimates respectively.
Source: Author's calculations on the basis of RBI data

On revenue account, though, primary balance is negative but it declined during the third phase, however, recorded a marginal increase in last phase due to slowdown in the economy and decline in revenue collections. There has been significant decline in IP as percentage of RR and RE in post-FRBM years, implying more resources in the hands of UP government as well as reduction in committed expenditures.

The state government has shed-off huge amount of outstanding debt in under the legislative umbrella of FRBMA as evident from REP/TGB ratio in third phase. It would not only reduce future debt servicing but will also allow the state o use thus saved financial resources in other productive channels. Moreover, as the basic principal of financial management says that the return on the investments made by the SNG should be more than the cost of borrowing, the UP government has been successful in converting the difference between two from negative to positive in post-FRBM years. This twist is the outcome of both decline in cost of borrowing as well as crucial increase in returns also. Nonetheless, the brought out improvement in fiscal stance through FRBMA is delicate as sustainability indicators are indicating trivial deterioration in sustainability. The difference between real output growth and rate of interest has declined in fourth phase.

VIII- Conclusion

FRBM Act proved a boon for the UP government. It has not only forced the state to bring its fiscal deficits within limits in a given time frame but also necessitated to maintain it, even, to improve it. From our analysis, it is clear that the FRBM Act has a positive impact on fiscal health of Uttar Pradesh. The state is expected to achieve all the revised fiscal targets in 2011-12 before the marked year i.e. 2014-2015. Some of the changes are noteworthy like continuous surplus on revenue account since 2006-07, bringing fiscal deficit to 3 percent of GSDP, falling primary deficit, reduction in outstanding liabilities of the state, thereby, reducing the burden of interest payment on the exchequer. Moreover, fiscal health is consolidated without compromising the quality of expenditure as share of development expenditure is increasing *vis-à-vis* non-development expenditure. Similarly, plan expenditure also gone up in comparison to non-plan expenditure in post-FRBM period. Debt sustainability analysis also confirms the above results. The nominal GSDP growth rate is much higher than the average effective interest rate. The Uttar Pradesh need to maintain its efforts to keep its fiscal health intact.

The results of different approaches suggest that the sustainability of debt position of the UP government has improved. The Domar debt sustainability condition confirms strong sustainability in the post-FRBMA years. The findings are also corroborated by sustainability indicators. However, result of ADF suggests weak sustainability during the post-FRBMA period. Nevertheless, this is evident from our sustainability analysis that in pre-FRBMA period debt position of the UP government was above comfort level. However, radical changes in fiscal health of the government are apparent during post-FRBMA years which in turn brought debt level within sustainable limits.

Despite the fact that there are some promising signs of pick-up but state’s growth remains significantly below and near-term prospects are still fragile as growth has moderated in 2011-12 and it is projected to slowdown further in 2012-13. The volatility in growth and high inflation risks may spoil revenue projections of the state. Simultaneously, more important, state's commitment to stick on the path of fiscal consolidation is very critical as general election is due in 2014 (the government has to restrain it from adopting a populist budget). U.P. government has to adopt all measures to increase revenue and to curtail expenditures without compromising the expenditure on development or productive activities.

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Appendix-1: A Note on Methodology

The GSDP at constant prices (2004-05=100) has been obtained by deflating GSDP at current prices through GSDP deflator. The 'Rajya Aya Anuman' (State Income Estimates) Report provides the GSDP estimates at both current and constant prices. However, the constant prices GSDP estimates are available at different base year depending upon the year of release of the Report. For instance, the report of 1997 provides the constant prices GSDP estimates from 1980-81 to 1996-97 taking 1980-81 as the base year. Likewise, the Report of 2001 provides estimates from 1993-94 to 2000-01 at 1993-94 prices. Similarly, in the Reports of 2010 and 2012 base years are 1999-2000 and 2004-05 respectively. Conversely, the continuous series of GSDP at constant prices at latest base year is not available. With this, the state WPI series has not been updated and available series has base year of 1970-71. Therefore, to derive comparable GSDP estimates at constant prices (2004-05) for all the years, a GSDP deflator series has been prepared. To construct a continuous GSDP deflator series, first of all GSDP deflators has been calculated by taking current and constant (at respective base years given in the Reports) GSDP values reported by the different reports. Then, using the reverse splicing method of index numbers, first 1980-81 series spliced to series 1993-94, then 1993-94 series spliced to series 1999-2000 and series 1999-2000 to 2004-05. Thus, a continuous GSDP deflator series has been obtained at 2004-05 prices.

GSDP Deflator Series of Uttar Pradesh (At 2004-05=100)

Year	GSDP Deflator Series	Year	GSDP Deflator Series
1990-91	38.47	2002-03	92.23
1991-92	44.26	2003-04	96.13
1992-93	47.57	2004-05	100.00
1993-94	52.09	2005-06	105.53
1994-95	57.55	2006-07	112.02
1995-96	62.72	2007-08	118.87
1996-97	68.52	2008-09	129.00
1997-98	73.24	2009-10	142.40
1998-99	81.20	2010-11	152.80
1999-00	84.57	2011-12 RE	163.76
2000-01	85.76	2012-13 BE	-
2001-02	87.99		

Return on Capital Investment

To calculate return on capital investment (ROC) of the State government, the information of outstanding financial assets (OFA) is required. To obtain OFA, we calculated cumulative net lending of the states i.e. loans and advances granted by the state net of repayment from 1980-81 to 2012-13. Then, ROC is calculated by using following formulae:

$$ROC_t = (IR_t / OFA_{t-1}) \times 100$$

Where:

IR = Interest Receipts

t = time

Besides, in this study, the followings definitions have been used for quantifying different fiscal indicators.

Definitions of different fiscal indicators used in the study

Outstanding debt	In this study the definition adopted by the RBI (2012-13) is being followed. As per RBI: Outstanding debt = Loans from the Center + Internal Liabilities + Ways and Means Advances and Overdrafts from RBI + Small savings and State Provident Funds
Revenue Deficit	Revenue Expenditure – Revenue Receipts
Gross Fiscal Deficit	Revenue Deficit + Capital Outlay + Net lending – Disinvestment Proceeds
Primary Deficit	Gross Fiscal Deficit – Interest Payments
Primary Revenue Balance	Revenue Deficit – Interest Payment
Total Gross Borrowings	Internal Debt + Loans and Advances from the Center
Total Net Borrowings	Total Gross Borrowings – Repayments of Debt
Outstanding Financial Assets	Loans and Advances granted by the State – Recovery of loans and Advances

Appendix 2: Fiscal Imbalance in Uttar Pradesh: The Key Indicators

Year	Revenue Deficit (RD)/GSDP	Fiscal Deficit (FD)/GSDP	Primary Deficit (PD)/GSDP	Outstanding Debt/ GSDP	GSDP Growth Rate (at 2004-05 prices)
2004-05	2.81	5.22	0.45	54.7	10.5
2005-06	0.46	3.64	0.35	52.2	6.5
2006-07	-1.57	3.08	-0.28	52.5	8.1
2007-08	-0.96	3.86	0.83	49.9	7.3
2008-09	-1.00	4.99	2.25	46.9	7.0
2009-10	-1.40	3.60	1.30	43.5	6.6
2010-11	-0.60	3.00	0.50	40.0	7.8
2011-12 (RE)	-1.30	2.90	0.60	38.7	6.0
2012-13(BE)	-0.80	3.00	0.68	37.2	-

Note- RE- Revised Estimates. BE- Budget Estimates. GSDP figures of Year 2004-05 to 2009-10 are revised provisional estimates, 2010-11Revised Quick Estimates& 2011-12Revised Advance Estimates.

Source: Handbook of Statistics on State Government Finances, RBI-2010; State Finances: A Study of Budgets Various Issues, RBI; Revised Estimates of GSDP – 2012, U. P. Government.

Appendix-3

(as % of GSDP)

Year	Revenue Receipts	Tax Revenue	State's Own Tax Revenue	Share in Central Taxes	Non-tax Revenue	State's Own Non-Tax Revenue	Grants from the Centre	Capital Receipts
2004-05	14.42	11.79	6.02	5.77	2.63	1.04	1.59	8.35
2005-06	15.47	12.64	6.43	6.21	2.83	1.00	1.83	7.82
2006-07	18.02	13.74	6.84	6.90	4.28	1.94	2.33	6.36
2007-08	17.93	14.16	6.52	7.65	3.77	1.52	2.25	4.79
2008-09	17.50	13.39	6.44	6.95	4.11	1.52	2.59	4.60
2009-10	18.43	12.55	6.48	6.08	5.88	2.60	3.28	3.64
2010-11 RE	18.69	13.53	6.72	6.81	5.16	2.27	2.89	4.57
2011-12 BE	19.11	14.34	7.32	7.02	4.77	1.76	3.01	3.98

Source: Calculated from the RBI data.

Appendix-4

(as % of GSDP)

Year	Revenue Expenditure	Development Expenditure	Non-development expenditure	Capital Expenditure	Non-Plan	Plan
2004-05	17.10	7.69	8.73	13.67	11.72	1.96
2005-06	15.90	7.97	7.14	6.05	3.06	2.98
2006-07	16.56	8.52	7.23	6.18	2.05	4.13
2007-08	17.03	9.17	6.93	6.02	2.34	3.68
2008-09	17.08	9.60	6.69	6.73	2.58	4.16
2009-10	17.08	8.67	7.77	6.44	2.69	3.75
2010-11 RE	18.45	9.68	8.03	5.69	1.78	3.90
2011-12 BE	18.29	9.88	7.64	5.03	1.60	3.43

Source: Calculated from the RBI data.

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