Growth of Public Debt in Haryana – Dynamism or Misplaced Priorities

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Laxmi Narayan

1. Introduction

Economic theory regarding role of debt has not been unanimous in its effect as theoretical and empirical arguments are available for positive as well as negative impacts of public debt. Economists do agree that not all public debts are equal and the cost of servicing similar public debt levels can be very different in different countries. Due to presence of moral hazard and soft budget constraints at sub-national level, the sustainability of debt finances is becoming an issue of more importance to developing countries. The existing federal structure of India coupled with common pool problems and soft budget constraints have complicated macroeconomic management, distorted state-level debt financing decisions, encouraged states to make bad inter-temporal budget choices and contributed to major distortions in sub-national public expenditure composition (McCarten, 2003). The concerns about fiscal indiscipline which forces SNGs to live beyond their means, negating competitive incentives and fostering corruption and rent-seeking has been raised by Weingast (2007). In case of India also many studies have raised doubts about quality of sub national finances; fiscal discipline and scope of improvement at state level (McCarten 2003; Dholakia, Mohan and Karan 2004; Prasad and Kishore 2007; Asher 2012; Das 2013; Kaur et al, 2014; Das 2016). Though there are many studies analysing debt sustainability at national level, cross-country studies at state's level but there are only a few studies examining debt sustainability at individual state level (Dholakia, Mohan and Karan 2004; Prasad, Goyal and Prakash 2004; Ianchovichina, Liu and Nagarajan 2007; Lahiri and Kannan 2012; Das 2013; Dutta and Dutta 2014; Maurya, 2015; Das 2016). So far no comprehensive study analysing debt sustainability for the Haryana particularly for the period considered in this paper is available which provided motivation for the paper. An additional impetus for a comprehensive analysis of public debt in Haryana is provided by Narayan (2016) and Chakraborty et. al.(2017).

Chakraborty et. al.(2017) based on the budget estimates from 2016-17 budget highlighted that almost half of the states have a fiscal deficit target higher than the limit set in the Fiscal Responsibility and Budget Management Act. The indicators pertaining to Haryana depict the state to be one of the high debt states in India as it has highest level of revenue deficit in the country (-2.08 percent), high fiscal deficit (-4.25 percent; only three states has higher fiscal deficit than Haryana), a very high interest payment to revenue receipts ratio of 16.7 percent(less than only that of West Bengal and Punjab). Though Narayan (2016) observed that the finances of Haryana are sustainable at current level but Haryana is fast emerging as high debt states of the union. In light of the above, the paper made a comprehensive analysis of Haryana state finances with a view to understand whether public debt is used for accelerating growth and development or it is result of misplaced spending priorities by the incumbent governments mainly by opportunistic pre-electoral manipulations. The paper estimated fiscal reaction function for Haryana to understand the government's budgetary responses for changes in debt.

2. Literature Survey

Salsman (2017) simultaneously explicates and critiques the most prominent theories concerning why states borrow in the first place, whether or not they borrow productively, the incidence of their debts, why they sometimes borrow too much and why they often default, whether explicitly or implicitly. Question posed by Buchanan (1966) 'when and who pays for public expenditure financed by debt issue, instead of by taxation?' is still relevant. Alesina and Tabellini (1990) elaborated that budget deficits and debt accumulation can serve two purposes - they provide a means of redistributing income over time and across generations; and they serve as a means of minimizing the deadweight losses of taxation associated with the provision of public goods and services. Feldstein (1985) concluded that if the stock of capital is initially at an optimal level, it is better to finance a temporary increase in spending through debt, because the excess burden of taxation depends on the square of the tax rate. Wigger (2009) concludes that future generations could benefit from Ponzi schemes by issuing debt, depending on their preferences and on technology. Tanzi (2016) argued that the use to which the borrowed money is put, the average interest rate on the total debt and the maturity of the debt which determine the impact of public debt across countries.

On other side, studies have established negative effects of the public debt. Martin (2009) documented that the welfare in an economy with debt is lower than that of an economy without debt; Woo and Kumar (2010) found an inverse relationship between initial debt and growth; Cecchetti et al. (2010) opined that public debt drive down capital accumulation, productivity growth and long-term potential growth potential; Ostry et al. (2015) recognized a strong negative relationship between public debt and public investment; Chudik, et al. (2015) has also found "significant negative long-run effects of public debt build-up on output growth"; Sutherland and Hoeller (2012) opined that high public debt causes reduced economic stability due to the inability of the government to respond efficiently to adverse shocks; Afonso and Jalles (2013) ascertained negative effect of debt ratio and financial crisis on economic growth and productivity; Hukkinen and Viren (2017) also found that the inverse relationship between growth and debt is indeed quite robust and tends to support the 'toxic debt' hypothesis rather than the cyclical debt accumulation hypothesis.

The third strand of studies related to the determination of threshold levels beyond which the impact of public debt on growth turns negative. Economists have long debated the appropriate level of public debt so as to drive the economic growth. Some recent papers have estimated the threshold effect of public debt to economic growth (Aschauer 2000; Cecchetti et al. 2010; Reinhart and Rogoff 2010; Cristina and Rother 2012; Herndon, Ash, and Pollin 2014; Lombardi et al. (2017). Aschauer (2000) concluded that the growth maximizing ratio of public capital to private capital is estimated to equal 0.444 for core public capital and 0.313 for other public capital. Reinhart & Rogoff (2010) found that debt ratio of more than 90% causes growth to decrease by one percent. Cristina and Rother (2012) observed that the debt-to-GDP turning point of this concave relationship (inverted U-shape) is roughly between

90 and 100% on average for the sample countries. They observed that the channels through which government debt (level or change) is found to have an impact on the economic growth rate are: (i) private saving; (ii) public investment; (iii) total factor productivity (TFP) and (iv) sovereign long-term nominal and real interest rates. The claims of Reinhart & Rogoff (2010) were strongly refuted by subsequent studies. Herndon, Ash, and Pollin (2014) in the critique article challenging some of the Reinhart & Rogoff findings concluded that the average real GDP growth rate for countries carrying a public-debt-to-GDP ratio of over 90 percent is actually 2.2 percent, not -0.1 percent as published by Reinhart & Rogoff. Swamy(2015) found that threshold limits are different for different group of countries. For 58 developing countries threshold is 84.17 percent but for BRICS countries it is 31.47 percent and for emerging market it lowers to 24.63 percent. The study highlighted that every additional 10 percent rise in debt-to-GDP ratio beyond the debt threshold costs 10 to 30 basis points of annual average real GDP growth. Chudik et al. (2015) also could not find a universally applicable simple threshold effect in the relationship between public debt and growth after accounting for the effects of global factors. Lombardi et al. (2017) found that negative long-run effects of high debt on consumption tend to intensify as the household debt-to-GDP ratio exceeds 60%. For GDP growth, that intensification seems to occur when the ratio exceeds 80%. Lee et al. (2017) found no evidence of a threshold around 90 percent; their findings from the postwar sample suggest that the debt threshold for economic growth may exist around a relatively small debt-to-GDP ratio of 30 percent. They concluded that a debt-to-GDP ratio above 30 percent would suppress the GDP growth by 1 percentage point lower at the median. For India, Dholakia, Mohan and Karan (2004) in the background study to 12th Finance Commission (FC-XII) analyzed what interest burden a state can tolerate as a proportion of its revenue receipts. Debt is said to be tolerable if servicing it does not impose an intolerable burden on the fiscal position of the state. Their findings considered one-fifth of revenue receipts paid as interest payments as a tolerable ratio. Topalova and Nyberg (2010) have suggested that a reasonable and feasible public debt ceiling anchor for India's medium-term fiscal framework could be around 60-65 percent of GDP. Kaur and Mukherjee (2012) found that the threshold level of public debt for India works out to be around 61 per cent of GDP. Thirteenth Finance Commission (FC-XIII) had set a target of 68 per cent of GDP for the combined debt of centre and states stipulated to be attained by 2014-15. The Commission set the targeted debt/GSDP ratio to be less than 25% for states.

3. Data and Methodology

Data on major fiscal indicators for the period 1980-81 to 2009-10 and detailed data on the transactions in the revenue and capital account for the period 1990-91 to 2009-10 are obtained from "Handbook of Statistics on State Government Finances" published by the RBI. For the period after 2007-08, the data is obtained from RBI's 'State Finances' reports from 2009-10 to 2015-16. The data for 2014-2015 is based on revised estimates and for 2015-2016 is based on the budget estimates.

There have been different approaches adopted by different bodies such as the state governments, the Reserve Bank of India, Office of the Comptroller and Auditor General of India (CAG) and the Finance Commissions (FCs), leading to differences in the measurement of state level public debt. To ensure unanimity on the definition and composition of State Governments liabilities, Report of the Working Group on Compilation of State Government Liabilities- 2005' classify State Government liabilities into internal debt, loan from the Center, small savings and provident fund, reserve funds and deposits & advances. Internal debt includes market borrowings, special securities issued to NSSF, loans from bank and financial institutions and ways and means advances from Reserve Bank of India. Internal debt and loans from the Center constitute the public debt and is secured under the consolidated fund of the State Governments. On the recommendations of the 'Committee on Small Savings', a separate fund called the National Small Savings Fund ('NSSF') was created, w.e.f. 1st April 1999, within the Public Account into which all small savings were deposited (*see* GOI 2011). All withdrawals under small saving schemes by the depositors are made out of this fund. Prior to 1999, NSSF funds were disbursement of loans from small saving collections to State Governments was from the consolidated fund of India and was considered as Central Government loans. But presently, they form part of internal debt of the state. The State provident fund receipts, reserve funds, deposits & advances and small saving schemes run by the State themselves form part of public account liabilities of the states. Present paper uses the approach suggested by the committee. It would be pertinent to note here that total outstanding liabilities have been used has been used as a measure of outstanding public debt for analytical purpose unless otherwise specified. We used total outstanding liabilities on last day of financial year as the debt stock of that year.

The aim of the paper is to raise certain questions and seek answers about public debt in Haryana. Main questions raised are: (i) what is the composition of Haryana government's debt stock and what changes it has undergone over time? (ii) What are the sources from where Haryana government finances its debt and what have been their trends? (iii) What has been the composition of fiscal deficit in Haryana and how these deficits are financed? (iv) What uses the borrowed funds are put into, that is, whether the debt funds are used for productive capital expenditure or for meeting routine revenue expenditure or for financing old debts? (vi) Is Haryana government able to manage its finances within the parameters suggested by FRBM Act and various finance commissions. (v) Are Haryana governments liabilities are too high to sustain over a longer time horizon? (vi) What is the role of different political regimes with regards to public debt? And finally (vi) To know whether the debt was necessitated by overriding requirement for development or it was a result of poor fiscal management of state finances by Haryana government.

The approach adopted in the paper is to find out the trends in various variables and indicators for the period under study. Annual growth rates are estimated using semi-logarithmic function of the form $LogY = a+bt$. It is calculated as % growth = (antilog of b – 1) x 100. Various accounting identities have been used to understand the inter-relationship between debt stock and related variables. The indicator based analysis of debt sustainability

was assessed using indicators of debt sustainability, based on the debt dynamics equations. The debt dynamics is explained using following notions:

D_t : Stock of Debt	$D_t = D_{t-1} + \triangle D$
IP_t : Interest Payments	$IP_t = \eta_t . D_{t-1}$
R_t : Government non-debt Revenue	R_t = RR+DisInvestment+RecLoans
G_t : Government Primary (Non-Interest) Spending	
PB : Primary or Non-Interest Balance	$PB_t = R_t - G_t$
η_t : Nominal Interest Rate	$\eta_t = IP_t / D_{t-1}$
λ_t : Inflation Rate	λ_t = Nominal GSDP/Real GSDP
r_t : real interest rate on government debt	$r_t = (1+ \lambda_t).(1+ \eta_t)$
g_t : growth rate of real GDP	$g_t = Y_t / Y_{t-1}$
P_tY_t : Nonimal GDP	$P_tY_t = (1+ \lambda_t).(1+ g_t)\ P_{t-1}Y_{t-1}$
d_t : debt to GDP ratio	$d_t = D_t / P_tY_t$
pb_t : Ratio of Primary Deficit to GDP	$pb_t = PB_t / P_tY_t$

Working out Dynamics

Flow Budget Constraint: $D_t - D_{t-1} = G_t - R_t + \eta_t . D_{t-1} \Longrightarrow D_t = (1+ \eta_t) D_{t-1} - PB_t$ ---(1)

Inter-temporal Budget Budget Constraint for t=3

$$D_1 = (1+ \eta) D_0 - PB_1$$

$$D_2 = (1+ \eta) D_1 - PB_2$$

$$= (1+ \eta).[(1+ \eta) D_0 - PB_1] - PB_2$$

$$= (1+ \eta)^2 . D_0 - (1+ \eta).PB_1 - PB_2$$

$$D_3 = (1+ \eta) D_2 - PB_3$$

$$= (1+ \eta).\{(1+ \eta)^2 . D_0 - (1+ \eta).PB_1 - PB_2\} - PB_3$$

$$= (1+ \eta)^3 . D_0 - (1+ \eta)^2 .PB_1 - (1+ \eta)\ PB_2 - PB_3$$

Genralising, Inter-temporal Budget Budget Constraint for t=N

$$D_N = (1+ \eta)^N . D_0 - \sum_{j=1}^{N} (1 + \eta)^{N-j} . PB_j \quad \text{---(2)}$$

Deriving Solvency Condition

By dividing both sides by $(1+1)^N$ and putting D_0 on the other side

$$D_0 = \sum_{j=1}^{N} \left(\frac{1}{1+\eta}\right)^j . PB_j + \left(\frac{1}{1+\eta}\right)^N . D_N \quad \text{---(3)}$$

Transversality (No-Ponzi Scheme) Condition

Transversality Condition (also called no-Ponzi game condition) essentially means that the government does not service its debt (principal and interest) by issuing new debt on a regular basis, indefinitely. Under the no-Ponzi game condition, debt and interest payments

cannot be postponed forever. This requires that, over the long term, the present value of debt must decline towards zero. Symbolically

$$\lim_{n\to\infty}\left(\frac{1}{1+\eta}\right)^{N}.D_N = 0 \qquad ---(4)$$

Assuming transversality condition, the outstanding initial debt must be covered by the present value of future primary balances. Symbolically,

$$D_0 = \sum_{j=1}^{\infty}\left(\frac{1}{1+\eta}\right)^{j}.PB_j \qquad ---(5)$$

Now, let us introduce debt-GDP ratio in the analysis

By dividing eq. (1) by nominal GDP, P_tY_t

$$\frac{D_t}{P_tY_t} = \left[\frac{(1+\eta_t)}{(1+\lambda_t)(1+g_t)}\right].\left[\frac{D_t}{P_tY_t}\right] - \left[\frac{PB_t}{P_tY_t}\right] \qquad ---(6)$$

$$d_t = \left[\frac{(1+\eta_t)}{(1+\lambda_t)(1+g_t)}\right].\ d_{t-1} - pb_t \qquad ---(7)$$

$$d_t = \left[\frac{(1+r_t)}{(1+g_t)}\right].\ d_{t-1} - pb_t \qquad ---(8)$$

The change in debt/GSDP ratio over between two time periods can be obtained by subtracting d_{t-1} from equation (8) and rearranging, we have

$$\triangle d_t = \left[\frac{(1+r_t)}{(1+g_t)} - 1\right].\ d_{t-1} - pb_t \qquad ---(9)$$

Based on above debt dynamics, the paper made econometrics estimations to understand the sustainability of Haryana government debt for the period under study in the framework suggested by Bohn (1998 &2005). Before estimating fiscal response function for Haryana, unit root tests using Phillips-Perron (PP), augmented Dickey–Fuller(ADF) and Kwiatkowski–Phillips–Schmidt–Shin (KPSS) tests were used for the testing the stationarity of the time series variables. The paper used Hodrick–Prescott (HP) filter for separating cyclic trends in GSDP and Aggregate Expenditure. The estimated were affected by presence of auto/serial correlation; the equations are re-estimated using the Hildreth–Lu method using functions available in Gretl Software.

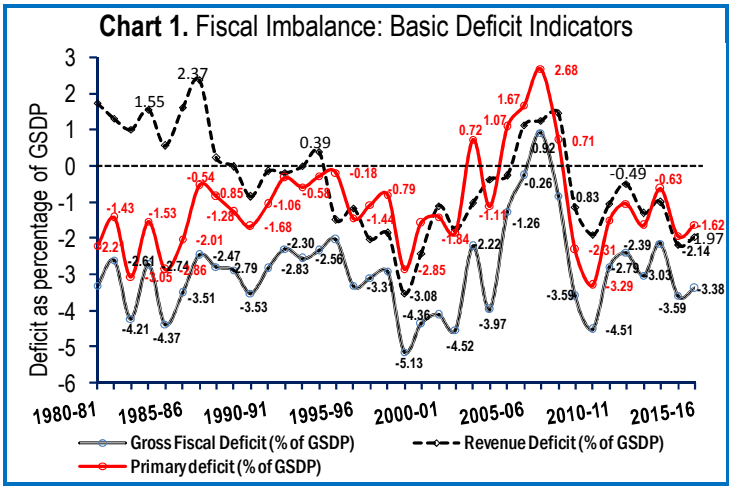
Introduction of Fiscal Responsibilities Legislations by enactment of FRBM Act by state government envisaged zero revenue deficits and a cap over gross borrowing. The paper look at the comparative performance of Haryana government during pre-FRBM and post-FRBM period in order to understand its future implications for state finances of Haryana. In a democratic setup, the fiscal policy is used for electorate gains (see Drazon 2000). Political

budget cycle theory establishes that incumbent government increase expenditure and relax/reduce tax/fee/user charges collection close to elections. The paper compared means of various fiscal indicators for electoral cycle years with normal years.

4. Trends in Debt and Deficit Indicators

4.1. Trends in Deficit Indicators

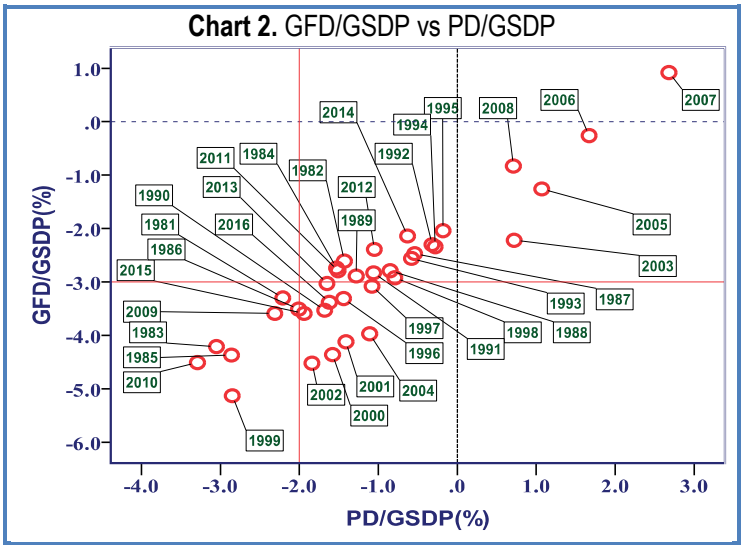
As we know that outstanding debt stock is summation of Gross Fiscal Deficit (GFD) accumulated over the years. So it is important to understand the trend in GFD of Haryana over the study period, that is, 1980-81 to 2015-16. Gross Fiscal Deficit is defined as the excess of total expenditure of the government over the total non-debt creating receipts. The trends in deficit indicators of Haryana presented in chart 1 depicts that the State Government has experienced gross fiscal deficit in all the years of study except in 2006-07. Since the shortfall in receipts over expenditure must be covered through borrowing, therefore, Gross Fiscal Deficit gives the overall borrowing requirements of the government over a given financial year. And thus shows the net addition to the level of public debt during a financial year.



The primary deficit (depicted by red line) was found negative for most of the period under study except few years from 2002-03 to 2007-08. Primary deficit captures a state's fiscal behaviour comprehensively since it considers all expenditures other than interest payment and only the state's own revenues (Dholkia and Karan, 2004). It shows the net increase in the government's indebtedness due to the current year's fiscal operations. Primary deficit is equal to fiscal deficit of current year minus interest payments on previous borrowings. Zero primary deficits means that government has to resort to borrowing only to make interest payments. A reduction in primary deficit is reflective of government's efforts at bridging the fiscal gap during a financial year. The deficit indicators for the time period 1980-81 to 2015-16 shown in chart 1 clearly reveals that revenue deficit, which was positive for the initial period was negative for most of the period their after. The efficient fiscal management requires that current expenditure should be financed by current revenue; hence revenue deficit should be zero or positive.

The experience of Haryana on two deficit indicators GFD/GSDP and PD/GSDP is analysed by their scatter plot presented in chart-2. The right uppermost corner has only one entry indicating that both PD and GFD are positive. Seven observations falls in left down

corner, indicating both GFD and PD are high. As can be seen in the chart, most of the observations fall in GFD from -2.5 percent to -3.5 percent and PD from 0 percent to -2.0 percent. Average deficits for the period 1980-81 to 2015-16 are GFD/GSDP -2.92 percent, RD/GSDP -0.41 percent and PD/GSDP -1.09 percent.



As discussed above, GFD indicate overall borrowing requirements of the states during a financial year. The pattern of financing adopted by the government would ultimately reflect in the outstanding debt stock of the state. The pattern of financing GFD has undergone a significant change since 1980-81. In 1980-81, 8.04 percent of deficit was financed by market borrowing and 38.4 percent was financed by loans from the centre and remaining 53.6 percent was financed from other source that include, inter-alia, Contingency Funds, appropriation to Contingency Funds, Inter-State Settlement, Land Compensation and Other Bonds and Loans from Financial Institutions. The pattern of financing continued till 1998-99. In recent years market bowing has emerged as main source of financing. In 2015-16, 97.87 percent of debt was financed through market borrowing. This indicates that addition in debt composition of Haryana is predominantly going to be in the form of market loans.

4.2 Decomposition of Gross Fiscal Deficit/Use of Borrowed Funds

The overall borrowing requirement (as reflected in the gross fiscal deficit) can be readily decomposed into analytically meaningful components. Decomposition of fiscal deficit basically means the purpose for which the borrowed funds are required to finance. Borrowed funds should be used as far as possible only to fund capital expenditure which increases the repayment capacity of economy while revenue expenditure should be fully met from revenue receipts (Rao, 2002; Lahiri, 2000). The proper use of the borrowed funds can be accessed from the composition of the fiscal deficit. As Fiscal deficit is defined as the excess of aggregate expenditure over non-debt receipt of the state, the composition of the fiscal deficit of the state gives an idea about the use of public debt of the state. Fiscal Deficit, on the other hand, is the difference between total expenditure (net of debt repayment) and total receipt (excluding debt creating capital receipt). Thus on the receipt side only non debt capital receipt (recoveries of loans plus disinvestment proceeds) are incorporated while debt creating capital receipts are left out. The scheme of decomposition can be understood by following representations

GFD = Total Expenditure - Repayment of debt – Revenue Receipts– Non-Debt Capital Receipts – Recovery of Loans and Advances

= Revenue Expenditure + Capital Expenditure – Repayment of debt – Revenue Receipts – Non-Debt Capital Receipts – Recovery of Loans and Advances

= Revenue Expenditure + Capital Outlay+ Loans and Advances + Repayment of Debt - Repayment of Debt – Recovery of Loans and Advances – Revenue Receipts– Non-Debt Capital Receipts

= (Revenue Expenditure – Revenue Receipts) + Capital Outlay + (Loans and Advances- Recovery of Loans and Advances) – Non-Debt Capital Receipts

= ***Revenue Deficit + Capital Outlay + Net Lending – Non-debt Capital Receipts***

Here, Non-Debt Capital Receipt = recovery of loans + disinvestment proceeds

The actual state of public account is reflected by fiscal deficit as it indicates the liabilities created in the receipt-disbursement process of the government. As fiscal deficit is financed through debt creating capital receipts of the government, and its persistence deteriorates the debt-GSDP ratio leading to unsustainable increase in the committed expenditure in the form of debt repayment and interest obligation. In the initial period upto 1987-88, state has revenue surpluses which were used for discharging government debt liabilities in the form of 'net loans and advances' and a sizeable part of borrowed capital was used for financing capital expenditure. But the situation changed drastically after 1987-88.

Table 1. Decomposition of Gross Fiscal Deficit

Year	GFD in Rs bn (% of GSDP)	As percentage of Fiscal Deficit			
		Revenue Deficit	Capital Outlay	Net Lending	NDCR
1980-81	1.1 (3.30)	-52.7	91.1	61.6	0.0
1981-82	1.0 (2.61)	-50.5	111.9	38.6	0.0
1982-83	1.9 (4.21)	-23.8	82.5	41.3	0.0
1983-84	1.3 (2.74)	-56.7	83.6	73.1	0.0
1984-85	2.4 (4.37)	-12.8	67.5	45.3	0.0
1985-86	2.3 (3.51)	-46.1	87.8	58.3	0.0
1986-87	1.7 (2.47)	-95.9	101.2	94.7	0.0
1987-88	2.2 (2.79)	-7.9	27.8	80.1	0.0
1988-89	2.9 (2.89)	0.7	48.4	50.9	0.0
1989-90	3.9 (3.53)	24.2	33.8	42.0	0.0
1990-91	3.9 (2.86)	5.2	48.2	46.6	0.0
1991-92	3.8 (2.33)	8.5	38.9	52.5	0.0
1992-93	4.4 (2.54)	0.5	51.4	48.2	0.0
1993-94	4.8 (2.34)	-16.9	63.1	53.8	0.0
1994-95	5.3 (2.02)	73.1	38.7	-11.8	0.0
1995-96	9.9 (3.32)	35.2	29.0	35.8	0.0
1996-97	11.0 (3.09)	65.4	40.6	-6.0	0.0
1997-98	11.3 (2.92)	63.8	43.7	-7.5	0.0
1998-99	22.4 (5.13)	68.8	45.8	-14.6	0.0
1999-00	21.3 (4.35)	55.6	41.9	2.5	0.0

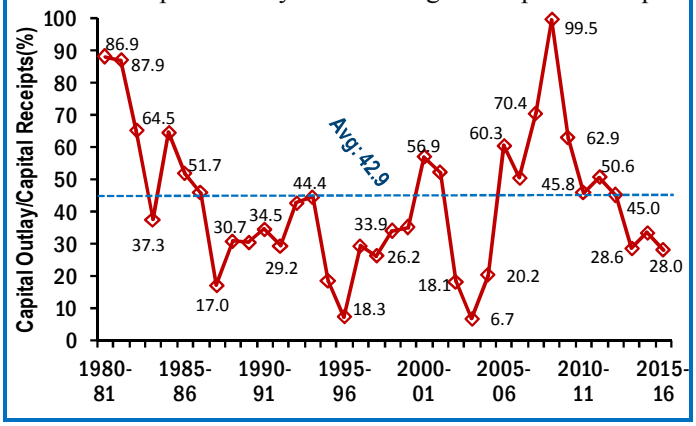
2000-01	22.6 (4.11)	26.8	63.8	9.4	0.0
2001-02	27.4 (4.52)	38.5	53.5	7.9	0.0
2002-03	14.7 (2.22)	46.6	29.6	23.8	0.0
2003-04	29.3 (3.96)	9.3	13.2	77.5	0.0
2004-05	12.1 (1.26)	21.4	74.4	4.2	0.0
2005-06	2.9 (0.27)	-424.1	563.6	-39.5	0.0
2006-07	-11.8 (-0.92)	134.9	-205.9	171.0	0.0
2007-08	12.6 (0.83)	-173.2	266.8	6.4	0.0
2008-09	65.6 (3.59)	31.7	68.5	-0.3	0.1
2009-10	100.9 (4.51)	42.1	51.6	6.1	0.1
2010-11	72.6 (2.79)	37.8	55.4	6.7	0.1
2011-12	71.5 (2.39)	20.4	74.9	4.6	0.1
2012-13	103.6 (3.03)	42.8	55.5	1.6	0.1
2013-14	83.1 (2.14)	46.6	47.2	6.1	0.1
2014-15	156.3 (3.59)	60.7	35.6	3.6	0.1
2015-16	164.4 (3.38)	58.2	35.9	5.9	0.1

Source: RBI Handbook on state's finances 2010 for data upto 2007-08 and RBI's State Finances A Study of Budgets (different issues) for others.

Note:
- Negative (–) sign indicates surplus in deficit indicators.
- Figures in parentheses represent percentage of this variable to GSDP at current prices.

As evident from the table 1, Haryana has a highest fiscal deficit in 1997-98 but since then it shown a downward trend upto 2006-07 when state had a surplus. The fiscal deficit again increased sharply due to the award of sixth pay commission and increased public spending to counter global recession. However corrective measures have ensured the reduction of the fiscal deficit within permissible limits in the next four years but it has again crossed the GFD threshold mainly due to UDAY scheme. The fiscal deficit itself may not be a problem if borrowing finances capital investment and economic growth. The use of public debt to finance capital expenditure is justifiable because the burden is equally shared by present and future generations (King, 1984) and that future generations may have an easier time paying off currently-incurred debt than the present generation due to consequent increase in repaying capacity (Clingermayer, 1991).

Chart 3. Capital Outlay as Percentage of Capital Receipts



As discussed earlier, ideally the fiscal deficits should be used for financing capital expenditure but table-1 depicts that in 2015-16, only 35.9 percent of the borrowed funds (GFD) were used for capital expenditure and a large part of the borrowed funds were used for financing revenue deficit (58.2 percent). This is against the golden rule of zero revenue deficits. As evident from the table 1, the state has been revenue deficit for last 8 consecutive financial years. The recent trends clearly indicate that the borrowed funds

are not used for financing capital expenditure and this may increase debt repayment burden of the state as the used funds are unlikely to generate revenue for repayment. Another way to measure the output of the borrowed funds is the ratio of capital outlay to capital receipts as it reflects the extent to which the debt funds is productively used by the state government. The data presented in chart 3 shows that the ratio of capital outlay to capital expenditure has fluctuated during the period from 1980-81 to 2014-15. It has been as low as 7.3 percent in 1995-96. Overall, the ratio observed a rising trend but after 2011-12, it has shown a declining trend. The chart clearly shows that there are times when significant part of capital receipts was used for the purposes other than capital outlay purpose. This does not auger well for the state's finances. In 2015-16, capital outlay form 52.9 percent of capital receipts, indicating that around half of the capital receipts are used for purposes other than productive capital expenditure.

Table 2 shows the use of debt funds by the state government. It can be seen from this table that, except in 1995-96, substantial volumes of debt resources were available to the state government for capital investment purpose after discharging its debt service (excluding interest payments) and disbursing of loans and advances(column 5). The amount of net debt fund available was more than capital outlay for 17 years out of 25 years. Since 2010-11, the amount of net fund available were more than actual capital outlay, indicating that the debt was used for financing revenue expenditure. Last column indicate the percentage of funds actually available for use after debt repayment and settling loans and advances. The ratio of 'net debt available' to 'total debt received' (%) has fluctuated during the period with an average of 49.7 percent. This indicates that a major portion of debt raised is used for debt servicing and netting out loans and advances.

Table 2. Use of public debt by Haryana Government

Year	Debt Incurred (Rs. bn)	Debt Repaymeent (Rs. bn)	Net debt (Rs. bn)	Net Loans / Advances Disbursed (Rs. bn)	Net Debt Funds Available (Rs. bn)	Capital Outlay (Rs. bn)	Excess of debt Funds over capital outlay (Rs bn)	Net Debt Available / Total Debt Received (%)
	(1)	*(2)*	*(3=1-2)*	*(4)*	*(5=4-3)*	*(6)*	*(7=5-6)*	*(8=5/1*100)*
1990-91	3.7	0.7	3.0	1.8	1.2	1.9	-0.7	31.3
1991-92	3.2	0.8	2.4	2.0	0.4	1.5	-1.1	12.9
1992-93	3.6	1.0	2.6	2.1	0.4	2.3	-1.9	11.6
1993-94	5.0	1.2	3.8	2.6	1.2	3.0	-1.8	24.7
1994-95	5.0	1.0	4.0	-0.6	4.6	2.1	2.5	93.5
1995-96	1.7	2.5	-0.8	3.5	-4.3	2.9	-7.2	-249.5
1996-97	9.4	4.4	5.0	-0.7	5.7	4.5	1.2	60.1
1997-98	15.3	7.3	8.0	-0.8	8.8	4.9	3.9	57.7
1998-99	26.1	15.0	11.2	-3.3	14.4	10.3	4.1	55.3
1999-00	38.2	23.2	15.0	0.5	14.4	8.9	5.5	37.8
2000-01	42.1	30.8	11.2	2.1	9.1	14.5	-5.4	21.7
2001-02	64.0	40.1	24.0	2.2	21.8	14.7	7.1	34.1
2002-03	44.6	27.4	17.2	3.5	13.7	4.4	9.3	30.6
2003-04	65.2	40.3	25.0	22.7	2.2	3.9	-1.7	3.4
2004-05	44.7	30.1	14.6	0.5	14.1	9.0	5.1	31.5
2005-06	33.5	11.1	22.4	-1.1	23.5	16.1	7.4	70.3

2006-07	20.1	11.1	9.0	-20.2	29.1	24.3	4.8	144.8
2007-08	8.4	8.4	0.0	0.7	-0.7	34.3	-35	-8.2
2008-09	38.9	12.9	26.0	-0.2	26.2	45.0	-18.8	67.3
2009-10	84.6	27.5	57.1	6.2	50.9	52.2	-1.3	60.2
2010-11	105.1	46.4	58.7	4.9	53.8	40.3	13.5	51.2
2011-12	117.4	50.1	67.3	3.3	64.0	53.7	10.3	54.5
2012-13	155.6	63.0	92.6	1.7	90.9	57.6	33.3	83.8
2013-14	177.1	80.1	97.1	5.1	92.0	39.3	52.7	45.3
2014-15	209.3	106.5	102.9	5.7	97.2	55.7	41.5	58.3
2015-16	263.0	100.4	162.7	9.7	153.0	59.0	94	52.9

Source: RBI's State Finances A Study of Budgets (different issues) and Economic Survey of Haryana(various years)

Adequacy of incremental non-debt receipts of the State is to cover the incremental interest liabilities and incremental primary expenditure. The debt sustainability could be significantly facilitated if the incremental non-debt receipts could meet the incremental interest burden and the incremental primary expenditure. Date presented in table 3 reveals negative resource gap (gap between incremental non-debt receipts and incremental total expenditure) for 16 out of 25 observations, which indicate that the incremental non-debt receipts were inadequate to finance incremental primary expenditure and incremental interest burden of the State. During last, two years of the periods also, the resource gap has been negative. It indicates the non-sustainability of debt and the sign of debt-trap. The negative value in column 3 of the table for some of the years indicates that even for meeting primary expenditure, Government has to depend on borrowed funds for these years.

Table 3. Resource Gap in Haryana

Year	Incremental non-debt Receipts (Rs. bn)	Incremental Primary Expenditure (Rs. bn)	Incremental Receipts Available for Interest Payment (Rs. bn)	Incremental Interest Payments (Rs. bn)	Resource Gap (Rs. bn)
	(1)	*(2)*	*(3 =1-2)*	*(4)*	*(5=3-4)*
1991-92	3.35	2.45	0.91	0.80	0.11
1992-93	1.36	1.84	-0.48	0.21	-0.69
1993-94	11.05	10.62	0.43	0.78	-0.36
1994-95	27.68	27.58	0.11	0.65	-0.55
1995-96	-12.38	-8.56	-3.83	0.69	-4.51
1996-97	14.65	14.19	0.47	1.60	-1.13
1997-98	-0.89	-1.65	0.76	1.04	-0.28
1998-99	-3.88	5.48	-9.36	1.77	-11.13
1999-00	-0.32	-5.00	4.68	3.60	1.08
2000-01	6.43	6.42	0.02	1.35	-1.33
2001-02	10.42	13.84	-3.42	1.33	-4.74
2002-03	10.78	-5.12	15.90	3.22	12.68
2003-04	12.36	25.31	-12.95	1.67	-14.62
2004-05	13.07	-5.42	18.49	1.22	17.27
2005-06	28.37	20.51	7.86	-1.35	9.20
2006-07	60.10	43.80	16.30	1.65	14.64
2007-08	-1.78	21.83	-23.62	0.81	-24.43
2008-09	-11.64	41.37	-53.01	-0.07	-52.94

2009-10	22.04	55.39	-33.35	3.98	-37.33
2010-11	45.73	11.76	33.97	5.82	28.15
2011-12	50.00	42.69	7.31	6.82	0.49
2012-13	30.82	55.98	-25.16	7.44	-32.60
2013-14	43.70	11.36	32.33	11.05	21.28
2014-15RE	74.20	135.07	-60.86	13.46	-74.32
2015-16^{BE}	68.93	63.22	5.71	13.68	-7.97
Average	***20.17***	***23.40***	***-3.23***	***3.33***	***-6.56***

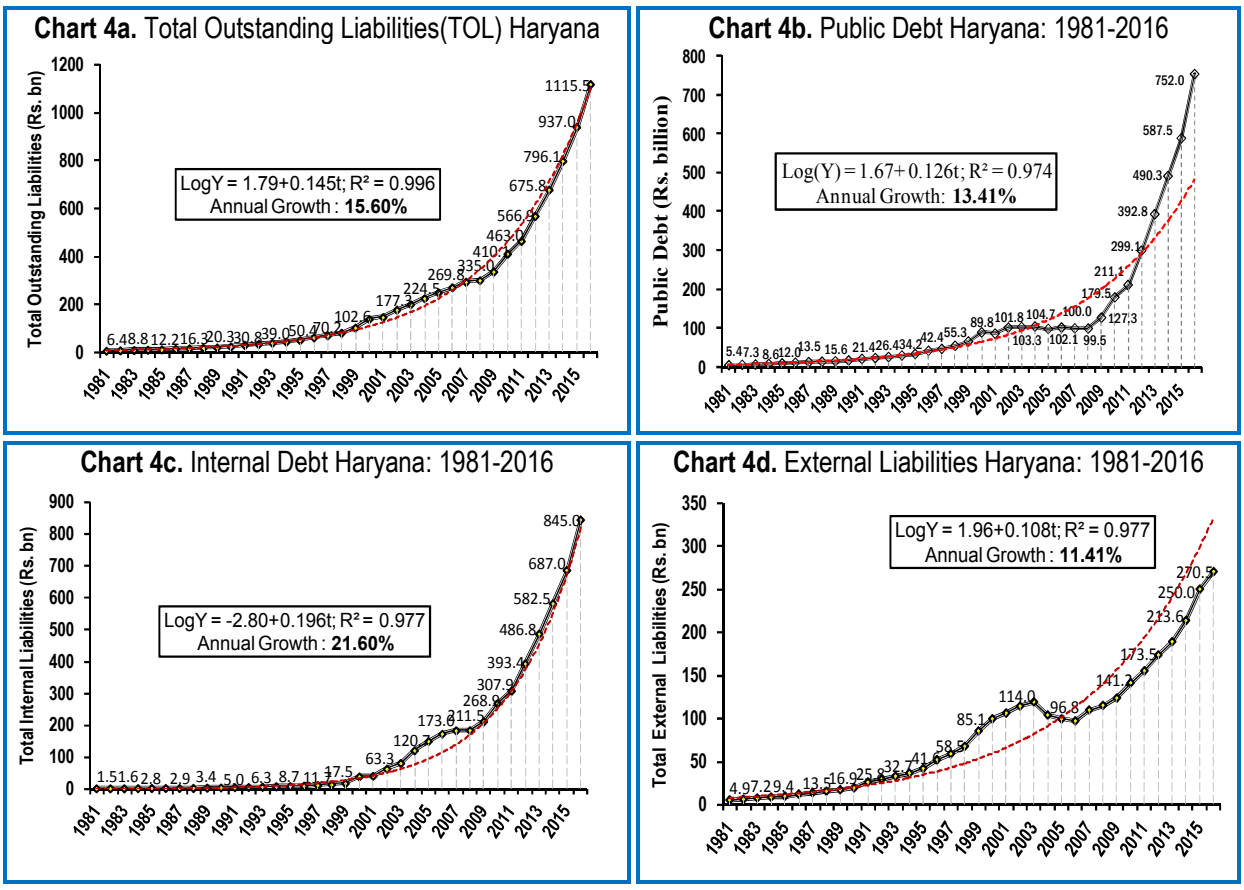
Source: RBI's State Finances A Study of Budgets (different issues) and Economic Survey of Haryana(various years)

Note: **Primary expenditure* = Primary revenue expenditure (revenue expenditure excluding interest payments) + capital outlay + loan and advances.

***Non-debt Receipts* = Revenue Receipts + recovery of loans + disinvestment proceeds.

4.3 Magnitude and Composition of Outstanding Public Liabilities

Outstanding debt liabilities of the state government (excluding guarantees) constitutes 22.99 percent of GSDP in 2015-16, of these public debt constitute 17.99 percent and other liabilities (mainly public account liabilities) constitute 5.0 percent of GSDP (see appendix table 1 for yearly figures).

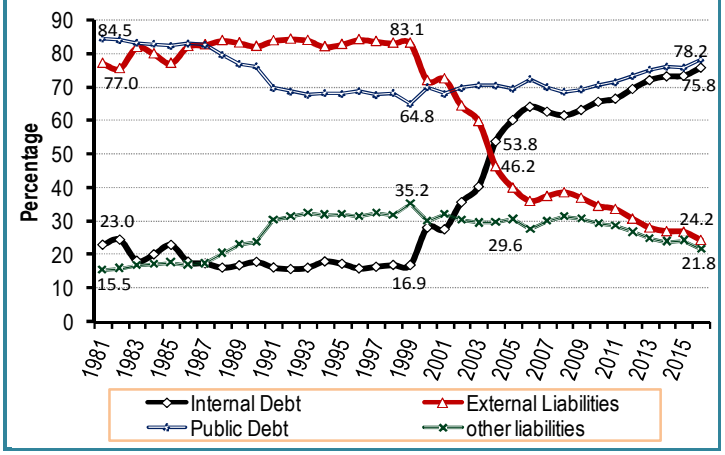


Source: Plotted using data from RBI Handbook on State's Finances 2010 for data upto 2007-08 and RBI's State Finances A Study of Budgets for others.

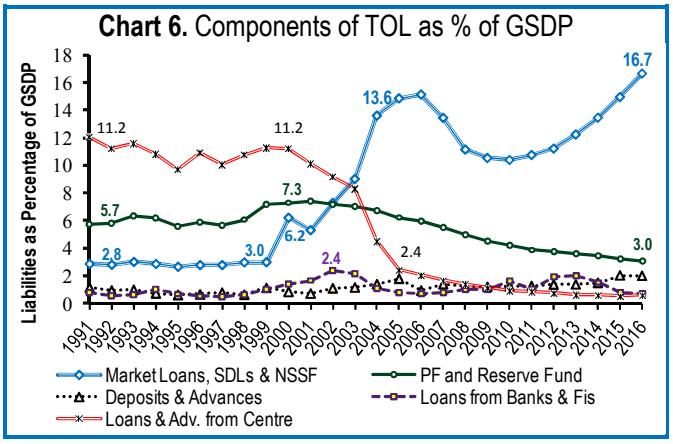
Chart 4a depicts that total outstanding liabilities of Haryana have increased from Rs. 6.4 billion in 1980-81 to Rs. 1115.5 crores in 2015-16, increasing at the trend rate of 15.60 percent per annum. Chart 4b reveals that public debt has increased at a significantly lower rate of 13.41 percent per annum; indicating that public accounts liabilities would have increased at the much higher rate. The internal debt has increased more steeply at the trend rate of 21.60 percent per annum whereas external liabilities have increased at the trend rate of 11.41 percent.

The composition of total outstanding liabilities in Haryana has undergone a compositional shift during the period. As evident in chart 5, the public debt in Haryana has undergone a compositional shift from 1998-99, as the share of internal debt has increased and that of external debt especially loans and advances from centre have decreased. The share of internal debt in total outstanding liabilities has increased from 16.9 percent in 1998-99 to 75.8 percent in 2015-16. The reason of this compositional shift is due to changes in the definitions and recommendation of Thirteenth Financed Commission (FC-XIII). As discussed in data and methodology section, a change in the accounting procedure for small savings deposits in 1999 shifted a large share of State liabilities owed to the Central Government to a fund in the Public Account. Another important reason for the decline in Central loans to States is the recommendation by FC-XII that the Central Government stop intermediating in the raising of borrowings by States to finance their fiscal deficits. This recommendation led to the elimination of the loan portion of Central plan transfers to States. Now the states have to raise their plans fund themselves and this has resulted in exponential rise in the market borrowings of the states. As per the recommendations of the FC-XII, existing Central Government loans to the States were consolidated into fresh 20-year loans, and, since 2007-08, central transfers to States have been almost entirely in the form of grants.

Chart 5. Percentage share of Internal Debt, External Debt, Public Debt and other liabilities in Total Outstanding Liabilities

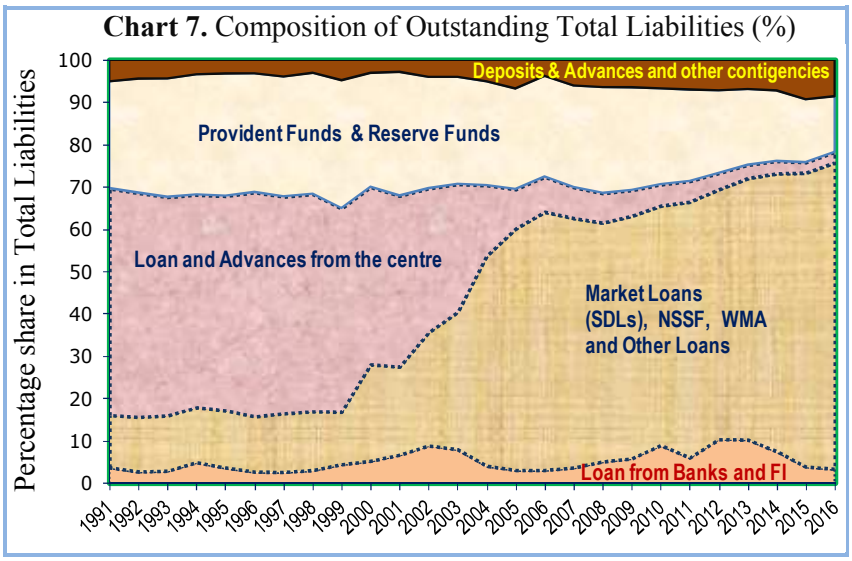


The share of public debt in total outstanding liabilities was 84.5 percent in 1980-81 and it decreased continuously upto 1998-99 to 64.8 percent. Since 1999-200, we observed increasing trend in outstanding public debt in the state and in 2015-16, the outstanding public debt constitutes 78.2 percent of total outstanding liabilities. Correspondingly, the share of public accounts liabilities have decreased from 35.2 percent in 1998-99 to 21.8 percent in 2015-16.



For the period 1990-91 to 2015-16, total outstanding liabilities of the state has increased at an annual trend rate of 15.04 percent. Total internal debt has increased at a significantly higher rate of 24.56 percent, market loans have increased at the trend rate of 22.67 percent per annum and loans from banks and FIs increased at the trend rate of 18.42 percent. The loans and advances from the centre has shown downward trend, decreasing at the trend rate of -0.89 percent per annum. As seen from the chart-6a, the decline has been more pronounced since 1999-2000. The PF and other public accounts liabilities have increased at the rate of 11.69 percent per annum.

The percentage share of different components of TOL has gone a compositional shift as depicts in Chart 7. The share of market loans, SDLs and power bonds have increased exponentially and it formed 72.73 percent of outstanding liabilities in Haryana. As seen in chart, the share of Loans and Advances from the centre has decreased significantly. It constituted more than half (53.75 percent) of the total outstanding liabilities of Haryana in 1990s but its share in 2015-16 was only a minuscule 2.47 percent. As highlighted above, this is mainly due to treatment of national small savings after 1999 and recommendation of FC-XII for not extending the central loan for State plan and to allow States to raise the loans from the market directly. In 2016-16, Provident Funds and Reserve Funds constituted 13.17 percent of total outstanding liabilities and deposits and advances constituting another 8.61 percent of total outstanding liabilities of Haryana. It may be noted that due to high cost of borrowings, the states are only using only the mandatory minimum share of NSSF deposits. The NSSF loans of 13.5 percent interest rate have been consolidated in 2007-08 at 10.5 percent interest rate. The debt burden of the Provident Funds, Reserve funds, deposits and advances are exogenously determined and may pose risk to the state finances.



5.4 Debt Sustainability

Debt sustainability refers to the ability of the state government to sustain its fiscal policies in the long-run while remaining solvent. Solvency is defined as the ability to service debt without an explicit default. IMF defines debt sustainability as a situation in which a borrower is expected to be able to continue servicing its debts without an unrealistically large future correction to the balance of income and expenditure (Geithner, 2002). Sustainability rules out a situation where the borrower keeps on indefinitely accumulating debt faster than its capacity to service these debts is growing (a Ponzi game); or a situation in which the borrower lives beyond its means by accumulating debt in the knowledge that a major retrenchment will be needed to service these debts. The indicators broadly enable an assessment of the ability of the state government to service its interest payments and repay its debt as and when they become due through current and regular sources of revenues excluding temporary or incidental revenues. To gauge sustainability of both debt and fiscal situation, various indictors such as debt stock to-GSDP (subnational GDP) ratio, debt stock-to-total revenue ratio, debt service-to-total revenue, and budget deficit-to-SGDP ratio are evaluated to look for the stress and vulnerabilities (Rajaraman, Bhide, and Pattnaik 2005; Ianchovichina, Liu and Nagarajan, 2007; Maurya, 2014; Kaur, 2014, Narayan, 2016). The indicators are basically derived from debt dynamics identity as illustrated above in equations 1 to 9. The budget constraint, shown in eqn. (9), shows the sustainability of the subnational government's fiscal policies. It may be noted that part-1 of the equation (1) related to interest burden component determined by rate of interest (η), inflation rate(λ) and growth of economy(g) whereas part-2 relates primary surpluses/deficit. This means that if the government runs a primary surplus equal to zero, the debt-GSDP ratio would be determined by real rate of interest and real growth rate of economy.

Based on the eq.(1) and eq. (2) and definition of sustainability, following indicators of sustainability are generally used to understand the direction of debt sustainability.

[1] Rate of Growth of Nominal GDP (Y) should be more than Rate of Growth of Debt (D), that is, debt/DSDP ratio should decline over time.

[2] Rate of growth of debt (D) should be lower than effective interest rate (η), that is, $D-\eta>0$

[3] Real Output Growth should be higher than real effective Interest Rate, that is, $\frac{(1+r_t)}{(1+g_t)}$ should be less than 1.

[4] 'pb'(PB/GSDP) should be declining or stable. As a corollary of this Primary Revenue Balance (PRB) should be in surplus and adequate enough to meet interest Payments (IP).

[5] ip(IP/GSDP), measured by $(1+r_t).d_{t-1}$ should decline over time.

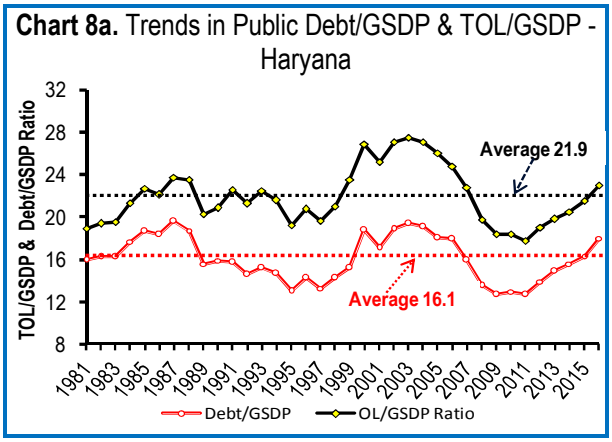
[6] Interest Payments as a per cent of Revenue Receipts (IP/RR)/ Revenue Expenditure (IP/RE) should decline over time.

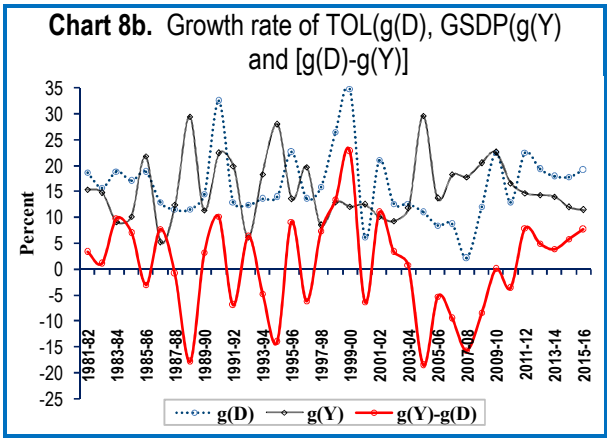
[7] Debt to revenue receipts ratio, Debt to total revenue receipts ratio and debt to own tax ratio should decline over time

Now let us analyse the position of Haryana in respect of these indicators for the period 1980-81 to 2015-16.

5.4.1 Debt/GSDP Ratio[*SGDP growth vs Debt growth*]

To assess the sovereign' solvency, what matters is not the level of debt, but its level relative to the tax base (GSDP in this case).The debt-GSDP ratio is an important parameter of fiscal health of a state. An important indicator of debt sustainability is that the Rate of Growth of Nominal GDP (Y) should be more than Rate of Growth of Debt (D) or debt-GSDP ratio should be declining over time. A reduction in the ratio indicates that the rate of growth of GSDP has been higher than the growth of debt stock. For debt to be sustainable, the ratio should be 'low and stable'. If it is high, then it must be declining to ensure sustainability and solvency.





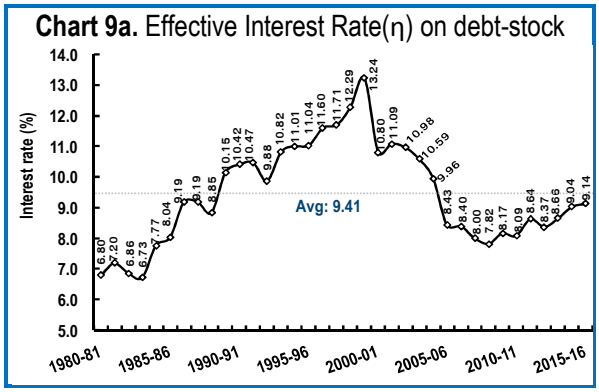
As indicated earlier, we would consider total outstanding liabilities (TOL) as a measure of debt stock for analytical purpose. Total outstanding liabilities consist of public debt (internal debt + loans from the centre) and the liabilities in the public account of the state. The historical trends in public debt and TOL are traced in chart 8a. TOL as percentage of GSDP have ranged from 17.8 percent to 27.5 percent. The TOL/GSDP has shown steep increase in liabilities as proportion of GSDP from 1997-98 reaching to the peak in 2004-05 and thereafter decreasing sharply upto 2010-11 reaching a historical low of 17.8 percent for the period under study. The total outstanding again followed an upward trend since 2011-12. The average TOL-GSDP ratio has been 22.2 for the period. Between 1980-81 and 2015-16, public debt has been in a range between 17.8 to 27.5 percent of SGDP, with an average of 21.9 percent of GDP. The lowest point of 17.8 percent was reached in 2011-11 and the peak occurred in 2002-03. During the period under study, Haryana has experienced two periods of substantial fiscal consolidation: (i) in the first half of the 1986-87 to 1996-97 and (ii) after the

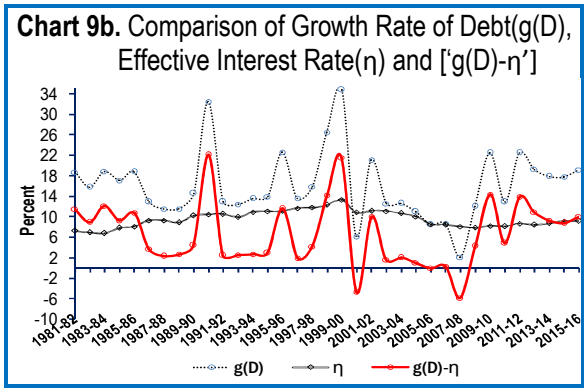
introduction of the FRBMA in 2002-03 to 2010-11. However, fiscal consolidation was reversed in both of these episodes. In 1996-97 it was due to the economic slowdown and Fifth Pay Commission implementation and in 2011-12 due to economic slowdown and sixth pay commission rewards. Primary deficit indicates the payment of interest charges out of fresh debts. This has put strains on sustainability and solvency of the state. However, a favorable interest growth differential facilitated the fiscal sustainability to a large extent.

The public debt has followed the similar pattern and the average debt-GSDP ratio for Haryana has been 16.3. The ratio of outstanding liabilities to GSDP has been almost stable though it has fluctuated during the period. The year on year comparison in the growth rates are shown in chart 8b. As observed in the chart, no definite trend emerged from the comparison. Out of 35 observations, we found 20 instances where debt growth was more than the income growth and in rest 15 instances growth of income was higher than the growth of debt. For the period, outstanding liabilities have increased at the annual growth rate of 15.60 percent whereas SGDP has increased at the trend rate of 15.53 percent and the difference in the growth rates is not statistically significant, indicating long run stability in debt/GSDP ratio .

5.4.2 Effective Interest rate vs Debt growth

The effective interest rate used in the analysis here is the effective interest rate which is calculated as: $\text{Effective Interest Rate}(\eta) = \left\{\frac{[\text{Interest Payments}]}{[\text{Amount of previous year TOL}]}\right\}*100$



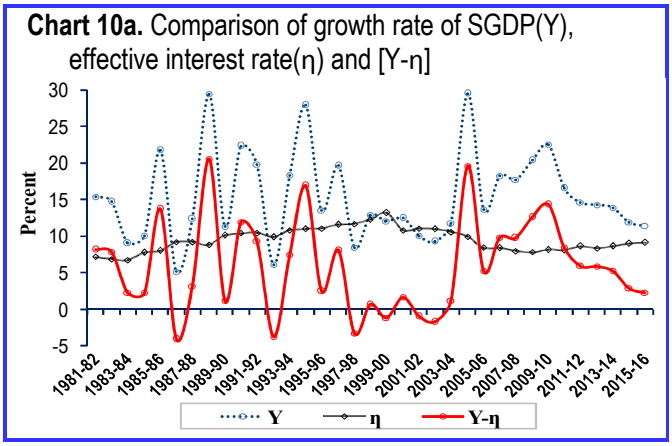


The effective interest rate for the period is shown in chart 9a. As evidenced by the chart, the effective interest rate has observed an increasing trend upto 1999-2000, increasing from 6.80 percent in 1980-81 to 13.24 percent in 1999-2000. Thereafter, the effective rate of interest shown declining trend and it was 7.82 percent in 2008-09. Since then the interest rate is showing an increasing trend. The comparison of growth rates of debt and effective interest rate reveals that the condition is violated in case of Haryana for all the years under study except for two years 2000-01 and 2007-08(Chart 9b). During the study period, average annual growth rate of debt stock is 15.60 percent, interest rate is 8.8 percent and average growth rate of GSDP is 15.4 percent. Thus, the growth rate of economy is more than the

interest rate but growth rate of debt is more than the interest rate. It fulfills the debt stability conditions (Domar condition) but does not confirm to the solvency condition.

5.4.3 Effective Interest rate vs Nominal SGDP growth

A necessary condition for Public debt stability is that the growth of income must exceeds the interest rate or cost of public borrowings subject to the condition that the primary balance is either positive or zero. This is known as the 'Solvency Condition'. The stock of public debt could increase so long as income does not increase faster than the real interest rate(r-g>0). A zero primary deficit is required for stabilization of debt as percent of GSDP, if the nominal rate of growth of GSDP is equal to the interest rate on outstanding debt. Given the rate spread (g-r) and quantum spread (debt stock multiplied by the rate spread), debt sustainability condition states that if quantum spread together with primary deficit is zero, Debt-GSDP ratio would be stable and debt would stabilize eventually. On the other hand, if it is negative, the Debt- GSDP ratio would continue to rise and in case it is positive, Debt-GSDP ratio would eventually fall (Rath, 2005; Domar, 1944). The data shown in chart 10 clearly shows that the rate spread (difference of growth of nominal GSDP – effective interest rate) has been positive except for 1986-87, 1992-93, 1997-98, 1999-2000, 2001-02 and 2002-03. The growth rate of GSDP is found to be greater than the effective interest rate on public debt consecutively from 2003-04 to 2005-16.



There are two things that matter in government-debt dynamics. The difference between real interest rates and GDP growth (r-g), and the primary balance as a % of GDP. In any given period the debt stock grows by the existing debt stock (D_t) multiplied by r-g(also known as quantum spread), less the primary budget balance (pb). Data presented in table 4 reveals that the magnitude of quantum spread has been able to eliminate negative primary deficit in case of 10 observations. Domar stability conditions require that the growth rate of nominal GSDP should be more than the interest rate.

Table 4. Debt Sustainability of Haryana in terms of Quantum Spread and Primary Deficit

(in Rs. billion)

Year	Rate Growth of GSDP (Y)	Effective Interest Rate(η)	Rate Spread (Y-η)	Quantum Spread (D_t* rate spread) *(Rs. billion)*	Primary deficit (-) *(Rs. billion)*	Debt Stabilization Index *(Rs. billion)*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6 = 5+4)*
1981-82	15.4	7.20	8.2	0.6	-0.6	0.1
1982-83	14.7	6.86	7.8	0.7	-1.4	-0.7

1983-84	9.0	6.73	2.3	0.2	-0.8	-0.5
1984-85	10.1	7.77	2.3	0.3	-1.5	-1.3
1985-86	21.7	8.04	13.7	2.0	-1.3	0.7
1986-87	5.1	9.19	-4.0	-0.7	-0.4	-1.0
1987-88	12.3	9.19	3.2	0.6	-0.7	-0.1
1988-89	29.4	8.85	20.6	4.2	-1.3	2.9
1989-90	11.3	10.15	1.2	0.3	-1.9	-1.6
1990-91	22.3	10.42	11.9	3.7	-1.4	2.2
1991-92	19.8	10.47	9.4	3.2	-0.5	2.7
1992-93	6.1	9.88	-3.7	-1.5	-1.0	-2.5
1993-94	18.3	10.82	7.5	3.3	-0.6	2.7
1994-95	27.9	11.01	16.9	8.5	-0.5	8.0
1995-96	13.5	11.04	2.5	1.5	-4.3	-2.8
1996-97	19.6	11.60	8.0	5.6	-3.8	1.8
1997-98	8.4	11.71	-3.3	-2.7	-3.1	-5.7
1998-99	12.9	12.29	0.6	0.7	-12.4	-11.8
1999-00	12.1	13.24	-1.2	-1.6	-7.8	-9.4
2000-01	12.5	10.80	1.7	2.4	-7.7	-5.3
2001-02	10.1	11.09	-1.0	-1.8	-11.2	-12.9
2002-03	9.3	10.98	-1.7	-3.4	4.8	1.3
2003-04	11.8	10.59	1.2	2.6	-8.2	-5.6
2004-05	29.5	9.96	19.6	48.7	10.3	59.0
2005-06	13.7	8.43	5.2	14.1	18.1	32.3
2006-07	18.2	8.40	9.8	28.8	34.4	63.3
2007-08	17.8	8.00	9.8	29.2	10.8	40.0
2008-09	20.4	7.82	12.6	42.1	-42.2	-0.1
2009-10	22.5	8.17	14.3	58.8	-73.5	-14.7
2010-11	16.6	8.09	8.5	39.2	-39.4	-0.2
2011-12	14.6	8.64	6.0	33.8	-31.5	2.3
2012-13	14.3	8.37	5.9	40.0	-56.2	-16.2
2013-14	13.9	8.66	5.3	42.0	-24.6	17.4
2014-15	11.9	9.04	2.9	27.1	-84.3	-57.2
2015-16	10.9	9.14	1.8	19.7	-78.6	-58.9

Source: Calculated using data obtained from RBI's State Finances A Study of Budgets (different issues) and Economic Survey of Haryana(various years)

Although Haryana has positive rate spread for most of the period under study but it has primary deficit throughout the study period (except at four time points). Primary deficit indicates the payment of interest charges out of fresh debts. This has put strains on sustainability and solvency of the state. However, a favorable interest growth differential facilitated the fiscal sustainability to a large extent. The last column of the table 4 highlights that the debt stabilisation index has been negative for 20 years out of 35 years. The decomposition of interest rate on internal debt and loan and advances from the centre are placed in table 5.

Table 5. Interest Rate Profile of Outstanding Loans

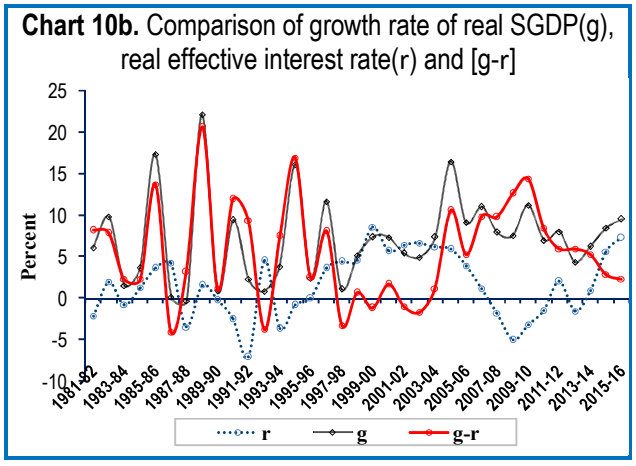
Rate of Interest	Amount (Rs. bn)	Share in Total in %

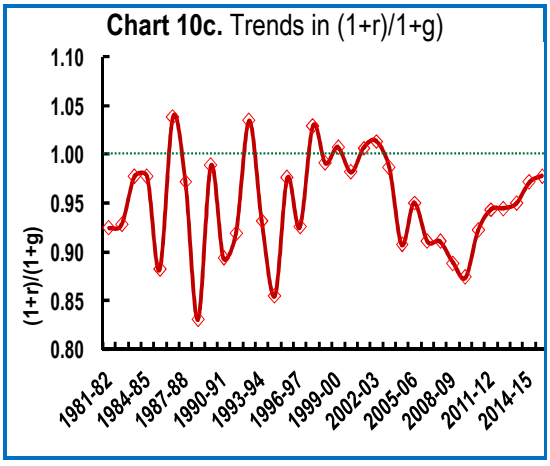
(Percent)	2011	2016	2011	2016
Internal Debt				
5.00 to 5.99	8.2	1.4	2.07	0.14
6.00 to 6.99	15.8	6.9	4.03	0.69
7.00 to 7.99	58.1	60.5	14.78	6.07
8.00 to 8.99	150.9	583.6	38.35	58.55
9.00 to 9.99	84.0	303.8	21.36	30.48
10.00 to 10.99	45.6	38.4	11.58	3.86
11.00 to 11.99	0.04	1.0	0.01	0.1
12.00 to 12.99	29.7	0.6	7.56	0.06
13.00 to 13.99	1.0	0.6	0.26	0.05
14.00			..	0.14
Loans and Advances from the Central Government				
7.00 to 7.99	10.6	7.7	51.85	36.15
8.00 to 8.99	0.03	--	0.01	--
9.00 to 9.99	9.0	13.5	44.06	63.05
10.00 to 10.99	0.04	--	0.23	--
11.00 to 11.99	0.09	0.1	0.45	0.25
12.00 to 12.99	0.2	0.1	1.01	0.54
13.00 to 13.99	0.4	0.002	2.39	0.01

Source: Comptroller and Auditor General Haryana reports.

5.4.4 Effective Interest rate vs Real SGDP growth

It is pertinent to note that a high rate of Inflation helps in reducing the total debt stock over time, by reducing the real value of debt. The debt stability required that real rate of interest (r) should be lower than real output growth (g), that is, 'g-r' should be positive. If the long-run growth rate of GDP exceeded the long-run interest rate, sustainability of fiscal policy would not be an issue. The data presented in the chart 10 clearly highlights that the condition has been fulfilled for most of the years under study. The ratio (1+r)/(1+g) has been less than one except for six years





5.4.5 pb(PB/GSDP) and ip(IP/GSDP)

The sustainability and solvency condition requires that PB/GSDP ratio should be declining or stable during the period as can be seen from equation (I). But in case of Haryana for most of the period, the primary balance has been in deficit putting stress on state finances (can be seen in column 5 of table 4). The condition of debt sustainability is that the Interest Burden defined by Interest Payments (IP) to GSDP ratio should decline over time. The GSDP has increased at the annual growth rate of 15.53 percent which is lower than the growth rate of interest payments (15.95 percent). As Haryana has primary deficit for most of the year under study but the debt-GDP ratio, in contrast, has remained essentially constant indicating that that (1+r)/1+g) must have been less than one on average. This means that growth rather than primary surplus has helped in checking the growth of debt-GSDP ratio in Haryana.

Chart 11. Trends in IP/GSDP(ip) and PB/GSDP(pb)

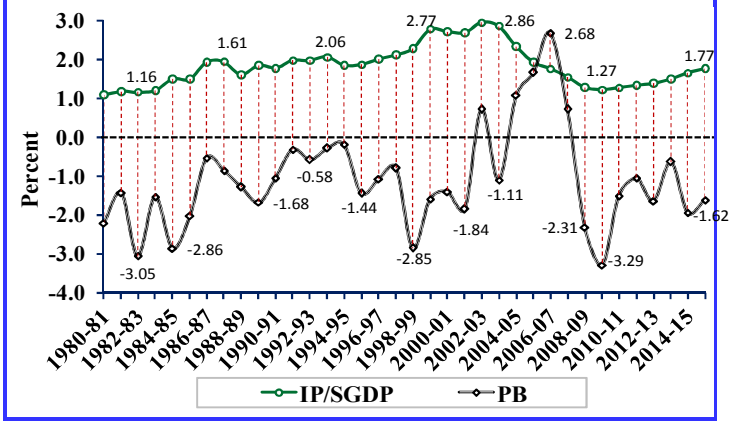


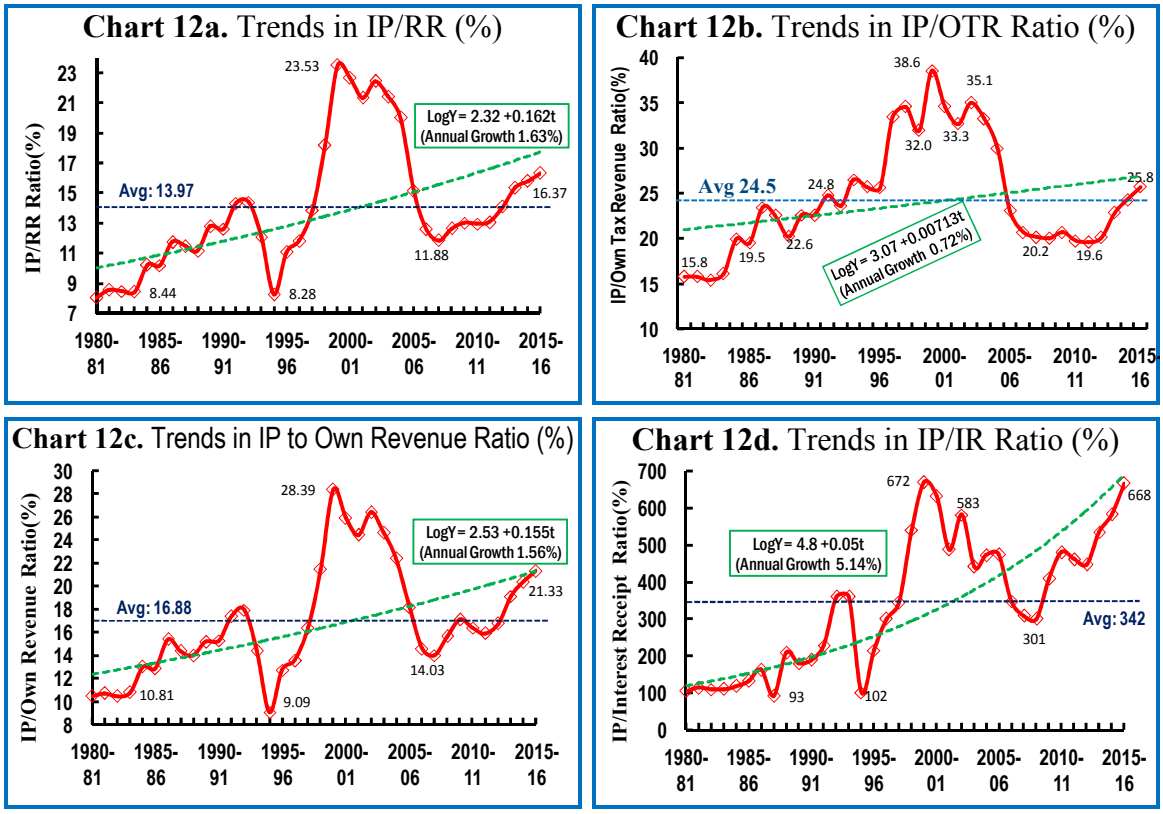
Chart 6b depicts that the IP/GSDP ratio has fluctuated widely during the period 1980-81 to 2015-16. Three broad trends can be observed in IP/GSDP ratio. The IP/GSDP has shown an upward trends upto 2002-03, increasing from 1.09 percent in 1980-81 to 2.94 percent in 2002-03. IP/GSDP declined sharply thereafter till 2008-09 reaching a low of 1.28 percent. The period coincide with the debt-swap scheme (DSS) and introduction of FRBM act. In last phase after 2008-09, the IP/GSDP shown steadily increasing trend. In the terminal year 2015-16, 1.77 percent of state's GDP was paid as interest which is higher than average for all states(1.6 percent).

5.4.6 IP/RR, IP/RE, IP/Own Revenue, IP/Own Tax Revenue

The interest cost of debt is a crucial indicator of the sustainability of Government debt. The indicator based analysis of debt sustainability requires that Interest payments (IP) as a per cent of revenue receipts (RR) and Interest payments (IP) as a per cent of revenue expenditure (RE) should decline over time (Maurya, 2014; Kaur et. al, 2014). As depicted in various graphs, we found that none of these conditions is satisfied in case of Haryana for whole period of 1980-81 to 2015-16.

The ratio of interest payments to revenue receipts (IP/RR) shows an increasing trend for the period 1980-81 to 2015-16. The condition of debt sustainability requires that the Interest Payments as a proportion of Revenue Receipt should fall over time. But the IP/RR ratio has increased at the exponential growth rate of 1.63 percent for the period, indicating that the debt sustainability position of Haryana has deteriorated during the period. The interest payments during the period have increased at annual trend rate of 15.95 percent

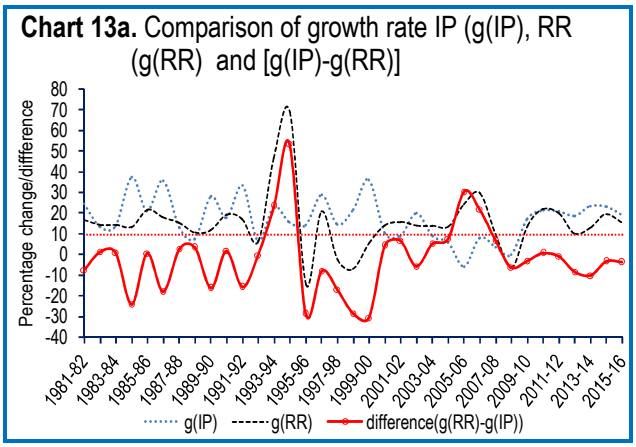
whereas revenue receipt has increased at the trend rate of 14.09 percent. Here it is pertinent to note that Eleventh Finance Commission has recommended that the ratio should be within 18 percent for the State Governments. The Twelfth Finance Commission of Government of India recommended 28 percent and 15 percent as acceptable level of the debt-GSDP ratio and the ratio of interest payments to total revenue receipts respectively. The IP/RR ratio of Haryana was 16.37 percent in 2015-16 which is well above the limit of 15 percent and is also 3rd highest among NSC(Non Special Category) states after West Bengal(20.9 percent) and Punjab(21.4 percent). Chart 12a clearly depicts an increasing trend upto 1992-93, increasing from 8.04 percent in 1980-81 to 14.43 percent. After a sharp dip for next two fiscal year it has again increased sharply and reached a peak of 23.53 percent in 1999-2000. The ratio has again shown a declining trend upto 2007-08, mainly due to Debt Consolidation and Debt Swap Scheme. But since 2008-09, interest payments as a ratio to revenue receipts have shown a continuously increasing trend. This trend indicates that the fiscal situation of the state needed some concrete corrective action.



The interest payments impose heavy burden on state finances. One fourth of the state's own tax revenue is used up for paying interest payments as depicted in chart 12b. For the period from 1980-81 to 2015-16, the interest payment as a proportion to Haryana's own revenue has increased at the annual growth rate of 1.56 percent per annum. In 2015-16, more than one-fifth of state own revenue (21.33 percent) was used for paying interest payments. Chart 12c depicts that in recent years the interest payment as a ratio of state own revenue has shown upward trends after 2007-08 after a decline for the period 1999-2000 to 2007-08.

Another indicator of interest burden is the ratio of interest payment to interest receipts which observed a significantly increasing trend at the rate of 5.14 percent per annum for the period 1980-81 to 2015-16.

Chart 13a shows that on 19 time points out of 35 time points, the value of difference between growth of Interest Payments (g(IP)) and growth of revenue receipts (g(RR)) has been negative indicating that the growth of interest payments has been higher than the growth of revenue receipts. This is evident as interest payments (15.95 percent per annum) have increased at a significant higher rate of revenue receipt (14.09 percent per annum). Similarly, interest payments grew higher than states own revenue (SOR) for 20 years out of 35 years. The SOR increase (14.17 percent) had been lower than the interest payment for the period 1981-82 to 2015-16.



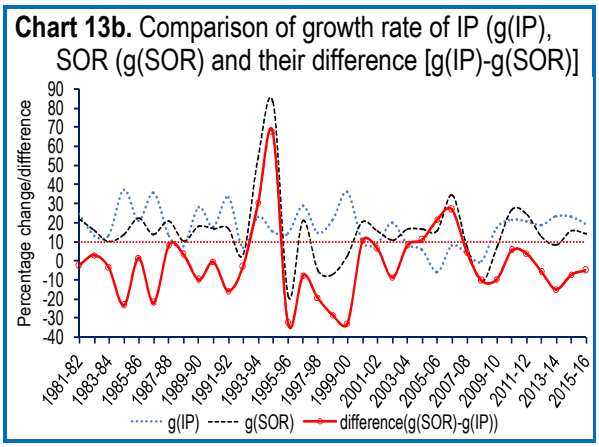
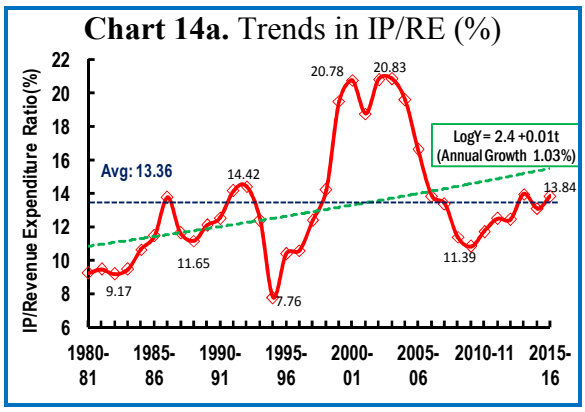
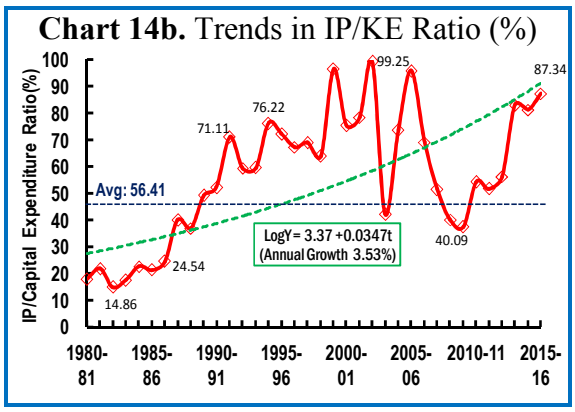


Chart 14a and 14b depicts the relation of interest payments with revenue and capital expenditure. The ratio of interest payments to revenue expenditure (IP/RE) has increased with a trend rate of 1.03 percent and the ratio of Interest Payments with capital expenditure (IP/KE) has increased at a significantly higher rate of 3.53 percent. The interest payments constitute 13.84 of the Haryana's total revenue expenditure in 2015-16. The ratio of IP to RE has fluctuated during the period under study reaching a peak of 20.8 percent in 2003-04.

The extent of interest burden on the state finances can be measured from the fact that in 2015-16, interest payment are as large as the size of capital expenditure.





5.4.7 Debt/RR, Debt/RE, Debt/Own Revenue, Debt/Own Tax Revenue

Another indicator based criteria of debt sustainability is that the 'Debt to revenue receipts ratio should decline over time'. For the period 1980-81 to 2015-16, we found that debt/RR ratio has shown an upward trend, increasing at a rate of 1.33 percent per annum. In the initial period from 1980-81 to 1992-93, the ratio has steadily increased from 138.9 percent to 164 percent. After declining for two consecutive years it again rose sharply to 239.5 percent in 1999-2000(Chart 15a). The ratio has declining trend thereafter till 2007-08 but since then it has shown a rising trend. The ratio is 213.2 percent in 2015-16, which is above the limit of 200 percent. As evident from chart 15b, there are 19 observations where growth of revenue receipts (g(RR)) has been lower than growth of debt stock (TOL) and on 16 occasions it had been higher than growth of debt. For the period 1980-81 to 2015-16, the revenue receipts increased at the trend rate of 14.09 percent against the growth of debt stock at the trend rate of 15.60 percent.

Chart 15a. Trends in debt/RR (%)

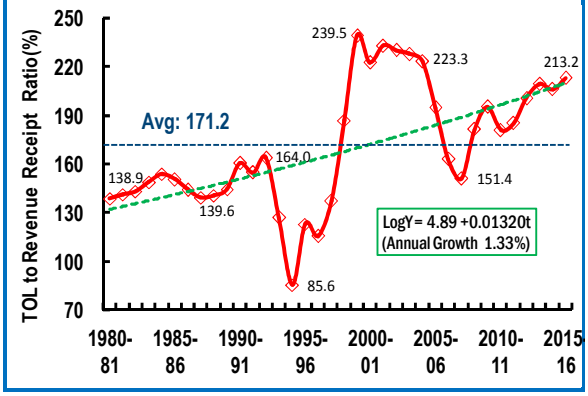
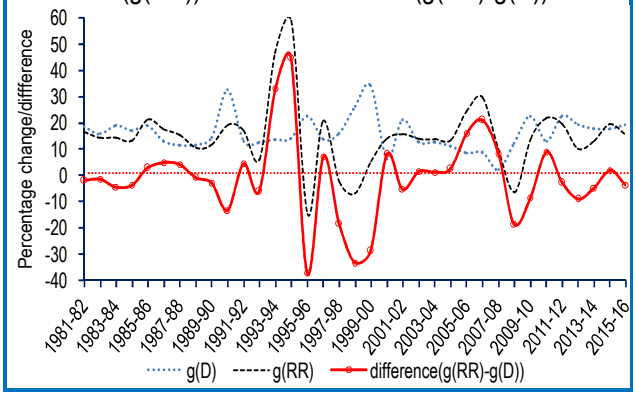


Chart 15b. Comparison of growth rate of debt(g(D)), RR(g(RR)) and their difference(g(RR)-g(D))



The debt to own revenue ratio as well as debt to own tax revenue has shown an increasing trend. The Debt to states own revenue (SOR) has increased at the trend rate of 1.26 percent and Debt to states own tax revenue has increased at the annual growth rate of 0.41 percent (Chart 16a and 16b).

Chart 16a. Trends in debt/SOR Ratio (%)

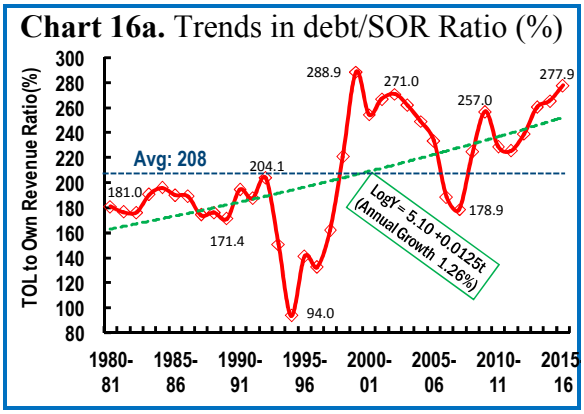
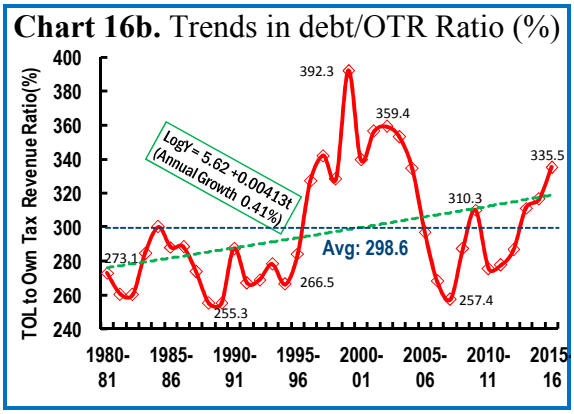
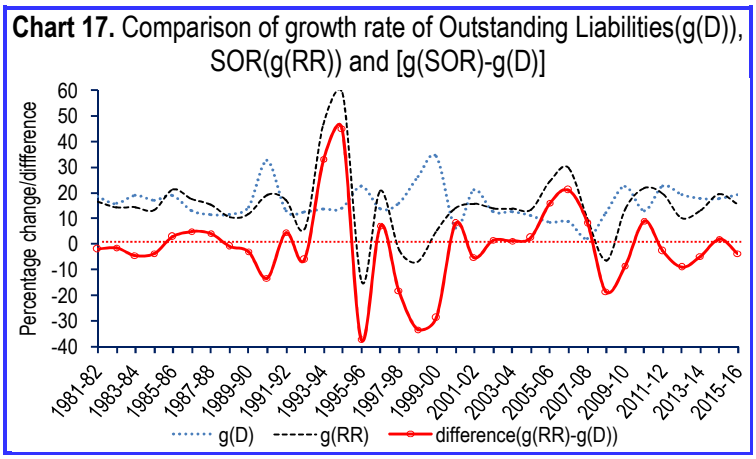


Chart 16b. Trends in debt/OTR Ratio (%)

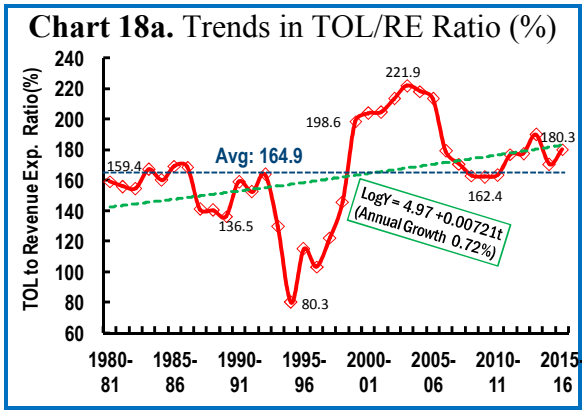


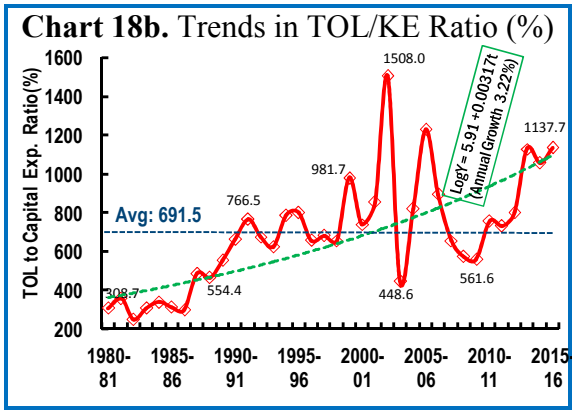
The year-on-year comparison of the growth rate of State's Own Revenue (g(SOR)) and debt stock (g(DD)) is depicted in chart 17. It is evident from the chart that there are 17 observations when growth of states own revenue had been lower than the growth rate of

public debt but on 18 time points it had been higher than the growth of debt. But overall, the growth of state's own revenue (14.17 percent per annum) has been lower than the growth of debt stock of Haryana (15.60 percent per annum).



Like other indicators of sustainability, the debt to state own revenue have also followed similar pattern. The debt to revenue expenditure and debt to capital expenditure ratio have also shown upward trend (Chart 13a and 13b). We may conclude that the situation of Haryana on debt sustainability front has deteriorated for the period under consideration.





5. Contingent Liabilities in Haryana

So far in our analysis we have included only direct liabilities of the state in our analysis and off-budget liabilities of the state governments have not been included in the analysis. It has been progressively recognised that in the context of fiscal stability and sustainability, the policy makers should identify, classify and understand the full range of fiscal risk involved in contingent liabilities (Bova et.al. 2016). Contingent liabilities are the obligations that do not arise unless particular discrete events occur in the future. The distinction between government's contingent and non-contingent liabilities is that nominal obligation and the settlement date of the latter are fixed at the date of issue, whereas in case of contingent liabilities the contractual obligation is dependent on its timing and amount, on the occurrence of an event such as, default by the principal obligant/borrower (Towe 1993; RBI 1999; IMF 2011;). Contingent liabilities could be explicit or implicit. Explicit liability is recognised by law or contract whereas implicit obligation of the government mainly reflects public expectations. Example of explicit liabilities are state guarantees issued on behalf of sub-national governments and public and private sector entities, credit guarantees, trade and

exchange rate guarantees offered by the State, state insurance schemes such as, for deposits, crops, floods, minimum returns from pension funds etc. The Implicit contingent liabilities would include, (i) Defaults of sub-national governments and public entities on non-guaranteed debt and other obligations, (ii) Liability clean-up in entities being privatised, (iii) Bank failures (support beyond state insurance), (iv) Failures of non-guaranteed pension funds or other social security funds, (v) Default of central bank on its obligations (foreign exchange contracts, currency, defence), (vi) Collapses due to sudden capital outflows and (vii) Environmental recovery, disaster relief, military financing(RBI, 1999; Cebotari, 2008). Contingent liabilities are liabilities of uncertain timing or uncertain amount or both and hence are not recognised even under accrual basis of accounting.

Bova et.al. (2016) emphasised that the Governments that want to avoid the danger of sudden fiscal instability and accomplish their long-term policy objectives must have a good understanding of both their direct and contingent liabilities and must be able to handle them appropriately. The available literature established the hidden fiscal risk of the contingent liabilities on public finances (see Kharas and Mishra 2001; Brixi and Schick 2002; IMF 2003; Cebotari et al. 2009; Gaspar et al. 2015).

The contingent liabilities of states in India have shown a downward trend in the last decade but they are still sufficiently high to have the potential of aggravating the fiscal difficulties of state governments. In India it is common for state governments to enter into arrangements with private sector enterprises or public or co-operative sector enterprises to build/own or operate projects. The state government may provide equity funding or subsidies or guarantees related to demand for output, supply of inputs and on debt of the enterprise. Such obligations are of the form of contingent liabilities and are not directly reflected in the budget (Vaidya, 2011). Kaur et al.(2014) highlighted that the guarantee commitments of state governments in respect of state public sector enterprises (SPSEs) are a major source of potential risk to fiscal and debt sustainability for all the states. In addition, contingent liabilities linked to public-private partnership (PPP) projects and unfunded liabilities relating to pension are other risk factors.

The table 6 indicates that the contingent liabilities of the State which were Rs. 11.3 billion in 1990-91 have increased considerably during the period. During 25 years, the outstanding liabilities have increased at the annual growth rate of 9.4 percent per annum. An inter-temporal comparison shows that the outstanding liabilities of Haryana as a ratio to GSDP steadily increased from 1991-92 to 2002-03.

The guarantees increased suddenly for the year 2012-13 and 2013-14 mainly due the state acceding to a Financial Restructuring Plan (FRP) for the Power Distribution Companies (Discoms). Recently the State Government had to step in to provide financial support of Rs. 100 crore to the Haryana State Cooperative and Agriculture Rural Development Bank (HSCARDB) to repay its loans to NABARD during 2014-15. Instances of the State

Government actually discharging these contingent liabilities is a matter of concern and has the potential to affect the State Government's fiscal health further.

Here, it is important to note that no upper limit has been fixed by the Legislature by law under Article 293 of the Constitution on the guarantees given by the State Government. The Haryana Fiscal Responsibility and Budgetary Management (FRBM) Act, 2005, also, does not have any provisions on the limits of giving of guarantees by the State. The Government of Haryana ordered levy of guarantee fee at the rate of 2 per cent on all the current borrowings of Public Sector Undertakings, Co-operative Institutions, Local Bodies and other concerns, rose from Financial Institutions against State Government guarantees in November 2001, which was later relaxed at one percent for some institutes. To mitigate the sudden fiscal risk of guarantees, Government of Haryana constituted Guarantee Redemption Fund (GRF) in 2003 for meeting obligations arising out of the guarantees issued on behalf of State Public Sector Undertakings and local bodies. In GRF, the actual receipts of the Guarantee Fee of the previous year are being invested in the Guarantee Redemption Fund in the current financial year through RBI. This Fund is earmarked to be utilised for the payment obligations arising out of the guarantees issued by the Government in respect of bonds issued and other borrowings by the State Level Undertakings or other bodies and invoked by the 'beneficiaries'. As on 31 March 2016, GRF has a balance of Rs. 8.43 billion which is 2.75 per cent of the outstanding guarantees.

Table 6. Contingent Liabilities of Haryana

Year	Outstanding Guarantees (Rs. billion)	Year on year % Growth	CL/ GSDP	(TOL+CL) /GSDP
1991	11.3	---	8.3	30.8
1992	12.6	12.4	7.7	29.0
1993	15.3	20.7	8.8	31.3
1994	18.6	21.6	9.0	30.6
1995	18.1	-2.4	6.9	26.1
1996	23.6	30.4	7.9	28.6
1997	37.4	58.3	10.5	30.1
1998	41.2	10.2	10.7	31.6
1999	41.2	0.0	9.4	32.9
2000	43.2	4.8	8.8	35.7
2001	82.1	90.2	14.9	40.1
2002	91.7	11.8	15.1	42.2
2003	76.8	-16.2	11.6	39.1
2004	58.7	-23.6	7.9	35.0
2005	43.8	-25.4	4.6	30.6
2006	55.7	27.3	5.1	29.9
2007	50.7	-9.0	3.9	26.7
2008	44.0	-13.3	2.9	22.6
2009	45.8	4.0	2.5	20.9
2010	45.4	-0.9	2.0	20.4
2011	45.3	-0.2	1.7	19.5
2012	56.1	23.9	1.9	20.9
2013	207.3	269.7	6.1	25.9
2014	273.1	31.7	7.0	27.5
2015	303.9	11.3	7.0	28.5
2016	168.8	-44.5	3.5	26.5

Source: same as table 4.

The decomposition of the guarantees as on 31st March 2016, indicates that 85.8 percent of these guarantees are in 37 projects in power sector, 7.4 percent are in co-operative sector, 3.99 percent in 08 projects in Urban Development and Housing sector. The combined contingent Liabilities (Guarantees) and total outstanding liabilities as percent (CL+TOL) of

GSDP has been 26.5 percent in 2015-16. The ratio has been maximum 2001-02, when it was 42.2 percent of state GSDP. The contingent liabilities as percent of GSDP were alarmingly 15.1 percent in 2001-02. The CL/GSDP ratio has shown a downward trend since then and upto 2011-12, but thereafter it has increased significantly for next three years.

6. FRBM Act in Haryana and State Finances

In line with broad international trends, the government of India enacted FRBM Act in 2003 and 12th Finance Commission has recommended mandatory enactment of the law to ensure fiscal discipline and fiscal responsibility at state level. The need for such a law was required because well-designed fiscal responsibility legislation goes a long way in containing fiscal deficits and rationalizing expenditure biases, while addressing the problem of time inconsistency and enhancing transparency and accountability (Corbacho and Schwartz, 2007). Liu and Webb (2011) argued that such a legislation is essential at Sub National Government level (SNGs) because when they follow unsustainable fiscal policy, it can jeopardize the services they manage (but for which the central government may have ultimate political responsibility), the safety of the financial system, the country's international creditworthiness, and overall macroeconomic stability. Effective mechanisms are needed to be devised to ensure that States do not imprudently borrow and endanger the economy's macroeconomic stability.

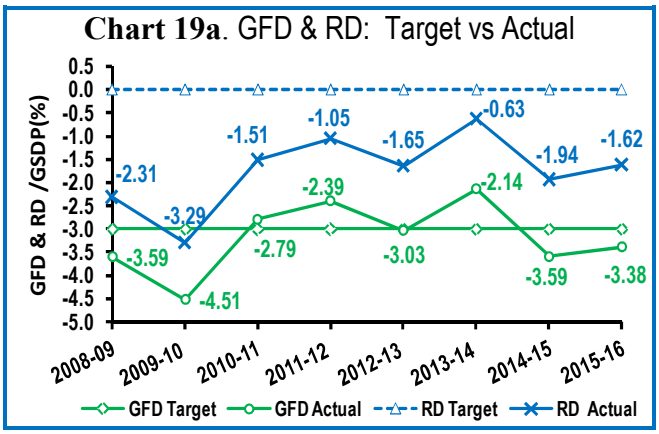
Accordingly, the Haryana Government has enacted the Fiscal Responsibility and Budget Management (FRBM) Act in July, 2005. The FRBM Act adopted in the state, sets a comprehensive framework for prudent fiscal management in the state to achieve fiscal stability and sustainability. The FRBM Act stipulates that the state should build up adequate surplus (after elimination of deficit in the revenue account), which is to be utilized for discharging liabilities or for funding capital expenditure. The state is also required to pursue policies to raise non-tax revenue with due regard to cost recovery and equity. FRBM Act in Haryana mandated that the government should in each year should lay before the legislature Macroeconomic Framework Statement, the Medium Term Fiscal Policy Statement and the Fiscal Policy Strategy Statement. Medium Term Fiscal Plan should set forth three year rolling targets for key fiscal indicators. The government should disclose a statement at the time of budget presentation including significant changes in accounting policies and the corresponding impact, details of borrowings from the Reserve Bank of India and liabilities on the State Government for any separate legal entity. The Minister of Finance should review the trend of revenue and expenditure half-yearly to ensure compliance and should lay results before legislature. Whenever there are deviations from targets, the State Government should take appropriate measures for increasing revenue and/or for reducing the expenditure. The fiscal limits of various indicators stipulated in FRBM Act is as given below:

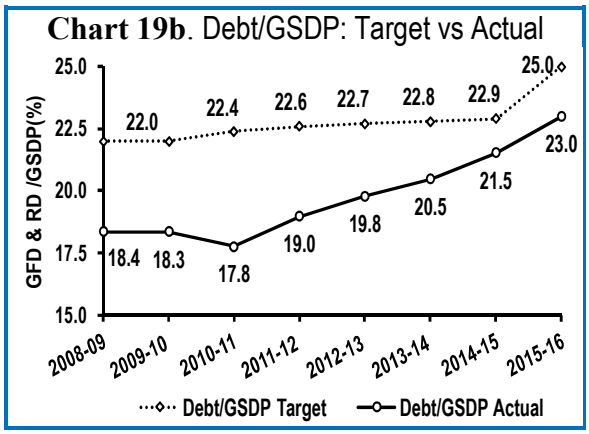
- Annual reduction of revenue deficit from 2005-06 FY, so as to bring it down to zero by 2008-09 and maintain revenue surplus thereafter.

- Annual reduction in fiscal deficit from 2005-06 FY, so as to bring it down to 3% of GSDP by 2008-2009.
- Ensure within a period of five years, beginning from the financial year 2005-06 and ending on 31st March, 2010, that the outstanding total debt including contingent liabilities do not exceed 28 percent of the estimated GSDP of that year.

Finance Commissions at various times have also suggested limit on various indicators for Haryana. As per the 13th Finance Commission recommendations and Ministry of Finance, Government of India guidelines, the amendment in the Haryana Fiscal Responsibility and Budget Management (FRBM) Act, 2005 has been made as under:-

(a) to attain Zero revenue deficit target from 2011-12 and maintain the same till 2014-15.
(b) to achieve fiscal deficit 3% of GSDP from 2010-11 and maintain the same till 2014 -15.
(c) ensure that the Outstanding debt as percentage of GSDP shall be 22.4% in 2010-11, 22.6% in 2011-12, 22.7% in 2012-13, 22.8% in 2013-14 and 22.9% in 2014-15.





The data presented in chart 19a shows that the Target of zero revenue deficits was never achieved and target related to Fiscal Deficit was violated for 3 out of 8 years. Chart 19b shows that the debt/GSDP ratio has been within the limit stipulated by various finance commissions. To understand the impact of FRBM Act and other consolidation measures on quality of state finances in Haryana, we have compared various revenue, expenditure and deficit indicators for post-FRBM and pre-FRBM Period. For post-FRBM we have taken period from 2006-07 to 2015-16 and for pre-FRBM period, we have taken 1995-96 to 2004-05 and the mean values for respective periods are reported in Table 7.

Table 7. Comparison of fiscal indicator for post reform and pre-reform period.

Parameters	Pre-FRBM	Post-FRBM	Percentage Difference	Is difference statistically significant?
Total outstanding Liabilities/GSDP(%)	24.5	20.1	-18.0	Yes (t=-3.92*)

Public Debt/GSDP (%)	16.8	14.6	-13.1	Yes (t=-3.45*)
Gross Fiscal Deficit/GSDP (%)	-3.5	-2.5	-28.6	Yes (t=-1.54**)
Revenue Deficit/GSDP(%)	-1.6	-0.8	-50.0	Yes (t=-1.42**)
Primary Deficit/GSDP(%)	*-1.0*	*-1.1*	*10.0*	*No ($t = 0.48^{+}$)*
Interest Payment/ Revenue Receipts	18.7	13.8	-26.2	Yes (t=-3.11*)
Interest Payment/Capital Receipts	47.5	52.1	9.7	No ($t = 0.38^{+}$)
Interest Payment/Interest Receipts	469.5	455.0	-3.1	No ($t = 0.24^{+}$)
Interest Payment/OTR	33.0	21.4	-35.2	Yes (t=-9.81*)
Interest Payment/ONTR	74.4	91.9	23.5	No ($t = 1.21^{+}$)
Interest Payment/Own Revenue	21.7	17.2	-20.7	Yes (t=-2.35*)
TOL/ Revenue Expenditure	174.8	173.4	-0.01	No ($t = 0.19^{+}$)
TOL/Aggregate Receipts	136.7	142.9	4.5	No ($t = 0.51^{+}$)
TOL/ Revenue Receipts	194.1	188.8	-2.7	No ($t = 0.31^{+}$)
TOL/ Capital Receipts	490.8	702.5	43.1	Yes (t= 1.41**)
TOL/Own Tax Revenue	341.9	292.7	-14.4	Yes (t= 4.18*)
TOL/ Own Non-Tax Revenue	775.7	1262.5	62.8	Yes (t= 2.86*)
Total Expenditure/GSDP	18.5	14.1	-23.8	Yes (t= 5.87*)
Revenue Expenditure/GSDP	15.1	11.6	-23.2	Yes (t= 4.64*)
Capital Outlay/GSDP	1.5	1.7	13.3	No ($t = 0.96^{+}$)
Dev.Exp./GSDP	9.7	9.7	0.0	No ($t = 0.18^{+}$)
Non-dev.Exp./GSDP	5.8	3.6	-37.9	Yes (t= 5.74*)
Effective Interest Rate	9.64	7.32	-24.1	Yes (t= 11.87*)
Revenue Receipt/GSDP	*13.6*	*10.7*	*-21.3*	*Yes (t= 3.57*)*
Aggregate Receipts/GSDP	*19.6*	*11.7*	*-40.3*	*Yes (t= 5.37*)*
Own Tax Revenue /GSDP	*7.45*	*4.28*	*-42.6*	*Yes (t= 1.57**)*
Own Non-Tax Revenue /GSDP	*6.89*	*1.82*	*-73.6*	*Yes (t= 3.04*)*

Note: * statistically significant at 5% level; ** * statistically significant at 10% level;
$^{+}$ - insignificant

The data presented in table 7 indicate significant improvement in most of the indicators of fiscal health. The debt/GSDP ratio has been lower by 18.0 percent for post FRBM period. Similarly, Gross Fiscal Deficit is lower by 28.6 percent and Revenue Deficit by 50.0 percent but the primary deficit have increased by 10.0 percent though the difference in pre-reform and post reform period mean RD/GSDP is not statistically significant. Even a stable primary deficit in spite of reduction in GFD/GSDP and RD/GSDP indicate that interest payments have increased significantly during post reform period but a significant reduction in Interest Payment/ Revenue Receipts (IP/RR) ratio during post-FRBM period indicates that revenue receipts have increased at a sufficiently high rate to affect reduction in IP/RR. More importantly a reduction in RR/GSDP ratio points that GSDP has increased at a much higher rate(15.53 percent per annum) that the growth rate of Revenue Receipts (14.09 percent per annum). With regards to expenditure indicators both total expenditure and revenue expenditure as ratio of GSDP has decreased considerably, again mainly as a result of higher growth rate of GSDP than aggregate expenditure (14.09 percent per annum) and revenue

expenditure(14.77) and also a reduction in non-development expenditure. The effective interest rate on outstanding debt has also shown a decrease during post FRBM period.

7. Election Times as Debt Times

We know that in near elections years politicians behave opportunistically, giving rise to an significant increase in public debt in relation to revenue. The government in office attempts to manipulate voters' perceptions about the government's performance in order to be re-elected, especially when elections draw near. Political business cycle argue the manipulation of policy tools by incumbent politicians hoping to stimulate the economy just prior to an election and thereby greatly improve their own and their party's reelection chances. Since Nordhaus (1975) seminal model of how expansionary policy before an election can help incumbents to get reelected, many studies empirically tested the claims of fiscal policy manipulation by governments in power (Shi and Svensson, 2002; Brender and Drazen, 2008). The incumbents may use different tools or a combination of tools such as expenditures, debt increases and tax reductions, thus creating fiscal illusion (Garcia et al, 2011) and successive political regimes in Haryana have used these tools. Khemani (2000) in a study of elections in Indian states found that taxes on producers are lower, public investment spending is higher, and road construction by public works departments is higher in election years. In this section, we have reported preliminary results related to change in fiscal behaviour and consequent spurt in debate during election years.

Table 8. Impact of Election Cycle on Fiscal Indicators

Indicator	**Mean Value**		Higher/ Lower in election cycle	Percentage Difference
	Election Cycle	Normal Years		
Deficit and Debt Indicators				
Gross Fiscal Deficit *(% of GSDP)*	-3.13	-2.76	Higher	11.8
Revenue Deficit *(% of GSDP)*	-0.53	-0.32	Higher	39.6
Primary deficit *(% of GSDP)*	-1.30	-0.93	Higher	28.5
Average Interest Paid	8.26	8.04	Higher	2.7
Growth of Internal Debt	24.17	19.50	Higher	19.3
Interest Payments	19.52	15.58	Higher	20.2
Expenditure Indicators				
Growth of Aggregate Expenditure	15.26	14.17	Lower	7.1
Growth of Capital Expenditure	29.23	11.15	Higher	61.9
Growth of Capital Outlay	16.48	26.65	Lower	61.7
Receipts Indicators				
Growth of Aggregate Receipts	12.20	16.87	Lower	38.3
Growth of Revenue Receipts	11.85	17.83	Lower	50.5
Growth of Capital Receipts	46.35	15.90	Higher	65.7
Growth of OTR	13.68	16.72	Lower	22.2
Growth of ONTR	6.13	28.15	Lower	359.2

Growth of own Revenue	10.19	19.14	Lower	87.8

The data presented in table 8 clearly depicts the changes in fiscal behavior near elections by successive governments in Haryana. The pattern observed can be summarized as increase in government deficit indicators, interest payments and growth of internal debt; reduction in growth of revenue receipts, OTR, own revenue and ONTR and significant increase in capital expenditure and capital receipts. These differences clearly highlight manipulation of fiscal policy by incumbent state governments in Haryana for increasing their re-election prospects. The data presented in Table clearly shows that government has provided tax and related exemptions during election years as average growth rate of state's own revenue during elections is 87.8 percent less than normal years. States own non tax revenue has been a whopping 359.2 percent lower during election years. This again point out lower realisation of user charges/ prices/ fees for general, social and economic services by incumbent government during election years. Another important variable pointing to budgetary exploitation by incumbent governments is 61.7 percent lower expenditure on capital outlay during election years. The data in table-8 presents overwhelming evidences of use fiscal policy for electoral gains and consequent rise in public debt and outstanding liabilities.

8. Econometric Estimation of Debt Dynamics

If historical policies were to be continued into the future, would fiscal policy be sustainable—or will a modification of policies be required? The question, referred as 'retrospective sustainability' has been tested in many econometric studies (see Hamilton and Flavin, 1986; Trehan and Walsh, 1991; Hakkio and Rush,1991, Bohn, 1998, 2005; International Monetary Fund 2003). Bohn (1998, 2008) argued that a linear fiscal reaction function (FRF) with a statistically significant, positive (conditional) response of the primary balance to outstanding debt is sufficient for the intertemporal government budget constraint (IGBC) to hold. Following Bohn (2005) feedback relationship from the initial debt to the primary surplus can be expressed by equation:

$$pb_t = \beta . d_t^* + \mu_t \qquad \ldots(10)$$

Where pb_t is the primary surplus/deficit; $d_t^* = (1 + r_t).d_{t-1}$ and μ_t is a composite of other indicators of primary surplus/deficit. Bohn show that a value of $\beta>0$ would indicate a stable and strictly positive feedback from d_t^* to pb_t and it is a sufficient condition for fiscal stability. The advantage of using equation (10) is that it does not require assumptions about the discounting factor (for example interest rate – growth differentials). Bohn (2005) argued that equation (10) raises unit root issues. If the debt-GDP ratio had a unit root and μ_t is stationary, $\beta>0$ would imply cointegration between debt and primary surplus. The empirical version of the equation is as follows:

$$pb_t = \beta_0 + \beta.d_t^* + \mu_t = \beta_0 + \beta.d_t^* + \delta \boldsymbol{Z}_t + \varepsilon_t \quad \ldots(11)$$

Where β_0 a constant is term; $\boldsymbol{Z}_t$ is a vector of determinants of primary surplus and ε_t is a zero mean error term. Following Bohn (2005) and Doi, Hoshi and Okimoto (2011) we use two variables for **Z**. One is GSDP gap to capture the fluctuations of the primary surplus coming from the automatic stabilizer function of the government budget. GSDP gap (G_{gap}) is measured by the cyclic trends of the Hodrick and Prescott (1997) filter. The primary balances are expected to fall during economic downturns, so we expect a positive coefficient on for GSDP variable. Other variable is temporary deviation from the trend level of government expenditure divided by GSDP (E_{var}). An increase in temporary surge in government expenditure is expected to decrease primary balances without compromising the long-run sustainability. Accordingly, we expect primary balances to respond negatively to this variable. Here also we applied HP-filter to extract the trend component public expenditure and gap between actual value and trend is taken as an indicator of economic fluctuations. For allowing smooth adjustment of primary balances, we included AR(1) term in equation (11). Finally, we estimated following linear fiscal reaction function.

$$pb_t = \beta_0 + \beta.d_t^* + \rho(pb)_{t-1} + \sigma(Ggap)_t + \nu\,(Evar)_t + \varepsilon_t \quad \ldots(12)$$

Before proceeding actual estimation, the variables are required to be checked for stationarity. The Phillips-Perron (PP) and augmented Dickey-Fuller (ADF) and Kwiatkowski–Phillips–Schmidt–Shin (KPSS) test of stationarity are used for the purpose. The test results presented in Table 9 are statistically clear-cut and all variables appear to be stationary as ADF and PP rejected a unit root while KPSS did not reject stationarity.

Table 9. Unit Root Tests for Real Fiscal Variables (levels)

		ADF	PP(3)	KPSS (3)	Conclusion
Public Debt(d) [TOL/GSDP]		-3.48*(4)	9.179*	0.122	Stationary
Primary Balances(pb) [PB/GSDP]		-3.34**(0)	3.380*	0.102	Stationary
GSDP Gap(G_{gap})		-5.22*(6)	11.28*	0.102	Stationary
Aggregate Expenditure/GSDP(E_{var})		-3.80*(9)	2.13	0.083	Stationary
Critical Values:	5%	-2.93	-3.68	0.462	
	1%	-3.58	-4.30	0.717	

Note: 1. *Significant at 1%; ** Significant at 10%;

2. The null and the alternative hypotheses are respectively series is non-stationary versus series is stationary in PP & ADF test and the null hypothesis in KPSS is that the series is stationary and the alternative is a unit root (*see* Kwiatkowski et al,1992 and Hamilton,1994)).
3. The lags of the dependent variable used to obtain white-noise residuals are determined using Akaike Information Criterion (AIC).

Table 10 presents the main policy function estimate given by equation (12) and alternatives of it. As all variables are stationary, the estimated are obtained by OLS. As the results by OLS reveals presence of serial/auto correlation, the Hildreth–Lu method for adjusting a linear model in response to the presence of serial correlation in the error term is used and fine tuned using Cochrane–Orcutt estimation using functions available in Gretl Software. All the coefficients are of expected signs. The coefficient of debt is positive and significant indicating sustainability and a stable and strictly positive feedback from debt to primary balance. The coefficient of G_{gap} is not statistically significant though its value is positive in model 3. The indicates that primary balances have not declined significantly during downturns. The coefficient of E_{var} is significantly negative indicating that a temporary surge in government expenditure has resulted in decline in primary balances. Here, it is pertinent to note that a simple debt-primary balance regression is insignificant and indicate need of additional variable in the equations. The adjusted R-square value of the model three is quite low. The models are re-estimated by adding change in debt/GSDP ratio in the equation and the results of estimates are presented in model 6. The R-square value has increased from 0.362 to 0.466. The added variable ($\triangle d$) is negative and statistically significant indicating that primary balance responds negatively to an increase in debt/GSDP ratio, which may lead to an increase in debt/GSDP ratio in long run and sign of an explosive debt dynamics (Doi, Hoshi and Okimoto, 2011).

Table 10. Estimation Results of the Debt Dynamics for Haryana.

Dependent variable: pb_t; primary balances as percentage of GSDP

Model/ Coefficient	Model-1 HILU+	Model 2 HILU	Model 3 HILU(*eqn.12*)	Model 4 OLS(*Eqn.12*)	Model 5 HILU	Model 6 HILU
const	-2.560* *(1.383)*	-2.225 *(2.034)*	-2.920** *(1.322)*	-2.871** *(0.9967)*	-3.506** *(1.394)*	-3.834** *(1.299)*
d_t	0.0972* *(0.0492)*	0.0528 *(0.0892)*	0.1159** *(0.0462)*	0.1068** *(0.0467)*	0.1295** *(0.0516)*	0.1508** *(0.0455)*
pb_{t-1}	0.634** *(0.1698)*	---	0.6962** *(0.1814)*	0.5308** *(0.1180)*	0.3930* *(0.2116)*	0.5377** *(0.1799)*
G_{gap}	---	---	0.00359 *(0.0033)*	0.00278 *(0.0029)*	---	0.00586* *(0.0032)*
E_{var}	---	---	-0.02797** *(0.0127)*	-0.0269** *(0.0105)*	---	-0.02987** *(0.0117)*
$d_t - d_{t-1}$ $(\triangle d)$	---	---	---	---	-0.2755** *(0.1208)*	-0.2888** *(0.1157)*
Adj. R^2	0.2875	0.2439	0.3623	0.3376	0.3837	0.4656
F Value	13.75**	0.351	9.78**	6.36**	10.51**	10.22**

Note: (i) [+]Hildreth–Lu fine tuned using Cochrane–Orcutt estimation.
(ii) * indicates significance at the 10 percent level; **indicates significance at the 5 percent level
(iii) Figure in parentheses are standard errors of the estimates.

Conclusions

Based on our analysis in the preceding sections, we arrived at the following conclusions regarding public debt and government's outstanding liabilities in Haryana.

- Debt *per se* is not alarmingly high in Haryana but the uses of borrowed funds indicate less than optimum utilisation of funds. The growth dividend has been enough to cover average interest changes and primary deficits. Economic growth rather than primary surpluses have held down the debt-GDP ratio in case of Haryana.
- Theoretically borrowed funds does not pose a problem if these funds are used for financing capital expenditures but for most of the years a large part of the borrowed funds were used for financing revenue deficit. This would increase debt repayment burden of the state as the borrowed funds are unlikely to generate revenue for repayment. Capital receipts were used for purposes other than productive capital expenditure for most of the period under study.
- The stress of debt on financial resources is clearly visible specifically in recent year where debt was used for financing revenue expenditures. For some of the years even for meeting primary expenditure, Government has to depend on borrowed funds for these years. The incremental non-debt receipts were inadequate to finance incremental primary expenditure and incremental interest burden of the State. Ideally incremental non-debt receipts should meet the incremental interest burden and the incremental primary expenditure.
- The composition of total outstanding liabilities in Haryana has undergone a compositional shift during the period. The share of internal debt has increased and that of external debt especially loans and advances from centre have decreased. The share of market loans, SDLs and power bonds have increased exponentially and it formed around ¾ of outstanding liabilities in Haryana. Besides, outstanding liabilities the state also has sizeable off-budget liabilities.
- The indicator based debt analysis reveals comfortable position on the indicators where growth rate of economy is compared but on other indicators it shows sign of stress. The long run debt/GSDP ratio has been stable. The growth rate of economy is more than the interest rate but growth rate of debt is more than the interest rate. Haryana has positive rate spread for most of the period under study but it has primary deficit for major part of the study period. Presence of primary deficit indicates the payment of interest is made out of fresh debts. However, a favorable interest growth was able to ensure debt sustainability to a large extent. This means that growth rather than primary surplus has helped in checking the growth of debt-GSDP ratio in Haryana. Another indicator of debt sustainability IP/RR has also shown that the ratio has

increased during the period whereas sustainability requires a reduction in the ratio. The interest payments impose heavy burden on state finances as one fourth of the state's own tax revenue is used up for paying interest payments.

- Post FRBM significant improvement is observed in most of the indicators of fiscal health though target of zero revenue deficits was never achieved and target related to Fiscal Deficit was violated for 3 out of 8 years. Gross Fiscal Deficit lowered by 28.6 percent and Revenue Deficit by 50.0 percent but the primary deficit increased by 10.0 percent.
- The election times have considerably impacted debt and deficit in Haryana. The paper found enough support of fiscal policy manipulation by government in offices for improving their chances of re-election. During election cycles deficit indicators, interest payments and growth of internal debt, capital expenditure and capital receipts has increased significantly whereas growth of revenue receipts, OTR, own revenue and ONTR have decreased significantly.
- The positive coefficient of debt in the econometric estimation of fiscal response function indicates sustainability and a stable and strictly positive feedback from debt to primary balance. The primary balances have not reduced even during the downturns and primary balances surged with cyclic increase in government expenditure.

Now let us turn back to our main question whether growth public debt in Haryana is due to dynamism or due to misplaced public spending. Unfortunately analysis so far indicates that a significant part of debt was used for unproductive purposes such as for meeting routine revenue expenses especially during election cycles. The growing interest payment burden could only be effectively serviced if it is used for productive capital expenditure.

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Appendix Table 1 : Outstanding Liabilities of Haryana Government

(Rs billions)

	Public Debt	Internal Debt	Central Loans	Other Liabilities	Total Outstanding Liabilities(TOL)	Public Debt as % of TOL	Public debt/ GSDP	TOL/ GSDP
(1)	(2=3+4)	(3)	(4)	(5)	(6=2+5)	7	8	9
1980-81	5.4	1.5	3.9	1.0	6.4	84.5	15.9	18.9
1981-82	6.4	1.9	4.5	1.2	7.6	84.0	16.3	19.4
1982-83	7.3	1.6	5.7	1.5	8.8	83.2	16.3	19.6
1983-84	8.6	2.1	6.5	1.8	10.4	82.9	17.7	21.3
1984-85	10.0	2.8	7.2	2.2	12.2	82.3	18.6	22.6
1985-86	12.0	2.6	9.4	2.5	14.5	83.0	18.3	22.1
1986-87	13.5	2.9	10.6	2.8	16.3	82.6	19.6	23.7
1987-88	14.5	3.0	11.5	3.7	18.2	79.6	18.7	23.5
1988-89	15.6	3.4	12.2	4.7	20.3	76.9	15.6	20.3
1989-90	17.7	4.2	13.5	5.5	23.2	76.2	15.9	20.8
1990-91	21.4	5.0	16.4	9.4	30.8	69.6	15.7	22.6
1991-92	23.8	5.5	18.3	10.9	34.7	68.5	14.6	21.2
1992-93	26.4	6.3	20.1	12.6	39.0	67.6	15.2	22.5
1993-94	30.1	8.0	22.2	14.1	44.2	68.1	14.7	21.6
1994-95	34.2	8.7	25.4	16.2	50.4	67.8	13.0	19.2
1995-96	42.4	9.8	32.6	19.3	61.7	68.7	14.2	20.7
1996-97	47.3	11.5	35.8	22.8	70.0	67.5	13.3	19.7
1997-98	55.3	13.8	41.5	25.8	81.1	68.2	14.3	21.0
1998-99	66.5	17.4	49.1	36.0	102.5	64.8	15.2	23.5
1999-00	96.5	38.9	57.7	41.6	138.1	69.9	18.8	26.9
2000-01	99.4	40.4	58.9	47.1	146.5	67.8	17.1	25.2
2001-02	123.4	63.3	60.1	53.9	177.3	69.6	18.8	27.1
2002-03	140.5	80.5	60.1	59.0	199.5	70.4	19.4	27.5
2003-04	157.9	120.7	37.2	66.6	224.5	70.4	19.1	27.1
2004-05	172.9	149.8	23.0	76.1	249.0	69.4	18.0	26.0
2005-06	195.2	173.0	22.2	74.6	269.8	72.3	17.9	24.8
2006-07	204.9	183.6	21.3	88.2	293.1	69.9	15.9	22.8
2007-08	204.9	184.1	20.8	94.2	299.1	68.5	13.5	19.7
2008-09	231.8	211.5	20.3	103.1	335.0	69.2	12.7	18.4
2009-10	289.5	269.0	20.5	120.7	410.2	70.6	12.9	18.3
2010-11	330.3	307.9	22.4	132.7	463.0	71.3	12.7	17.8
2011-12	415.1	393.4	21.7	151.8	566.9	73.2	13.9	19.0
2012-13	507.8	486.8	21.0	167.9	675.7	75.2	14.9	19.8
2013-14	605.5	582.4	23.1	190.6	796.1	76.1	15.6	20.5
2014-15	709.9	687.0	22.9	227.1	937.0	75.8	16.3	21.5
2015-16	872.6	845.0	27.6	242.9	1115.5	78.2	18.0	23.0