Study Report
Fiscal Scenario in Punjab: Past Trends, Future Prospects and Challenges

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CONTENTS

List of Tables

List of Figures

ACRONYMS AND ABBREVIATION

ACIR	*Advisory Commission on Intergovernmental Relations*
ANFIS	*Adaptive Neuro-Fuzzy Inference System*
ATR	*Action Taken Report*
BE	*Budget Estimate*
CAG	*Comptroller and Auditor General of India*
CAGR	*Compound Annual Growth Rate*
CLL	*Cash Credit Limit*
CSO	*Central Statistics Organization*
CT	*Central Transfers*
DCRF	*Debt Consolidation and Relief Facility*
DEA	*Data Envelopment Analysis*
DSS	*Debt Swap Scheme*
EAP	*External Aided Project*
EFC	*Eleventh Finance Commission*
FC	*Finance Commission*
FI	*Financial Institution*
FRBM	*Fiscal Responsibility and Budget Management*
FY	*Financial Year*
GDP	*Gross Domestic Product*
GOI	*Government of India*
GoP	*Government of Punjab*
GSDP	*Gross State Domestic Product*
GST	*Goods and Service Tax*
IEM	*Industrial Entrepreneur Memorandum*
IP	*Interest Payment*
IPC	*Indian Panel Code*
MFDD	*Model of Forecasting Domestic Debt*
MoU	*Memorandum of Understanding*
NABARD	*National Bank for Agriculture & Rural Development*
NSSF	*National Small Savings Fund*
OLS	*Ordinary Least Squares Method*
OROP	*One Rank One Pension Scheme*
PB	*Potential Base*
PCA	*Principal Component Analysis*
PCI	*Per Capita Income*
PFMS	*Public Finance Management System*
PRTC	*Pepsu Road Transport Corporation*
PSIDC	*Punjab State Industrial Development Corporation Ltd*
PSPCL	*Punjab State Power Corporation Limited*
PSU	*Public Sector Unit*

PVBC	*Present Value Budget Constraint*
RA	*Actual Revenue*
RBI	*Reserve Bank of India*
RE	*Revised Estimate*
RE	*Revenue Expenditure*
RR	*Revenue Receipt*
RTS	*Representative Tax System*
SD	*Standard Deviation*
SDP	*State Domestic Product*
SFA	*Stochastic Frontier Analysis*
SOR	*State Own Revenue*
SOTNR	*State Own Non-Tax Revenue*
SOTR	*State Own Tax Revenue*
UBR	*Urban Population Rate*
UDAY	*Ujwal DISCOM Assurance Yojana*
VAR	*Vector Auto Regression*
VAT	*Value Added Tax*
WMA	*Ways and Means Advances*
WPR	*Working Population Rate*

PREFACE

All major states in India were debt-ridden in the early 2000s. The debt stock for the non-special category States averaged around 37 per cent. The Fiscal Responsibility and Budget Management (FRBM) Act, 2003 initiated the collective effort of the center and states to restore fiscal prudence in the country. Since 1985, when Punjab became a revenue-deficit state, its fiscal situation has been under stress. By the end of the last century, deteriorating trends in the deficit indicators (fiscal deficit, outstanding liabilities, interest payment, ways-and-means advances, etc.) and a high historical debt burden reflected Punjab's weak performance in the management of the state finances. It is, therefore, important to investigate whether Punjab's public debt is manageable and analyze the remedies that can reduce the fiscal distress effectively and sustainably.

This report is based on the research project titled 'Fiscal Scenario in Punjab: Past Trends, Future Prospects, and Challenges' sponsored under the grant-in-aid Programme of NITI Aayog, Government of India. The report examines the trends and patterns of deficit indicators in Punjab in the past three decades, committed expenditure (and components) of the Punjab government vis-à-vis its targets set under the fiscal consolidation roadmap, the state's debt position and its sustainability perspectives as well as the determinants of tax collection, tax capacity, and efficiency of tax revenue in Punjab. The study also makes forecasts of the debt burden for Punjab under alternative scenarios. The study delves at length on the future prospects and challenges of fiscal consolidation in Punjab.

Able research assistance in the form of data collection, estimation and analysis were provided by Dr Abbas Haider Naqvi (Senior Research Analyst), Ms Shivangi Shubham, Mr Rohit Roy, Ms Shreya Malhotra, Ms Tanvi Bramhe and Ms Gargee Sarkar (Research Analysts). We thankfully acknowledge their contribution.

We are thankful to the participants of the seminar organized at IEG on 07 September 2017 to present the findings of this project. We are grateful to the external experts Professors Atul Sharma, Pulin Nayak, M. R. Saluja, Tapas Sen, and the IEG faculty Professors Manoj Panda and Sabyasachi Kar for their comments and suggestions. We received valuable comments from the presentation of the final draft at NITI Aayog on 15 March 2018. We are very appreciative of NITI Aayog for their suggestions and support.

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Executive Summary

I. Overview of Punjab State Finances

a. **Fiscal distress**: The gap between revenue receipts (RR) and revenue expenditure in 1990-91 was Rs. 544.22 crore. By 2017-18, it had grown to a whopping Rs.14, 784.87 core. Over the study period (1990-91 to 2016-17(RE)), as a percentage of GSDP, the average fiscal deficit was 4.3 percent, revenue deficit was 2.71 percent and primary deficit was 1.14 percent.

b. **Debt-deficit indicators continue to breach FRBM, 2005 targets indicating fiscal instability**: For Punjab, post FRBM (2006-07 to 2016-17(RE)) average revenue deficit to GSDP is 2.18 per cent, fiscal deficit to GSDP equal 3 per cent, and outstanding debt to GSDP is 33.79 per cent. Failing to finance its debt from revenue receipts, the State government has resorted to borrowing from various sources. Mounting interest on loans and outstanding debt along with repayment of loans has drawn Punjab into a vicious debt trap. A comparison of debt-deficit indicators across all major States (Chapter 2) shows Punjab's unsatisfactory performance in correcting revenue deficit and debt stock. The fiscal situation in Punjab, along with Kerala and West Bengal, has been identified as critical.

c. **Reasons of fiscal imbalance**: First, in the post FRBM period, a negative growth in revenue receipts (CAGR: -1.47) has negated the benefits that the State could have otherwise reaped from negative growth in revenue expenditure (CAGR: -2.06) in the attainment of revenue deficit elimination. Second, declining GDP and per capita income of the State has made fiscal situation unstable. Third, guarantee provided by the government to Punjab State Power Corporation Limited (PSPCL) under UDAY scheme and food agencies under the CCL account adjustment got converted to State debt. Also, unpaid liability on account of various grants/loans received from the Government of India has added to the debt burden of Punjab. Forth, persistently falling capital expenditure and stagnated capital outlay at very low levels have wedged the supply side possibilities that could have revived the State economy.

d. **State's Own Revenues performance is poor:** Despite the rising share of the State's Own Tax Revenue (SOTR) in total revenue receipts (RR), deterioration in revenue generation has led to significant decline in the share of State's Non-Tax Revenue (SONTR). Pre and post-reform

analysis of the components of revenue receipts shows that average share of SOTR to RR has increased from 53.4 per cent to 59.8 per cent. However, the share of SONTR to RR has declined from 30.8 per cent to 17.1 per cent. The contribution of SOR (SOTR+SONTR) to total RR of the State has reported a decline from an average 84.2 per cent in the pre-reform period to 77 per cent in the post-reform periods. The main reasons for the negative growth rate of non-tax revenue are discussed in detail in the report (Chapter2).

At the disaggregate level, sales tax has shown consistent growth over the study period, while excise duty, stamp duty, registration fees and electricity duty have shown a downward trend.

The report also examines the revenue profile of Punjab with respect to its GDP. While SONTR component displays deteriorating trends (3.8 per cent of GSDP in pre-FRBM period to 2 per cent in post-FRBM), SOTR to GSDP, which explains the tax efficiency, portrays continued variations (ranging between 5.3 to 8 per cent).This explains the trend in tax to income ratio. The analysis of the pre and post reform tax buoyancy in Punjab shows a less than proportionate response of tax revenue to change in GSDP (post- FRBM tax buoyancy coefficient found to be 0.72 against the 1.02 for the pre-FRBM period). Less than unity tax buoyancy reflects lagging tax revenue to nominal GDP growth.

Committed Expenditure: For the FY 2015-16 (RE), Punjab's committed expenditure to revenue expenditure (43.29 per cent) was substantially larger than the all-state average (28.47 per cent). As a proportion to GSDP, Punjab's total committed expenditure was approximately 10 percent. An analysis of the States' committed expenditure from 2001-02 to 2015-16 shows that the wages and salaries to GDP component is the highest in Punjab (an average 4.6 per cent of GDP). The high proportion of the wages and salaries was due to very high emoluments, higher than those of the Central government employees. Power subsidy also accounts for a significant proportion of the State subsidy. The power subsidy in Punjab (an average 97% of the total subsidy and 1.4% of GSDP during 2011-12 to 2015-16) is almost twice as large as that given by Karnataka (an average 49% of total subsidy and 0.78 % of GSDP during 2011-12 to 2015-16).

e. **Development and Social Sector Expenditure**: Over the study period, Punjab's developmental expenditure (an average of 8.17per cent of the GSDP) was consistently below the corresponding average of all major States (11.5 per cent) and the gap has significantly increased since 2006-07. Analysis of social sector expenditure also reveals a poor performance in Punjab. Unfortunately,

fiscal priority accorded to the social sector has been very low in Punjab (4 per cent of GSDP) vis-à-vis the average of major States (6.7 per cent of GSDP).

II. Debt Sustainability

Our analysis of debt sustainability of Punjab using three alternative methodologies *viz.,* Domar Debt Sustainability Criterion, Present Value Budget Constraint (PVBC) and Indicator analysis suggest Punjab's debt situation is unsustainable (Chapter 4).

III. Tax Capacity and Tax Effort of Punjab vis-à-vis other major States

Using methodologies such as Aggregate Regression Approach, Disaggregate Regression Approach and Stochastic Frontier Approach we find both declining tax-capacity and declining tax-effort of Punjab during the selected reference period. The state wise tax effort ranking obtained from these analyses is presented in Chapter 5 of the report.

IV. Future Prospects of Punjab's Fiscal Situation

An analysis of the baseline scenarios of path and magnitude of Punjab's debt burden, both at the aggregated and at disaggregated levels, suggest that Punjab's debt and deficit situation will remain precarious in the absence of strong fiscal measures.

The baseline scenario for 2016-17 to 2036-37(aggregate), if the values of the relevant parameters follow the five-year average (from 2011-12 to 2015-16), shows that Punjab's debt dynamics are weak and a cause of concern. An event of a temporary/short-term shock (such as real GDP growth shock, interest rate shock, primary balance shock or a combination of these shocks), will be perilous for its economy.

The analysis of Baseline scenarios for 2016-17 to 2026-27 at a disaggregated level suggest the following:

a. ***Revenue Receipts (RR) and Revenue Expenditure (RE):*** The negative growth in revenue generation (CAGR -1.47) will continue to impede the correction in revenue deficit, otherwise expected from a declining revenue expenditure (CAGR-2.59). It is for the same reason that Punjab has missed the target of eliminating its revenue deficit despite several revisions of fiscal consolidation targets by the government. At this pace, it will take more than 10 years for the

government of Punjab to completely eliminate the revenue deficit. However, at these rates, it is expected to attain debt stock threshold of 25 per cent by FY 2020-21.

b. ***Components of Committed Expenditure:*** Following the post-reform trends of components of committed expenditure *ceteris paribus*, Punjab is likely to achieve a reduction in revenue expenditure to GSDP by 1.9 per cent points during 2015-16 to 2026-27. This would result in a decline in revenue deficit from an average of 2 per cent of GSDP to 0.5 per cent in 2024-25 and to 0.09 per cent in 2026-27.Debt to GSDP threshold of 25per cent is expected to be attained in 2024-25.

c. ***State's Own Tax Revenue (SOTR), GST Revenue and Non-GST Revenue: Debt to GSDP Baseline Simulation:*** Considering the recent changes in the tax structure of India brought out with the introduction of Goods and Service tax (GST), our analysis categories SOTR into non-GST revenue and GST revenue.

The baseline simulation shows that the positive growth in SOTR, expected on account of positively growing GST revenue, is impeded by negative growth in non-GST revenue. As a result, over the period of 10 years, SOTR to GSDP is likely to increase by 0.5 per cent points from its post FRBM average of 7per cent. Also, lingering growth of SOTR combined with a negative growth of SONTR, *ceteris paribus*, is likely to result in a decline of RR to GSDP by 0.9 per cent points from an average of 11.2 per cent by 2026-27.

V. Recommendations

1. The analysis of the consolidation path suggests the following alternative ways to achieve less than 25 per cent debt stock within a five-year period.

- Increase aggregate revenue receipts (RR) to GSDP by 0.25 per cent for three years (2018–19 to 2020–21) and maintain the ratio there after. Also, maintain the negative growth in revenue expenditure (RE) at its post FRBM growth rate (CAGR of -2.06). If this strategy is adopted, elimination of revenue deficit will be achieved by the FY 2021-22 and a surplus thereafter. The debt stock threshold of 25 per cent will be achieved in the FY 2020-21.
- Improvement in the revenue components, such as an increase in SONTR and non-GST revenue by 0.25 per cent, for a period of three years will bring about a long-term positive impact on the deficits and public debt in the state. If these revenue components are corrected as suggested, the debt stock target of 25 per cent will be attained by FY 2020-21.

- Expenditure compression strategies of correcting components of committed expenditure, such as phasing out the proportion of power subsidy in GSDP to 0.78 per cent (same as in Karnataka) from its post-reform average of 1.4 per cent, would eliminate the revenue deficit by FY 2022–23, attain the target of three per cent fiscal deficit in FY 2018–19 and surplus in primary balance in FY 2019–20.If this correction path is undertaken, 25 per cent debt stock target will be achieved in FY 2021-22.
- Similarly, retain the pension-to-GSDP ratio at its post-FRBM average of 1.8 per cent for the next five years (2018–19 to 2022–23). If implemented, the path will result in 25per cent debt stock by FY 2021–22.
- Retain the negative growth in salaries and wages at its post-FRBM CAGR of -0.55. If negative growth in wages and salaries is thus maintained, its proportion of GSDP will decrease from its post-FRBM average of 4.3 per cent to 4 per cent in 2026-27. The debt stock target would be achieved in the FY 2022-23.
- The strategies for expenditure compression and revenue augmentation proposed in the report may be implemented simultaneously for faster realisation of the desired outcomes. An optimal balance may be maintained between political feasibility and economic sustainability. However, the economic sustainability must prevail.
- Invest fiscal gains (surplus) realized from the above consolidation path to augment capital outlay. This will result in capital outlay to GSDP to increase from its post-FRBM average of one per cent to two per cent by FY 2026-27. Expansion of capital outlay is recommended in the light of Punjab's inadequate spending in health, education, sanitation, rural development, R&D and skill development.

2. Augment revenue generation through the following channels:

- Improve tax buoyancy by increasing the economic activities in key sectors of the economy- such as agri-infrastructure, agro-industrial development, manufacturing (primarily SMEs), IT and IT-enabled services.
- Improve revenue collection by enhancing administrative efficiency; adopt strict policies to stop leakages; identify potential sources for revenue diversification.

3. Improve returns from the Public Sector Units (PSUs) by reviewing their administrative and establishment cost. Increase operational efficiency of the PSUs by upgrading the scale of their

operations. State enterprises that incur higher operational costs than their contribution to the economy should be recommended for closure or partial privatization.

4. Facilitate the rationalization of subsidies by classifying them into merit and non-merit categories. Subsidies to merit goods like elementary education, primary healthcare, prevention and control of diseases, and ecology and environment need not be reduced.
5. Link fiscal management reforms to other public sector and governance reforms.
6. Adopt advance practices in budget drafting, cash management, accounting and auditing.
7. It is essential to track the functional challenges in the execution of reforms as well as the improvements made. This will facilitate the government efforts in sustaining the reforms in critical times.

Chapter 1 INTRODUCTION

Since 1985, when Punjab became a revenue-deficit state, its fiscal situation has been under stress. By the end of the last century, the deteriorating trends in Punjab's deficit indicators reflected its weak performance in the management of state finances. Persisting deficits resulted in increased net borrowings and interest payments. Between 1998-99 and 2005-06, Punjab's outstanding debt was almost 40-50 per cent of its GSDP.

All major States in India were debt-ridden in the early 2000s. The outstanding liability of non-special category States as a proportion of GSDP averaged around 37 per cent. [1]The Fiscal Responsibility and Budget Management (FRBM) Act, 2003, initiated the collective effort of the Centre and States to restore fiscal prudence in the country. Punjab passed its FRBM Act in 2003 and amended it in 2006 (Punjab FRBM, 2005) in line with the recommendations of the 12th Finance Commission, 2004. The FRBM Acts endorsed the reduction of fiscal deficit to three per cent of GDP, elimination of revenue deficit and attainment of sustainable debt position. Though the efforts towards fiscal consolidation resulted in considerable improvement in Punjab's finances, it could not meet the targets. In 2011, Punjab's FRBM Act laid down a new set of targets as per the recommendations of the 13th Finance Commission. Recent estimates are that Punjab's deficit indicators continued to run above targets between 2011-12 and 2016-17 and the State's indebtedness accounted for about 30-33 per cent of GSDP (RBI State Finances 2016-17).

Continuous deficits registered by the State of Punjab were indicative of the revenue–expenditure mismatch. Punjab State's own revenues contributed around 80 per cent (on average) to total revenue receipts during the period 2010-11 to 2016-17.In terms of expenditure, revenue expenditure comprised a dominant proportion (83.6 per cent) of the total expenditure over 2010-11–2016-17, of which, Plan revenue expenditure was 11.44 per cent of

[1]All States include 11 special category and 18 non-special category States. Special Category Status for plan assistance has been granted in the past by the National Development Council (NDC) to some Sates that are characterized by a number of features necessitating special consideration. These features include: hilly and difficult terrain, low population density and / or sizeable share of tribal population, strategic location along borders with neighbouring countries, economic and infrastructural backwardness and non-viable nature of state finances.

the total revenue expenditure and non-Plan revenue expenditure was 88.56 per cent. The overall increase in the government expenditure was mainly a result of prominent increase under the heads of crop husbandry, interest payments, pensions, and urban development. Also, the Punjab government's committed expenditure on interest payments, expenditure on salaries, and wages, pensions, and subsidies exceeded its fiscal consolidation targets. With respect to the capital account, the proportion of capital outlay as a percentage of GSDP was around one per cent between 2010-11 and 2016-17. Given the State's fiscal profile, its high level of committed revenue expenditure and the low proportion of capital outlay in capital expenditure indicated its deteriorating fiscal health.[2]

Unlike Punjab's continual poor performance in fiscal management, its economic growth experienced significant peaks and noticeable troughs in the past two decades. Punjab was a high-income State in the 1990's, but GSDP growth declined from 5.6 per cent in 1999-00 to 1.92 per cent in 2001-02(at 2011-12 prices). In the mid-2000s, Punjab regained high economic growth and prosperity. In 2006-07, Punjab's GSDP growth rate of 10.18 per cent exceeded the national average of 9.57 per cent (at 2011-12 prices), and its per capita income of Rs.75, 086 exceeded the all-India average of Rs.52, 107. According to the Census of India 2011, the literacy rate in Punjab was 75.84 per cent, better than the national average of 73 per cent. Punjab's poverty ratio of 8.23 per cent was lower than the all-India average of 21.92 per cent (RBI, 2012).However, Punjab's declining GSDP growth in the past 10 years changed its relative income ranking among the high-income Indian states. In 2016-17, Punjab's GSDP growth rate was 5.93 per cent, 2.06 percentage point lower than the national average.

Going by the past trends in fiscal indicators (like fiscal deficit, outstanding liabilities, tax buoyancy, interest payment, ways-and-means advances), fiscal management in Punjab was

[2] The 13th Finance Commission (2007) listed Punjab along with Kerala and West Bengal as the states with the highest debt-to-GSDP ratios, and gave them various recommendations so that these states could meet their fiscal consolidation targets. The 14th Finance Commission (2015) withdrew the definition of 'special status' and 'revenue-deficit' states but continued to consider the specific requirements of the states. Punjab had cited its legacy of accumulated debt and requested the union government for a one-time special purpose grant to restructure and retire high-cost loans. It had also requested the union government to waive its outstanding debt. To this end, the 14th Finance Commission approved multilateral funding through the Asian Development Bank to incentivize the state to pursue tax reforms measures.

widely reported as being weak, and the state was characterized as having a high historical debt burden. Such characterization had negatively impacted its fiscal situation, debt repayment capability, and the prospects of raising further debt. Also, the declining GSDP growth rate had put Punjab's debt sustainability under critical scrutiny. Persisting deficits, large accumulated debt, and unstable economic growth had contained the progress of fiscal consolidation. This study report investigates whether Punjab's public debt is manageable, and the remedies that can effectively and sustainably reduce its fiscal distress.

Against this backdrop, this study report investigates the following research issues:

1. The trends and patterns of deficit indicators in Punjab in the past three decades
2. Committed expenditure (and components) of the Punjab government vis-à-vis its targets set under the fiscal consolidation roadmap
3. The State's debt position and its sustainability perspectives
4. The determinants of tax collection, tax-capacity, and efficiency of tax revenue in Punjab
5. The State's debt burden for the next 20 years
6. The policy measures taken by the State government of Punjab to leverage its pace of fiscal correction
7. The future prospects and challenges of fiscal consolidation in Punjab

HYPOTHESES

1. Punjab has a sustainable debt position.

2. Socio-political and economic factors significantly impact Punjab's tax-capacity, tax-effort and efficiency of tax revenue.

3. Punjab's debt burden would be sustainable in the next 20 years.

While analysing the trend of fiscal deficit in Punjab, the study identified different deficit indicators. The study examined Punjab's debt position and discussed the alternative approaches to debt sustainability using mathematical and empirical methods. It also attempted

a comparative disaggregate analysis of the different components of the State's committed expenditure vis-à-vis targets between Punjab and the other major states. Using relevant econometric methods, the study estimated the State's tax capacity and effort and to suggest policies to cope with the challenges of fiscal consolidation.

The empirical analysis in the study is based on the data retrieved from various issues of the *Reserve Bank of India State Finances: A Study of Budgets, Economic Survey of Punjab* and from various reports of the Punjab State Finances, Budget Papers, and Economic and Political Weekly Research Foundation.

The report is organized into the following chapters.

Chapter 2: Exploratory Analysis of Punjab's Fiscal Situation (1980–1981 to 2014–15)

This chapter explores the past trends and patterns of Punjab's fiscal indicators vis-à-vis other major states in India between 1980–81 and 2016-17. It attempts to study the pattern of committed expenditure (and components) of the Punjab government with respect to the targets set under the fiscal consolidation roadmap.

Chapter 3: Literature Review

This chapter aims to build conceptual clarity on different dimensions in which the fiscal situation at the sub-national level may be assessed. It also highlights the existing theoretical and empirical studies that have examined the core issues that this report attempts to address.

Chapter 4: Punjab's Debt Burden and Sustainability

This chapter analyses Punjab's debt burden and its debt sustainability perspectives. Primarily, the analysis uses financial ratios in its attempt to measure Punjab's debt burden and sustainability and compares them with the thresholds set under the State's fiscal consolidation path. Following the literature, debt sustainability was assessed using the following methods:

1. Domar Debt Sustainability Criterion (Buiter, 1985; Blanchard, 1990; Blanchard et al., 1990; Chouraqui, Hagemann and Sartor, 1990; Rajaraman et al., 2005; Rakshit, 2005; Rath, 2005; Sucharita, 2014);
2. Present Value Budget Constraints Approach (PVBC) (Hamilton and Flavin, 1986; Wilcox, 1989; Trehan and Walsh, 1991; Mahmood and Rauf, 2012); and
3. Indicator Analysis (Rajaraman, Bhide, and Pattnaik, 2005; RBI, 2013).

Based on these methodologies, the study attempts to investigate whether Punjab has a sustainable debt position.

Chapter 5: Tax-Capacity and Tax-Effort of Punjab

Chapter 5 investigates the effective factors of tax capacity and efficiency of tax revenue in Punjab. We used the regression approach to calculate tax capacity (Bahl, 1972; Rao, 1993; Jha et al., 1998; Purohit, 2006; Gupta, 2007; Le, Moreno-Dodson, and Bayraktar, 2012; Garg, Goyal, and Pal, 2014). From a panel of selected States, we estimated the tax-capacity of a State by relating its aggregate tax revenue with its macro-parameters. This approach considers the macroeconomic, demographic, and institutional variables of a State and computes its taxable capacity as the predicted tax to GSDP. To investigate how different factors of tax collection influence tax efficiency in Punjab and in other selected States, we followed the relevant literature (Aigner, Lovell and Schmidt, 1977; Battese and Coelli, 1992 and 1995; Jha et al., 1998; Garg, Goyal and Pal, 2014) and employed three alternative econometric methodologies. Using the panel regression approach, we first carried out an aggregate analysis of socio-political and economic factors determining the tax-capacity and tax-effort. In the second step, we examined the same at a disaggregate level for six major taxes of the states. And lastly, under the Stochastic Frontier Approach, we computed the cross-State tax efficiency by measuring it relative to the best practice frontier.

Chapter 6: Future Prospectus of Fiscal Consolidation in Punjab

This chapter projects Punjab's debt burden for the next 20 years and analyses it in the light of the ongoing fiscal consolidation policies. To forecast Punjab's debt burden between 2016–17 and 2036–37, we usedIanchovichina, Liu, and Nagarajan ,method (2006).In a scenario analysis

framework, we used the proposed method to consider medium-term/long-term debt dynamics for a baseline, different adverse shock scenarios as well as fiscal consolidation scenarios. The chapter also analyses the fiscal consolidation paths (2016-17 to 2026-27) attainable for Punjab through revenue augmentation and expenditure compression.

Chapter 7: Fiscal Reforms in Punjab and Recommendations

Chapter 6 critically analyses the policy measures formulated by the Government of Punjab to leverage the pace of fiscal correction. The chapter compares the fiscal performance of Punjab vis-à-vis other major States of India with an aim to highlight the best practices undertaken to achieve fiscal consolidation. Based on the observations and analysis, the chapter also presents the policy implications of this study.

Chapter 8: Conclusion and Remarks

The concluding chapter highlights the broad results obtained from the analysis of the different aspects of Punjab's fiscal scenario. On the basis of these, it makes policy recommendations and suggestions.

Chapter 2 EXPLORATORY ANALYSIS OF PUNJAB'S FISCAL SCENARIO (1980–1981 to 2016–2017)

Introduction 2.1

This chapter presents a detailed discussion on the fiscal performance of the government of Punjab. The chapter analyses Punjab's debt-deficit indicators as well as revenue and expenditure profile for the period between 1980–81 and 2016-17. It also presents a descriptive analysis of the State's various sources of funds, committed expenditure, capital and social expenditure vis-à-vis other major states of India. The analysis was carried out by comparing several of Punjab's fiscal indicators/financial ratios with other major States.

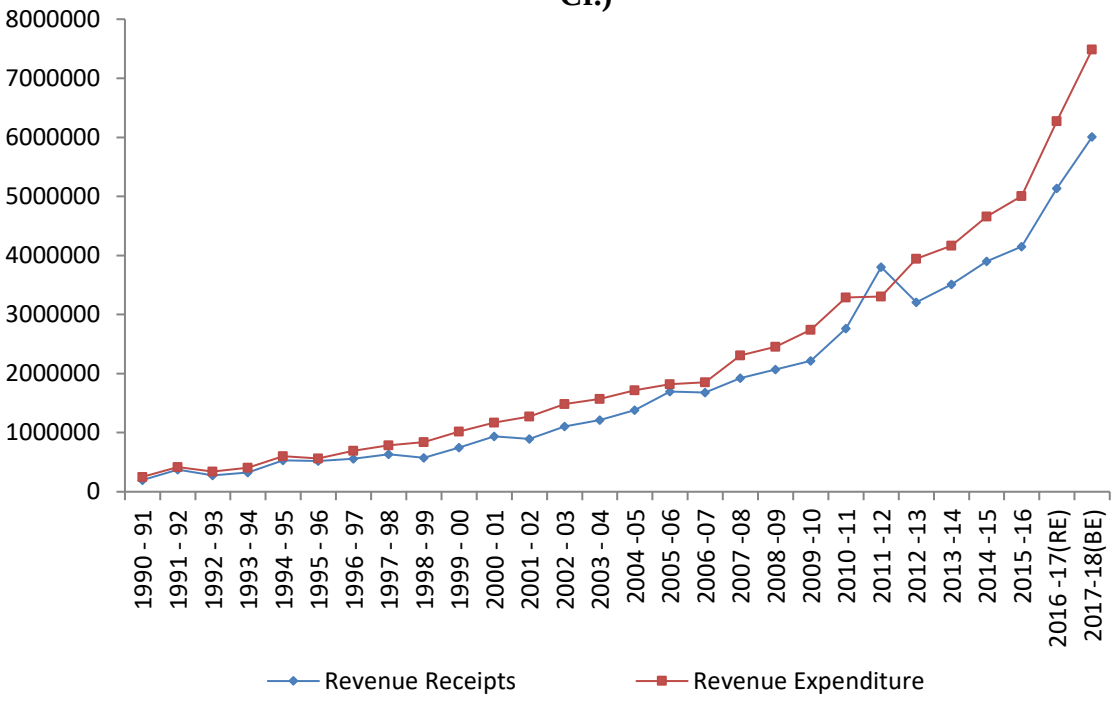
The rest of the chapter is organized in the following sections: Section 2.2assesses the fiscal imbalance in Punjab by examining the fiscal deficit, primary deficit, revenue deficit and outstanding debt; Section 2.3 gives Punjab's fiscal scenario in terms of growth of revenue receipts and expenditure(it makes a comparative analysis of the growth rates across major States in India); Section 2.4 assesses the fiscal performance of Punjab in terms of revenue generation; Section 2.5 presents the expenditure profile of Punjab; Section 2.6 describes Punjab's sources of funds and interest payments vis-à-vis some selected states; Section 2.7 focuses on Punjab's committed expenditure and development expenditure; Section 2.8 presents a detailed discussion on the trends in development expenditure and social sector expenditure in Punjab., The last section, Section 2.9, sums up the study observations on the performance of state finances of Punjab.

2.2 Fiscal Imbalance in Punjab (1980–1981 to 2016-17)

The finances of the Government of Punjab reported a marked deterioration in revenue and fiscal balances over the past decades. Figure 2.1 gives absolute values of revenue receipt and revenue expenditure of Punjab to illustrate the State's fiscal deficit for the study period of 1990-91 to 2016-17.The figure shows a wide revenue-expenditure gap, which was broad and persistent for the entire sample period. In the years following the FRBM Act (post-2004-2005), the gap between receipt-expenditure was found to be comparatively less before widening to

reveal a higher gap in the subsequent years. The growing gap between the receipt and expenditure indicates the deficits prevalent in the State's finances.

Figure 2.1 Revenue Receipt and Revenue Expenditure of Punjab (in Cr.)



Source: EPW Research Foundation (EPWRF).

Figure 2.2 plots the total value of deficit indicators between FY 1980–81 and 2017–18 (BE). From the figure, rising trends in fiscal, revenue, and primary deficits since 1985 are clearly evident.[3] In 1985–86, the fiscal deficit amounted to Rs 566 crore; it increased to Rs 1242 crore in 1990–91; Rs 3904 crore in 2000–01, and Rs 23092 crore in 2017–18 (BE). The revenue deficit of the State also went hand in hand with the fiscal deficit after 1986–87. Since then, the revenue deficit has increased from Rs 544 crore in 1990–91 to Rs 2336 crore in 2000–01; Rs 7410 crore in 2012–13, and Rs 14785 crore in 2017–18 (BE). Similarly, the primary deficit

[3] Fiscal deficit is indicative of government's total receipts (excluding market borrowings and other liabilities) falling short of total expenditure. It is the amount that government borrows to finance the gap in its revenue and expenditure. Revenue deficit is the excess of revenue expenditure over revenue receipts. Both revenue and fiscal deficits are usually met through borrowings. Primary deficit is the gap in government's revenue and expenditure less the interest payments in previous year. In other words, primary deficit is fiscal deficit less the interest payments. A zero primary deficit implies that government is borrowing solely to service its debts.

has remained at critical levels. Primary balance increased from Rs. 990 crore in 2013-14 to Rs. 8182 crore in 2017-18(BE). The ever-rising fiscal and primary deficits were indicative of the increasing net borrowings and interest payments of the State government and, consequently, the fiscal imbalance trap in which the State found itself. Apart from the overall weak fiscal health depicted by the deficit figures over the study period, fiscal and primary deficit during the FY 2015-16 and 2016-17(RE) witnessed an atypical deterioration. The deficit figures came into light with the White Paper (2017, June) revealing the distressing realities of Punjab State finances. The revelations pointed at the accumulated gap between the outstanding CCL (Cash Credit Limit) account and value of stock of food grain [4];the guarantee provided by the State government to Punjab State Power Corporation Limited (PSPCL), which now constitute of the public debt under the UDAY scheme[5]; unpaid liability on account of various grants/loans received from the Government of India -including Central Assistance for various Central Sector Schemes, NABARD loans, External Aided Projects (EAP), Welfare Schemes, and other flagship programmes added to the debt burden of Punjab. These additions to the public debt along with the heavy burden of committed expenditure towards power subsidy,[6]wages and salaries and interest payments[7]led to the ballooning of Punjab's fiscal deficit.

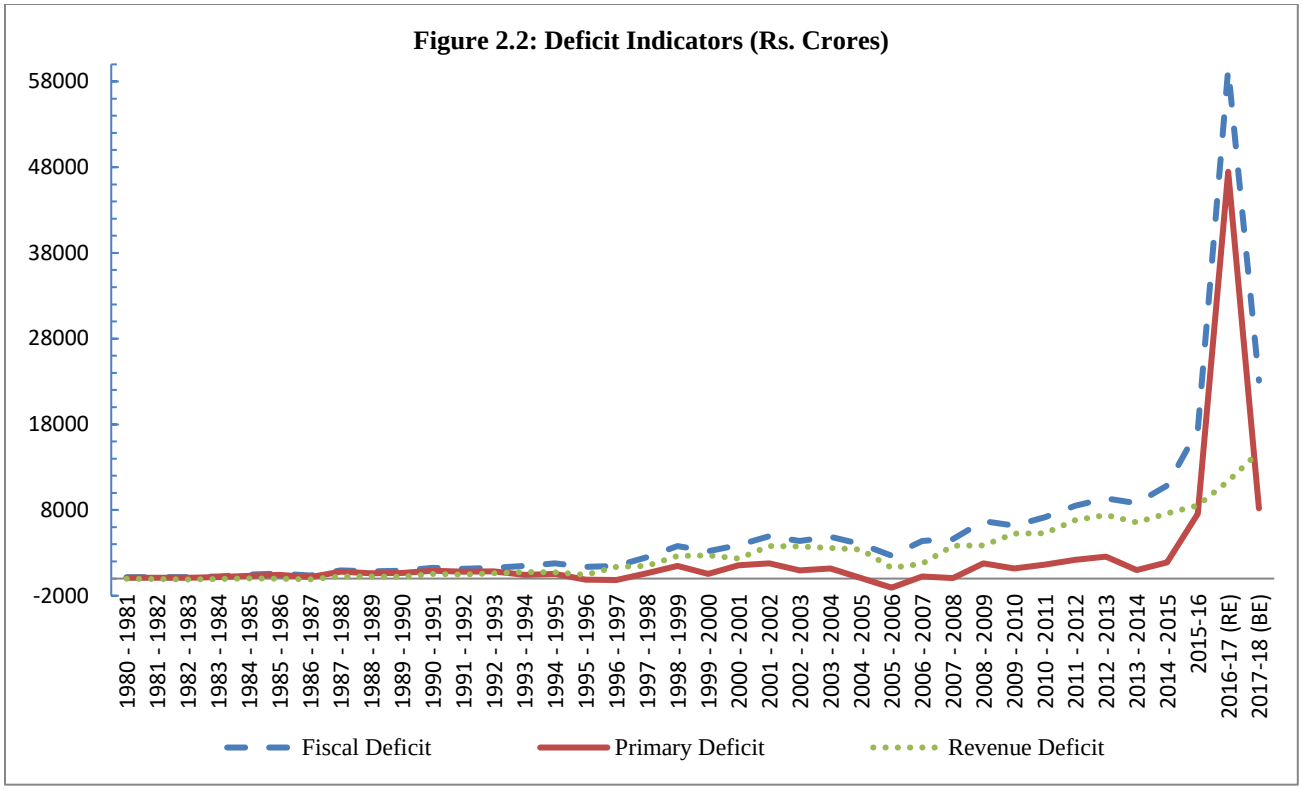
[4]The current bank outstanding amount in Cash Credit Accounts of Government of Punjab, pertaining to season up to Kharif Marketing Season 2014-15 amounted to approx. Rs. 31,000 crore and was converted into a term loan. Starting from FY 2016-17, the loan is repayable in half yearly installments over a period of 20 years with the option for pre- payment.

[5] Under the UDAY Scheme, Ministry of Power, GOI notified a scheme for financial turnaround of power distribution companies (DISCOMs) in 2015 with an objective to improve the operational and financial efficiency of the State DISCOMs. Memorandum of Understanding (MOU) amongst Ministry of Power, Government of India, Government of Punjab and Punjab State Power Corporation Limited (PSPCL) was signed on 04.03.2016. According to this, out of the total outstanding debt of PSPCL of `20837.68 crore on 30.09.2015, state has taken over `15628.26 crore (75% of total debt on 30.09.2015) in 2 years i.e. 50% of the outstanding debt (`10418.84 crore) in 2015-16 and 25% of the outstanding debt (`5209.42 crore) in 2016-17.

[6]In contrast to previous years when Power Subsidy as a proportion of GSDP hovered around 1%, the ratio increased from 1.24% in FY 2015-16 and to 2.1% 2016-17(RE). Growth of about 85% observed in total expenditure on Power Subsidy during FY 2015-16(A) to 2016-17 (RE) (from 4847 Cr in 2015-16 (A) to 8966.01 Cr in 2016-17 (RE)) (Punjab Budget at Glance 2016-17).

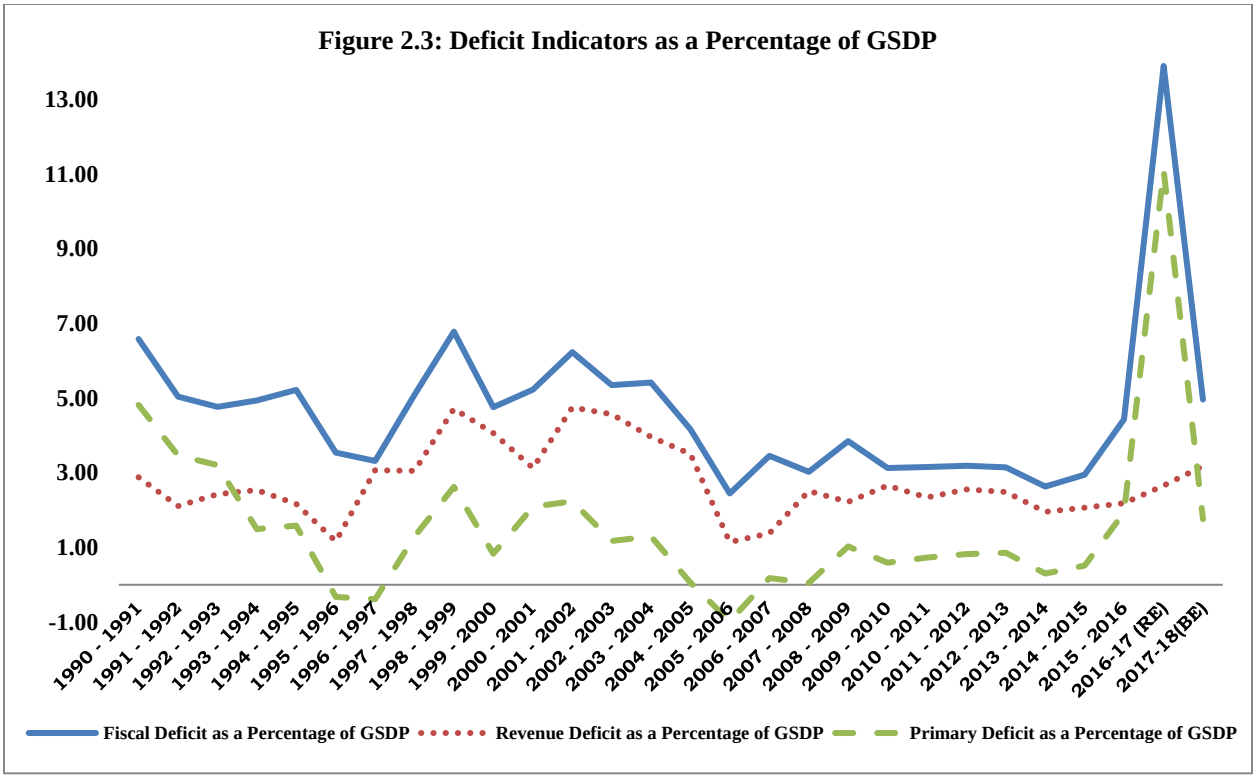
[7]Previously interest payments/GSDP has been below 2.5 %, the ratio has increased from 2.5 in 2015-16 to 2.8 in 2016-17(RE). Similarly, expenditure on salaries and wages has increased from around 4 % of GSDP in previous years to 4.6 % of GSDP in 206-17(RE). In terms of total expenditure, there has been was a 22% growth in the total expenditure on interest payments and 13% in salaries and wages during FY 2015-16(A) to 2016-17 (RE). Both expenditures together, amount into an absolute increase of about Rs. 4500 crores from FY 2015-16 to FY 2016-17 (Punjab Budget at Glance 2016-17).

Figure 2.2: Deficit Indicators (Rs. Crores)



Source: RBI State Finances and Budget at a Glance-Punjab 2017-18
Note: Deficit (+) and Surplus (-); RE is revised estimates; BE is budget estimates.

The overall scenario of the proportion of deficits of State finances can be understood by analysing the ratio of deficit indicators as a percentage of GSDP. Figure 2.3and 2.5 show fiscal, primary and revenue deficits, and outstanding debt as a percentage of Punjab's GSDP for the period 1990-91 to 2017-18, respectively. As observed from figure 2.2, Punjab's finances for long were running on the deficit. During 1990-91 to 2017-18, on an average, Punjab's fiscal deficit amounted to 4.3 %of GSDP. Similar to the case of Punjab, West Bengal (4.6 %), Uttar Pradesh (4.5%), Kerala (4.2%) also registered high fiscal deficits as a proportion of their respective GSDP. Revenue balance of Punjab had never reported a surplus over this period. As a percentage of GSDP, Punjab's revenue deficit averaged around 2.71 % and the primary deficit amounted to an average of 1.14 % for the period 1990-91 to 2016-17. Other Indian States with the high share of the primary deficit in GSDP were Kerala (1.5%), West Bengal (1.42 %) and Karnataka (1.32 %).



Source: Figures till 2015-16 are retrieved from RBI State Finances and for 2016-17, 2017-18 from Punjab Budget at Glance 2017-18
Note: Data on deficit indicator is retrieved from RBI report on state finances; GSDP data for 1990-91 to 2014-15 is taken from CSO; GSDP data for 2015-2016 to 2016-17 is collected from Punjab Economic Survey. Deficit (+) and Surplus (-); RE is revised estimates; BE is budget estimates.

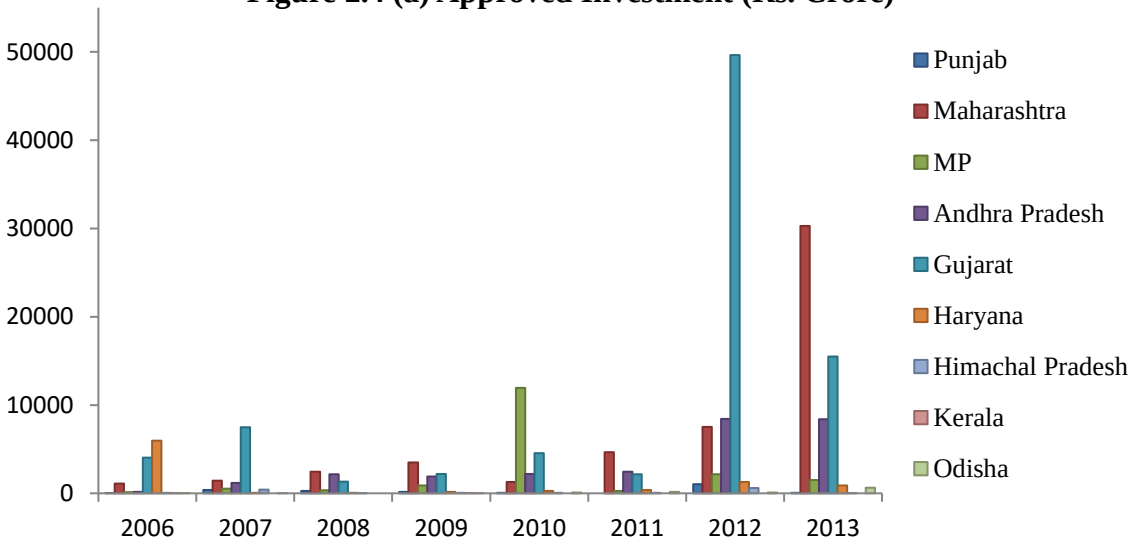
In the pre-FRBM (2005) period, Punjab ran huge deficits due to the significant deviation in the State expenditure and revenues. The Government of Punjab (GoP) indulged in competitive tax concessions and incentives to attract private investments which negatively impacted its revenue generation. At the same time, it was unable to increase the tax ratio and improve the productivity of non-tax revenue due to political constraints. On the expenditure side, populist policies like free power for irrigation, hike in salary and wage and interest payments increased the State's spending (Sawhney (2005). Several competitive tax concessions including Change in Land Use (CLU) charges, license fee, stamp duty exemption, and also the incentives given by Punjab government to attract private investments negatively affected the State's revenue generation(Industrial Policy of Punjab, 2009). In order to study and represent the investment scenario of Punjab, we portray the approved and proposed investment.

Figure 2.4 (a) and 2.4 (b) show the approved and proposed investments (in %) in Punjab and other major states from the year 2006 to 2012.It is noteworthy that in comparison to other states

the approved investments in Punjab were consistently very low over the years as compared to the proposed investments (see figure 2.4(a)) in spite of high tax concessions and incentives to promote private investments in the State (Punjab's Industrial Policy 2009).

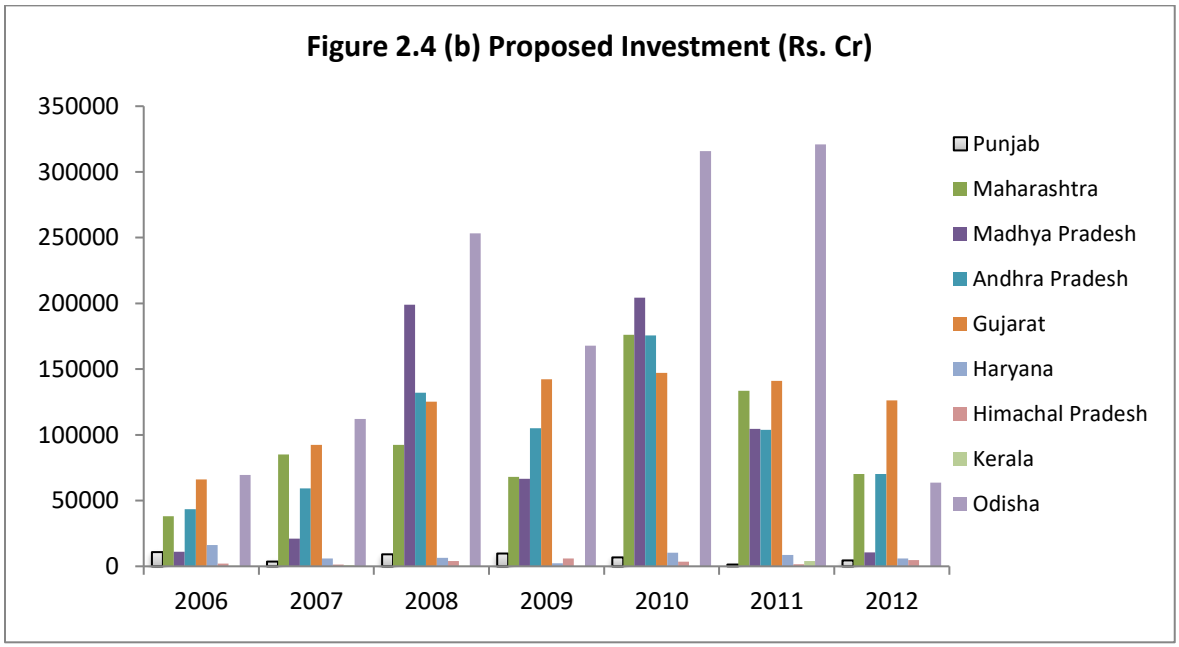
According to Industrial Entrepreneur Memorandum (IEM), the proposed investment in Punjab was Rs10815 crore in 2006, Rs 9731 crore in 2009 and Rs 4477 crore in 2012, while the approved investment was 18 crore, 145 crore and 1042 crore, respectively. We now elucidate the investment scenario of other selected States so as to bring out the difference in the funding scene in terms of investment.

Figure 2.4 (a) Approved Investment (Rs. Crore)



In Maharashtra, the proposed investment was Rs31822 crore in 2006, Rs 68069 crore in 2009 and Rs 70181 crore in 2012,and the approved investment was Rs 1087 crore, Rs 3499 crore and Rs 7509 crore, respectively. In 2013, Maharashtra received the highest approved investment of Rs 30266 crore. In Madhya Pradesh, the proposed investment was Rs 1097 crore in 2006, Rs 66669 crore in 2009, and Rs 10563 in 2012and approved investments of Rs 110 crore, Rs 904 crore and Rs 2157 crore, respectively. In 2010, Madhya Pradesh received the highest approved investments of Rs11959 crore. For the study period, the approved investments were consistently very low for the States of Odisha and Kerala. In contrast to these

States, Gujarat received the highest proportion of approved investment in 2012 as compared to other states.



Source: Industrial Entrepreneurs Memorandum (IEM)

Figure 2.4 (b) illustrates the proposed investment in major States. It was observed that Gujarat, Odisha, Kerala and Maharashtra witnessed large proposed investments followed by Andhra Pradesh and Madhya Pradesh. However, Gujarat, Maharashtra and Andhra Pradesh got a considerable proportion of their proposed investment approved. In Odisha and Kerala, the proposed investments were not approved. In the case of Punjab, despite of tax concessions and incentives to promote private investment (as per Industrial policy 2009), the State received low proposed investments and almost negligible approved investments.

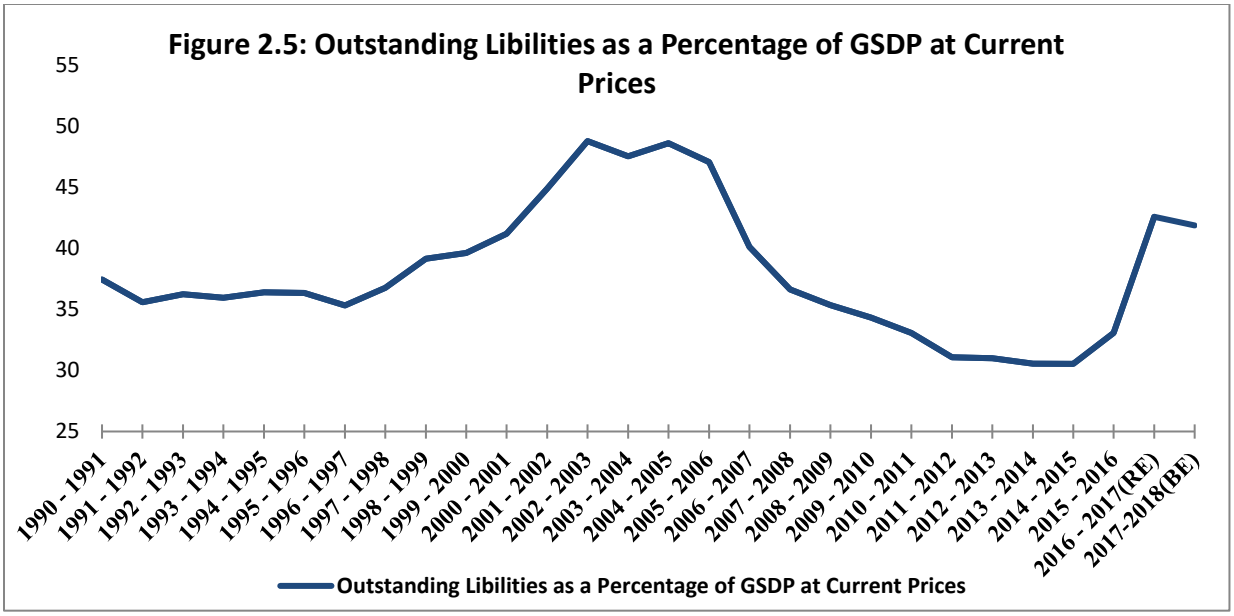
In the post-FRBM period (2005-06 onwards), deficit indicators of Punjab showed significant improvements but did not match all the FRBM targets. According to Sen (2012), a similar improvement in the deficit indicators was observed for other major States too. This may be attributed to policy initiatives taken in the State's FRBM Act 2005, higher revenue generation in the States as a result of acceleration in GDP growth of India, and higher revenue generation for the States as a result of increased Central revenue. Later in the chapter, we explore the

revenue and expenditure profile of Punjab over the last two decades. In this attempt, we examine the extent to which the gap in revenue generation and expenditure has restricted fiscal consolidation in Punjab.

For now, average debt-deficit figures over the post-reform period show that barring improvement in fiscal deficit, Punjab's revenue deficit and debt stock were above the targets. During the period 2006-07 to 2017-18, on an average, Punjab registered a revenue deficit of 2.26 % of GSDP. In contrast, the State likeOdisha with previously high revenue deficits generated a revenue surplus of 2.1 % of GSDP. Hence the revenue–expenditure gap continued to be cited as the prime reason for Punjab's deficits in the literature.

As far as the debt burden was concerned, Punjab was listed amongst the States with high debt to GSDP ratio in the country. Figure 2.5 presents the debt situation prevalent in the State during the period 1990-91 to 2017-18(BE). Debt stock ratio (outstanding debt as a percentage of GSDP) of Punjab conspicuously increased during the FY 2000-01 to FY 2005-06 (i.e., as high as 48.78 % of GSDP in 2002-03 to 48.61% of GSDP in 2004-05),after which it declined in the proportion of debt to GSDP. In the FY 2014-15 it was 30.54% of GSDP. This ratio has on an average been 38.11 per cent of GSDP for the period FY 1990–1991 to 2017–18(BE). A steep rise in the ratio was then observed from the FY 2015-16 to 2016-17(RE) (i.e., 42.58% of GSDP). An empirical analysis of Punjab's debt burden and its sustainability perspectives is examined in Chapter 4 of this report.

As hinted earlier, many factors cumulatively added to the rising debt of the State of Punjab. This included, pending liabilities under loans/grants like NABARD loans, External Aided Projects (EAP), SC/BCs welfare schemes, Atta-Dal scheme, and the account of dearness allowance. Further, free power for farm irrigation and to some other sections of the society have only added to the fiscal problem of Punjab. Failing to finance its debt by tax revenue, the Government of Punjab resorted to borrowing from other sources such as Open Market Borrowings, National Small Saving Fund, Government of India, International Financial Institutions, etc. Mounting interest on loans and outstanding debt along with repayment of



Source: RBI State Finances, Budget at a glance-Punjab 2017-18.Note: RE is revised estimates; BE is budget estimates

loans pushed Punjab into a vicious debt trap. The White Paper (2017) shed light on the guarantee provided by the State government to Punjab State Power Corporation Limited (PSPCL) being converted to State debt as a result of UDAY scheme and the loan taken over on account of Cash Credit Limit (CCL) of food agencies by the State government. Furthermore, the State government's Public Sector Undertakings (PSUs) like Punjab State Pepsu Road Transport Corporation (PRTC), Punjab State Industrial Development Corporation Ltd. (PSIDC), Pungrain and Cooperative Apex Institutions incurred huge losses, and were liable to pay an outstanding amount of government loans on entities and institutions of Rs17030.92 crore and Rs 22593.95 crore respectively (Annexure 2 presents a detailed analysis of the loss and profits of the PSUs in Punjab).

In addition, the declining GDP and per capita income of the State had also made public debt situation unstable. In order to understand the debt scenario of Punjab in terms of income and to examine its repayment potential in comparison to other States, we present per capita income rank of Punjab vis-à-vis other major States.

Table 2.1 ranks Punjab and other major States (estimated and classified with respect to high, middle and low income) in terms of per capita GSDP at a constant price for the period FY

1987-88 to FY 2016-17, where the ranks are based on 5-year average per capita GSDP. It was observed that Punjab was initially one of the major high-income states in India; its rank gradually came down over the years. During the period, the State fell from second to eighth rank in terms of per capita income. Amidst various factors, the likelihood of an interminable poor health of the State's finances imposing a restraint on the State's growth could not be disregarded on the whole.

Table 2.2 presents growth rate of GSDP and per capita income in Punjab during the period 1991-92 to 2016-17. A noticeable decline in GSDP growth (constant prices) of Punjab was evident during 2000-01 to 2002-03; 2008-09 and 2012-13. As observed from table 2.2, on an average the GSDP growth of Punjab was 4.36% between 1991-92 and 1995-96 followed by 5.1% between 1996-97 and 2000-01. The average GSDP growth rate fell to its lowest across the study period to 4.34%, lower than the national average of 6.7 % during 2001-02 to 2005-06. However, Punjab's GSDP grew significantly to its peak of 7.56% between 2006-07 and 2010-11, against the national average of 8.3%. In the period 2011-12 to 2016-17, Punjab again faced a decline in the average GSDP growth rate to 5.65% as opposed to all India average of 6.7%. Though the decline in constant GSDP and per capita growth rate did not seem to be alarming, this resulted in fall in income status of Punjab across the high-income states of India.

Additionally, with respect to the debt position, it is interesting to note that during the period 2000-01 to 2005-06, when Punjab recorded the highest debt to GSDP ratio (as shown in Figure 2.3), growth in GSDP (at constant prices) was the lowest (1.92% growth in 2001-02; 2.85 % in 2002-03; 4.95% in 2004-05; and, 5% growth in 2005-06). Hence the burden of debt was the maximum. In recent years (2014-15 to 2016-17) the debt burden was rising again for Punjab due to falling income level.

Along with empirical evidence to validate the situation, we observed that Punjab, which was among the highest earning states in India in terms of GSDP, had gradually fallen in the later years of the study period (FY 1990-91 to 2016-17). Table 2.3 compares the five-year average GSDP growth rate of Punjab with that of all-India averages for the study period

Table 2.1:Per Capita GSDP (constant prices, 2011-12) of selected states

STATES	1987-88-1991-92	RANK	1992-93-1996-97	RANK	1997-98-2001-02	RANK	2002-03-2006-07	RANK	2007-08-2011-12	RANK	2012-13-2016-17	RANK
High-income states												
GOA	82536	**1**	109706	**1**	156756	**1**	179636	**1**	231328	**1**	234108	**1**
HARYANA	42960	**3**	48347	**3**	56551	**3**	72141	**2**	102587	**2**	139874	**2**
MAHARASHTRA	33382	**4**	45204	**4**	53851	**4**	69138	**3**	100926	**3**	124340	**4**
KERALA	32453	**5**	40718	**5**	49431	**6**	67368	**4**	96600	**4**	124565	**3**
PUNJAB	43521	**2**	49691	**2**	57224	**2**	67053	**5**	87543	**8**	103666	**8**
Middle-income states												
KARNATAKA	29662	**6**	36709	**8**	49586	**5**	63629	**6**	90392	**5**	115675	**7**
TAMIL NADU	28617	**7**	36956	**7**	47009	**7**	57756	**8**	88094	**7**	122351	**5**
GUJARAT	27156	**9**	37555	**6**	45754	**8**	59880	**7**	88571	**6**	121902	**6**
ANDHRA PRADESH	26389	**10**	31168	**10**	38563	**9**	50119	**9**	69606	**9**	90298	**9**
CHATTISGARH	-	**-**	31233	**9**	33189	**11**	40645	**10**	55844	**10**	72087	**10**
Low-income states												
RAJASTHAN	23308	**12**	28357	**12**	34614	**10**	39663	**11**	54368	**11**	67898	**11**
ODISHA	23467	**11**	24444	**14**	27896	**14**	35000	**12**	49736	**12**	63239	**12**
ASSAM	27273	**8**	28812	**11**	29649	**12**	34377	**13**	41826	**13**	49859	**15**
JHARKHAND	-	**-**	24693	**13**	29253	**13**	30896	**14**	39953	**14**	52153	**13**
MADHYA PRADESH	19369	**14**	22640	**15**	26340	**15**	28320	**15**	38017	**15**	51643	**14**
UTTAR PRADESH	19956	**13**	21508	**16**	23107	**16**	25846	**16**	32824	**17**	39834	**17**
WEST BENGAL	11753	**16**	14418	**17**	18981	**17**	24943	**17**	32848	**16**	40671	**16**
BIHAR	12779	**15**	11815	**18**	12656	**18**	14148	**18**	19763	**18**	26451	**18**

Source: RBI Handbook of Statistics of State Government Finances

NOTE: Data for West Bengal is on 2004-05 prices, due to unavailability of 2011-12 series. Figures for Odisha and Bihar before 2001 are for erstwhile Odisha and Bihar. Figures for Andhra Pradesh before 2014 are for erstwhile Andhra Pradesh.

Table 2.2: Punjab-Growth Rates(in percentage)

Year	GSDP	PCNSDP	GSDP	PCNSDP
	current prices		2011-12 prices	
1991-92	21	18.7	5	2.5
1992-93	15	12.8	4.7	2.8
1993-94	15.1	14.1	5	2.4
1994-95	13.1	10.7	2.9	0.6
1995-96	12.9	10	4.2	1.8
1996-97	14.5	12.2	7.4	5.4
1997-98	10.2	8.1	3	0.8
1998-99	14.4	13	5.6	3.8
1999-00	20.5	20.9	5.6	3.3
2000-01	11.2	8.8	3.9	1.4
2001 -02	6.6	3.8	1.9	0
2002-03	3.3	1.3	2.8	-0.1
2003-04	9.5	6.7	6.1	4.3
2004-05	7.5	5.9	5	3.1
2005-06	12.2	9.4	5.9	3
2006-07	17	15.7	10.2	8.8
2007-08	19.8	17.9	9	6.7
2008-09	14.3	12	5.8	3.6
2009-10	13.5	11.7	6.3	4.5
2010-11	14.5	12.6	6.5	4.5
2011-12	17.9	23	6.5	3.5
2012-13	11.7	10.2	5.3	3.9
2013-14	12.4	11.5	6.3	4.9
2014-15	9.9	9	4.9	2.5
2015-16	6.4	4.1(Q)	5.0(Q)	4
2016-17	9.3	8.0(Adv)	5.9(Adv)	4.4
2017-18	8.9	-	-	-
CAGR	13	11	5	3

Source: CSO, Economic Survey of Punjab and budget of Punjab 2017-18

Note: Data on GSDP from 1991-92 to 2014-15 is taken from CSO and from 2015-16 to 2017-18 is retrieved from budget estimate 2017-18 and for PCNSD from 1991-92 to 2014-15 is taken from CSO and from 2015-16 to 2016-17 is retrieved from Punjab Economic survey 2017: Q-Quick Estimates; Adv- Advance Estimates.

from 1991-92 till 2016-17. Punjab, which initially figured among the high-income States of India, noticeably declined from 5.10% GSDP growth rate during 1996-97 to 2000-01 to 4.34% during2001-02 to 2005-06. This decline in income level happened when the rest of

the nation was exhibiting a rise in economic growth. All India's GDP growth rate demonstrated a rise of 6.70% during the same period. Such a divergent result of a notably high-income State indicated a prominent fiscal deterioration. In the last decade, both Punjab and India as a whole reported an approximate fall of 2% in GSDP/GDP during 2011-12 to 2016-17.

Table 2.3: Average GSDP Growth Rates (constant 2011-12 prices in percentage)

	Punjab	All India
1991-92 to 1995-96	4.36	4.87
1996-97 to 2000-01	5.10	5.71
2001-02 to 2005-06	4.34	6.70
2006-07 to 2010-11	7.56	8.30
2011-12 to 2016-17	5.65	6.70

Source: RBI Handbook of Statistics of State Government Finances

The decline in GSDP growth for the specified years was attributed mainly to the falling agriculture and manufacturing GSDP[8].The detailed analysis of the growth rates of agriculture and manufacturing as a proportion of GSDP for Punjab and all-India is given in Annexure 2.1.On average the growth rate of agriculture sector of Punjab was 4.07% between 1990-91 and 1994-95 which fell to 1.79% between 2000-01 and 2004-05. This drop in the average growth rate of Punjab was more than the all-India drop of 1.45% during the concerned time period. While the all-India average agriculture growth rate increased to 3.38% during 2010-11 to 2015-16, Punjab's agriculture growth rate increased only marginally during the period 2000-01 to 2004-05 to fall again to 1.43% between 2010-11 and 2015-16. Similarly, the average growth rate of the manufacturing sector in the State was 7.73% between 1990-91 and 1994-95 which fell to 2.99% during 2000-01 to 2004-05. The manufacturing sector's growth rate rose during 2005-06 to 2009-10 for Punjab as well as for all-India. At the end of 2010-11 to 2015-16, the growth of manufacturing sector declined again for both Punjab and all-India, although the fall for Punjab at 5.74% was far more than that of all-India.

Inadequate resource allocation towards capital expenditure was argued to be another reason for the inconsistent growth in GSDP of Punjab. Later in the chapter, we support this argument

[8] Refer to Annexure 2.1 for year on year growth rate of agriculture and manufacturing sector of Punjab vis-à-vis All India.

with relevant data. For now, it is to be noted that Punjab deployed the major portion of its funds towards debt servicing. As a result, the State's non-development expenditure was relatively higher than the development expenditure. Also, Punjab's capital outlay (allocation towards long-term asset creation) was a small proportion of its GSDP. This constrained investment in education, health and infrastructure, and diverted public spending on unproductive expenses. Thus, a lack of sufficient investments in the asset building seized the momentum of economic growth in Punjab.

In the discussion that follows, we reinstate the role of deviation in revenue–expenditure in Punjab's fiscal imbalance, accumulation of debt and lopsided growth in income. A deficit in the revenue account halts the flow of much-needed resources for infrastructural development and the creation of productive assets. A surplus on revenue account is ideal, and a zero-deficit revenue account is a minimum necessary condition for the fiscal management. In the absence of zero deficit revenue account, the government resorts to borrowing, which means higher debt burden and unproductive expenditure which ultimately weakens the economic growth.
For the validation of this argument, in Table 2.2we present the estimation of Punjab's revenue deficit as a percentage of the State's total revenue vis-à-vis other major States of India since 2002–03 to 2016-17. In the wake of FRBM guidelines, a comparison of revenue deficit across the States, as a proportion of their total revenue, shows how alarming was the revenue position of Punjab vis-à-vis other major States of India.

In comparison to other States, Punjab's revenue position registered no significant improvement over the years. In 2002–2003, the revenue deficit as a percentage of total revenue in Punjab was as high as (-) 33.91%. The situation was similar in Maharashtra (-30.13 per cent), West Bengal (-59.45 per cent), and Kerala (-38.76 per cent). But given that all State governments had introduced the FRBM Act in 2005, several States reported significant improvement in their revenue position in the following years. Despite being a high-income State, Punjab's performance was unsatisfactory in comparison to the fiscal progress achieved by other middle and low-income states like Odisha, Bihar, and Uttar Pradesh in the new set-up. From FY 2006–2007 to 2016–2017, with a high proportion of revenue deficit as a percentage of total revenue, Punjab had a situation of fiscal alarm

Table 2.4: Revenue Deficit as a Percentage of Total Revenue*

States	2002–2003 (A)	2003–2004 (A)	2004–2005 (A)	2005–2006 (A)	2006–2007 (A)	2007–2008 (A)	2008–2009 (A)	2009–2010 (A)	2010–2011 (A)	2011–2012 (A)	2012–2013 (A)	2013–2014 (A)	2014-15 (A)	2015-16 (RE)	2016-17 (BE)
Andhra Pradesh	-13.28	-7.27	-8.9	-0.18	6.34	-0.29	-1.6	1.9	3.04	3.36	1.09	0.31	-26.68	-4.63	-4.46
Bihar	-21.23	-11.19	6.85	0.45	10.82	16.47	13.55	8.27	14.19	9.39	8.56	9.34	7.46	-1.48	11.76
Gujarat	-19.94	-28.36	-19.92	-1.59	5.71	6.02	-0.17	-16.73	-9.7	5.1	7.4	5.9	5.79	3.51	2.78
Haryana	-7.91	-9.38	-2.31	8.76	8.86	11.26	-11.28	-20.3	-10.76	-4.78	-13.2	-10.21	-20.39	-19.73	-19.50
Karnataka	-16.36	-10.76	6.16	7.61	11.05	9.18	3.77	3.3	7.16	6.72	2.4	0.39	0.51	0.85	0.40
Kerala	-38.76	-20.98	-27.18	-20.46	-14.5	-17.93	-15.14	-19.23	-11.84	-21.13	-21.18	-23	-23.81	-15.22	-15.45
Madhya Pradesh	-8.73	-3.88	8.7	0.16	12.97	16.58	12.1	13.29	13.19	15.83	10.59	7.76	7.07	0.40	2.78
Maharashtra	-30.13	-11.86	-24.46	-7.93	1.3	18.6	6.86	-9.22	-0.56	-1.87	2.95	-3.39	-7.34	-4.68	-1.65
Orissa	-18.67	-15.05	-4.41	3.41	12.54	19.32	13.9	4.31	11.75	13.93	12.97	6.8	10.28	9.54	4.71
Punjab	**-33.91**	**-22.97**	**-24.56**	**-7.32**	**-10.41**	**-19.87**	**-18.62**	**-23.69**	**-19.16**	**-25.95**	**-23.12**	**-18.63**	**-19.45**	**-16.58**	**-15.90**
Rajasthan	-30.07	-23.81	-12.06	-3.17	2.49	5.37	-2.47	-13.42	2.29	5.89	5.16	-1.4	-3.53	-4.90	-7.14
Tamil Nadu	-23.28	-17.35	-2.47	5.74	6.47	9.56	2.64	-6.32	-3.89	1.6	1.78	-1.66	-5.24	-6.85	-10.70
Uttar Pradesh	-18.39	-22.13	-18.59	-1.34	12.15	8.07	2.78	-12.33	-0.09	5.26	11.37	6.35	11.58	7.42	10.02
West Bengal	-59.45	-57.49	-41.31	-31.15	-32.26	-27.01	-39.86	-58.45	-36.54	-24.8	-20.23	-25.96	-19.81	-8.82	.

Source: State Finances, RBI

Note: *Deficit(-) and Surplus(+) ; A- Account estimates; RE - Revised estimates; BE - Budget estimates

(average revenue deficit of -20 per cent), West Bengal (on an average,-34.5 per cent), and Kerala (on an average, -20.3 per cent).

2.3 Revenue Receipt and Revenue Expenditure Profile of Punjab vis-à-vis other Major States

This section examines the fiscal scenario in Punjab in terms of growth rate of revenue receipt and revenue expenditure vis-a-vis other major States of India during the pre and post reform period (pre-FRBM period- FY 1990-91 to 2004-05 and post-FRBM period- FY 2005-06 to 2016-17).

Revenue receipts in India at the State level are mainly derived from taxes and non-tax revenue. The direct and indirect taxes including the share of the Union tax constitute the tax revenue. The non-tax revenue receipts include income from social and economic services, general services, fees & fines, grant-in-aid and other receipts grouped as revenue of the State. The revenue expenditure includes interest payment, debt service, expenditure for collection of taxes and other receipts, social service and developmental expenditure and other expenditure from revenue accounts. The difference between the total revenue receipts and total revenue expenditure is the revenue surplus or deficit. Table 2.5 shows the average growth in revenue receipt and revenue expenditure of Punjab and major States of India as a proportion of GSDP for the post reform period 2005-06 to 2016-17.

As observed from the Table 2.5, in the post-FRBM period, it was found that Punjab's average revenue receipt to GSDP was lower than its average revenue expenditure to GSDP, indicating a receipt-expenditure gap of 2.09% for the given period. Post-reform, average revenue receipts of States like Andhra Pradesh, Bihar, Uttar Pradesh and Odisha were greater than or equal to the average revenue expenditure. Punjab along with West Bengal, Kerala and Haryana exhibited higher average revenue expenditure against revenue receipts.

In terms of average growth in RR and RE in the post-FRBM period Punjab registered a negative growth in revenue receipts (-0.57) and a negative growth in revenue expenditure (-1.66). Evidently, a negative growth in revenue generation negated the benefits that the State

Table 2.5: POST FRBM AVERAGES (2005-06 to 2016-17) OF REVENUE RECEIPT AND REVENUE EXPENDITURE FOR ALL MAJOR STATES(as % GSDP)

	REVENUE RECEIPTS		REVENUE EXPENDITURE	
	Avg.RR/GSDP (%)	Avg.growth (%)	Avg. RE/GSDP (%)	Avg.growth (%)
Andhra Pradesh	20.78	-1.53	21.24	-1.94
Bihar	22.04	2.02	20.34	2.98
Gujarat	10.18	0.82	9.96	-1.07
Haryana	10.56	0.41	11.83	1.42
Karnataka	11.26	-0.29	10.85	0.18
Kerala	10.68	2.07	12.71	1.19
Madhya Pradesh	18.66	1.53	17.05	1.97
Maharashtra	9.52	0.32	9.58	-1.04
Odisha	17.89	3.02	16.15	2.3
Punjab	**11.3**	**-0.57**	**13.39**	**-1.66**
Rajasthan	13.73	1.39	13.74	0.64
Tamil Nadu	11.28	-0.2	11.57	0.39
Uttar Pradesh	18.16	4.38	17.04	2.1
West Bengal	10.52	1.56	13.58	-0.23

NOTE: RR/GSDP and RE/GSDP (%) and their growth rates have been calculated from 2005-06 to 2014-15 for Maharashtra, Rajasthan and West Bengal and during 2005-06 to 2015-16 for Bihar, Gujarat, Karnataka, Kerala and Uttar Pradesh, due to unavailability of data on GSDP.

would have otherwise reaped from the negative growth in revenue expenditure. In the next section we explore the reasons for Punjab's unsatisfactory performance in revenue generation.

2.4 Revenue Generation Profile of Punjab (1990-91 to 2016-17)

As fiscal imbalance is the result of a mismatch between revenue receipts and expenditure, it is important to understand the trend in different components that constitute a State's revenue receipts. In the following discussion, we examine these in terms of the relevant aggregates for the case of Punjab.

Revenue receipts comprise the State's own tax receipts and its share in the Central government taxes, which can be classified into receipts collected as tax revenues and as non-tax revenues. Table 2.6 presents the composition of Punjab's revenue receipts (in percentage) for the period 1990-91to 2016-17. It is evident from the table that the State's own tax revenue (SOTR) had increased over the study period. During the period 1990-91 to 2009-10, on an average, Punjab's SOTR contributed 53% to its total state own revenue (SOR). This share increased to 64.5% during 2010-11 to 2016-17. The State's own non-tax revenue (SONTR) is another component of SOR which determines the total revenue generation in the State. Table 2.6 reveals the fall in the share of SONTR in Punjab's total revenue. During the period 1990-91 to 2009-10, on an average, Punjab's SONTR contributed 29.6% to its total State's own revenue (SOR). This share declined to 10.6% during 2010-11 to 2016-17. As a result, the contribution of SOR to total revenue receipts of Punjab fell from 80 % in 2010-11 to 68.5% in 2016-17.

The decrease in Punjab's non-tax revenue was mainly attributed to the decline in receipts from miscellaneous general services comprising guarantee fees and lottery receipts and receipts in respect of jails, supplies and disposals, contributions and recoveries towards departments of Industries and Tourism (CAG Punjab, 2010-11 to 2015-16).

Punjab's share in Central Transfers (CT) had also increased in recent years. The share of Central Transfers (CT) in Punjab's revenue receipts increased from 19.7% in 2010-11 to 31.5% in 2016-17. Both components of CT viz., the share of the Central tax and Central grant had registered expansion in the recent years. Punjab's share in the Central taxes increased from 9.7% in 2009-10 to 17.9% in 2016-17. Similarly, Central grant to Punjab also enlarged over

the years. The declining trend in SOR and increasing support from the Centre was indicative of the shrinking tax base and undervaluation of the government services.

Table 2.6: Composition of Revenue Receipts(as percentage of total Revenue Receipts)

	1. State's Own Tax Revenue (SOTR)	2.State's Own Non-Tax Revenue (SONTR)	State Own Revenue (SOR)(1+2)	3.Share from Central Tax	4.Grants from the Centre	Central Transfers (3+4)
1990 - 91	65.4	12.9	78.3	12.6	9.2	21.7
1991 - 92	41.5	44.3	85.8	7.9	6.3	14.2
1992 - 93	63.1	11.8	74.9	12.5	12.6	25.1
1993 - 94	65.6	12.6	78.2	11.6	10.2	21.8
1994 - 95	49.0	37.8	86.8	8.0	5.2	13.2
1995 - 96	51.1	34.3	85.4	8.5	6.1	14.6
1996 - 97	49.1	34.9	84.0	9.5	6.5	16.0
1997 - 98	47.9	37.1	85.0	10.3	4.6	15.0
1998 - 99	56.7	26.2	82.9	10.2	6.9	17.1
1999 - 00	52.9	31.6	84.5	8.6	7.0	15.5
2000 - 01	52.2	31.3	83.5	7.7	8.8	16.5
2001 - 02	54.0	33.2	87.1	6.8	6.0	12.9
2002 - 03	51.6	36.5	88.0	5.9	6.1	12.0
2003 - 04	50.6	38.4	89.1	6.2	4.7	10.9
2004 -05	50.3	38.8	89.1	6.5	4.4	10.9
2005 -06	53.0	26.7	79.7	7.2	13.0	20.3
2006 -07	53.7	23.7	77.3	9.3	13.3	22.7
2007 -08	51.5	27.3	78.8	10.3	11.0	21.2
2008 -09	53.8	27.9	81.8	10.1	8.2	18.2
2009 -10	54.3	25.5	79.9	9.7	10.5	20.1
2010 -11	61.0	19.3	80.3	11.1	8.7	19.7
2011 -12	62.7	13.9	76.5	11.0	12.4	23.5
2012 -13	70.5	8.2	78.7	12.7	8.7	21.3
2013 -14	68.6	9.1	77.7	12.6	9.7	22.3
2014 -15	65.5	7.4	72.9	12.1	15.0	27.1
2015 -16	62.5	8.9	71.4	17.6	11.0	28.6
2016-17(RE)	60.9	7.6	68.5	17.9	13.6	31.5
2017-18(BE)	65.8	5.3	71.2	17.8	11.1	28.9

Source: RBI State Finances

Note: RE - revised estimates; BE - budget estimates

Illustrating the revenue receipt profile of Punjab, Table 2.7 presents the magnitude of the relevant components of revenue receipts as a percentage of GSDP between 1990–1991 and

2014–2015. As shown in the table, total revenue receipts (tax plus non-tax revenue) of the Government of Punjab as a proportion of GSDP was 11.9% on average for the study period of 27 years. Relative to GSDP, tax revenue and its components i.e., the state's own tax revenue and its share in the Central tax reported marginal changes for the study period. Punjab's total tax revenue (SOTR plus share in Central tax) generation was on an average 7.8% of GSDP during 1990-91 to 2016-17. SOTR as a proportion of GSDP fluctuated from 5 % to 8%, and the share from Central taxes ranged between 0.8% to 2% of GSDP, for the same period.

The SOTR-to-GSDP ratio shows the tax efficiency of a state. The average SOTR for all the States in India was around 5.6%for the study period (1990-91 to 2016-17), which was less than that of Punjab (6.5%). Thus, in tax revenue efficiency defined in terms of the financial ratio (state own tax-to-GSDP ratio), Punjab did better than the national average. However, this observation remains to be validated by using appropriate econometric modelling. In Chapter 5 of this report, we have analysed Punjab's tax-capacity and tax-efficiency through regression analysis.

As depicted in Table 2.7, on an average, non-tax revenue to GSDP declined from 4.7% between 1999–00 and 2005–06 to 3.1%between 2006–07 and 2016-17. This decline was reported mainly due to the drop in the State's own non-tax revenue. Punjab's own non-tax revenue as a proportion of GSDP declined from 5.5% in 2004–05 to 2.4 % in 2010-11,one per cent in 2015-16(RE), and 0.9 per cent in 2016-17(BE). The Central grant component of the non-tax revenue was around 2.0% to 0.6% of the GSDP during the study period.

As stated earlier, undervaluation of certain government services resulted in a decrease in non-tax revenue. Annexure 2.2 imparts understanding how the government services i.e. fiscal, economic, social, general etc. might have potentially led to the decline in the share of non-tax revenue in revenue receipts. The annexure table compares the ratio of various components of own non-tax revenue to State's total own non-tax revenue of Punjab and all-States (in percentages) for the years 2004-05 and 2016-17.

Table 2.7: Revenue Receipts of Punjab (as % of GSDP)

Year	1990–91	1991–92	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–00
Revenues	**9.8**	**15.2**	**9.9**	**9.8**	**14**	**12.1**	**11.4**	**11.9**	**9.5**	**11.1**
Tax Revenue	7.6	7.5	7.5	7.6	8	7.2	6.7	6.9	6.3	6.8
State's Own Tax Revenue	6.4	6.3	6.2	6.5	6.9	6.2	5.6	5.7	5.3	5.9
Share in Central Tax	1.2	1.2	1.2	1.1	1.1	1	1.1	1.2	1	1
Non-Tax Revenue	2.2	7.7	2.4	2.2	6	4.9	4.7	5	3.2	4.3
State's Own Non-Tax Revenue	1.3	6.7	1.2	1.2	5.3	4.2	4	4.4	2.5	3.5
Grants from the Centre	0.9	1	1.2	1	0.7	0.7	0.7	0.6	0.7	0.8

Year	2000–01	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09	2009–10
Revenues	**12.5**	**11.2**	**13.4**	**13.5**	**13.8**	**15.2**	**13.1**	**12.3**	**11.7**	**10.8**
Tax Revenue	7.5	6.8	7.7	7.7	7.8	9.1	8	7.6	7.4	6.8
State's Own Tax Revenue	6.5	6	6.9	6.8	6.9	8	6.8	6.3	6.2	5.7
Share in Central Tax	1	0.8	0.8	0.8	0.9	1.1	1.2	1.3	1.2	1.1
Non-Tax Revenue	5	4.4	5.7	5.8	6	6.1	5.1	4.7	4.3	4
State's Own Non-Tax Revenue	3.9	3.7	4.9	5.2	5.4	4.1	3.3	3.3	3.2	2.8
Grants from the Centre	1.1	0.7	0.8	0.6	0.6	2	1.8	1.4	1	1.2

Year	2010–11	2011–12	2012–13	2013–14	2014-15	2015-16	2016-17(RE)	2017-18(BE)
Revenues	**12**	**9.97**	**10.9**	**10.7**	**10.6**	11.5	11.5	12.9
Tax Revenue	8.6	8.47	9	8.6	8.2	9.3	9.4	10.8
State's Own Tax Revenue	7.2	7.07	7.6	7.2	6.9	7.3	7.2	8.5
Share in Central Tax	1.4	1.4	1.4	1.4	1.3	2	2.2	2.3
Non-Tax Revenue	3.4	1.5	1.9	2.1	2.4	2.2	2.1	2.1
State's Own Non-Tax Revenue	2.3	0.5	0.9	1	0.8	1.1	0.9	0.7
Grants from the Centre	1.1	1	1	1.1	1.6	1.1	1.2	1.4

Sources: RBI State Finances

Note: RE is revised estimates; BE is budget estimates

It was observed that revenue contribution from the State lotteries as a proportion of Punjab's total own non- tax revenue fell drastically from 51.86% in 2004-05 to 1.86% 2016-17. In comparison to revenue raised by other States from non-tax revenue items, such as petroleum, power and tourism, Punjab made negligible earnings under these heads during 2004-05 as well as 2016-17.This showed that the difference in the way services were charged in Punjab vis-à-vis all-India may have negatively affected the revenue generation in Punjab.[9]

Overall, the study found continuous variations in the composition of revenue receipts of Punjab as a percentage of GSDP. As total revenue to GSDP of Punjab fluctuated from 9% to 14% over the study period, it portrayed an unclear trend in total revenue generation vis-à-vis the income levels. Since the changing composition of the revenue receipts as a percentage of GSDP displayed confusing trends, it was imperative to analyse how revenue generation in Punjab reacts to change in income. To understand the same, accessing tax buoyancy was useful. Tax buoyancy measures the percentage response of tax revenue to a one per cent change in the tax base (GSDP). The coefficients of tax buoyancy were obtained by using a double-log regression model under the Ordinary Least Squares (OLS) method. The results are presented in Table 2.8 below:

Table2.8: Tax Buoyancy of Punjab

	Year	Buoyancy coefficient
Pre-FRBM, Period-I	1990-1991 to 2004-2005	1.02
Post-FRBM, Period-II	2005-2006 to 2016-2017	0.72
Overall	1990-1991 to 2016-2017	0.93

Source: Annexure 2.3

The analysis was carried out for the pre and post-reform period as well as the overall study period to make useful comparisons. The tax buoyancy coefficient for Period I was 1.02. This implied that the percentage response of tax revenue to a one percent growth in tax base (GSDP) was more than one. Here, the tax was buoyant and the state was able to achieve high revenue in the pre-FRBM period. However, the tax buoyancy coefficient falls below one in Period II

[9] Refer to Annexure 2.2 for Components of States Own Non Tax Revenue as a ratio State's Total Own Non Tax Revenue (in percentages).

to 0.72 and hence the tax was no longer buoyant. The tax revenue responds less than proportionately to a one percent growth in GSDP post FRBM. For the overall period of study (1990-1991 to 2016-2017), similar to Period II, the tax buoyancy coefficient again was less than one. For the overall period in the third regression, the tax revenue increased only by 0.93 % to a corresponding 1 % growth in GSDP. Thus, over the study period, tax revenue generation in Punjab was less responsive to change in income.[10]Now we evaluate the annual growth rate of tax as a proportion of GSDP to reveal the rate of growth of tax to GSDP and also to compare the same with the growth scenario of other major states.

Table 2.9 (a) exhibits the Compound Annual Growth Rate (CAGR) of the proportion of tax to GSDP for the major Indian States (in percentage) for the pre-FRBM period (FY 1990-91 to 2004-05) and post-FRBM period (FY 2005-06 to 2016-17). The post-FRBM CAGR of Punjab was found to be relatively higher than the growth rate of tax to GSDP in the pre-FRBM period (FY 1990-91 to 2004-05), indicating a higher rate of growth of SOTR to GSDP.

Table 2.9 (a): CAGR of Tax/GSDP for the major Indian States (in percentages)

STATES	PRE-FRBM (1990-91-2004-05)	POST-FRBM(2005-06-2016-17)
Andhra Pradesh	10.25	11.88
Bihar	5.33	5.04
Gujarat	6.72	6.63
Haryana	6.89	7.02
Karnataka	6.05	7.35
Kerala	6.23	6.78
Madhya Pradesh	6.37	7.48
Maharashtra	6.16	6.53
Orissa	4.09	5.73
Punjab	6.05	7.08
Rajasthan	5.02	6.17
Tamil Nadu	6.93	7.49
Uttar Pradesh	4.8	6.68
West Bengal	4.71	4.65

Source: RBI Handbook of Statistics of State Government Finances

[10]Refer to Annexure 2.3 for estimation of tax buoyancy.

We compared the growth scenario of Punjab with other major states and observed the CAGR of states like Andhra Pradesh, Maharashtra, Orissa and Gujarat. Andhra Pradesh exhibited a remarkable rate of compound growth of tax in terms of GSDP both before and after the introduction of FRBM. The State showed the highest rate of growth, which further improved in the post-FRBM period. In Maharashtra, the rate of tax increment in the post-FRBM period was non-impressive and relatively invariable. Orissa revealed a comparatively higher increase in the proportion of tax in the State's GSDP with 0.61% higher rate of growth than that of Punjab. Contrary to these States, in Gujarat, the rate of tax growth as a percentage share of GSDP fell by 0.09%.In the post-FRBM period(FY 2005-06 to 2016-17), Gujarat recorded 0.45% lower CAGR than Punjab.

Table 2.9 (b):CAGR of SONTR/GSDP of major Indian States (in Percentages)

STATES	PRE-FRBM (1990-91-2004-05)	POST-FRBM(2005-06-2016-17)
Andhra Pradesh	2.95	2.8
Bihar	2.03	0.55
Gujarat	2.21	1.15
Haryana	4.37	1.78
Karnataka	1.25	0.79
Kerala	0.76	0.86
Madhya Pradesh	2.81	1.94
Maharashtra	1.57	1.01
Orissa	1.6	2.42
Punjab	3.67	2.08
Rajasthan	2.14	1.99
Tamil Nadu	0.96	0.86
Uttar Pradesh	1.19	1.68
West Bengal	0.49	0.51

Source: RBI Handbook of Statistics of State Government Finances

Having observed the growth in SOTR to GSDP across the major States, we next evaluated the CAGR of SONTR as a proportion of GSDP. Table 2.9 (b) exhibits the CAGR of SONTR to GSDP for the major States of India (in percentage) for the pre-FRBM and post-FRBM period i.e. FY

1990-91 to 2004-05 and FY 2005-06 to 2016-17, respectively. For Punjab, CAGR of SONTR in GSDP fell by 1.59% indicating the reduction in non-tax revenue collection in the post-FRBM period (FY 2005-06 to 2016-17). In comparison to the pre-reform period, SONTR to GSDP on an average declined in most of the major States in the post-reform period but the decline was the largest for Haryana and Punjab.

Composition of Punjab's Own Tax Revenue

Figure 2.6 illustrates the tax structure of Punjab for the study period (FY1990-91 to 2016-17). Seven major taxes of the State were plotted as a percentage of SOTR. During 1990-91 to 1998-99, the contribution of Sales Tax (VAT) and State Excise was the highest in SOTR. These two tax components contributed 45 % and 37 % respectively to the total revenues during this period. In the following years, the share of sales tax in SOTR increased (60% in 2016-17) while the share of the state's excise progressively decreased (18% in 2016-17). Following the recommendation of the State's Finance Minister in his budget speech for the FY 2002-03 of generating additional revenue by increasing various user charges for the services such as transport, drinking water, sewerage, technical, higher and medical education etc., the state registered a rise in the sales tax revenue from 2001-02 to 2002-2003 (Audit General Punjab, 2002-03). However, the revenue from the sales tax slightly decreased again due to arrears of revenue in 2004-05 and since continues to lie between 50%-60% percent of SOTR.

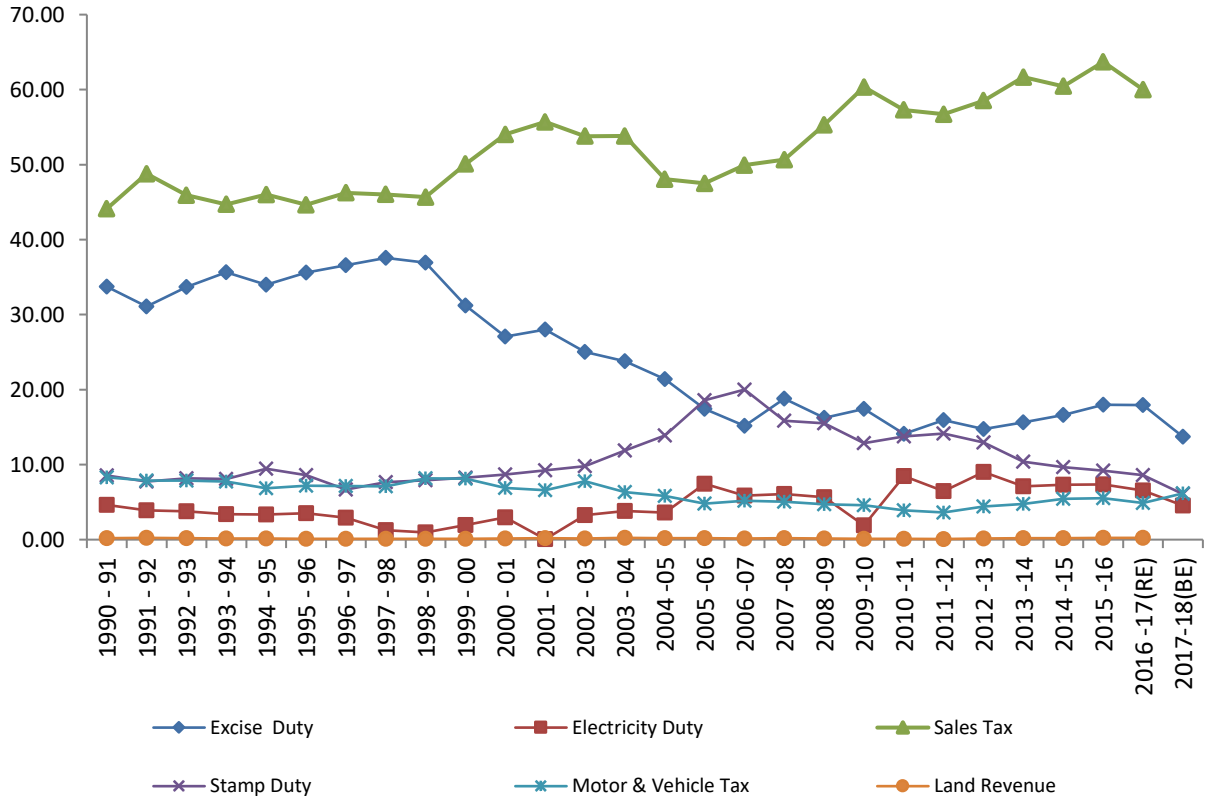
The State's excise share in SOTR fell by 15 percentage points between 1999-2000 and 2014-15. Excise concessions to distilleries in 2004-05 to be availed over 10 years; failure to achieve/enforce the norms for the yield of spirit from molasses; increasing trends in arrears of revenue and poor revenue collection methods had all led to the fall in the revenue generated from excise duty (Audit General Punjab,2004-05).Further, in 2015-16 Punjab faced illicit liquor trade, inability of the contractors to pay their latest instalment fees and shift of vends away from the national highways to alternate locations adversely affected the State's excise collection, which remained persistently poor in recent years .

The share of stamp duty increased significantly from 2002-03 (approximately 10%) to 2006-07(20%), after which its share decreased consistently and contributed just 10%in the State's

tax revenue in 2013-14. In 2016-17, the contribution of stamp duty further reduced to around 8.8%.

Motor Vehicle Tax collection as a percentage of SOTR has also shown decreasing trend over the period, though it almost tripled in absolute figures. The share of Motor Vehicle Tax in SOTR was found to be around 6%, and Electricity Duty was 4.6% over the study period of 26 years as shown in figure 2.6. Among the various types of taxes levied by the Government of Punjab, the share of land revenue in SOTR was observed to be negligible. Land revenue collection of Punjab for the study period was found to be around 0.16 %, much less than the all-India average of 1.5 %.

Figure 2.6: Composition of Punjab's Own Tax Revenue (as a percentage of SOTR)



Source: RBI State Finances
Note: Land Revenue = Agricultural Income Tax + Land Revenue and Motor Vehicle Tax = Taxes on Vehicles + Taxes on Goods and Passenger, Stamp Duty includes Registration fee. RE - revised estimates; BE - budget estimates

Figure 2.6 also shows the subtle changes in Punjab's tax structure over the study period. It shows a significant increase in the share of the sales tax from about half of the SOTR in 1999-

00 to near about two-thirds of the SOTR in 2014-15.It increased from 2.65% in 2004-05 to 3.70% in 2014-15as percentage of GSDP. Further, the State excise revenue gradually surpassed tax collection from Motor Vehicle Tax (from 2006-07) and Passenger and Goods Tax (from 2009-10). At the same time, the percentage share of collection from land revenue, electricity duty and motor vehicle tax in GSDP decreased over the study period.

Punjab's stamp duty collection has stagnated at around 0.25% of the GSDP. . Revenue from the Stamp Duty as a percentage of GSDP remained nearly constant from 1990 until 2001. Fiscal measures recommended by the Eleventh Finance Commission (EFC) in 2002 led to higher yields of Stamp duty through strict enforcement. From FY 1999-2000 to 2003-2004 the Stamp Duty and Registration fees rates increased gradually by 30%. Revenue from the Stamp duty rose to its peak in 2006 before it started falling again. Non-execution of the lease deeds, short levy on the sale deeds, and evasions primarily caused this fall in 2007-08 followed by a stagnation of the value of revenue as a percentage of GSDP until now (CAG Punjab 2004).

2.5 Expenditure Profile of Punjab (1990-91 to 2016-17)

Expenditure profile of Punjab is classified as capital expenditure and revenue expenditure. Capital expenditure is public investments that create public assets and accelerate private investment. An important component of capital expenditure is capital outlay, which is the expenditure on general, social, and economic services. It is the capital outlay that is important in the context of the development programmes of any state government and which affects the growth process of the State economy. The expenditure on the revenue account comprises of developmental and non-developmental expenditure. The following discussion presents trends in revenue generation and total expenditure during the study period (FYs1990–1991 to 2014–2015).

Table 2.10 presents the expenditure profile of Punjab from FY 1990-91 to 2015-16. The State's total expenditure (revenue plus capital), on an average, was 18 per cent of GSDP over the period. Revenue expenditure fluctuated between 12 to 17 percent of GSDP during the

Table 2.10: Expenditure Profile of Punjab

Year	Revenue Expenditure	Development Expenditure	Non-Development Expenditure	Interest Payment	Pensions	Capital Expenditure	Capital Outlay
(as % of GSDP)							
1990 - 91	13.3	8.7	4.5	1.8	0.7	4.7	1.2
1991 - 92	18.4	13.9	4.3	1.6	0.6	3.6	1.3
1992 - 93	13	7.4	5.5	1.6	0.6	3	1
1993 - 94	13.4	7	6.2	3.4	0.6	3.9	1.6
1994 - 95	17.7	6.4	11.1	3.6	0.6	4.3	2.1
1995 - 96	14.6	6.6	7.8	3.9	0.7	3.5	1.8
1996 - 97	15.7	8.9	6.6	3.7	0.8	1.4	-0.5
1997 - 98	16.1	8.5	7.5	3.8	0.9	3.4	2
1998 - 99	15	7	7.9	4.2	1.3	4.6	2
1999 - 00	15.2	6.8	8.3	3.9	1.7	2.7	0.7
2000 - 01	15.7	6.8	8.7	3.1	1.5	3.2	1.9
2001 - 02	16	6.3	9.5	4	1.3	3.7	1.2
2002 - 03	18	6.7	11	4.2	1.6	3.1	0.5
2003 - 04	17.4	7	10.4	4.1	1.5	5.1	0.7
2004 - 05	17.8	7.5	10.2	4.1	1.6	3.9	0.7
2005 - 06	16.8	6.7	9.7	3.4	1.5	2.1	1.4
2006 - 07	14.6	6.2	8.1	3.3	1.5	6.1	2
2007 - 08	15.1	6.4	8.5	3	1.6	2.3	1.4
2008 - 09	14.1	5.9	8.1	2.8	1.6	2.4	1.6
2009 - 10	13.9	5.8	7.9	2.5	1.7	2	1.1
2010 - 11	14.5	6	8.2	2.4	2.3	1.8	1.1
2011 - 12	12.4	5.8	6.3	2.4	2.1	1.4	0.6
2012 - 13	13.3	6.8	6.2	2.3	2	1.7	0.6
2013 - 14	12.4	6.2	6	2.3	1.9	1.8	0.7
2014 - 15	12.7	6.2	6.3	2.4	2	1.8	0.8
2015 -16	12.8	7.1	6.2	2.5	2.0	0.8	1.1
2016 -17(RE)	14.7	7	6.2	2.8	1.9	1.4	1.1
2017-18(BE)	16.1	-	-	3.2	2.2	1.3	-

Source: RBI State Finances
Note: RE - revised estimates; BE - budget estimates

period. As far as the sub-components of revenue expenditures were concerned, development expenditure remained between 6–9 per cent of the GSDP since 1993–94 (Table 2.6). Non-development expenditure increased from 4 per cent in 1991–1992 to 11 per cent in 2002–2003 before decreasing to 6.2 per cent in 2016-17 (BE). The major contribution to this rise was accounted for by an increase in pension and interest payments on the debt. For the financial

years 2001-02 to 2004-05, interest payments of Punjab was about 4 % of GSDP. In the following years, it decreased to 2.6% (average over 2005-06 to 2016-17) of GSDP.

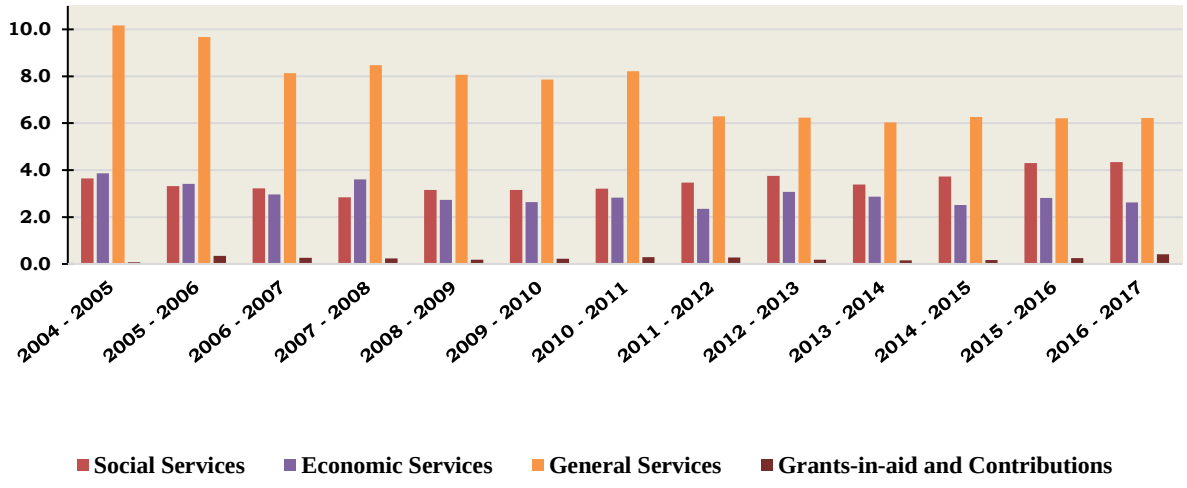
Capital expenditure as a percentage of GSDP averaged around 3 per cent during the period. Of this, the capital outlay component was around 1 per cent of the state's GSDP over the study period. Punjab's capital allocation had significantly decreased in the recent years (2007-08 to 2016-17). On an average, during 2007-08 to 2016-17, its capital expenditure share in GSDP was about 1.9 per cent. Similarly, capital outlay reduced to about 1 per cent of GSDP.

In comparison, for the study period of FYs 1990-91 to 2016-17, the average capital outlay as a percentage of GSDP for the States like Andhra Pradesh, Bihar and Karnataka was around 2.9%, better than Punjab. However, Kerala and West Bengal with capital outlay of 1.1% and 0.09% of their respective GSDP, made an even lower allocation for development expenditure. This is not surprising as the public finances of the three States, namely Punjab, Kerala and West Bengal suffer from heavy historical debt accumulation. Because of their indebtedness, these States had fewer resources for development activities.

Distribution of Revenue Expenditure by Functional Groups

As shown in figure 2.7, the general services as a percentage of GSDP (termed non-development expenditure) has the highest expenditures across all functional groups. In this regard, researchers have time and again suggested that in order to reduce the expenditure proportion of the general services, the State must undergo a certain degree of rationalization of employees and hence prevent overstaffing of secretariat/general supervisory and support staffs, so as to limit the outgo on salaries of government employees (Sen, 2016).

Figure 2.7: Distribution of Revenue Expenditure by Functional Groups (% GSDP)



The 7thPay Commission also recommended that the pay hike should be pegged at 23.33% as opposed to the higher hikes recommended earlier by the 5th& 6th Pay Commission, where Punjab was seen to promote a pay hike over and above the recommendations. After the 7th Pay Commission's proposed recommendations, Punjab had announced its own pay panel owing to financially unfit conditions to implement the 7th Pay Commission's recommendations.

Capital Expenditure and Capital Outlay of Punjab vis-à-vis Other Major States (as a percentage of GSDP)

Capital expenditure increases the asset creation and generates opportunities for a higher growth rate. Table 2.11 gives the capital expenditure as a percentage of GSDP for 15 major states over the study period (1990-91 to 2016-17). It was observed that since 2007-2008, Punjab's capital expenditure as a percentage of GSDP was consistently lower than the average of all-States. A similar trend emerged when we compared the absolute values. The CAGR of the capital expenditure ratio to GSDP was found to be the lowest for Kerala during the study period. For Punjab, the CAGR was 2.6% during the study period, which is below the all-States average of 3.5%. Next, we specifically delved upon the capital outlay component of capital expenditure.

As discussed earlier, the capital outlay component of expenditure is widely considered to have a prominent role in the long term growth and development of an economy. Table 2.12 depicts the capital outlay as a percentage to GSDP for 15 major States of the country from 1990-91 onwards. It was observed that for most of the years under study, Punjab's expenditure on capital outlay as a percentage of GSDP was lesser than the average of all-States. While the all-State average over the period was 2.05, which itself is low, Punjab's average was lower than this at 1.09%. It is also to be noted that while most of the States had increased the expenditure on capital outlay as a percentage of GSDP, this was not witnessed in the case of Punjab. The CAGR for Punjab was 1% over the study period while the corresponding average for all-States was 2.02%.

Table 2.11 Capital Expenditure as a Percentage of GSDP for All Major States

STATES	1990 - 1991	1991 - 1992	1992 - 1993	1993 - 1994	1994 - 1995	1995 - 1996	1996 - 1997	1997 - 1998	1998 - 1999	1999 - 2000	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004
High-Income States														
Goa	8.8	8	5.9	5.3	4.3	4.7	3.9	3	2.8	2.6	3.4	3.3	4.6	6.5
Haryana	2.9	2.4	2.9	3	2.3	2.4	2.8	2.9	3.3	2.7	3.3	3.1	1.7	5.9
Maharashtra	2.5	2.2	2.2	2.1	3.4	2.2	1.9	2.1	1.9	3	1.6	1.3	1.9	4.6
Kerala	2.4	2.8	2.2	2.3	2	2	1.9	2.3	1.8	1.5	1.4	1.5	2	3.5
Punjab	4.7	3.6	3	3.9	4.3	3.5	1.4	3.4	4.6	2.7	3.2	3.7	3.1	5.1
Middle-Income States														
Karnataka	2.7	2.7	2.8	3	2.2	2.3	1.8	1.6	1.8	1.8	1.9	2.1	3.1	4.3
Tamil Nadu	2.2	1.7	2	1.7	2	1.6	2	1.8	1.4	1.2	1.5	1.8	2.3	4
Gujarat	4.1	4.5	3.6	2.7	2.8	2.5	2.4	2.7	3	3.3	4.2	2.1	3.5	5.9
Andhra Pradesh	4.4	4.4	5.5	6.4	6.2	6.7	3	4.9	6.4	5.5	5.2	6.1	7.5	8.1
Low-Income States														
Rajasthan	4.3	5.4	3.6	3.8	3.3	4.5	3.7	4.8	3.1	3	2.6	2.9	4.5	5.5
Odisha	6	5.4	4.3	4.2	3.4	2.6	3.6	3.3	4.1	3.4	4.6	4.2	5.8	6.9
Madhya Pradesh	4	3.9	4.3	3.2	3.2	2.7	2.6	3.7	2.2	2.1	2.2	2.7	4.7	4.6
Uttar Pradesh	4.1	3.7	4.1	3.2	5.1	2.6	2.5	2.7	3	3	2.8	3	4	7.6
West Bengal	2.3	1.9	2	1.9	2.5	2.4	3.1	2.1	2.4	2.4	3.2	3	2.7	6.7
Bihar	6.4	4.6	4.7	3.8	2.5	3.1	2.8	2.9	3.1	6.4	4.2	3.7	5.3	6.3

STATES	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017
High-Income States													
Goa	4.8	4.7	4.4	4.1	4.4	4.5	4.4	3.5	3.4	3.7	3.4	6.2	6.3
Haryana	3.2	2	2.6	3	3.2	3.3	2.4	2.6	2.4	1.8	1.6	4.7	2.9
Maharashtra	4.8	3.1	2.3	2.1	2.8	2.4	2.1	2	1.8	1.9	1.6	2	2
Kerala	2.2	1.7	1.3	1.9	1.8	1.7	2	2.1	2.1	1.9	1.6	1.9	2.2

Punjab	3.9	2.1	6.1	2.3	2.4	2	1.8	1.4	1.7	1.8	1.8	0.8	1.4
Middle-Income States													
Karnataka	4.2	2.7	3.5	3	3	3.4	3.3	3.4	2.9	2.6	2.7	2.5	2.9
Tamil Nadu	5.1	2.3	3.7	3.2	3.1	2.5	2.7	3.4	2.8	2.5	2.6	2.5	2.5
Gujarat	5.1	3.5	3.4	2.7	3.5	2.6	2.6	3.2	4	3.6	3.4	3.2	3.3
Andhra Pradesh	11.2	8.7	8.3	9.4	7.6	7.6	6.6	6.7	6.5	5.7	3.5	2.8	2.9
Low-Income States													
Rajasthan	6.7	3.8	3.8	4.2	3.6	3.1	2.5	2.7	3.6	3.4	3.6	10	0.6
Odisha	4.4	2.4	3.4	3.8	3.6	3.1	3.3	3.3	3.5	3.6	4.5	5.8	5.2
Madhya Pradesh	9.8	6.5	5.3	5.8	5.2	6	5.5	8.9	5.4	4.5	6.1	5	6.4
Uttar Pradesh	5.3	4.3	5.4	5.5	6.1	5.7	4.2	4.1	4	4.5	6.2	8.2	7
West Bengal	2.6	4.1	2.7	2.8	2.7	2.4	1.8	2	2.2	2.4	2.4	2.9	3
Bihar	6.9	5.7	6.4	6.9	6	6.2	6	5.5	5.2	5.7	5.9	7.5	7.6

Table 2.12 Capital Outlay as a Percentage of GSDP for All Major States														
STATES	1990 - 1991	1991 - 1992	1992 - 1993	1993 - 1994	1994 - 1995	1995 - 1996	1996 - 1997	1997 - 1998	1998 - 1999	1999 - 2000	2000 - 2001	2001 - 2002	2002 - 2003	2003 - 2004
High-Income States														
Goa	7.3	6.7	4.7	3.8	3.5	3.9	3.1	2.3	2.1	1.9	2.5	2.4	2.3	3
Haryana	1.2	0.8	1.1	1.3	0.7	0.9	1.2	1.2	2.2	1.7	2.4	2.2	0.6	0.5
Maharashtra	1.2	1.1	1.2	1.2	2.4	1.4	1.3	1.4	1.3	1.3	1.5	0.9	1.1	2.1
Kerala	1.1	1	0.9	1	1	1	1	1.1	0.8	0.7	0.6	0.6	0.6	0.5
Punjab	1.2	1.3	1	1.6	2.1	1.8	-0.5	2	2	0.7	1.9	1.2	0.5	0.7
Middle-Income States														
Karnataka	1.7	1.6	1.5	1.9	1.6	1.5	1.2	1.1	1.3	1.2	1.3	1.3	1.7	1.6
Tamil Nadu	0.5	0.5	0.5	0.7	0.8	0.6	0.8	1.1	0.8	0.4	0.9	1	0.8	1.7
Gujarat	2.1	2.5	1.6	1.1	1.4	1.6	1.6	1.8	1.9	2.2	2.4	1.3	1.5	1.7
Andhra Pradesh	1.9	1.4	2.5	3.4	4.1	4.4	0.2	1.7	1.8	2.3	2.8	3	3.4	3.4
Low-Income States														
Rajasthan	1.7	3.8	1.9	2	2.1	3.1	2.4	3.2	2	1.6	1.5	1.7	2	2.5
Odisha	3.8	3.5	2.9	2.5	2.3	1.3	2.7	2.1	2.1	1.7	1.7	1.7	1.9	1.2
Madhya Pradesh	2.4	2.5	2.4	1.9	1.8	1.6	1.6	2.5	1.3	1.1	1.3	1.6	2.6	2.4
Uttar Pradesh	1.8	0.9	1.5	1	1	0.9	1	1	1.2	1.3	1.6	1.7	1.7	3.7
West Bengal	0.9	0.7	0.5	0.7	1.2	1.5	1.7	0.6	0.6	0.7	0.9	0.8	0.5	0.4
Bihar	2.8	2.1	1.8	1.4	1	1.2	1.1	0.5	1.4	3.5	1.8	1.8	2.4	2.6

STATES	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016	2016 - 2017
High-Income States													
Goa	3.4	4.1	3.9	3.6	3.6	3.8	3.7	2.8	2.5	2.8	2.6	5.4	5.6
Haryana	0.9	1.5	1.9	2.3	2.5	2.3	1.6	1.8	1.7	1	0.8	1.3	1.6
Maharashtra	1.7	1.9	1.6	1.5	2.3	1.9	1.6	1.4	1.2	1.2	1.1	1.5	1.5
Kerala	0.5	0.5	0.5	0.7	0.7	0.8	1.1	1.1	1.1	0.9	0.8	1.1	1.5
Punjab	0.7	1.4	2	1.4	1.6	1.1	1.1	0.6	0.6	0.7	0.8	1.1	1.1
Middle-Income States													
Karnataka	2.1	2.2	2.8	2.4	2.4	2.7	2.5	2.6	2.2	2.1	2.1	2.1	2.2
Tamil Nadu	1.9	1.4	1.7	1.9	2	1.6	1.9	2.2	1.7	1.7	1.6	1.7	1.7
Gujarat	2	2.8	2.7	2	2.7	1.8	1.8	2.2	2.9	2.8	2.7	2.6	2.4
Andhra Pradesh	3.8	5	5.4	5.7	4.2	4.8	3.3	3.6	3.7	3.3	2.2	2.1	2.2
Low-Income States													
Rajasthan	2.6	2.9	2.7	3.2	2.4	1.8	1.5	1.6	2.2	2.5	2.6	3.4	0
Odisha	1.3	1.2	1.4	2.1	2.5	2.2	2.1	2	2.2	2.7	3.4	4.9	4.4
Madhya Pradesh	4.2	5.2	3.5	4.1	3.3	3.4	3.2	2.9	3	2.5	2.5	3.2	4.8
Uttar Pradesh	2.1	2.8	3.9	4.2	4.8	4.5	3.2	3	2.9	3.5	5.1	6.4	5.6
West Bengal	0.9	0.7	0.8	0.9	1.1	0.8	0.5	0.5	0.8	1	1.2	1.8	1.9
Bihar	1.5	2.5	5.1	5.3	4.5	4.4	4.4	3.6	3.4	4.4	4.9	6.4	6.6

2.6 Sources of Funds and Interest payments of Punjab

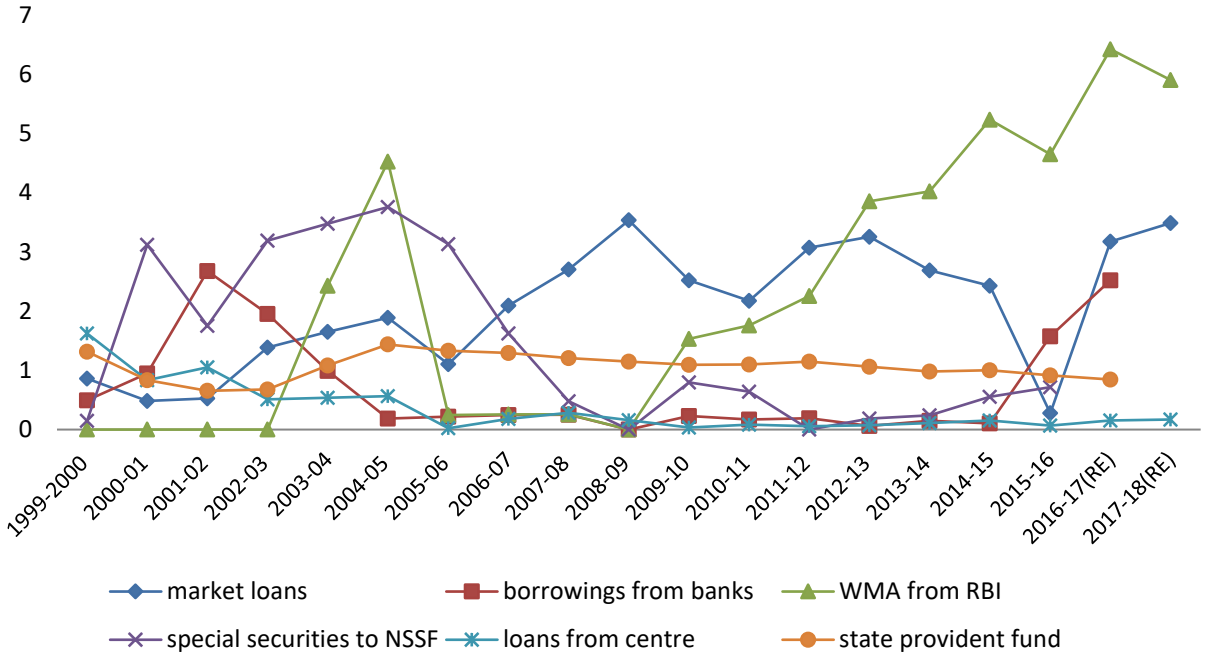
Sources of Funds of Punjab

In practice, the principal sources of the government funds are taxes and loans, and whatever portion of total expenditure is not covered by tax revenue must be covered mainly by borrowing. In this section, we describe Punjab government's sources of funds vis-à-vis selected States in India by way of borrowings. Borrowings refer to the funds such as loans secured by the government from financial institutions (domestic or foreign) to finance various government projects and programmes. The government borrows to meet its requirements including financing of capital projects. Domestic resources (i.e., revenues) alone do not generate sufficient funds for the government projects and programmes. Thus, various channels of borrowings as sources of funds may serve as an essential means to finance government-sponsored programmes and projects. In the following sections, we analyse various categories of public loans, *viz*., market borrowings, borrowings from banks and financial institutions (FIs), ways and means advances (WMAs) from the RBI, special securities from the National Small Savings Fund (NSSF), loans from the Centre, and the State provident fund.

Figure 2.8 presents the trends in the composition of Punjab's sources of funds as a percentage of its GSDP between 1999–00 and 2016-17 (BE). As evident from the figure, loans from the NSSF formed a substantial source of funding for Punjab between 2003–04 and 2006–07, but declined substantially thereafter. Apart from special securities issued to the NSSF, between 1999–00 and 2002-03, bank and institutional borrowing was also a prominent source of funding for the Government of Punjab. After 2004-05, Punjab's borrowings from banks become negligible. To this effect, its borrowings from the Central Government have remained below one per cent of its GSDP during the period.

However, it seems that the Punjab government was raising excessive finances through market borrowings and WMAs from the RBI after 2006–2007. In 2005-06, the state government's market borrowing was around 1 per cent of GSDP, which has over the years

Figure 2.8: Punjab's Sources of Funds (As a percentage of GSDP)



Source: RBI State Finances
Note: RE is revised estimates; BE is budget estimates.

increased to about 3 to 4 per cent of GSDP. Also, with an almost negligible proportion of WMA from RBI to GSDP in 2008–09, RBI's WMA to the Punjab government increased to 5.2 per cent of its GSDP in 2014-15. From 2013-14 to 2016-17, WMA from RBI was the primary source of borrowing for Punjab. In 2016-17, Punjab's borrowings from RBI was 4.6% of GSDP. Owing to the large borrowing by the State under RBI's WMA for FY year 2016-17, RBI suspended payments to Punjab government with effect from 29 March 2017(White Paper, 2017).

To present a comparative analysis of sources of funds, Table 2.13, 2.14, and 2.15 show different categories of public loans as a proportion of GSDP for Punjab vis-à-vis other selected states of India for the period between 1999–2000 and 2015-16.[11] Among the various fund-raising instruments, it was the market borrowings that financed excess state expenditure. Like Punjab, the State Governments of Kerala, Himachal Pradesh, Gujarat, and West Bengal too raised substantial funds by way of market loans (Table 2.13). More specifically, Punjab,

[11]Note: "-" indicates non availability of data on GSDP.

Kerala, and West Bengal have increasingly relied upon the market borrowings to finance their expenditure. Between 2006–07 and 2013–14, Punjab government aggressively increased its proportion of market borrowings to tide over the financial requirements. In the recent years (2013-14 to 2015-16), Punjab's borrowing from the market has declined marginally. It may also be observed from Table 2.13 that borrowings from banks and FIs have also served as an important source of finance for Punjab, Odisha, Haryana, Himachal Pradesh, and Uttar Pradesh. It may be noted that Haryana, Himachal Pradesh, Uttar Pradesh, and Madhya Pradesh have raised higher proportions of borrowing from banks and FIs than Punjab in recent years. Other states did not seem to heavily engage in such borrowings.

The WMAs from RBI and borrowings from the NSSF are other financial instruments that the state governments can use to manage the mismatch in their cash flow of receipts and payments. WMAs facilitate the State governments to bridge over their immediate cash requirements.[12] Loans from NSSF to states also serves as an important instrument of raising additional funds. All the deposits under small savings schemes (such as National Small Savings Certificate, KisanVikas Patra, Public Provident Fund, and Senior Citizens' Savings Scheme) are credited to the NSSF, established in the public accounts of the Central and State governments of India. All withdrawals by depositors are made out of accruals into this fund. The balance left in the NSSF is invested in special government securities (both the States and the Centre) according to the norms decided from time to time by the Government of India. Table 2.14 illustrates the ratio of WMAs from RBI and special securities issued to NSSF as a proportion of the GSDP of selected states of India. As is evident from the table, Punjab availed WMAs from RBI several times between 1999–00 and 2015-16. The State government of West Bengal too relied heavily on this instrument to raise additional funds. Other major states did not resort to the borrowing from RBI.

As far as loans through special securities to the NSSF are concerned, its proportion in GSDP fell significantly for all states after 2006–07. However, before 2006-07, many major states

[12]The WMA is to be vacated after 90 days. Interest rate for WMA is currently charged at the repo rate. The limits for WMA are mutually decided by the RBI and the Government of India. For more details refer to RBI Press Release, Jan 29, 2016.

(including Maharashtra, Himachal Pradesh, Punjab, Gujarat, West Bengal, and Bihar) raised substantial funds through loans from NSSF. Between 1999–00 and 2016-17, on average,

Table 2.13: MARKET LOANS

	Uttar Pradesh	West Bengal	Bihar	Gujarat	Haryana	Punjab	Maharashtra	Madhya Pradesh	Himachal Pradesh	Kerala	Odisha
AS A % OF GSDP											
1999–00	1.46	0.57	1.47	0.53	0.62	0.86	0.31	1.12	1.62	0.85	1.6
2000–01	0.86	0.61	1.55	0.50	0.41	0.48	0.32	0.84	1.49	0.79	1.6
2001–02	1.43	0.71	2.11	1.34	0.45	0.53	0.47	0.83	2.19	1.24	1.4
2002–03	1.65	1.49	1.71	1.79	1.05	1.39	0.36	1.31	3.69	1.42	3.0
2003–04	1.82	1.84	2.27	1.36	1.09	1.65	0.78	1.40	3.82	1.50	-
2004–05	1.87	2.13	2.44	0.99	1.08	1.89	1.03	1.53	3.68	1.40	1.5
2005–06	1.43	0.76	0.88	0.25	0.48	1.10	0.32	1.01	1.73	1.32	0.6
2006–07	0.97	0.51	0.00	0.00	0.00	2.09	0.30	0.98	1.69	1.41	0.0
2007–08	1.15	4.18	0.00	2.06	0.00	2.71	1.24	1.16	4.12	2.45	0.0
2008–09	2.85	3.63	3.16	2.32	1.53	3.54	2.36	2.28	4.61	2.72	0.0
2009–10	2.65	4.15	1.84	2.09	1.79	2.52	1.81	2.56	2.95	2.35	0.0
2010–11	2.00	2.06	1.28	2.21	1.71	2.18	1.10	1.86	1.12	2.09	0.0
2011–12	2.19	4.01	1.62	2.68	2.14	3.08	1.65	1.27	1.82	2.44	0.0
2012–13	1.15	3.22	2.51	2.15	2.69	3.26	1.21	1.18	2.85	2.81	0.0
2013-14	0.85	2.77	2.05	1.92	2.86	2.69	1.43	1.14	2.50	2.75	0.0
2014-15	1.68	2.50	2.17	1.67	3.02	2.43	1.40	2.14	2.25	2.51	0.9
2015-16	2.96	2.36	3.09	2.06	2.91	2.71	1.62	3.25	3.02	2.82	1.7
2016-17	-	-	-	-	2.73	3.37	-	3.65	-	2.90	2.1

BORROWINGS FROM BANKS AND FI's

	Uttar Pradesh	West Bengal	Bihar	Gujarat	Haryana	Punjab	Maharashtra	Madhya Pradesh	Himachal Pradesh	Kerala	Odisha
AS A % OF GSDP											
1999–00	0.50	0.05	0.49	0.02	0.56	0.50	0.03	0.25	2.68	0.44	0.4
2000–01	0.48	0.03	0.66	0.06	0.51	0.95	0.18	0.26	1.97	0.62	0.2
2001–02	0.30	0.01	0.07	0.01	0.97	2.68	0.25	0.36	1.28	0.75	0.5
2002–03	-0.13	0.02	0.51	0.00	0.05	1.95	0.28	0.43	1.42	0.67	0.4
2003–04	0.42	0.01	0.31	0.05	0.60	0.99	0.08	0.33	0.95	0.61	-
2004–05	0.84	0.01	0.10	0.08	1.01	0.18	-0.07	0.28	0.52	0.51	0.2
2005–06	0.66	0.02	0.08	0.05	0.78	0.22	0.15	0.46	0.48	0.51	0.2
2006–07	0.53	0.01	0.24	0.01	0.52	0.24	0.05	0.44	0.50	0.45	0.2
2007–08	0.60	0.01	0.26	0.22	0.15	0.25	0.10	0.42	0.60	0.42	0.2
2008–09	0.54	0.00	0.35	0.24	0.29	0.00	0.14	0.40	0.53	0.29	0.2
2009–10	0.45	0.00	0.32	0.23	1.29	0.23	0.07	0.27	0.62	0.21	0.4
2010–11	0.26	0.01	0.31	0.17	1.24	0.17	0.12	0.36	0.56	0.36	0.4
2011–12	0.18	0.00	0.28	0.00	1.30	0.19	0.09	0.40	0.41	0.14	0.4
2012–13	0.17	0.00	0.33	0.00	1.49	0.06	0.06	0.34	0.49	0.12	0.4
2013-14	0.15	0.00	0.46	0.00	1.19	0.15	0.05	0.30	0.40	0.13	0.3
2014-15	0.17	0.00	0.31	0.00	0.94	0.11	0.04	0.30	0.43	0.15	0.5
2015-16	0.17	0.00	0.30	0.00	0.93	0.17	0.05	0.35	0.36	0.11	0.9
2016-17	-	-	-	-	1.30	0.19	-	0.32	-	0.16	0.8

Source: State Finances, RBI
Note: "- " indicates non availability of data on GSDP

Table 2.14: WMA FROM RBI

	Uttar Pradesh	West Bengal	Bihar	Gujarat	Haryana	Punjab	Maharashtra	Madhya Pradesh	Himachal Pradesh	Kerala	Odisha
AS A % OF GSDP											
1999–00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
2000–01	2.12	3.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
2001–02	2.03	3.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
2002–03	2.45	5.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
2003–04	5.58	5.68	0.00	0.91	0.00	2.43	0.52	1.09	4.58	4.82	-
2004–05	7.76	6.18	0.00	1.51	0.00	4.53	0.85	1.98	7.88	7.82	1.9
2005–06	1.05	0.12	0.00	0.00	0.00	0.25	0.76	0.00	0.86	4.49	0.0
2006–07	0.00	0.08	0.00	0.00	0.00	0.26	0.46	0.00	0.14	4.19	0.0
2007–08	0.00	4.30	0.00	0.00	0.00	0.26	0.29	0.00	0.00	3.99	0.0
2008–09	0.00	2.71	0.00	0.00	0.05	0.00	0.12	0.01	0.00	1.93	0.0
2009–10	0.18	2.34	0.00	0.00	0.08	1.53	0.00	0.00	0.00	0.28	0.0
2010–11	0.12	4.33	0.00	0.00	0.26	1.76	0.00	0.00	0.00	0.00	0.0
2011–12	0.00	3.61	0.00	0.00	0.33	2.25	0.00	0.00	0.00	0.00	0.0
2012–13	0.00	2.46	0.00	0.00	0.10	3.86	0.03	0.00	0.00	0.00	0.0
2013-14	0.00	2.64	0.00	0.00	0.03	4.02	0.07	0.00	0.66	0.03	0.0
2014-15	0.17	2.21	0.00	0.00	0.00	5.24	0.35	0.00	6.57	0.50	0.3
2015-16	0.39	2.88	0.00	0.00	0.21	4.34	0.00	0.00	0.00	1.19	0.0
2016-17	-	-	-	-	0.18	4.56	-	0.62	-	1.45	0.0

SPECIAL SECURITIES TO NSSF

	Uttar Pradesh	West Bengal	Bihar	Gujarat	Haryana	Punjab	Maharashtra	Madhya Pradesh	Himachal Pradesh	Kerala	Odisha
AS A % OF GSDP											
1999–00	1.86	3.07	3.39	2.10	1.31	0.15	1.66	1.24	0.49	0.83	0.9
2000–01	0.01	2.47	3.32	3.51	1.05	3.12	1.85	1.25	0.71	0.61	1.4
2001–02	0.05	1.82	2.50	3.07	1.33	1.75	2.00	0.93	1.72	0.59	1.1
2002–03	0.08	1.12	3.07	4.00	2.17	3.19	2.14	1.85	1.99	0.96	1.2
2003–04	1.62	3.02	3.33	4.30	2.23	3.48	3.25	2.13	2.81	1.88	-
2004–05	2.75	4.57	3.09	4.32	2.22	3.76	3.79	2.45	3.27	2.34	1.7
2005–06	2.35	4.66	1.05	3.20	1.75	3.13	3.27	2.44	3.01	1.96	1.7
2006–07	1.84	3.15	2.10	2.04	0.91	1.62	1.59	1.47	2.25	1.45	1.1
2007–08	0.51	0.26	0.74	0.28	0.11	0.48	0.32	0.15	0.47	0.10	0.1
2008–09	0.27	0.48	0.56	0.18	0.06	0.00	0.20	0.04	0.25	0.01	0.1
2009–10	0.95	2.00	1.14	0.97	0.36	0.80	0.50	0.36	0.97	0.03	0.5
2010–11	1.14	2.64	0.99	0.79	0.50	0.64	0.72	0.24	1.32	0.15	0.6
2011–12	0.31	0.30	0.45	0.01	0.05	0.00	0.15	0.14	0.38	0.00	0.1
2012–13	0.56	0.47	0.36	0.23	0.13	0.19	0.18	0.38	0.57	0.15	0.2
2013-14	0.53	0.57	0.44	0.24	0.14	0.24	0.09	0.46	0.65	0.12	0.3
2014-15	0.83	0.88	1.05	0.31	0.29	0.56	0.17	0.40	1.06	0.22	0.4
2015-16	0.35	0.71	0.40	0.17	0.25	0.71	0.15	0.18	0.00	0.10	0.2
2016-17	-	-	-	-	0.22	0.00	-	0.19	-	0.09	0.2

Source: State Finances, RBI

Note: "- " indicates non availability of data on GSDP

special securities to NSSF for Punjab accounted of 1.6 per cent of its GSDP, which is lower than the average for other states like West Bengal (2.2 per cent), Gujarat (1.9 per cent), Bihar (1.8 per cent), and Odisha (0.8 per cent).

Table 2.15 presents loans from the Central government and funds from the State provident fund as a proportion of GSDP of selected states. As shown in the table, loans from the Centre constituted a major source of borrowing for all major States until 2004–05. After 2004-05, the proportion of the Central government loans in GSDP of all States declined significantly. In comparison to other states (Odisha, Uttar Pradesh, West Bengal, and Madhya Pradesh), Punjab did not have significant amount of borrowings from the Centre between 1999–00 and 2015-16. For this period, Punjab's average borrowings from the Centre was about 0.6 per cent of its GSDP. As opposed to other sources of finance, the state provident fund was the most significant means of resource generation for Punjab, Odisha, Himachal Pradesh, Kerala, Haryana, and Uttar Pradesh. In the case of Punjab, the ratio of the State provident fund as a percentage of GSDP was one per cent on average. This ratio continues to be high for other states like Himachal, Uttar Pradesh, and Kerala.

Interest Payments and Components

Punjab's interest payments point to the real burden of debt that has to be settled from the current revenues. As mentioned earlier, Punjab's interest payments increased from about 1 per cent of GSDP in 1990-91 to around 4 per cent in 2003-04 that fell to 2.5 per cent in 2014-15. According to the State budget estimates of 2017-18,its interest payment accounted for 3.2% of GSDP (Table 2.10).Table 2.16 presents the proportion of total interest payment by major States, including Punjab, as a percentage of their revenue expenditure from FY 1999-2000 to 2016-17. As evident from the figures, the total interest payments of Punjab, Gujarat, Maharashtra, Kerala and West Bengal are high in comparison to other states. Though this ratio has declined over the period of time for Punjab, it still was relatively high. The growing interest burden has put severe pressure on the revenue account of the State budget. This, in turn, has limited the funds for the development.

Table 2.15: LOANS FROM CENTRE

	Uttar Pradesh	West Bengal	Bihar	Gujarat	Haryana	Punjab	Maharashtra	Madhya Pradesh	Himachal Pradesh	Kerala	Odisha
	AS A % OF GSDP:										
1999–00	1.93	1.09	3.01	1.16	0.68	1.62	0.32	1.69	3.89	0.73	2.7
2000–01	1.39	1.07	2.99	1.82	0.55	0.84	0.29	1.25	1.40	0.66	2.6
2001–02	1.45	1.06	2.15	1.81	0.52	1.05	0.32	1.67	1.76	1.00	2.9
2002–03	1.50	1.53	2.38	0.93	0.34	0.51	0.32	2.05	0.77	1.37	5.0
2003–04	1.31	1.11	2.42	0.93	0.33	0.54	0.41	1.78	0.91	1.38	-
2004–05	1.09	0.79	2.13	0.89	0.31	0.57	0.43	1.67	0.97	1.24	1.8
2005–06	0.42	0.25	0.00	0.55	0.04	0.02	0.10	0.24	0.10	0.44	0.0
2006–07	0.11	0.24	0.00	0.10	0.02	0.18	0.09	0.30	0.13	0.13	0.7
2007–08	0.10	0.22	0.41	0.06	0.04	0.28	0.05	0.33	0.15	0.24	0.1
2008–09	0.09	0.12	0.11	0.06	0.04	0.16	0.05	0.58	0.03	0.38	0.3
2009–10	0.05	0.08	0.47	0.02	0.06	0.04	0.09	0.59	0.14	0.24	0.1
2010–11	0.06	0.06	0.38	0.03	0.12	0.09	0.08	0.45	0.07	0.14	0.1
2011–12	0.04	0.08	0.33	0.03	0.03	0.06	0.02	0.33	0.11	0.11	0.1
2012–13	0.04	0.23	0.18	0.08	0.01	0.07	0.05	0.41	0.16	0.13	0.2
2013–14	0.04	0.10	0.17	0.02	0.09	0.11	0.06	0.28	0.06	0.08	0.2
2014–15	0.05	0.16	0.19	0.04	0.03	0.15	0.03	0.28	0.12	0.14	0.2
2015–16	0.05	0.19	0.67	0.06	0.11	0.11	0.05	0.33	0.04	0.15	0.5
2016–17	-	-	-	-	0.15	0.14	-	0.31	-	0.25	0.3

STATE PROVIDENT FUND

	Uttar Pradesh	West Bengal	Bihar	Gujarat	Haryana	Punjab	Maharashtra	Madhya Pradesh	Himachal Pradesh	Kerala	Odisha
AS A % OF GSDP											
1999–00	0.69	0.59	3.05	0.34	1.10	1.31	0.82	0.97	1.90	1.23	2.4
2000–01	0.53	0.36	2.09	0.26	0.86	0.84	0.25	0.83	1.57	0.95	2.0
2001–02	0.33	0.25	1.55	0.14	0.62	0.65	0.21	0.36	1.15	-0.02	1.9
2002–03	0.90	0.11	0.38	0.14	0.49	0.68	-0.02	0.10	1.40	0.16	1.7
2003–04	1.09	0.35	1.06	0.27	0.84	1.08	0.21	0.74	2.83	0.89	-
2004–05	1.18	0.54	1.48	0.35	1.08	1.44	0.36	1.28	3.77	1.32	2.5
2005–06	1.18	0.48	1.26	0.31	1.06	1.33	0.33	0.91	3.73	1.17	3.2
2006–07	1.40	0.45	0.96	0.29	0.96	1.29	0.29	0.83	3.62	1.34	2.0
2007–08	1.35	0.41	0.90	0.31	0.83	1.21	0.27	0.76	4.22	1.61	1.6
2008–09	1.42	0.41	0.78	0.27	0.76	1.15	0.26	0.64	3.74	1.52	1.4
2009–10	1.51	0.46	0.40	0.41	0.83	1.09	0.36	0.61	3.40	1.21	1.6
2010–11	1.60	0.51	0.37	0.31	0.75	1.10	0.34	0.63	3.73	1.25	1.4
2011–12	1.27	0.49	0.36	0.27	0.74	1.15	0.32	0.61	2.86	1.36	1.1
2012–13	1.19	0.46	0.33	0.24	0.66	1.06	0.30	0.58	3.39	1.17	1.2
2013-14	1.00	0.41	0.31	0.23	0.61	0.98	0.27	0.56	2.90	1.17	1.1
2014-15	0.92	0.39	0.29	0.22	0.62	0.98	0.24	0.61	3.00	1.13	1.1
2015-16	1.34	0.35	0.29	0.28	0.61	0.90	0.24	0.47	1.91	1.11	1.0
2016-17	-	-	-	-	0.57	0.83	-	0.42	-	1.11	0.9

Source: State Finances, RBI

Note: "- " indicates non availability of data on GSDP

Table 2.16: TOTAL INTEREST PAYMENTS

Year	Bihar	Gujarat	Haryana	Himachal Pradesh	Kerala	Madhya Pradesh	Maharashtra	Orissa	Punjab	West Bengal
As a Percent of Total Revenue Expenditure										
1999-00	17.7	16	19.5	15.6	16.9	13.3	16.5	14.6	25.9	21.4
2000-01	16.5	14.2	20.8	18.2	19	16.1	14	25.9	20	23.7
2001-02	21.9	18.5	18.8	22.8	21.3	15.7	16.8	28.7	25	27.3
2002-03	22.9	23.1	20.8	22.8	20	17.2	17.6	28.8	23.2	33.1
2003-04	22.7	26.4	20.9	26.4	21.5	17.1	19.5	26.3	23.6	35.8
2004-05	23.7	25	19.6	28.3	21	20.3	17.6	26.9	23.2	34.2
2005-06	20.6	24.1	16.6	24.2	20.6	16.6	17.9	27.2	20.4	31.3
2006-07	16.6	23.6	13.8	21.8	20.1	18	19	20.2	22.4	31.8
2007-08	15.7	22.3	13.4	20.5	17.4	16.4	18.8	17.9	19.6	29.7
2008-09	13.2	20.4	11.4	20.1	16.5	14.2	16.2	13.6	20	23.4
2009-10	11.3	17.7	10.8	17.5	17	12.4	14.9	12	18.3	22.7
2010-11	11.3	16.8	11.7	14.7	16.4	11.2	14.7	10.4	16.8	21.4
2011-12	9.3	18.3	12.5	15.3	13.7	10.1	14.2	7.4	19	21.7
2012-13	8.1	17.5	12.5	14.7	13.5	8.4	13.7	7.3	17.3	21.4
2013-14	8.7	17.7	14	14.3	13.7	9.1	13.7	6.3	18.8	11
2014-15	8.4	17.2	14.1	14.4	13.6	8.6	13.5	5.5	19.2	11
2015 -16(RE)	7.1	16.3	12.8	N.A	13.3	N.A	12.6	6.4	18.4	9.3
2016-17(BE)	7.4	15.4	13.9	12.7	12.9	8.3	12.6	6.2	18.5	10.8

Source: State Finances, RBI
Note: RE - revised estimates; BE - budget estimates

Table 2.16, 2.17 and 2.18show the interest payments by major States vis-à-vis Punjab under different debt categories as a percentage of total interest paid for the successive financial years from 1999-2000 to 2016-17. The corresponding figures for the interest paid on loans from the Centre have significantly declined after 2005-06 for all major States. Looking at the trend from

Table 2.16(a): Interest Payments on Loan from Centre

Year	**Bihar**	**Gujarat**	**Haryana**	**Himachal Pradesh**	**Kerala**	**Madhya Pradesh**	**Maharashtra**	**Orissa**	**Punjab**	**West Bengal**
As a Percent of Total Interest Payments										
1999 – 00	56.6	67.6	47.0	60.7	36.0	53.0	62.2	32.9	63.8	68.7
2000 – 01	71.6	63.2	44.5	49.9	32.4	45.3	69.1	44.8	50.7	56.8
2001 – 02	64.5	49.8	42.5	41.4	31.3	44.2	47.5	41.5	38.0	48.2
2002 – 03	49.2	45.9	35.7	32.9	27.3	45.1	42.9	39.2	35.1	41.5
2003 – 04	42.3	37.5	29.7	22.7	24.3	36.2	36.6	40.7	28.3	35.0
2004 – 05	33.3	28.0	20.4	16.6	18.6	29.4	22.9	32.5	17.2	25.4
2005 – 06	28.1	15.3	9.5	4.8	10.9	20.4	9.2	20.2	8.1	16.5
2006 – 07	12.5	12.5	6.8	5.0	10.3	17.8	14.8	22.0	1.1	16.7
2007 – 08	17.3	11.7	7.1	4.5	9.9	16.6	6.7	20.7	1.0	15.0
2008 – 09	17.2	10.8	7.0	4.1	9.3	16.5	5.6	21.7	1.0	9.9
2009 – 10	15.9	9.6	3.9	3.8	8.0	15.8	4.9	19.8	4.5	12.5
2010 – 11	12.1	8.1	4.5	3.9	7.5	13.7	4.2	18.0	4.0	2.9
2011 – 12	11.5	6.6	3.6	3.5	6.7	12.6	3.7	18.9	3.3	4.2
2012 – 13	10.6	5.3	2.6	3.1	5.5	19.1	3.1	16.0	2.8	5.1
2013 – 14	7.96	4.62	1.92	3.21	4.61	9.98	2.70	14.25	2.28	7.04
2014 – 15	6.56	3.78	1.62	2.55	3.60	7.15	2.21	13.57	1.83	5.96
2015 –16(RE)	5.37	3.33	1.27	N.A	3.10	N.A	1.94	9.74	1.41	4.79
2016 –17(BE)	4.51	2.64	0.91	2.35	2.78	7.08	2.04	7.94	1.15	3.38

Source: State Finances, RBI
Note: RE - revised estimates; BE - budget estimates

1999-00 to 2013-14, it is evident from Table 2.16(a) that the interest payments on loans from Centre had considerably declined for Punjab by 2008 – 09, about one per cent of the total interest paid, but increased again to over four per cent in 2009-10 and again declined to 2.3 per cent in 2013-14. In the following year, this ratio declined further to 1.15% in 2016-17. Under this category, Bihar, Madhya Pradesh and Odisha made the higher proportion of interest payment towards servicing loans from the Centre.

Interest payments on market loans as a percentage of total interest payments presented in Table 2.16(b) show an increasing trend for the study period (FY 1999-00 to 2016-17). It seems that as the loans from the Centre declined over the period, Punjab government resorted to market borrowings. Another reason for this could be a rise in the commercial lending interest rates over time. The same trend was noticed for other states, too. As is observed earlier in table 2.15, Centre loans to all states declined significantly after 2005-06. It seems that due to the shrinking of borrowings from the Centre, all major states shifted to borrowing from market as an alternative source to raise funds. In case of Punjab, it is evident from the tables that the proportion of the interest payments was highest

Table2.16(b): Interest Payments on Market Loans

Year	Bihar	Gujarat	Haryana	Himachal Pradesh	Kerala	Madhya Pradesh	Maharashtra	Orissa	Punjab	West Bengal
As a Percent of Total Interest Payment										
1999 – 00	23.5	12.5	13.1	11.6	23.9	21.7	10.6	37.5	9.0	13.9
2000 – 01	25.8	13.1	13.5	13.3	23.2	21.5	11.6	25.2	12.8	12.8
2001 – 02	21.9	9.7	14.6	10.6	23.7	20.6	9.4	21.8	10.5	11.9
2002 – 03	21.9	18.1	12.1	16.2	22.5	21.0	11.2	25.1	10.7	11.0
2003 – 04	23.7	17.7	14.6	17.8	22.2	26.3	12.1	25.3	14.9	11.8
2004 – 05	24.5	19.5	15.8	19.6	22.8	19.9	13.9	25.3	14.6	14.0
2005 – 06	25.8	19.5	19.6	22.6	23.4	24.1	15.5	23.4	18.3	16.1
2006 – 07	26.4	17.2	18.5	22.4	23.3	22.5	12.7	28.0	17.7	15.0
2007 – 08	23.1	15.9	16.8	22.0	25.6	23.0	12.6	23.3	18.8	15.0
2008 – 09	23.0	20.5	15.9	24.9	29.7	24.1	17.2	22.2	23.4	24.9
2009 – 10	29.4	26.4	22.8	30.3	32.5	33.4	15.0	17.9	30.1	28.8
2010 – 11	29.1	30.1	30.4	34.8	35.3	35.7	30.3	16.0	33.3	35.5
2011 – 12	31.3	35.6	35.1	33.2	39.5	31.3	32.6	16.6	36.6	36.7
2012 – 13	36.1	43.5	40.0	35.8	45.7	35.0	38.6	11.5	43.7	42.4
2013 – 14	38.1	46.7	46.3	39.3	51.2	40.4	41.9	7.5	47.6	39.9
2014 – 15	43.2	50.9	52.7	41.5	55.5	44.6	46.0	6.2	49.8	40.1
2015 –16(RE)	46.6	53.4	58.3	NA	59.3	NA	49.7	12.8	53.1	42.5
2016 –17(BE)	51.4	58.9	54.7	45.7	60.0	47.6	52.7	17.2	55.3	41.9

Source: State Finances, RBI
Note: RE - revised estimates; BE - budget estimates

towards Centre loans in 1999-00, which shifted to market loans in 2016-17(55.3% of total interest payments).

As far as the percentage of interest payments on loans from National Small Savings Fund was concerned (Table 2.17(a)), this ratio was higher and consistent for Punjab as compared to other major states except (Maharashtra, West Bengal and Gujarat) till 2009- 2010, after which it declined. Table 2.17(b) shows that Punjab's interest payment on loans from the provident fund has not shown much fluctuation over the study period (FYs 1999-00- to2016-17), however, as evident from table 2.18, Punjab's interest payments to the other sources, which include interest paid on WMAs from RBI and borrowings from the banks and FIs, have been high compared to all other states.

Table 2.17(a): Interest Payments on National Small Saving Funds

Year	Bihar	Gujarat	Haryana	Himachal Pradesh	Kerala	Madhya Pradesh	Maharashtra	Orissa	Punjab	West Bengal
As a Percent of Total Interest Payments										
1999 – 00	-	-	-	-	-	-	-	-	-	-
2000 – 01	-	-	-	-	-	-	-	-	-	-
2001 – 02	-	-	-	-	-	-	-	-	-	-
2002 – 03	-	-	-	-	-	-	-	-	-	-
2003 – 04	-	-	-	-	-	-	-	-	-	-
2004 – 05	23.5	38.6	26.7	3.3	12.6	18.7	39.2	10.3	36.1	35.0
2005 – 06	28.4	51.8	38.0	14.4	19.0	27.7	52.8	12.7	41.3	45.8
2006 – 07	36.3	57.6	43.3	0.0	23.2	30.5	54.9	18.8	47.5	50.4
2007 – 08	38.4	58.8	44.9	21.3	26.9	33.9	58.3	22.3	47.3	53.9
2008 – 09	38.6	55.3	44.3	19.6	24.9	33.3	58.0	22.8	43.9	50.3
2009 – 10	40.3	50.6	37.5	19.3	21.7	31.0	50.7	21.8	43.0	45.7
2010 – 11	37.9	47.7	32.5	21.3	19.9	28.3	47.3	23.6	39.9	48.6
2011 – 12	41.3	45.1	29.0	22.3	18.1	27.8	45.1	31.8	36.2	48.2
2012 – 13	41.2	38.0	23.8	20.6	15.1	3.0	37.7	28.2	29.8	42.4
2013 – 14	35.7	35.2	19.0	20.7	13.2	25.6	34.0	27.5	26.8	29.6
2014 – 15	31.6	31.0	16.2	0.0	11.1	24.8	31.0	31.2	23.3	30.7
2015 –16(RE)	30.5	28.6	14.2	NA	9.6	NA	28.0	21.5	22.2	28.6
2016 –17(BE)	27.3	25.2	11.8	0.0	9.5	23.5	25.7	22.9	20.4	22.6

Source: State Finances, RBI
Note: '-' Indicates non availability of data, RE - revised estimates; BE - budget estimate

Table 2.17(b): Interest Payments on Small Saving, Provident Funds etc.

Year	Bihar	Gujarat	Haryana	Himachal Pradesh	Kerala	Madhya Pradesh	Maharashtra	Orissa	Punjab	West Bengal
As a Percent of Total Interest Payment										
1999 – 00	19.5	9.3	30.7	19.3	33.8	16.0	25.1	23.9	17.6	9.3
2000 – 01	2.0	13.9	26.1	16.1	34.4	21.3	16.6	22.2	28.3	6.0
2001 – 02	12.7	6.7	24.2	17.8	30.9	17.8	19.9	26.6	15.8	5.3
2002 – 03	13.9	5.7	19.9	16.9	34.0	15.9	16.7	23.0	15.2	4.4
2003 – 04	14.5	4.9	17.9	13.2	30.5	14.3	14.1	12.3	13.6	3.7
2004 – 05	18.1	4.4	16.9	12.9	30.9	10.7	14.0	21.4	13.5	4.2
2005 – 06	17.2	5.1	19.6	15.3	30.8	10.9	13.7	36.8	15.4	3.8
2006 – 07	15.4	4.8	19.3	16.6	32.5	12.3	13.6	24.8	14.0	3.5
2007 – 08	15.6	4.8	19.6	16.3	27.1	12.8	12.7	27.1	14.2	3.2
2008 – 09	16.7	5.0	20.8	22.4	26.1	12.8	13.4	26.1	14.6	3.5

2009 – 10	8.4	5.0	19.9	20.6	28.6	12.3	11.7	33.1	15.1	3.4
2010 – 11	15.6	5.7	18.2	23.9	28.5	11.8	6.6	34.3	15.6	3.7
2011 – 12	10.1	5.5	16.8	25.5	27.9	19.8	13.9	22.3	15.6	3.6
2012 – 13	10.7	5.7	15.8	27.9	26.9	10.4	16.1	34.9	16.1	3.8
2013 – 14	14.5	5.5	14.9	27.4	25.4	13.2	17.0	41.5	17.0	19.4
2014 – 15	12.6	5.1	13.0	28.8	25.1	13.8	16.7	37.9	18.3	19.5
2015 –16(RE)	11.1	5.0	12.3	N.A	23.6	N.A	17.3	46.0	17.1	18.0
2016 –17(BE)	11.1	5.0	9.7	25.8	23.7	11.4	17.2	41.9	17.2	14.8

Source: State Finances, RBI
Note: RE - revised estimates; BE - budget estimates

Table 2.18: Interest Payments on Others

Year	**Bihar**	**Gujarat**	**Haryana**	**Himachal Pradesh**	**Kerala**	**Madhya Pradesh**	**Maharashtra**	**Orissa**	**Punjab**	**West Bengal**
As a Percent of Total Interest Payment										
1999 – 00	0.1	7.8	1.2	0.0	0.0	5.0	0.0	0.0	0.6	4.7
2000 – 01	0.0	5.6	1.2	0.0	0.0	3.5	0.0	0.0	0.1	2.6
2001 – 02	0.0	7.6	1.2	0.0	0.0	4.5	0.4	0.0	0.1	3.0
2002 – 03	0.1	6.8	1.0	0.0	0.0	1.0	0.8	0.0	0.1	3.6
2003 – 04	0.1	5.7	1.0	0.0	0.0	0.2	0.6	1.6	2.0	7.3
2004 – 05	0.1	5.3	0.9	0.0	0.0	7.6	1.4	0.0	3.7	8.8
2005 – 06	0.1	6.0	1.1	0.0	0.0	2.5	2.2	1.4	3.7	7.4
2006 – 07	0.1	5.2	1.1	0.0	0.4	2.6	2.3	0.0	3.9	5.1
2007 – 08	0.3	6.0	1.3	0.0	0.0	2.5	0.9	0.0	4.6	5.3
2008 – 09	0.1	5.4	1.3	0.1	0.0	0.0	0.9	0.0	4.7	4.5
2009 – 10	0.1	5.2	1.0	0.0	0.0	0.0	13.6	0.0	0.2	3.6
2010 – 11	0.1	5.3	0.8	0.0	0.0	3.9	11.6	0.0	1.5	3.5
2011 – 12	0.1	4.4	1.4	1.5	0.0	0.3	1.5	0.0	3.9	3.4
2012 – 13	0.1	4.6	0.6	0.0	0.0	0.6	1.4	0.0	4.0	3.8
2013 – 14	0.2	5.0	0.5	0.0	0.0	3.8	1.6	0.0	4.0	0.4
2014 – 15	0.1	6.1	0.4	0.0	0.0	1.3	1.8	0.0	4.2	0.3
2015 –16(RE)	0.1	6.3	0.4	N.A	0.0	N.A	0.9	0.0	4.0	0.3
2016 –17(BE)	0.1	4.7	0.4	0.0	0.0	2.0	0.4	0.0	4.0	0.2

Source: State Finances, RBI
Note: Others include WMAs from RBI and Borrowings from Banks and FIs,
RE - revised estimates; BE - budget estimates

2.7 Committed Expenditure and Development Expenditure of Punjab

The composition of revenue expenditures can be analysed by looking at the proportion of pre-empted committed expenditures. These are widely classified as committed/contractual expenditure

on salaries and wages of the government employees, pensions and retirement benefits of retired government employees, interest payments and subsidies. Table 2.19 presents the share of total contractual expenditure (including salary, pension and interest expenses) in total revenue expenditure of Punjab from 2012-13 to 2016-17(BE) vis- à -vis other states.

Table 2.19: Committed Expenditure* as a percentage of Revenue Expenditure

Year	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 – 2016(RE)	2016 – 2017(BE)
Andhra Pradesh	31.33	30.49	29.67	28.99	22.66	26.05	31.75
Bihar	36.31	34.88	31.36	32.23	32.69	27.33	30.2
Chhattisgarh	23.94	22.71	21.58	20.73	20.07	16.77	21.19
Goa	28.57	27.07	28.18	28.12	29.51	26.32	26.77
Gujarat	31.92	33.75	32.93	33.9	32.8	30.56	29.65
Haryana	30.39	29.3	28.66	30.44	30.6	26.62	27.61
Jharkhand	31.17	34.85	34.75	40	30.85	28.27	27.3
Karnataka	23.87	23.22	24.27	24.69	24.15	23.77	24.73
Kerala	38.68	38.68	35.84	35.68	34.52	34.4	33.99
Madhya Pradesh	26.49	25.1	22.2	24.56	25.1	N.A	23.41
Maharashtra	32.25	31.45	31.01	31.11	30.02	29.47	30.63
Orissa	31.29	28.64	29.13	27.68	25.76	26.73	27.33
Punjab	**42.88**	**47.99**	**44.59**	**46.23**	**47.04**	**43.2**	**43.29**
Rajasthan	34.27	31.63	29.43	27.8	26.37	25.39	27.02
Tamil Nadu	33.23	32.01	29.92	30.52	30.22	29.99	30.32
Uttar Pradesh	33.84	32.29	33.2	31.2	32.18	27.28	29.63
West Bengal	40.79	41.89	41	41.41	38.45	36.71	37.12
All States	**33.06**	**32.63**	**31.77**	**31.84**	**30.14**	**28.47**	**29.67**

Source: Budget Documents of State Governments, CAG
Note: RE - revised estimates; BE - budget estimates
*Committed expenditure includes pension, interest payments and administrative services

The table indicates that Punjab spends a significant proportion of its revenue on contractual obligations. As observed from the table, Punjab's revenue expenditure on items committed (43.29 per cent in 2016-17 (BE)) is substantially larger than the all-State average (29.6 per cent of revenue expenditure in 2016-17 (BE)). The ratio for Punjab (43.3 per cent) was more than double that of States like Madhya Pradesh and Chhattisgarh (less than 22 per cent). This trend seen for Punjab is worrisome as these commitments are by nature non-developmental and a major proportion being spent on them leaves lesser flexibility for fund allocation to be made on social and economic services. Furthermore, these commitments are set to rise further when the State implements the recommendations of the seventh Central Pay Commission (CPC-

VII).The One Rank One Pension scheme may further increase salary and pension burden across states. Punjab needs to take tough measures to rationalise its committed expenditure.

Punjab Government's committed revenue expenditure account, as defined by the CAG report, consists of interest payments, expenditure on salaries and wages, pensions and subsidies. Table 2.20 presents the trends in revenue expenditure from 2002-03 to 2016-17. The actual expenditure incurred on these components is compared with the targets set by the State under the Fiscal Correction Path (2005-06 to 2009-10) and later under the Fiscal Consolidation Roadmap (2010-11 to 2014-15) adopted in the Post FRBM period. The table also presents the share of actual committed expenditure under different heads in Punjab state's own revenue.

A steep increase was seen in all the components of committed expenditure and consequently in the total committed expenditures from 2002-03 to 2014-15. The highest increase was in salaries and wages followed by interest payments. Together the total committed liabilities (salaries and wages, pensions, interest payments, and subsidies) accounted for 123.2% of state's own revenue (SOR) in 2015-16 and 112% in 2016-17 (excluding subsidies for which data is not available).

Salaries and Wages

Punjab's expenditure on salaries and wages showed a sharp rise from Rs. 4912 crore in 2002-03 to Rs. 16304 crore in 2014-15. Also, from 2011-12 the expenditure on salaries and wages has consistently overshot the target set under Fiscal Consolidation Roadmap, initiated by the State on the recommendation of the 13thFinance Commission. The continuous increase in the salaries and wages was due to higher salaries for the government employee under the recommendations of the Central Pay Commission. It is noteworthy that when the Sixth Pay Panel was implemented, Punjab had given hikes over and above the panel recommendations.

Table 2.20 : Components of Committed Expenditure vis-à-vis Targets of Punjab

Year	1. Salaries and Wages					2. Interest Payments					3. Pensions					4.Subsidies				Total Committed Expenditure s(1+2+3+4)			
(Rs. crores)																							
	Target	Actual	Actual /SOR	Actual /GSDP	GR%	Target	Actual	Actual /SOR	Actual /GSDP	GR%	Target	Actual	Actual /SOR	Actual /GSDP	GR %	Actual	Actual /SOR	Actual /GSDP	GR %	Actual	Actual /SOR	Actual/GSDP	GR%
2002-03	NA	4912	50.4	5.7	-	NA	3432	35.2	4	-	NA	1356	13.9	1.6	-	767	7.9	0.9	-	10467	107.4	12.2	-
2003-04	NA	4825	44.6	5.1	-10.3	NA	3712	34.3	4	-1.3	NA	1389	12.8	1.5	-6.5	1358	12.6	1.4	61.6	11284	104.4	12	-2.8
2004-05	NA	4784	38.9	4.8	-7.6	NA	3981	32.4	4	0	NA	1514	12.3	1.5	1.6	2182	17.7	2.2	49.8	12461	101.3	12.5	0.2
(Punjab Fiscal Correction Path, 2005 initiated as per recommendations of Twelfth Finance Commission)																							
2005-06	5882	5240	38.7	4.6	-2.4	4073	3715	27.5	3.3	-16.8	1580	1656	12.2	1.5	-2.5	1574	11.6	1.4	-35.7	12185	90.1	10.8	-12
2006-07	6235	5574	42.9	4.2	-9.1	4236	4152	32.2	3.2	-3.9	1695	1905	14.7	1.4	-1.7	1553	12	1.2	-15.7	13210	101.7	10	12.6
2007-08	6609	6302	41.6	4	-5.6	4405	4527	29.9	2.9	-9.5	1808	2433	16.1	1.5	6.6	3021	19.9	1.9	62.4	16283	107.5	10.3	5.2
2008-09	7006	6919	40.9	3.8	-4	4582	4902	28.9	2.7	-5.3	1953	2830	16.7	1.6	1.8	2806	16.6	1.6	-18.7	17457	103.1	9.7	-5
2009-10	7426	8225	46.5	4	4.8	4765	5011	28.3	2.4	-9.9	2109	3357	19	1.6	4.5	2919	16.5	1.4	-8.3	19512	110.3	9.4	7.5
(Punjab Fiscal Consolidation Roadmap,2010 initiated as per recommendations of Thirteenth Finance Commission)																							
2010-11	10309	9750	44	4.1	3.5	5499	5515	24.9	2.3	-3.9	4048	5309	24	2.3	38.1	3480	15.7	1.5	4.1	24054	108.6	10.2	-1.5
2011-12	11067	12064	59.6	4.5	9.2	6530	6280	31	2.4	0.5	4822	5657	27.9	2.1	-6	3215	15.9	1.2	-18.5	27216	134.5	10.2	-13
2012-13	12174	13728	54.4	4.6	1.9	7130	6831	27.1	2.3	-2.6	5304	5966	23.7	2	-5.6	5132	20.4	1.7	42.9	31657	125.5	10.6	34.4
2013-14	13391	14497	53.2	4.3	-6.1	7630	7820	28.7	2.3	1.8	5835	6277	23	1.9	-6.4	4904	18	1.5	-15	33498	122.8	10	-2.4
2014-15	14730	16334	57.4	4.4	2.5	8130	8960	31.5	2.4	4.2	6418	7249	25.5	2	5	4772	16.8	1.3	-11.5	37316	131.2	10.1	5.6

2015-16	NA	17504	53.7	4.5	0.7	NA	9782	30	2.5	2.6	NA	7833	24	2	1.6	5080	15.6	1.3	0.1	40199	123.4	10.3	-6
2016-17	NA	19800	57.6	4.6	3.5	NA	11982	34.9	2.8	12.1	NA	8140	23.7	1.9	-4.9	NA	-	-	-	NA	-	-	-
2017-18	NA	20872	-	4.5	-3.1	NA	14910	-	3.2	14.4	NA	10147	-	2.2	14.6	NA	-	-	-	NA			
CAGR (2005-06 TO 2015-16)					**-0.55**					**-4.09**					**2.63**				**-4.55**				
CAGR (2005-06 TO 2017-18)					**-0.84**					**-1.54**					**0.44**				**-4.9**				

Source: Comptroller and Auditor General of India and White Paper on State Finances, Punjab 2017

Note: Data for 2016-17 and 2017-18 are from Budget estimate of Punjab 2017-18. RR-Revenue Receipts. Total Committed Expenditure includes expenditure on salaries wages, interest payment, pensions and subsidy. GR denotes growth in a particular indicator.

With the implementation of the Seventh Pay Commission recommendations, it was expected that the expenditure on salaries and wages would further rise which may further exacerbate the fiscal stress. During 2002-03 to 2016-17, on an average, 44% of SOR was spent on salaries and wages, which is very high. This ratio further increased from 44% in 2010-11 to 57% in 2016-17.

Table 2.21 presents the expenditure on salaries and wages as a percentage of GSDP of 15 selected states. The table shows that Punjab has the highest expenditure on salaries and wages as a percentage of GSDP among the high-income states (in per capita terms) with the exception of FY 2008-09. That year, Kerala marginally exceeded Punjab in terms of expenditure on salaries and wages ratio to GSDP. Extending the comparison to other major states reinstates the fact that Punjab has one of the highest salaries to GSDP ratio at the sub-national level.

It is apparent that despite the deteriorating fiscal scenario, the state has not recognized the need for controlling the expenditure on salaries and wages as a tool for fiscal correction. This is reflected in the absolute figures as well. The CAGR of expenditure on salaries as a percentage of GSDP for Punjab at 4.58% exceeded the all-State average (3.94%) for years 2000-01 to 2015-16. A steep increase of 106% in the absolute value of expenditure on salaries and wages over the five-year period from FY 2008-09 to 2012-13 particularly stood out.

Interest payments

Interest payments increased steadily from Rs. 3432 crore in 2002-03 to Rs. 8960 crore in 2014-15 primarily due to continued reliance on borrowings for financing the fiscal deficit. In 2014-15, the interest payments exceeded the target set by the Fiscal Consolidation Roadmap by Rs. 830 crore (10.21% higher than the target set). Over the study period, average expenditure on interest payment was 27.6% of SOR for Punjab.

Table 2.21:Expenditure on Wages and Salaries as a Percentage of GSDP of Major States

STATES	2001 - 2002	2002 – 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007	2007 - 2008	2008 - 2009	2009 - 2010	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014	2014 - 2015	2015 - 2016
High-Income States															
GOA	4.5	3.8	3.8	3.4	3.1	2.9	3.0	3.2	3.8	3.5	3.2	3.8	4.5	3.8	-
HARYANA	4.5	4.1	3.9	3.9	3.6	3.2	3.0	3.6	3.8	3.8	3.3	3.3	2.9	3.3	3.2
MAHARASHTRA	1.7	1.6	1.4	1.6	1.5	1.3	1.2	1.3	2.7	3.7	3.6	3.7	3.7	3.5	3.5
KERALA	4.2	3.9	4.1	3.9	3.6	3.7	3.8	3.9	3.7	3.6	4.5	4.2	4.2	4.1	4.0
PUNJAB	5.6	5.7	5.1	5.2	4.7	4.3	4.0	3.8	4.0	4.1	4.7	4.7	4.4	4.4	4.3
Middle-Income States															
KARNATAKA	3.1	2.9	2.9	2.4	2.3	2.1	2.3	2.4	2.3	2.2	2.2	2.4	2.2	2.2	2.0
TAMIL NADU	4.0	3.7	3.3	3.3	2.9	2.5	2.5	2.8	2.9	2.9	2.9	2.6	2.6	2.6	2.5
GUJARAT	2.4	1.9	1.8	1.7	1.4	0.9	0.9	0.8	1.1	1.0	1.0	0.9	0.9	0.8	0.8
ANDHRA PRADESH	7.7	7.5	7.1	6.4	6.8	6.7	6.0	5.8	6.2	7.1	7.1	7.3	7.1	5.3	4.5
Low-Income States															
RAJASTHAN	4.9	5.0	4.3	4.6	4.6	4.1	3.9	4.8	5.0	4.1	3.4	3.4	3.5	3.5	3.2
ODISHA	7.1	7.1	5.5	4.7	4.6	3.8	3.4	4.3	4.7	4.4	3.9	3.7	3.7	3.9	4.1
MADHYA PRADESH	4.9	5.5	4.7	5.3	4.4	4.2	4.2	4.2	4.5	4.8	4.5	4.2	4.2	4.1	3.8
UTTAR PRADESH	5.3	5.4	5.4	5.2	5.1	5.1	4.8	5.1	6.0	6.3	6.6	6.4	5.8	6.0	6.5
WEST BENGAL	5.5	5.5	5.0	4.7	4.4	4.2	4.1	4.0	5.5	5.4	5.1	4.7	4.1	3.9	_
BIHAR	8.5	7.3	7.1	6.3	6.9	5.9	5.6	5.2	5.8	5.1	4.9	4.8	4.4	3.9	3.6

Rank One Pension Scheme) the spending on pensions is further likely to expand. Before the initiation of Fiscal Consolidation Path in 2005, average SOR incurred on pensions was 13% (2002-03 to 2004-05), this increased to an average of 15% from2005-06 to 2009-10. Even after the introduction of new limits on pensions under the Fiscal Consolidation Road Map in 2010, the actual expenditure remained unabated. As a result, SOR incurred on pensions is estimated to be about 25.5% in 2016-17.

Subsidies

For the welfare of the public at large, the States provide subsidies/subventions to the disadvantaged. However, in Punjab the subsidy burdens are uncomfortably high and hence a cause of concern. The large burden of subsidy has been on account of growing power subsidy. As depicted in Table 2.20, expenditure on subsidies increased consistently over the years. From about 7% of SOR in 2002-03, it increased to 17% of SOR in 2004-05. After the initiation of the fiscal consolidation in 2005, the ratio declined to 11.6 % but again increased to about 20% in 2007-08. Following Punjab Fiscal Consolidation Roadmap - 2010, the ratio has on an average been 16.3 % of SOR (2010-11 to 2016-17). The increase was mostly on account of increase in power subsidy. Providing free electricity to farmers and IT/ ITES industries is hurting the Punjab Government's finances heavily.

According to the CAG Report (2014-15), Punjab gave power subsidy worth Rs. 4815 crore in 2013-14 and Rs. 4642 crore in 2014-15. Also, the total subsidy payable by the Punjab State Regulatory Commission for SC, non-SC BPL, OBC consumers and small power consumers for 2016-17 was Rs. 7943.07 crore (White Paper on the State Finances- Punjab, 2017). As per the Draft Industrial Policy of Punjab-2017, the State Government has undertaken to provide power to industry at Rs. 5 per unit (all inclusive) for 5 years. This will add to the existing burden of Punjab. According to Table 2.20, power subsidy constitutes more than 95% of the total subsidy given by the Government of Punjab. Thus, it is clear that Punjab gives a very high proportion of its total subsidy as power subsidy. A comparison of power subsidy of Punjab and Karnataka shows that Punjab gives a much higher proportion of its total subsidy as power subsidy. Power subsidy given by the Government of Punjab was about 97% of total subsidy

on average and 1.4% of GSDP during 2011-12 to 2015-16, and was twice as large as that given by Karnataka for the same period (average of 49% of total subsidy and 0.78 % of GSDP).[13]

Table 2.22 : Power Subsidy as a Percentage of total subsidy and GSDP

		2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
PUNJAB	**Power subsidies as a % of total subsidies**	98.0	99.5	99.6	98.5	91.9	94.3	92.7	98.5
	power subsidy to GSDP %	0.91	1.50	2.24	1.43	1.12	1.87	1.49	1.46
KARNATAKA	**Power subsidies as a % of total subsidies**	-	-	-	-	-	-	-	-
	power subsidy to GSDP %	-	-	-	-	-	-	-	-
		2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17(RE)	2017-18(BE)
PUNJAB	**Power subsidies as a % of total subsidies**	97.0	99.5	98.6	98.2	97.3	95.4	-	-
	power subsidy to GSDP %	1.49	1.20	1.70	1.44	1.26	1.24	2.10	2.20
KARNATAKA	**Power subsidies as a % of total subsidies**	-	71.76	60.70	33.44	40.43	42.49	38.67	36.49
	power subsidy to GSDP %	-	0.88	0.94	0.67	0.67	0.73	0.62	0.69

Source: Figures from FY2002-03 to 2011-12 has been taken from Sahwney, 2016. Data for 2012-13 on power and total subsidies is unavailable. Figures for FY 2013-14-2015-16 are taken from CAG reports and for 2016-17 and 2017-18 from State Budget Document (2017-18)

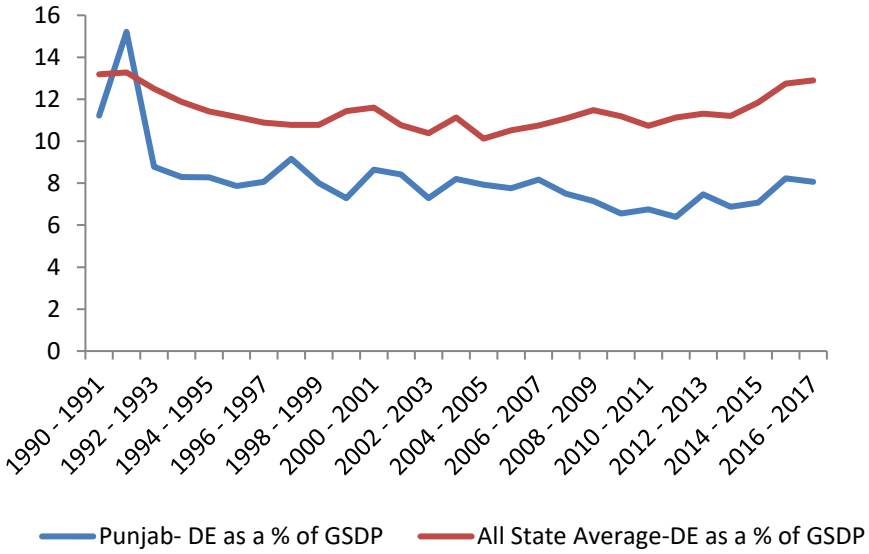
Development Expenditure

In this section, we analyse the trends in development expenditure of Punjab. Development expenditure includes social services, economic services and general economic services. It plays a pivotal role in the asset creation and development of a state. Figure 2.9 presents the developmental expenditure to GSDP of Punjab vis-à-vis major State average for the period FY 1990-91 to 2016-17. Average developmental expenditure incurred by Punjab from 1990-91 to 2016-17 was 8.17% of the GSDP. This was consistently below the corresponding average of major states since 1992-1993 and the gap significantly increased after 2006-07. While the

[13] Power subsidy across Indian states is regressive – The beneficiaries of the subsidy are clearly the richest households. For example, although small and marginal farmers constitute the majority of electric pump set owners in AP, medium and large farmers receive a disproportionately large share of the total agricultural power subsidy of 68%, (i.e. they operate 68% of the area irrigated by electric pump sets). Almost 39% of the subsidies accrue to large farmers who represent 15% of electric pump set owners and less than 2% of all rural households. Marginal farmers, who represent 39% of all electric pump owners, receive 15% of the subsidy (World Bank 2003). Similar results can be found in Punjab, Tamil Nadu and Gujarat.

average developmental expenditure of the States was 11.5% of the GSDP over 2006-07, the corresponding figure for Punjab was at a low of 7.2%.

Figure 2.9: Developmental Expenditure of Punjab (as a% GSDP)

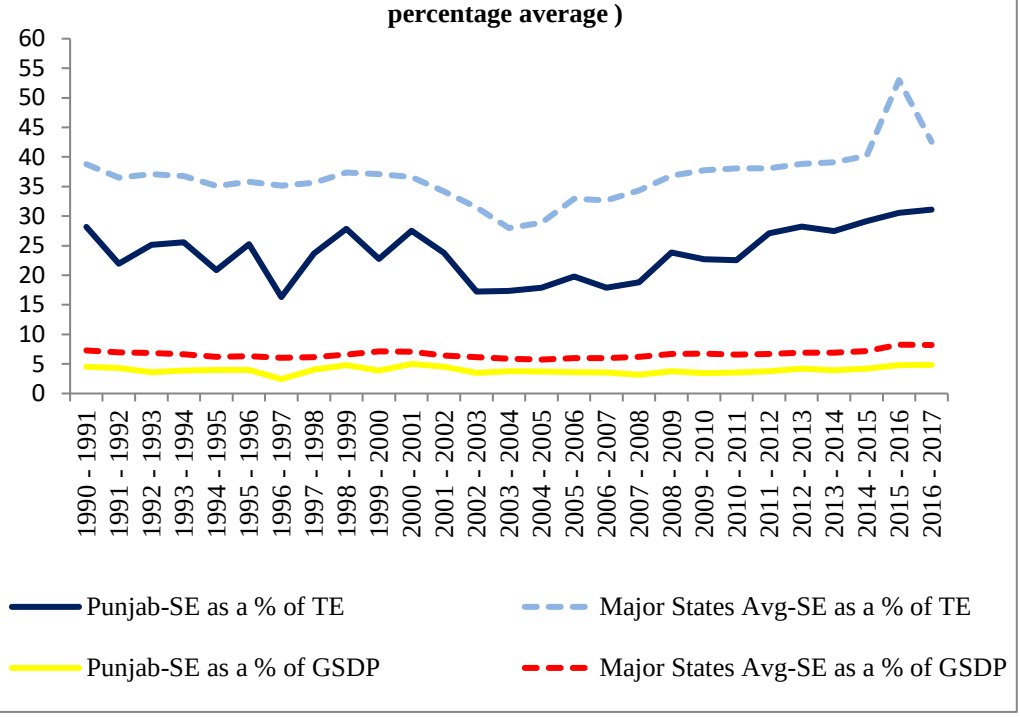


Note: Development Expenditure includes Development Revenue Expenditure, Development Capital Expenditure and Loans and Advances disbursed.

Social Sector Expenditure

In India, the responsibility to develop the social sector largely vests in the State governments. Social sector expenditures by the States, therefore, is an essential component of human development and infrastructure building. Figure 2.10 compares the expenditure on the social sector by Punjab vis-à-vis 15 major States. Social sector expenditure is computed as the sum of expenditure on rural development, social services, food storage and warehousing under revenue expenditure, capital outlay, and loans and advances by the State governments. To establish a comparison, social expenditures of Punjab and the average of major States was examined in terms of percentage of total expenditure and as a percentage of GSDP.

Figure 2.10: Social Expenditure of Punjab vis-a-vis Major States (in percentage average)



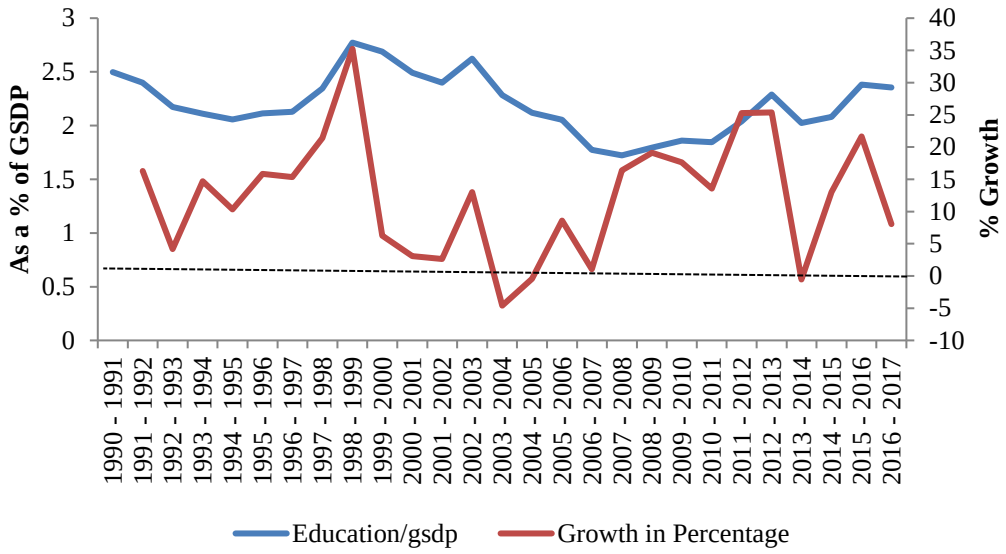
Note: Social Expenditure includes expenditure on rural development, social services, and food storage and warehousing under revenue expenditure, plus capital outlay and loans and advances by the state governments.

Figure 2.10 reveals that Punjab has consistently spent a lower proportion of its revenue on social sector than the sub-national average over the study period FY 1990-91 to 2016-17. Thus, it may be concluded that Punjab accorded low fiscal priority to the Social Sector for the study duration. We proceed to analyse the trends in most important components of social sector expenditure- education, health and rural development.

A. Education

Figure 2.11(a) presents the trends in expenditure incurred on education in Punjab as a percentage of GSDP and percentage growth over the period FY 1990-91 to 2016-17. The average expenditure incurred on education over the study period was 2.2% of the GSDP. Education expenditure declined to about 1.7% in 2006-07 from 2.5% in 2001-02. This decline reflects a negative growth in education expenditure in 2003-04. Expenditure allocation towards education as a percentage of GSDP remained at low levels until 2011-12. In 2016-17, some improvement was observed with education expenditure increasing to 2.35%.

Figure 2.11 (a): Trends in Education Expenditure of Punjab



Note: Includes expenditure on Education, Sports, Art and Culture under revenue expenditure, capital outlay and loans and advances.

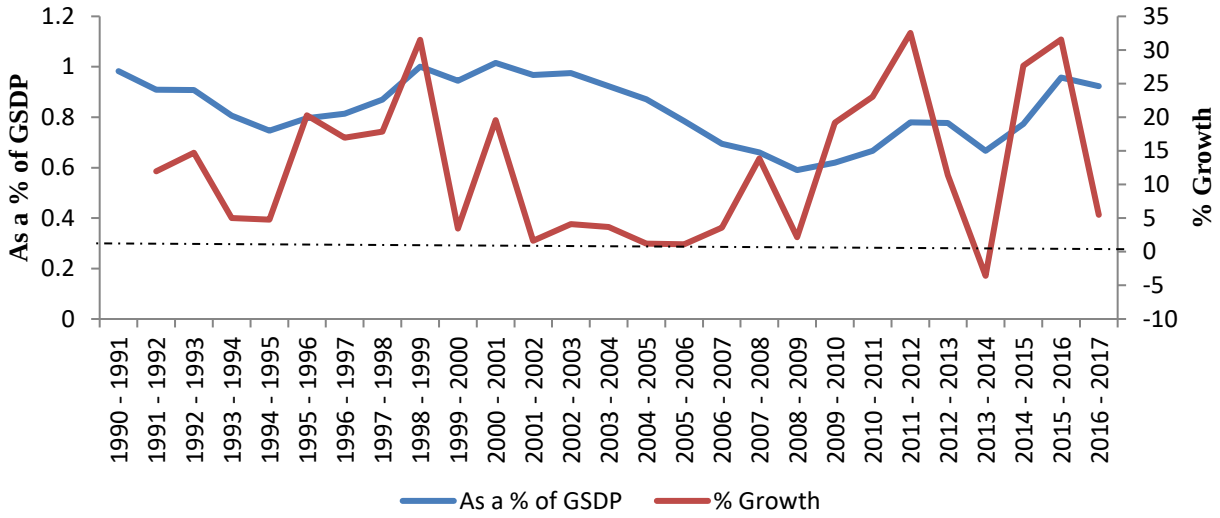
B. Health

Figure 2.11 (b) presents the trends in expenditure incurred on health in Punjab from FY 1990-91 to 2016-17. The average expenditure incurred on health over the study period was 0.83% of its GSDP. It was observed that after reaching 1.01% of GSDP in 2001-02, the expenditure on health as a percentage of GSDP started deteriorating. From 2003-04 to 2008-09 social spending on health declined to 0.59% of GSDP. Accordingly, the percentage growth of health expenditure during the period 2001-02 to 2006-07 remained as low as 2.5%. This trend was only recently reversed in 2015-16 (around 1% of GSDP).

C. Rural Development

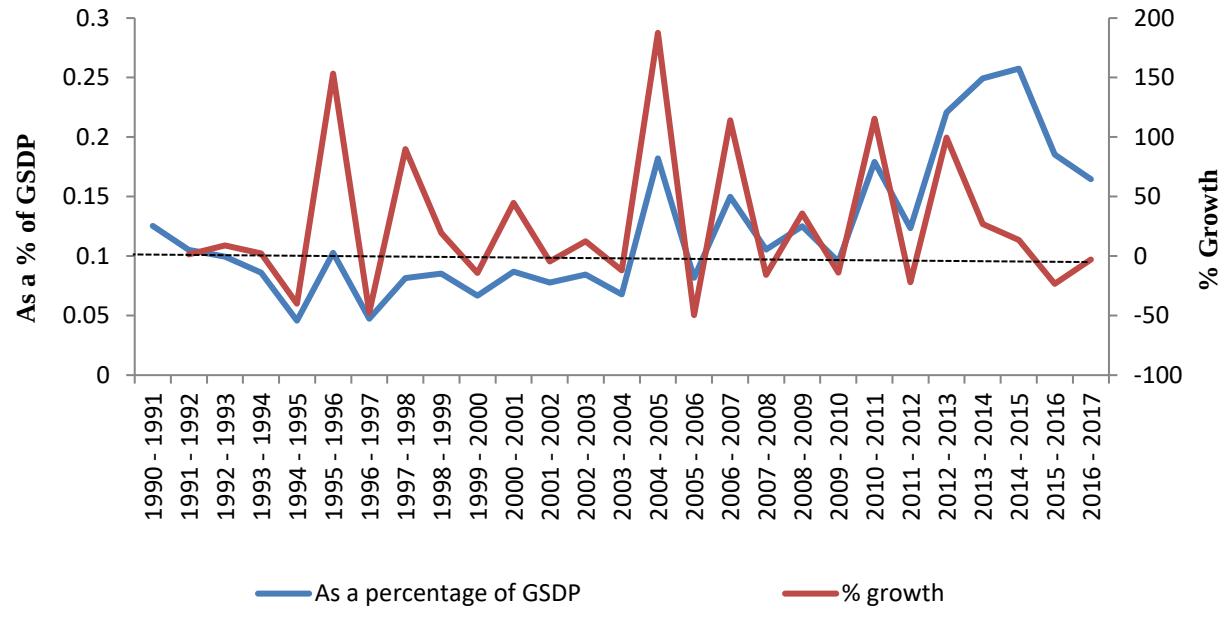
Figure 2.11 (c) presents the trends in expenditure incurred on rural development in Punjab from FY 1990-91 to 2016-17. The average expenditure incurred on rural development over the study period was 0.12% of its GSDP. It remained less than 0.1% of GSDP from 1992-93 to 2003-04.The relative improvement in allocation for rural development as a percentage of GSDP was observed since 2005-06. However, the significant decline in allocation after

Figure 2.11 (b) : Trends in Health* Expenditure of Punjab



***NOTE:** Health comprises of expenditure on medical and public health, family welfare, water supply & sanitation and nutrition under revenue expenditure, capital outlay and loans and advances.

Figure 2.11(c): Trends in Rural Development Expenditure of Punjab



Source: Handbook of Statistic on Indian state

2014-15 was a cause of concern. It may be pointed out that in 2015-16 the absolute allocation to rural development saw a decline of over 23% in comparison to the previous year.

2.8 Conclusion

Punjab's major debt-deficit indicators increased significantly from 1999-00–2004–05and declined slowly in the post-reform years. This shows that the fiscal deficit in Punjab was fuelling its public debt for long, and necessitated the government to resort to increased borrowing to fill the resource gap. Punjab's debt-deficit indicators continue to breach the FRBM Act (2005) targets and indicate fiscal instability. The fiscal surveillance laws require the State government to eliminate revenue deficit to GSDP, stall fiscal deficit to GSDP at three percent and debt stock at 25%. In the post FRBM (2006-07 to 2016-17(RE)) Punjab's average revenue deficit to GSDP was 2.18%, the fiscal deficit to GSDP was 3.15%, and outstanding debt to GSDP was 33.79%

Analysis of Punjab's sources of funds shows that the state government was raising significant finances through market borrowings and WMAs from the RBI. In 2004-05, the State government's market borrowing was around one per cent of GSDP, which has over the years increased to about 5–6 per cent of its GSDP. Also, with an almost negligible proportion of WMA from RBI to GSDP in 2008–09, RBI's WMA to the Government of Punjab increased to around 4.6% of its GSDP in 2016-17.

In the post FRBM period, the State registered a negative growth in revenue receipts (CAGR: -1.47) and a negative growth in revenue expenditure (CAGR: -2.06). The negative growth in revenue generation has negated the benefits that the State would have otherwise reaped due to negative growth in revenue expenditure. The fluctuating growth in GSDP has also been reorganized as an important reason for the sharp rise in debt burden of the state. Punjab's average GDP declined from 7.56% during the period 2006-07 to 2010-11 to 5.65 per cent during 2011-12 to 2016-17. These figures were below the national average for the specified periods. Similarly, Punjab's ranking in per-capita GDP vis-à-vis major states dropped from the second position during 1897-88 to 2002-03 to 5th in 2002-03 to 2006-07 and to 8th position in 2012-13 to 2016-17. Cross-state comparison of revenue position and committed expenditure

show that despite being a high-income state, Punjab did not perform as well as other middle and low-income states like Odisha, Bihar, and Uttar Pradesh. We also found that with high revenue deficit as a percentage of total revenue, Punjab along with West Bengal and Kerala are in a serious fiscal situation. In comparison to other states, committed expenditure as a proportion of total revenue expenditure is highest for Punjab. While the all-India average of committed expenditure as a percentage of revenue expenditure was 28.7 per cent in 2016-17, the corresponding figure for Punjab was substantially large at 43.3. Also, the sharp increase was observed in all the components of committed expenditure and consequently in the total committed expenditure from 2002-03 to 2014-15. The increase was the sharpest for subsidies, and wages and salaries where the expenditure incurred on the same increased by more than six folds over the period.

It was observed that persistently declining capital expenditure and stagnated capital outlay at very low levels have wedged the demand side possibilities that could have revived the State economy. Capital expenditure to GSDP has declined to an average to 2.1% in the post-FRBM period from the pre-FRBM average of 3.6%. Capital outlay has remained around one percent of GSDP in the post-reform period. In comparison to other major States, growth in capital expenditure and outlay in Punjab, along with Kerala and West Bengal, was the lowest. This is indicative of squeezed government spending in areas that affect the welfare and development of the State.

Annexure 2

PUNJAB PSUs AND THEIR PROFIT AND LOSS STATUS (in Cr.)

S.no.	Name	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
1	Punjab Financial Corporation							-12.5	-17.07	-14.44	-16.03	-14.4	-3.36	-9.6	0.13	0.76	
2	Punjab State Industrial Dev Corp.					-17.83		32.48		-28.08	-28.52		-43.27	-42.35	-37.5	17.12	
3	Punjab Small Industries & Export Corp.							13.35	22.37	5.85	5.92	7.25	10.51	61.27	44	71.02	
4	Punjab INFOTECH							1.96	0.8	2.41	11.06	-12.08	-3.7	-0.3	0.65	2.63	
5	Pb. Khadi& Village Industries Dev. Board							-	0			0			0		
6	Punjab State Seeds Corp.									0.77	0.73	0.39	0.036	1.6	2.48	1.46	
7	Punjab Land Dev. and Reclamation Corp.									0	0	0	0	0			
8	Punjab Agro Industries Corp.							185.27	245.13	32.79	-54.69	29.02	12.51	-0.1	0.66	0.99	
9	Punjab State Warehousing Corp.						-79.67	-61.99	-92.08		-105.08		-267.86	-277.04	-214.86	-60.81	
10	Punjab State Container & Warehousing Corp.							12.64	14.17		17.05	19.19	21.31	16.8	14.4	14.67	
11	Punjab State Forest and Dev. Corp.							1.68	1.14	2.18	1.26	3.81	16.99	10.19	3.11	2.45	

12	**Punjab Mandi Board**							0	-				0				
13	**Punjab Agro Food Grain Corp.**						0.99	0.54	0.24	0.26	0.21		0.02	0.2	-96.49		
14	**PUNGRAIN**				-69.77	-36.4				-520.74	-666.65	-787.73	-1545.17		loss	-308.93	
15	**Punjab Agri Export Corporation Ltd.**										0.4	0.47	0.06	-12.16	-3.61	-1.05	
16	**Punjab State Electricity Board**							0	0								
17	**Punjab State Power Corp. Ltd.**										-		0				
18	**Punjab State Transmission Corp. Ltd.**										-11	-23.63	158.38	385.76	-65.57	-67.54	
19	**Punjab Water Res. Mgt. & Dev. Corp.**							73.06	-76.09		84.99	88.86	94.24	0		-4.93	
20	**Punjab SCs Land Dev. & Finance Corp.**						-0.41	8.24	-1.38	-2.75	-4.2						
21	**Punjab Backward Classes Land Dev. Fin. Corp.**							-		-	-4.16	0	-4.1		1.15		
22	**Punjab State Civil Supplies Corp.**								1	4	1	0.94	0.95	1	-90.51	-995.78	
23	**Pepsu Road Transport Corp.**							-1.58	1.99	-2.66		16.63	0	0			
24	**Punjab Bus Stand Mgt. Company**								-2.5				-	-	-	9.39	4.66
25	**Punjab Water Supply**							-24.51	-4.92	0	-	0	-16.32	0	-2.67	-2.09	

	&Sewerage Board																
26	**PMIDC**												-0.35	-0.36	8.23		-1.86
27	**Punjab Tourism Dev. Corp.**						-11.37					0			0.94	0.64	
28	**Punjab Ex-Serviceman Corp.**						0.7		2.08		3.57		5.87	7.06	9.32	9.65	
29	**Punjab Police Housing Corp.**									0	0	-	0	0	0		0
30	**MILKFED**							2.65	5.99	6.29	10.26	8.5	5.57	6.34	1.4	4.2	
31	**SUGARFED**							-0.9	-1.23	8.11		-1.17	-2.01	-1.83	-949.72	-1214.5	
32	**WEAVCO**							0.1	0.13	0.1	0.18	-0.87	-6.06				
33	**SPINFED**					-1.86											
34	**MARKFED**							13.44	12	10.73	0.99	-253.3	-343.23	-324.24	338.62	-394.88	
35	**HOUSEFED**							8.35	6.46	21.95		6.08	9.31	1.5	8.36	6.09	
36	**Punjab State Co-op. Agri. Dev. Bank**							-29.29	24.66				26.5	28.5	26.1		26.1
37	**Punjab State Co-operative Bank**							10.35	11.74	5.23		27.18	18.92	17.29	21.28	12.53	
38	**PUNCOFED**					0.18				0.11	0.07		0.11				
39	**Punjab Pollution Control Board**							0		-							
40	**Punjab Energy Dev. Agency**								0	0							
41	**Punjab Infrastructure Dev. Board**								-							0	
42	**Punjab Roads & Bridges Dev. Board**								-	0							
43	**Punjab Rural Dev. Board**								-	-	-	0	0		0		14.35

44	**Punjab Health System Corp.**							0	-	0		0					0
45	**Punjab Urban Planning & Dev. Authority**							-161.36	160.74	12.75	25.88	29.31	18.42	3.16	7.99	3.85	
46	**Punjab Leathera Dev. Corp.**	-7.53	-7.61		-7.8												
47	**PUNTEX**						-8.18	-8.24		-0.15	-8.81	-9.05	-9.16		9.4		
48	**Punjab State Hosiery &Kintwear Dev. Corp.**					-16.84											
49	**Punjab Poultry Dev. Corp.**				1.7		0.18				-0.02						0

Remarks

1 In Punjab Financial Corporation, since 2007-08, the company was found to be in a loss condition till the FY1 2013-14, after which profit scenario has been observed as of FY 2015-16.

2 Punjab State Industrial Dev. Corp., a profitable account has been observed only in the FY 2007-08 and re-emergence in the FY 2015-16, a part of which a loss making status has been exhibited by the company profile.

3 Punjab Small Industries & Export Corp. was observed to have a profit status over the entire study period of available date (FY 2007-08 to 2015-16) with a slight fall in the year 2009-10 to 2012-13, after which the company seem to prosper with increasing profit.

4 Punjab INFOTECH was observed to go through loss for the FY 2011-12 to 2013-14 after which it relatively recovered to gain profit again.

5 Pb. Khadi& Village Industries Dev. Board, due to data unavailability, no further comment can be made as such apart from the given observation where the company is seen to make no profit for the FY 2008-09, 2011-12 and 2014-15.

6 Punjab State Seeds Corp., is observed to show a gradual rise in profit.

7 Punjab Land Dev. and Reclamation Corp., there has been zero loss status over the study period of FY 2009-10 2013-14.

8 Punjab Agro Industries Corp. was observed to be making high profits during the early years 2007-08 for three years after which the company suffered a loss of 54.69 crores, but with the state assigned role of promotion and facilitation of agro-based industries and being the agency of wineries during the FY 2011-12, the corporation saw a two year recovery before succumbing to a relative loss in the year 2013-14, then to show gradual recovery again.

9 Punjab State Warehousing Corp. was observed to be accruing increasing losses over the years with a fall in the loss account in the FY 2015-16.

10 Punjab State Container & Warehousing Corp., was seen to be in a profit situation for the entire study period with the highest profit during the FY 2012-13.

11 Punjab State Forest and Dev. Corp. experienced profit status over the years with the highest profit accrued during the FY 2012-13.

12 Punjab Mandi Board experienced a zero loss for the years for which data was available.

13 Punjab Agro Food Grain Corp. experienced a gradual fall in profit and accrued a major loss during the FY 2014-15.

14 PUNGRAIN is found to be experiencing increasingly high loss accounts from the FY 2005-06 with the highest loss observed during the FY 2012-13, accounting to Rs. 1545.14 crore as the loss amount.

15 Punjab Agri Export Corporation Ltd. was observed to accrue losses for the last three FY 2013-14, 2014-15 and 2015-16.

16 Punjab State Electricity Board accrued no loss or profit for the FY 2007-08 and 2008-09 for which data was available.

17 Punjab State Power Corp. Ltd. Made no loss or profit as per the only year for which data was available i.e. FY 2012-13

18 Punjab State Transmission Corp. Ltd. With two years (FY 2012-13 and 2013-14) of profit-making scenario, the company was observed to fall into loss accounts with gradual increase in loss amount by 2.03 crore in the FY 2015-16.

19 Punjab Water Res. Mgt. & Dev. Corp., leaving out prosperous years experienced by the corporation, it was found that the corporation accrued losses durng the FY 2008-09 before recovering well into profit before again succumbing to loss of Rs 4.93crores.

20 Punjab SCs Land Dev. & Finance Corp., leaving out profit making year (FY 2007-08), the corporation was found to running into gradually increasing losses.

21 Punjab Backward Classes Land Dev. Fin. Corp. experienced losses for the three years FY 2010-11 and 2012-13 before recovering and gaining Rs. 1.15 crore profit in the FY 2014-15.

22 Punjab State Civil Supplies Corp. experienced heavy increasing losses for the last two years of available data (FY 2014-15 and 2015-16).

23 Road Transport Corp. experienced losses during the FY 2007-08 and 2009-10.

24 Punjab Bus Stand Mgt. Company suffered a loss during the FY 2008-09.

25 Punjab Water Supply & Sewerage Board suffered from losses for the last Five FYs 2007-08, 2008-09, 2012-13, 2014-15 and 2015-16.

31 SUGARFED was found to be experiencing heavily increasing losses accounting of loss amount as high as Rs. 1214.5 crore.

34 MARKFED was also found to be suffering from heavy increasing losses for the FY 2014-15 and 2015-16.

Annexure 2.1

Growth Rate of Agriculture and Manufacturing Sectors of Punjab vis-à-vis All India

	Agriculture and Allied				Manufacturing			
	Growth Rate		As a % of GSDP (Constant 2011-12 Prices)		Growth Rate		As a % of GSDP (Constant 2011-12 Prices)	
Year	Punjab	All India	Punjab	All India	Punjab	All India	Punjab	All India
1990-1991			53.74	34.37			9.57	14.55
1991-1992	8.06	-1.95	55.31	33.34	6.43	-2.40	9.70	14.05
1992-1993	2.26	6.65	54.01	33.71	9.30	3.09	10.13	13.73
1993-1994	3.90	3.32	53.44	33.25	9.35	8.59	10.54	14.23
1994-1995	2.05	4.72	52.98	32.65	5.82	10.82	10.84	14.79
1995-1996	0.05	-0.70	50.89	30.14	6.57	15.46	11.09	15.87
1996-1997	7.03	9.92	50.74	30.80	5.81	9.50	10.93	16.16
1997-1998	-4.51	-2.55	47.04	28.85	4.64	0.05	11.10	15.54
1998-1999	3.06	6.32	45.91	28.88	6.52	3.13	11.20	15.09
1999-2000	7.28	2.67	46.63	27.24	5.94	5.39	11.24	14.62
2000-2001	1.42	-0.01	45.50	26.23	3.87	7.30	11.23	15.10
2001-2002	0.81	6.01	45.00	26.53	-5.19	2.27	10.45	14.73
2002-2003	-1.22	-6.60	43.22	23.87	6.09	6.87	10.77	15.17
2003-2004	5.76	9.05	43.10	24.13	3.72	6.34	10.53	14.95
2004-2005	2.16	0.18	41.95	22.40	6.46	7.38	10.69	14.88
2005-2006	0.95	5.14	39.99	21.55	10.12	10.10	11.11	14.99
2006-2007	2.85	4.16	37.33	20.55	24.32	14.32	12.54	15.68
2007-2008	3.82	5.80	35.54	19.80	20.19	10.28	13.82	15.75
2008-2009	2.03	0.09	34.26	19.07	3.16	4.33	13.47	15.82
2009-2010	-0.30	0.81	32.13	17.72	12.04	11.30	14.19	16.23
2010-2011	1.64	8.60	30.66	17.46	9.08	8.86	14.54	16.02
2011-2012	1.85	5.02	29.32	17.19	3.08	7.41	14.07	16.14
2012-2013	0.90	1.50	28.08	16.52	3.78	6.05	13.86	16.21
2013-2014	3.63	4.19	27.37	16.14	4.63	5.65	13.64	16.05
2014-2015	-3.41	-0.25	25.20	15.01	4.63	5.53	13.60	15.80
2015-2016	0.94	1.25	24.22	14.13	6.44	9.29	13.79	16.05
2016-2017	4.46	-	23.89	-	5.39	-	13.72	-

Sources: Handbook of Statistics on Indian Economy; Data for 2011-12, 2012-13 & 2013-14 are Second Revised Estimates (New Series); Data for 2014-15 are First Revised Estimates; Data for 2015-16 are Provisional Estimate; Data for 2015-16 and 2016-17 are from economic survey

Annexure 2.2

Comparison of State Own Non Tax Revenue components as a proportion of Total State Own Non Tax Revenue of Punjab with All States (in Percentages)

	Post-FRBM Average (2005-06 to 2016-17)	
	All States	**Punjab**
State Own Non-Tax Revenue to GSDP (in %)	**1.44**	**2.09**
State Own Non-Tax Revenue's Components		
Interest Receipts	**20.00**	**7.08**
Dividends and Portfolios	**1.283**	**0.215**
General services	**19.95**	**70.36**
State Lotteries	4.89	36.24
Social Services	**15.31**	**7.21**
Education, Sports, Arts & Culture	7.313	2.030
Medical and Public Health	2.057	2.756
Family Welfare	0.112	0.099
Housing	0.422	0.093
Urban Development	3.226	2.568
Labour and Employment	0.752	0.307
Social Security and Welfare	0.442	0.437
Water Supply and Sanitation	0.592	1.004
Other	0.3896	0.0931
Fiscal Services	0.00062	0.00000
Economic Services	**43.42**	**12.96**
Crop Husbandry/ Agriculture	0.550	0.366
Animal Husbandry	0.201	0.181
Fisheries	0.218	0.041
Forestry and Wildlife	4.076	0.503
Plantation	0.002	0.000
Co-operation	0.626	0.173
Other Agricultural Programmes	0.089	0.891
Major and Medium Irrigation Projects	2.701	1.730
Minor Irrigation	0.432	0.022
Multipurpose River Projects	0.00001	0.00000
Irrigation Navigation, Drainage Flood Control Project	0.00001	0.00000
Power	1.414	0.002
Petroleum	1.522	0.000
Village and Small Industries	0.222	0.014
Industries	23.477	1.292
Ports and Light Houses	0.688	0.000
Road Transport	1.627	4.514
Tourism	0.117	0.087
Royalty on Minerals and Mineral Concession Fees	0.0139	0.0000
Dairy Development	0.00001	0.00000
Others	5.447	3.146

Sources: Handbook of Statistics on Indian Economy, RBI.

Annexure 2.3

Tax Buoyancy of Punjab

Tax buoyancy measures the percentage response of tax revenue to a one per cent change in the tax base, usually taken as nominal gross domestic product (Indira Rajaraman et al 2006). This report estimates tax buoyancy of Punjab for the period 1990-1991 to 2016-2017. For a comprehensive comparison, tax buoyancy has been estimated for three periods viz., 1990-1991 to 2002-2003, 2003-2004 to 2016-2017 and 1990-1991 to 2016-2017.

The basic estimation of tax buoyancies is attained by a double log specification of the below given equation (1), which yields the buoyancy coefficient β.

$$Ln(SOTR_t) = \alpha + \beta\, Ln(GSDP_t) + \epsilon_t$$

Where,

$Ln(SOTR_t)$: log of state tax revenue (nominal) in year *t*

$Ln(GSDP_t)$: log of gross state domestic product (nominal) in year *t*

α: intercept

β: buoyancy estimate

Regression I: **(1990-1991 to 2002-2003)**

SOTR	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
GSDP	1.037346	.1112358	9.33	0.000	.7925175	1.282174
Cons	-2.849761	1.700152	-1.68	0.122	-6.59177	.8922492

Adj R-squared =0.8775

Regression II: 2003-2004 to 2016-2017

SOTR	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
GSDP	.7235307	.0402632	17.97	0.000	.6358048	.8112566
Cons	2.32047	.6782077	3.42	0.005	.8427819	3.798157

Adj R-squared = 0.9612

Regression II: 1990-1991 to 2016-2017

SOTR	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
GSDP	.9346466	.0343496	27.21	0.000	.8639023	1.005391
Cons	-1.256533	.5534428	-2.27	0.032	-2.39637	-.116696

Chapter 3

LITERATURE REVIEW

This chapter briefly reviews the literature relevant to the core issues of concern to this study, i.e., tax capacity and tax effort, debt sustainability, and debt forecasting.

3.1 Tax Efficiency and Tax Effort

A well-functioning tax system enables effective financing of public expenditure and reduces dependence on deficits and thus promotes economic development. Tax capacity can be understood as the maximum tax revenue a country or state can achieve. Given the taxable capacity, tax effort refers to the extent to which taxable capacity is used to raise revenue (Gupta 2007; Le, Moreno Dodson and Bayraktar 2012; Garg et al. 2017). The public finance literature documents four approaches for estimating a government's tax capacity: income approach, aggregate regression approach, representative tax system (RTS), and frontier analysis (Garg et al. 2017).

Income Approach

The income approach, where state/national income serves as a proxy for tax base, is the simplest, and is used most widely. At the state level, tax performance can be assessed by the ratio of actual performance (e.g. tax collected) to a measure of taxable capacity (e.g. GDP). But GDP is an imperfect proxy for the tax base, particularly when the tax structure has different taxes, each tax relating to a different tax base. This is a criticism, as Raju (2012) observes, against a prescriptive ratio such as the tax-to-GDP ratio.

Aggregate Regression Approach

The aggregate regression approach incorporates a set of independent variables that explain variation in inter-regional tax revenue (Garg et al. 2016). This approach was developed mainly to measure tax effort. In this method, the taxable capacity of a state refers to the predicted tax-to-GSDP ratio that can be estimated with regressions, controlling for other variables depending on a country's specific macroeconomic, demographic, and institutional features. Here tax effort is defined as an index of the ratio between the ratio of the actual tax collection to GSDP

and predicted taxable capacity. The merit of regression analysis in measuring tax effort is that, depending upon the availability of data relating to capacity indicators, it makes it possible to analyse the influence of independent multivariates on the dependent variables, i.e., total or state's own revenues.

Several scholars use the regression approach. The model developed by Bahl (1971) is based on three general determinations of taxable capacity: the stage of development, sectoral composition of income, and the size of the foreign trade sector. These are measured, respectively, by the agricultural share of income, the mining share of income, and the export share of income.

Reddy (1975) used this approach to calculate the relative tax efforts of 16 Indian states for the years 1970–72 and found some unexpected results. Against the argument that Bihar made the least tax effort and had a large untapped tax potential, in Reddy's analysis Bihar emerged as a state raising more than its capacity. Gupta (2007), in a multi-country dynamic panel model, found a significant effect of structural variables like per capita gross domestic product (GDP), the share of agriculture sector in GDP, trade openness, and foreign trade on the tax revenue of these countries. In addition to these variables, Le, Moreno Dodson and Bayraktar (2012), in their cross-country study of 110 developing and developed countries, found that population growth and governance quality significantly impact tax revenue.

The most important component of the regression method of measuring tax capacity and tax effort is a proper specification of the model. This demands identification of the determinants of the taxable capacity of a state and the specification of tax function and of form of regression to be used (linear, log-linear, etc.). Various models are developed for this purpose. The notable models are discussed below.

Stochastic Model: A cross-section data is used to estimate tax yield. Several determinants determining 'capacity' are chosen, and either tax ratio or per capita tax ratio is chosen as the dependent variable. The estimated dependent variable measures 'capacity' and the residuals of

the regression gives the extent of tax effort. However, this method fails to separate the residual variations due to factors affecting tax effort from that of due to random errors.

Panel Data Model: It is also known as the covariance approach. It applies pooled time series cross-section data and is a better statistical technique. This model helps not only in identifying the common traits in the tax behaviour of states but also in segregating the effects of state-specific factors from that of pure random errors. Thus, this model provides a better way of evaluating a state's tax effort.

For the first time in India, the Ninth Finance Commission (1988) adopted this approach by using a model of the 'fixed effect' type in its first report. It estimated a stochastic tax function where the per capita tax revenue of a state is specified to be determined by per capita state domestic product (SDP), proportion of the non-primary sector in SDP, and the Lorenz ratio of private consumption expenditure distribution.

Some studies adopt the Quartile Regression Method, another variant of the regression technique. Coondoo et al. (1999) use it to study the relative tax performance of Indian states for the year. This method uses the time-series data on state-specific aggregate tax revenue, which is obtained by adding up state taxes on income, taxes on property and capital transactions, land revenue, sales tax, state excise duty tax on vehicles, entertainment tax etc. for a particular state.

Representative Tax System (RTS)

The representative tax system (RTS) defines 'tax capacity' as the absolute amount of revenue that each state would collect if it applied an identical set of effective rates to the selected tax base, i.e., as the yield of an RTS. The effective rate is the ratio of actual revenue (RA) and potential base (PB) of the tax. Here average tax rates are applied in each state to standardised tax bases. The estimated tax collections vary only because of differences in the underlying bases. Under the RTS, the tax capacity measure is not concerned with whether an individual state imposes a low or high tax burden compared to other states but only with the level of economic resources in any state that may be said to be potentially taxable.

The RTS developed by the Advisory Commission on Intergovernmental Relations (ACIR 1962) estimates the base of each of the 26 state and local taxes levied most often nationally. Further, the RTS developed by the Advisory Committee on Intergovernmental Relations (ACIR 1971) in the US compared a set of effective tax rates applicable to different components of the tax base in a state with the corresponding all state-average effective tax rates. The difference between the two is then interpreted as a measure of tax effort (Chelliah and Sinha 1982). Important studies have adopted the RTS (Bahl 1972; Thimmiah 1979; Chelliah and Sinha 1982; Rao 1993).

Chelliah and Sinha (1982) use the RTS to measure the tax effort by Indian states for the period between 1973–74 and 1975–76. The study is based on 15 major states and 12 taxes levied by these states. A three-year average is used to minimise the influence of fortuitous factors. The effective rate of each tax has been derived as the weighted average for the three-year period. However, unlike the ACIR, 1971 approach, the average effective rate has been computed as the un-weighted average of the effective rates in the states.

In a study commissioned by the Planning Commission, GOI, Thimmaiah (1979) estimates the revenue potential and revenue efforts of four southern states (Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu) and one union territory (Pondicherry) for the period of the Fourth Five Year Plan, mainly in terms of the RTS, by using both the ACIR direct method and regression method. This is one of the few studies that use both the representative and regression techniques.

Frontier Approach

The literature documents several studies that use the frontier approach to examine revenue generating capacity and the associated tax effort. This line of research examines mainly technical inefficiencies (i.e., productive inefficiency) in revenue collection at both national and sub-national levels. The primary question is whether the tax agency is utilising resources efficiently. This approach measures the maximum achievable revenue for the given tax base and other determinants of tax revenue. The difference between the actual revenue and

maximum revenue (given by the best practice frontier) indicates the technical inefficiency (Pessino and Fenochietto 2010, 2013).

In general, technical efficiency indicates a unit's failure to operate at the optimal production frontier. Mathematical techniques used to measure technical efficiency have evolved considerably over time. The literature is divided broadly into deterministic frontier methodologies and stochastic frontier methodologies. The deterministic non-parametric approach, which developed out of mathematical programming, is commonly known as data envelopment analysis (DEA). The parametric approach, which estimates technical efficiency within a stochastic production, cost, or profit function model, is called stochastic frontier analysis (SFA). Both DEA and SFA are used widely, and each has advantages and disadvantages. (Forsund et al. 1980).

Use of DEA is instrumental in accounting for the fact that tax collection is a production process that uses multiple inputs to produce multiple outputs, but it ignores the environmental factors that affect the operational capabilities of a tax agency. Environmental factors capture those aspects of the economy over which tax administrators have limited control, such as a nation's tax capacity, political and legal set-up, and tax-payers' willingness to participate in a given system. In this context, the other frontier technique, i.e., SFA is capable of estimating efficiency scores after accounting for environmental factors.

Few studies employ the DEA or SFA to estimate tax capacity and efficiency in India. Rajaraman and Goyal (2005) used versions of DEA to obtain variation in tax effort across Indian states. Thirtle et al. (2002) used DEA to measure tax efficiency in 15 Indian states from 1980–81 to 1992–93. Rajaraman and Goyal (2005) examined tax efficiency in 28 states over 2000–07. Based on the variations, the studies presented tax-inefficiency scores across Indian states.

Researchers have used the SFA to estimate the tax inefficiency of states in India (Jha et al., 1998; Karnik and Raju 2015; Garg et al. 2017). Jha et al. (1998) use this approach to measure the tax efficiency of 15 major states of India over a 13-year period from 1980–81 and find a

problem of moral hazard in the design of the central government's grants to state governments—greater the proportion of the state's expenditure financed by central grants, lower their tax efficiency. Garg et al. (2017) identifies factors of tax capacity and inefficiency for a panel of 14 major states between 1991–92 and 2010–11 and finds widely varying tax effort across states.

3.2 Debt Sustainability

In fiscal federalism, sub-national governments play an important role in the provision of public goods and social services. Owing to revenue shortfalls and increased public expenditure, sub-national governments often resort to borrowing to meet their expenditure commitment. Hence, it is important to assess if a state government is prepared to pay back its borrowed resources and interest payments. As state debt can seriously impact national finances and fiscal stability, assessment of debt sustainability is of paramount importance.

The literature does not define 'fiscal sustainability' clearly. Existing studies assess debt sustainability by employing one of three common approaches: the Domar sustainability criteria (1944), indicator-based analysis, and the present value budget constraint (PVBC) approach.

The Domar sustainability criteria holds that the necessary condition for sustainability is that the growth rate of output must increase the interest rate. If this is the case, then deficits could continue forever without an increase in the debt-to-GDP ratio.

The indicator approach evaluates the ability of a state government to repay its debt and interest obligation through current and regular sources of income. It measures sustainability by considering capital and revenue parameters.

According to the PVBC approach, the present value of primary surpluses should not be less than the current outstanding liabilities of a government. In other words, for the debt to be sustainable, today's government debt has to be matched with the excess of future primary surpluses over primary deficits in present value terms. This simply means that running a permanent deficit (exclusive of interest payments) is not sustainable. Empirically, the discounted debt series is tested for stationarity to validate sustainability and/or co-integration

between revenues and expenditure to prove the necessary condition for the debt to be sustainable.

Hamilton and Flavin (1986) examine the proposition that a government must promise to balance its budget in present value terms to issue interest-bearing debt. This proposition was consistent with US post-War data. Chalk and Hemming (2000) highlight the limitations of the PVBC approach; they argue that it is satisfied by some fiscal policies that are not sustainable but not by some which appear sustainable.

In the Indian context, there is extant empirical literature on the study of sustainability of public debt at a sub-national level. Nayak and Rath (2009) used the Domar sustainability criteria to assess the debt sustainability of seven special-category states over 1991–2009 and found that all states (barring Arunachal Pradesh) satisfied the sustainability condition. However, Assam was the only state to achieve solvency. Kaur et al. (2014) use the indicator-based approach and empirical exercises to assess the debt sustainability of 20 Indian states between 1980–81 and 2012–13 and conclude that there is a co-integrating relationship between revenue and expenditure, which is the same as satisfying an inter-temporal budget constraint. The estimated fiscal response function also indicated that primary fiscal balance responds in a stabilizing manner to changes in debt. Therefore, both results indicated that the debt level in Indian states is sustainable in the long run. Narayan (2016) uses indicator-based analysis and the PVBC approach to assess debt sustainability in Haryana over 1980–2015. For indicator analysis, the period was divided into four phases. Sustainability indicators examined interest payments as a percentage of revenue expenditure and debt as a proportion of revenue receipts.

To assess the long-run relationship between revenue and expenditure, the co-integration test was applied. Most debt sustainability indicators showed improvement from 2004–05 to 2009–10 but fiscal stress thereafter. Maurya (2014) used all three approaches for Uttar Pradesh between 1991–92 and 2012–13. Surprisingly, the results are not aligned. Co-integration tests implied that there was no long-term relationship, whereas the Domar sustainability criteria were not satisfied for the period between 1997–98 and 2004–05. Conuto and Liu (2010) highlight the growing need for evaluating the debt sustainability of sub-national governments as opposed to that of the Central government. This is primarily because after decentralisation

the responsibility of the state governments to provide social utility services has increased, and rapid urbanisation pressurises these governments to supply economic infrastructure. This forces them to borrow. Against this background, this report uses the three common approaches to study the sustainability of Punjab's debt.

3.3 Public Debt Forecasting

Policymaking is driven by the correct prediction of public debt, because a government with large public debt would need to modify its fiscal policy to remain solvent and on a sustainable path. Public debt forecasting also provides policymakers an early warning about the likelihood of fiscal variables going off track. Correct forecasting of public debt and understanding of forecast errors, if any, helps in accessing the direction of debt-to-GDP ratio of a particular country or state over the projected horizon. Debt forecasting is greatly important worldwide. In Europe, academic interest in fiscal forecasting was initiated by the need to monitor whether member states of the European Union complied with the budgetary requirements of the Maastricht Treaty and of the Stability and Growth Pact. Fiscal projections may be short-term (one year), medium-term (2–10 years), or long-term (more than 10 years). Since short-term projections provide timely information, they serve as an early warning indicator if actual events differ from projections.

Projections of public debt are based on certain assumptions of actual and projected growth, interest rates, and fiscal/primary balance. Edwards (2003) uses moving averages of projections of past interest rates to simulate aggregate stock of debt in the US. Most studies in this area use scenario and sensitivity analysis to illustrate how debt projections would change with changes in the underlying assumptions. These bound tests are based on additional scenarios in which an adverse shock hits one key variable (such as growth rate, interest rate, primary balance, or exchange rate). Then, alternative debt paths are presented against baseline projections. This approach gives a broader assessment of sustainability in response to adverse developments. These stress tests help to determine the robustness of debt outlook to adverse economic shocks in the economy. For example, reduction in tax receipts can lead to increase in fiscal deficits and, in turn, increase in public debt.

In Ianchovichina, Liu and Nagarajan(2006) sustainability analysis for Tamil Nadu covering the period 2003/04-2026/27possible future debt dynamics of the state was gauged in a baseline as well as in multiple adverse shock scenarios. The results suggested that the state had embarked on a fiscal sustainability path and adverse shock of non-permanent nature do not threaten its fiscal sustainability over long term.

Manoel et al. (2008) use four scenarios to assess the impact of the economic shock on debt dynamics (debt-to-GSDP ratio and interest payments-to-revenue ratio) in the Punjab province of Pakistan. The scenarios explored were a slowdown in GDP or GSDP, increase in development expenditure, increase in salaries, and an increase in both development expenditure and salaries. All the economic shocks predicted an increase in the debt-to-GSDP ratio. Similarly, Australia's budget (2016) also used stress tests to explore the effect of shocks on the country's fiscal projections.

However, the standard scenario analysis has methodological limitations (Celasun et al. 2007): it allows only a limited number of scenarios in which assumptions are changed relative to the baseline and it does not factor in uncertainty in macroeconomic conditions. Fiscal policy is also assumed not to react to simulated economic developments. Another limitation of scenario analysis is that it simulates each shock to determinants of debt dynamics one at a time and ignores the correlation between them. Hence, the standard testing approach is limited to isolated shocks.

Correcting for uncertainty implies designing an infinite number of scenarios to account for macroeconomic shocks. The idea is to have an apparatus to simulate a large sample of stress tests and, thereby, frequency distribution of debt-to-GDP ratios for each projected year. Celasun et al. (2007) propose using probabilistic scenario analysis as opposed to deterministic scenario analysis. They estimate a vector auto regression (VAR) model for the system's non-fiscal components and, under the assumption of joint normality, use 'fan charts' to depict confidence bands for varying degrees of uncertainty around the mean projection. Frank and Ley (2009) modify the assumptions of the probabilistic approach proposed by Celasun et al.,

and allow for structural breaks in the VAR model. They relax the assumption of normally distributed shocks and use the bootstrapping technique to directly draw from empirical distributions. Hajdenber and Romeu (2010) use VAR and a country-specific fiscal reaction function to correct for uncertainty arising from intrinsic volatility of debt determinants and inaccuracy of parameter estimates. The revised algorithm was applied to conduct a debt sustainability analysis of Uruguay. The improved specification led to reduction in the variance of debt projections. Berti's (2013) stochastic debt projections are based on a variance–covariance matrix of historical shocks as opposed to the VAR modelling employed in previous studies. These stochastic debt projections run a very large number of sensitivity tests to obtain a frequency distribution of debt-to-GDP ratios for each year in the projected horizon. In this approach, shocks to non-fiscal determinants of debt dynamics are extracted from a variance–covariance matrix of historical shocks. Random shocks hence obtained are then applied to baseline-projected values of the corresponding variables. This algorithm generates as many debt paths as the number of simulated shocks through a debt evolution equation. Kawakami and Romeu (2011) extend previous studies in that it presents a stochastic debt forecasting framework where debt distributions reflect both the joint realization of fiscal policy reaction to macroeconomic projection and the second-round effect of fiscal policy on macroeconomic projections. Previous studies exclude either the impact of macroeconomic shocks on fiscal balance or the lagged effect of fiscal balance on macroeconomic projections. There is evidence that second-round effects have statistically significant impact on direction and dispersion of debt-to-GDP forecasts and account for parameter uncertainty and non-normally distributed shocks.

Using an adaptive neuro-fuzzy inference system (ANFIS), Keles et al. (2008) created a Model of Forecasting Domestic Debt (MFDD). The advantage of neural-fuzzy models over statistical models is that its rule of the analysis depends on the data and not on the model; it automatically approximates the functional form that characterizes the data best. The study uses 10 years' monthly values of currency issued, total money supply, consumer price index, and interest rate to predict domestic debt. It generated 115 samples for the Turkish economy from January 1996 to July 2005. Adjusted R^2 of the MFDD came out to be 0.99, which suggests that artificial

intelligence models such as ANFIS can be used to predict macroeconomic variables like domestic debt.

These advanced methods of forecasting debt gives a more realistic picture of debt, as more scenarios are better than fewer, but the feasibility of probabilistic scenario analysis is subject to the availability of data. Sometimes, it becomes difficult to assign probabilities to each scenario and differentiate between different scenarios. In a sub-national study, where availability of data is a constraint, traditional scenario analysis is the ideal method to determine the robustness of debt projections. Therefore, our study presents a number of scenarios to illustrate the sensitivity of debt to changes in parameters in the state of Punjab.

Chapter 4

PUNJAB'S DEBT BURDEN AND SUSTAINABILITY

4.1 Introduction

Debt represents the accumulation of all previous government borrowings from institutions, foreign governments, and other parts of the government. Debt build-ups are generally accompanied by an expansion of general government expenditures. If government expenditure financed from borrowings is non-productive in nature, it exerts a negative impact on the growth of income and borrowing creditability of the government. Thus, public debt accumulation has detrimental effects on economic growth, capital accumulation and productivity, the solvency of government and efficacy of fiscal policies in restoring macroeconomic stability (Tanzi and Schuknecht, 1997; Reinhart &Rogoff, 2010).

In this context, the revenue-expenditure gap reflected as the deficit is considered as the primary cause of public debt when financed from borrowings. The other aspects of the deficit that are pertinent to its accumulation are the historical accumulation of deficit and the associated cost of borrowing or the interest burden (Lahiri and Kannan, 2002). As far as the sustainability of public debt is concerned, it is argued that governments may have large debts and still be debt sustainable if they have a high income. Conversely, when the income is not enough to support the further accumulation of debt, raising additional funds through borrowings becomes infeasible. Thus, for the debt to be sustainable, the governments are required to increase debt viability through necessary fiscal-monetary adjustments. Since, governments at the sub-national level have little control over the monetary policies, fiscal adjustment is the only mechanism left to them for securing a stable debt situation.[14]

Literature has documented several channels through which debt sustainability can be achieved by sub-national governments. These include augmenting capital expenditure and expenditure on social sector and physical infrastructure; expanding revenue and limiting non-productive expenditure; and increasing productive capacity (Domar, 1994; Clements, Bhattacharya and

[14] Centre can influence state finances through devolution of funds and determining the wages and salaries of government employees.

Nguyen, 2003; Checherita and Rother, 2010; Kumar and Woo 2010; Reinhart and Rogoff 2010; Cecchetti, Mohanty and Zampolli, 2011).

In India, debt at the sub-national level consists of internal debt, loans and advances from the Central government, state provident funds, small savings, trusts and endowments and pension funds. Internal debt further comprises of funds raised through market borrowings, ways and means advances from RBI and loans from banks and other financial institutions[15]. Chapter 2 of this study report presented a preliminary discussion on Punjab's debt situation. Description of debt to GSDP ratio suggested that Punjab has the decades-long history of growing debt stock. Punjab's debt stock registered significant rise during the 2000-01 to 2005-06, at an annual growth rate of 4.3%. In 2005-06, Punjab's debt was 48% of its GSDP. After the enactment of the state's FRBM Act, 2005, this ratio declined and was reported to be around 34% of GSDP in 2016-17. However, the recent slowdown in the GSDP growth accompanied by weak revenue generation has raised fresh concerns about the sustainability of Punjab's debt scenario.

In this chapter, we take this discussion forward by conducting an empirical investigation on debt sustainability of Punjab. The question being addressed here attempts to assess whether debt position of Punjab was sustainable during the period 1990-91 to 2016-17.This involves comparing Punjab's debt sustainability over the study period (190-91 to 2016-17) and in the post-FRBM period (2005-06 to 2016-17). The methodology adopted for this purpose comprises of three alternative approaches *viz.*, Domar debt sustainability criterion, present value budget constraint approach and indicator approach.

The rest of the chapter is organized as follows: Section 4.2 presents different approaches adopted by the study to examine debt sustainability. Results and implications are discussed in section 4.3 and conclusions in section 4.4.

[15]Other institutions include organizations like National Agriculture Credit Funds of RBI, National Co-operative Development Corporation, Khadi and Village Industries Commission, Central Warehousing Corporation.

4.2 **Methodology**

This section presents a discussion on alternative methodologies employed to assess debt sustainability.

4.2.1 **Debt Sustainability Criterion: Domar's Condition and Adequate Primary Balance**

Domar (1994) suggested the following equation which lay the necessary condition for debt sustainability: [16]

$G-R> 0$ (1)

Where, G= Nominal Growth rate of GDP

R = Nominal Interest Rate

t = Time Period

Equation (1) implies that if nominal GDP growth (G) exceeds the nominal interest rate (R) on government debt, then the debt/ GDP ratio (d/y) is stable. According to equation (1), the larger the gap between the interest rate and growth rate, the higher will be debt-GDP ratio. Thus,for debt sustainability, the gap between the rate of interest and growth in GDP, nominal, should be positive. Domar condition is termed as the *necessary debt sustainability condition* (Sucharita, 2014). The nominal rate of growth of GDP (n) could be higher either (a) if the real rate rises or (b) if inflation rate rises. Since either will lower the debt to GDP ratio, there are calls for "inflating your way out of a debt squeeze". However, inflation as a policy to stabilize debt-GDP ratio carries harmful consequences. Thus, the necessary condition is taken in real terms to assess debt sustainability (Pattnaik and Jayakumar, 2016).

Primary balance is also considered as an important indicator of debt sustainability. For debt position to be stable, government needs to maintain sufficient primary surplus to finance debt service. [17]This condition is called *sufficiency condition* for debt sustainability. The stable debt sufficiency condition is examined by the debt-dynamic wedge defined as:

[16]See Suchitra (2014) for derivation of Domar debt sustainability criterion.
[17] See Pattnaik and Jayakumar (2016) for derivation of Sufficiency Condition for Debt Sustainability.

$$g - r\text{-}p=0$$

Where ‘g’ is real GDP growth (GDP at constant market prices), ‘r’ is real interest rate i.e. nominal interest rate minus inflation measured by GDP deflator and ‘p’ is primary deficit relative to GDP). When this condition is met, debt-GDP ratio remains stable.

4.2.2 **Present Value Budget Constraints Approach (PVBC)**

PVBC approach evaluates debt sustainability through econometric testing of the validity of the PV of the budget constraint of the government. The PVBC approach documented in the literature (Hamilton and Flavin 1986; Nayak and Rath, 2009; Mahnood and Rauf 2012) has been applied to the case of state governments in India. In this attempt, we follow Mahnood and Rauf (2012) to mathematically derive the conditions for debt sustainability.

If the future primary surpluses are adequate to reimburse the current debt stock outstanding, then it is sustainable. In other words, outstanding debt stock is not greater than the sum of present values of current and future primary surpluses. In terms of the empirical examination, the approach involves testing the discounted series of public debt for stationarity, where stationary process is the necessary condition for sustainability.

Using the budget constraint identity of a sub-national government

$G_t - R_t + r_t B_{t-1} = \Delta B_t$ …… (1)

Where,

B_t is public debt

r_t is rate of interest

G_t is state government expenditure

R_t is state government revenue.

With a little manipulation, we get:

$-Pb_t + (1+ r_t) B_{t-1} = B_t$ …….. (2)

$B_t = (1+ r_t)B_{t-1} - Pb_t$

$Q_tB_t = Q_t B_{t-1} + r_t Q_t B_{t-1} - Q_tPb_t$

Where, Pb_t is the primary balance and Q_t is the discounting factor and denoted as:

$$Q_t = \prod_{j=0}^{t-1}(1 + r_{t+j})^{-1}.$$

Let $bt = BtQt$

Applying recursive substitution, sub-national government's inter-temporal budget constraint may be written as

$$b_t = \sum_{j=1}^{N} Pb_{t+j} + b_{t+N}$$

Taking expectations as of time t and applying limit as $N \to \infty$

$$b_t = E_t \sum_{j=1}^{N} Pb_{t+j} + \lim_{n\to\infty} E_t b_{t+N} \dots\dots\dots\dots\dots\dots (3)$$

This means government's debt can be offset by the sum of expected future discounted primary surpluses. It implies that lim $b_{N\to\infty} = 0$

Thus when

$\lim_{n\to\infty} E_t b_{t+N} = 0$, debt is sustainable as present discounted value of expected debt is zero

$\lim_{n\to\infty} b_{t+N} < 0$, sub-national government is accumulating surplus

$\lim_{n\to\infty} b_{t+N} > 0$, sub-national government debt cannot be offset by discounted primary surpluses and so government would have to borrow to meet interest payments on debt.

From equation (3), we get:

$$b_t = E_t \sum_{j=1}^{N} Pb_{t+j} \dots\dots\dots\dots\dots\dots (4)$$

This equation can be tested. If the discounted debt series is stationary, the debt will be sustainable.

4.2.3 Indicator Analysis

This approach uses a set of indicators to assess different aspects of debt sustainability. Various debt burden indicators are examined which satisfy sustainability conditions. The selection of the indicators and the methodologies are adopted from the literature (see Kaur et al. (2014); Maurya (2014); Narayan (2016)). These are listed in table 4.1 below:--

Table 4.1:Indicator Approach

S. No.	Indicators	Symbol
1	Rate of growth of debt (D) should be lower than rate of growth of nominal GDP (G)	D-G < 0
2	Rate of growth of debt (D) should be lower than effective interest rate (i)	D-i< 0
3	Real rate of interest (r) should be lower than real output growth (g)	r-g < 0
4a	Primary balance (PB) should be in surplus	PB/GDP > 0
4b	Primary revenue balance (PRB) should be in surplus	PRB/GDP > 0
5a	Revenue Receipts (RR) as a percentage to GDP should increase over time	RR/GDP
5b	Revenue variability should decline over time	CV(RR/GDP)
5c	Debt to revenue receipts ratio should decline over time	D/RR
5d	Debt to tax revenue ratio should decline over time	D/TR
5e	Debt to own tax revenue ratio should decline over time	D/OTR
6a	Interest burden defined by interest payments (IP) as a percentage to GDP should decline over time	IP/GDP
6b	Interest payments (IP) as a percentage of revenue expenditure (RE) should decline over time	IP/RE
6c	Interest payments (IP) as a percentage of revenue receipts (RR) should decline over time	IP/RR

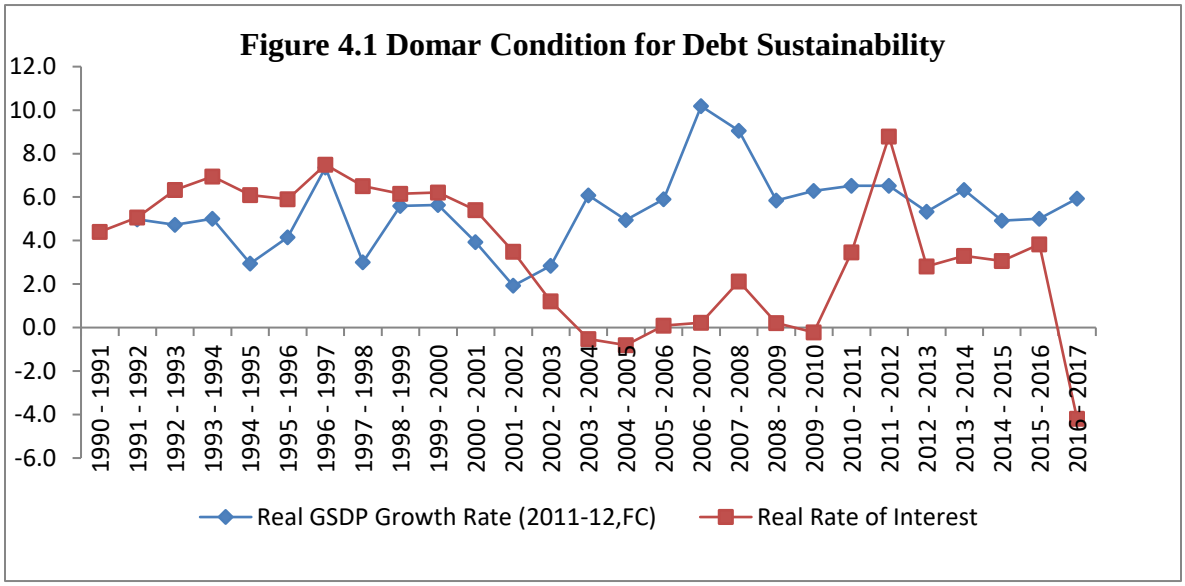
4.3 Empirical Results

On the basis of the methodology discussed in section 4.2, results of Punjab's debt sustainability under the alternative approaches are presented in this section:

4.3.1 Domar Debt Sustainability

As discussed in the methodology section of this chapter, debt sustainability rule requires an economy's real growth rate to be above real interest rate and adequate primary balance to be maintained to finance debt service so that debt/GDP ratio remains stable. This section examines the necessary (g-r>0) and sufficient (g-r-p≥0) debt stability conditions in Punjab during the period 1990-91 to 2016-17. The results are presented in figure 4.1 and table 4.1.

Figure 4.1 Domar Condition for Debt Sustainability



Source: RBI, Punjab Economic Survey, CSO
Note: Real Rate of Interest = Weighted Average of Interest Rates on State Govt. Securities (Inflation accounted for by GSDP deflator); GSDP is at 2011-12 prices; GSDP data from 1995-96 to 2014-15 is taken from CSO; GSDP data for 2015-2016(Q) to 2016-17(Adv.) is collected from Punjab Economic Survey, 2017; Q - quick estimates; Adv. - advance estimates

As shown in the figure 4.1, real growth in GSDP of Punjab (g) was less than the real rate of interest from 1991-92 till 2001-02.The movements in real interest rates vis-à-vis real GSDP growth during this period suggested violation of Domar's necessary condition for stable debt.

Beyond 2002-03, Domar condition seem to be satisfied with g-r gap being positive from 2002-03 to 2016-17(exception of FY 2011-12). This is because the real growth in Punjab GSDP was much higher during the period 2002-03 to 2016-17 than that observed before 2002-03. Also, low real interest rates due to high inflation during 2002-03 to 2010-11 enabled attainment of

g-r>0. Overall, the result suggested that the Domar necessary condition for debt sustainability was met for Punjab during the period 2002-03 to 2016-17.

Table 4.2: Primary Deficit and Stable Debt condition

Year	Real GSDP Growth Rate (g)	Real Interest Rate (r)	Primary Deficit /GSDP (p)	(g-r-p≥0)	Stable Debt
1990 - 1991	-	4.4	0.048	-	-
1991 - 1992	5.0	5.1	0.035	0	yes
1992 - 1993	4.7	6.3	0.032	-2	no
1993 - 1994	5.0	7.0	0.015	-2	no
1994 - 1995	2.9	6.1	0.016	-3	no
1995 - 1996	4.2	5.9	-0.004	-2	no
1996 - 1997	7.4	7.5	-0.004	0	yes
1997 - 1998	3.0	6.5	0.013	-4	no
1998 - 1999	5.6	6.1	0.026	-1	no
1999 - 2000	5.6	6.2	0.008	-1	no
2000 - 2001	3.9	5.4	0.021	-1	no
2001 - 2002	1.9	3.5	0.022	-2	no
2002 - 2003	2.8	1.2	0.012	2	yes
2003 - 2004	6.1	-0.5	0.013	7	yes
2004 - 2005	5.0	-0.8	0.001	6	yes
Average Pre-FRBM	4.5	4.7	0.01	-0.18	UNSUSTAINBALE
2005 - 2006	5.9	0.09	-0.010	6	yes
2006 - 2007	10.2	0.23	0.002	10	yes
2007 - 2008	9	2.12	0.001	7	yes
2008 - 2009	5.8	0.20	0.010	6	yes
2009 - 2010	6.3	-0.21	0.006	7	yes
2010 - 2011	6.5	3.45	0.007	3	yes
2011 - 2012	6.5	8.79	0.008	-2	no
2012 - 2013	5.3	2.82	0.009	2	yes
2013 - 2014	6.3	3.30	0.003	3	yes
2014 - 2015	4.9	3.07	0.005	2	yes
2015 - 2016	5	3.83	0.006	1	yes
2016 - 2017	5.9	-4.19	0.005	10	yes
Average Post-Reform	6.5	1.96	0.004	5	STABLE

Table 4.2 presents sufficiency condition of debt sustainability *viz.*, g-p-r≥0. This condition of adequate primary balance to ensure stable debt situation was examined during the pre-FRBM period (1991-92 to 2004-05) and post-FRBM period (2005-06 to 2016-17). As evident from Table 4.1, in the pre-FRBM period sufficiency condition was met for some years. Overall, average over the pre-FRBM period suggested violation of the condition implying unstable debt situation for Punjab in the pre-FRBM period.

During the post-FRBM period, results show significant improvement in debt sustainability position of Punjab. In all the years during the post-FRBM period, the debt-dynamic wedge condition is satisfied except for the FY 2011-12. Average over the period also suggests stable debt to GSDP of Punjab.

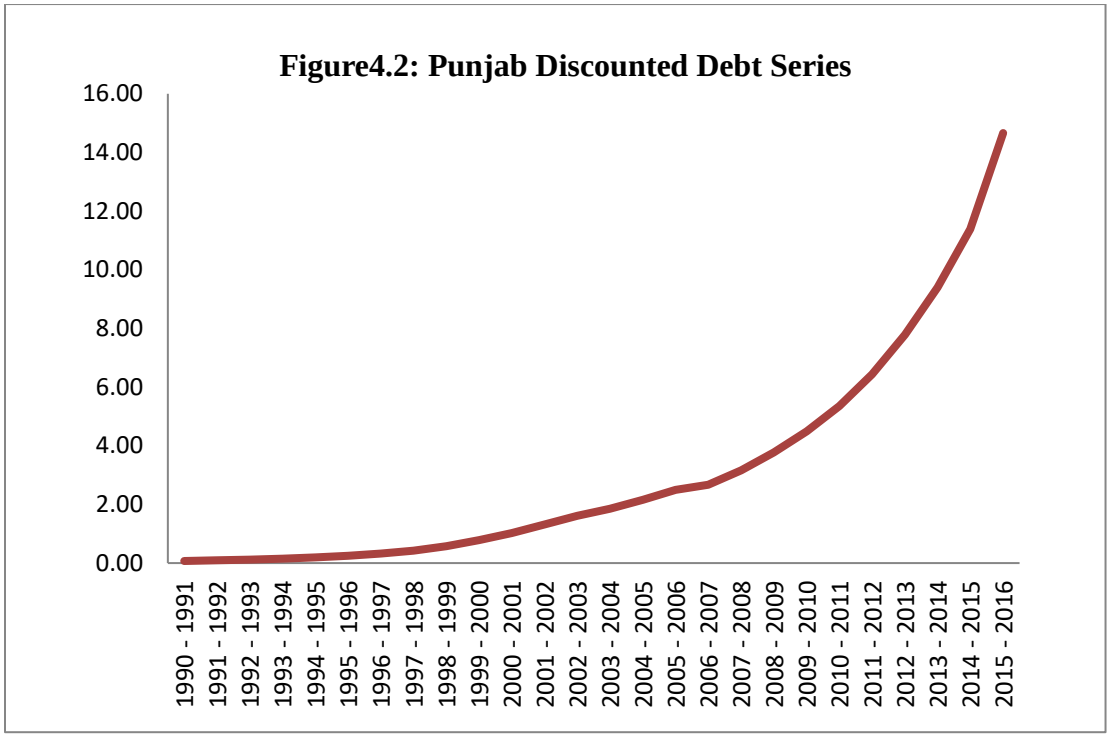
Thus, with g-r>0 and g-r-p≥0, debt situation seemed to satisfy Domar necessary condition and adequate primary balance condition for Punjab in the post-FRBM period.

4.3.2 Present Value Budget Constraint

The second approach adopted to examine debt sustainability of Punjab was the present value budget constraint approach (PVBC).This method involved examining the discounted debt series for stationarity(condition for which is presented in equation (4)). As is conventional in the literature, we examined stationarity of the discounted debt series by testing for unit root (Hamilton and Flavin, 1986; Mahmood and Rauf, 2012). Stationarity of the debt-series implies debt sustainability.

Figure 4.2 presents the plot of the discounted debt series for Punjab for the period 1990-91 to 2014-15. The series was estimated by discounting nominal stock of government debt backwards to a given date with a discount rate. From figure 4.2 it is evident that the discounted debt series has an exponential trend with a slight policy break in the year 2004-05 as to the introduction of the FRBM. Hence a trend is detected in the series.

Literature suggests several tests to check for the presence of a unit root. In this study, we employed Dickey-Fuller/Generalized Least Squares unit root test (DF-GLS test)[18][19] for the



same purpose. To capture the implication of FRBM on Punjab's debt accumulation, the overall (1990-91 to 2014-15) period of study was compared with the post-FRBM phase (2005-06 to 2014-15). To test whether the discounted debt series (b_t) series contained a unit root, we used the equation with trend and intercept denoted by (1),

$$b_t = \beta_1 + \beta_2 t + \delta b_{t-1} + \sum_{i=1}^{m} \alpha i b_{t-i} + \epsilon_t \ldots (1)$$

[18]The tool of unit root testing used is the Dickey-Fuller/Generalized Least Squares unit root test (DF-GLS test). This test is essentially used for testing unit root in time series data, which performs the Elliott-Rothenberg-Stock (ERS, 1996) efficient test for an Autoregressive unit root. This test is similar to an (augmented) Dickey-Fuller "t" test, but has the best overall performance in terms of small-sample size and power, dominating the ordinary Dickey-Fuller Test. The test "has substantially improved power when an unknown mean or trend is present" (ERS, p.813).

[19] An automatic lag selection criteria is selected, i.e. SIC (Schwarz information criterion) in the DF-GLS test for the specification of the lag length p=1.

The equation contains a drift term (intercept) and a deterministic trend. For the equation, the parameter of debt is δ. If δ=0, then the series has a unit root. The estimated t-statistics was compared with the critical value in the Dickey-Fuller GLS tables to determine whether the null hypothesis was valid. The critical values were denoted by $\tau_\tau$for equation (1).The null hypothesis of debt sustainability was that the discounted debt series contained a unit root; otherwise, alternatively, the series was stationary indicating that the discounted debt series was stationary and the debt is sustainable. The results of unit root are presented in table 4.3 for the overall and post-FRBM period.

Table 4.3: Unit Root Test: Discounted Debt Series

(OVERALL: 1990-1991 to 2014-2015)		
TEST VARIABLE	NULL: δ = 0 With trend and intercept $\tau\mu$	UNIT ROOT
DF-GLS Debt(b_t)	-1.583	YES
CRITICAL VALUES		
1%	-3.77	
5%	-3.19	
10%	-2.89	
(POST FRBM: 2005-2006 to 2014-2015)		
DF-GLS Debt(b_t)	-1.137	YES
CRITICAL VALUES		
1%	-3.77	
5%	-3.19	
10%	-2.89	

The trend and intercept equation were run to test the presence of unit root at the level. The unit root was found in the discounted debt series for the overall period (1990-91 to 2014-15) as well as in the post-FRBM period.. Since the value of the t-statistic was greater than all the critical values (at 10%, 5%, and 1% level of significance), it implied that the discounted debt series had a unit root or was not stationary. Thus, as revealed from the DF-GLS test results, we

failed to reject the null hypothesis. In other words, there was a unit root in the discounted debt series and the debt was not sustainable for the overall period as well as the post-FRBM period for the state of Punjab.

DF-GLS test results for post FRBM period validates non-stationarity i.e., presence of unit root in the debt series. The value of *t-statistics* in all the regression equation is greater than critical value at 1%, 5% and 10% level of significance confirming non-stationarity of the discounted debt series. Hence, the null hypothesis was rejected and it was concluded that debt was unsustainable during the post FRBM period also. This suggested that in the post-FRBM period, the government of Punjab failed to induce appropriate efforts to improve its fiscal health, i.e., targeted reduction in the state deficits. The test results of DF-GLS are supported by the observations made in chapter 2. In terms of debt management, it was observed that other low and middle-income states like Orissa, Bihar and Uttar Pradesh performed comparatively better than Punjab. It was also found that with high proportion of revenue deficit as a percentage of total revenue, Punjab along with West-Bengal and Kerala were in serious fiscal situation. This was verified for Punjab by the presence of unit root in Discounted Debt series and hence unsustainable debt.

4.3.3 Indicator Approach

In the following discussion we assess debt sustainability of Punjab vis-à-vis All India using the indicator approach. For this purpose, the study period was divided into two sub-periods i.e. pre-FRBM period (1995-96 to2004-05) and post-FRBM period (2005-06 to 2016-17). Further, for the sake of clearer understanding on the trend followed by different indicators, pre-FRBM period was categorized into phase-I (1995-96 to 1999-00) and phase-II (2000-01 to 2004-05). Similarly, post-FRBM period was also subdivided into two phases with phase-III (2005-06 to 2009-10) and phase-IV (2010-11 to 2016-17). Results obtained are presented in-Table 4.4.

Table 4.4 illustrates a set of parameters that examine Punjab's debt sustainability vis-à-vis India. These parameters assess outstanding debt[20] and cost of debt (i.e. interest payments and rate of interest) relative to the growth in income, primary balance, revenue account and expenditure. The values reported are averages of different phases.

Table 4.4: Sustainability Indicators for Punjab vis-à-vis India (1995-96 to 2016-17)

S. No.	Indicators	Symbol	Pre-FRBM				Post-FRBM			
			1995-96 to 1999-00		2000-01 to 2004-05		2005-06 to 2009-10		2010-11 to 2016-17	
			Phase I		Phase II		Phase III		Phase IV	
			Punjab	India	Punjab	India	Punjab	India	Punjab	India
1	Rate of growth of debt (D) should be lower than rate of growth of nominal GDP (G)	**D-G < 0**	2	4.63	4.51	4.84	-7.71	-4.62	0.14	-1.22
2	Rate of growth of debt (D) should be lower than effective interest rate (i)	**D-i< 0**	4.39	9.92	2.68	6.03	-0.72	3	3.49	4.95
3	Real rate of interest (r) should be lower than real output growth (g)	**r-g < 0**	1.7	-3.19	0.29	-2.08	-4.62	-6.1	-1.68	-4.72
4a	Primary balance (PB) should be in surplus	**PB/GDP > 0**	-0.008	-0.013	-0.014	-0.013	-0.002	-0.002	-0.006	-0.009
4b	Primary revenue balance (PRB) should be in surplus	**PRB/GDP > 0**	-0.007	-0.003	0.001	-0.005	-0.01	-0.02	-0.002	-0.015
5a	Revenue Receipts (RR) as a percentage to GDP should increase over time	**RR/GDP**	12.1	10.35	12.99	10.83	12.92	12.15	11.67	12.94
5b	Revenue variability	**CV (RR/GDP)**	10.93	5.26	8.94	2.22	13.06	2.97	11.28	8.86

[20] As conventional in the literature, off-budget liabilities of the state governments, borrowings through special purpose vehicles and contingent liabilities have not been included in the study.

	should decline over time									
6a	Debt to revenue receipts ratio should decline over time	**D/RR**	3.14	2.11	3.57	2.78	3	2.28	2.78	1.75
6b	Debt to tax revenue ratio should decline over time	**D/TR**	5.13	3.01	6.11	3.92	4.79	3.26	3.56	2.4
6c	Debt to own tax revenue ratio should decline over time	**D/OTR**	6.06	4.45	6.89	5.6	5.63	4.81	4.32	3.57
7a	Interest burden defined by interest payments (IP) as a percentage to GDP should decline over time	**IP/GDP**	3.89	1.93	3.91	2.63	3	2	2.41	1.55
7b	Interest payments (IP) as a percentage of revenue expenditure (RE) should decline over time	**IP/RE**	25.42	16.06	22.99	20.3	20.13	16.8	18.29	12.07
7c	Interest payments (IP) as a percentage of revenue receipts (RR) should decline over time	**IP/RR**	32.55	18.71	30.2	24.32	23.29	16.51	20.85	12.06

As indicated in Table 4.3, in the pre-FRBM period (1995-96 to 2004-05), Punjab's rate of debt growth exceeded the nominal GDP (G) growth rate. Analysis of all India's rate of debt growth was also found to be greater than the corresponding growth rate of nominal GDP pre FRBM, indicating deteriorated debt situation for the country as a whole. In the post-FRBM phase, negative gap of (D-G) in phase III suggested improvement in debt situation relative to growth in income for Punjab as well as for India. However, in phase IV, though India figures continued

to indicate higher growth in income against growth in debt, Punjab's debt situation seemed to be weak with a positive gap. Earlier in the report, we observed that recent decline in Punjab's GSDP growth had put significant pressure on its economy with unstable debt position.

The rate of growth of debt (D) is greater than the effective interest rate (i) in the pre-FRBM period (1990-91-2004-05), both for Punjab and India. The situation improved slightly for Punjab during phase III but deteriorated again in Phase IV (2010-11-2016-17). The real interest rate (r) was greater than the real output growth rate (g) reflecting fiscal stress in Punjab in Phase I and II. For all India this indicator (r-g) was less than zero, indicating sustainable debt repayment ability of the country prior to enactment of FRBM. However, this was followed by a marked improvement post-FRBM Act. Values for phase III and IV show real output growth rate (g) to be greater than real interest rate (r) for both Punjab and all India.

Primary balance to GDP ratio (PB/GDP) and primary revenue balance to GDP ratio (PRB/GDP) were found to be negative over the study period for Punjab and all India. A deficit in primary balance implies that the government is not left with excess funds after the payment of interest. So, insufficient primary balance constrains government's ability to repay the current debt stock. Also, as the primary revenue balance ratio was negative in all the phases, for both Punjab and all India, it indicated that the governments were incurring revenue expenditures over and above their revenue receipts and interest payment was adding up to the burden.

Indicators 5a and 5b (Table 4.4) illustrate debt sustainability with respect to the revenue account. Government revenues, as a share of GDP, indicate the importance of the public sector in the economy in terms of available financial resources that the government uses to provide public utilities. Increase in revenue receipts as a percentage of GDP (RR/GDP) can be used for servicing the debts, provided the current public expenditure does not increase. This indicator suggests that for debt to remain sustainable, revenue receipts as a percentage of GDP should rise over time. However, for Punjab, the ratio reported a declining trend with a marginal improvement from phase I to II. Revenue receipts as a percentage of GDP increased from 12%in phase I to about 13% in phase II. In the post-FRBM period, this indicator has on an average declined from 12.9%in phase III to 11.67% in phase IV. Stagnated revenue generation

along with a relative decline in state income was the primary reason for declining RR/GDP of Punjab. Thus, with the fall in the revenue receipts, the government was left with fewer financial resources and it forced the government to finance their expenditure by taking borrowings.

With regard to revenue variability, it often fluctuates over the business cycle which poses a problem to state policymakers, as this makes it difficult to manage the funds for both expenditure and debt repayment. Thus, the revenue variability should decline over time. As per the results in Table 4.3, the revenue variability on an average declined in phase II, from 10.9 in 1995-2000 to 8.9 in 2000-05 for Punjab in the pre-FRBM, and from 5.26 to 2.22 for all India for the same period. Revenue variability on an average has increased for Punjab in phase III (13.06) and again declined in phase IV (11.28). For all India, revenue variability is observed to be at its all-time high with 8.86 in phase IV. The debt sustainability condition is therefore violated in phase IV of the post-FRBM period. This implies that the fluctuations in revenue resulted in deepening of the debt burden for India as well as for Punjab.

Debt situation assessed in terms of revenue account (indicator 6a, 6b and 6c) showeddeclining trend for debt to revenue receipts, debt to tax revenue ratio and debt to own tax revenue ratio post-enactment of the FRBM Act. The State government's debt to revenue receipts ratio gave a clear picture of its ability to fund the annual debt repayments once the interest rates on existing debts were taken into account. Increased revenue receipt eases repayment of existing debts and their interest thus reducing the debt-to-revenue ratio and improving the fiscal health of the state. Analysis of this indicator revealed that the ratio of debt to revenue receipts in Punjab declined from 3.57 during 2000-01-2004-05 to 2.78 during 2010-17 satisfying the debt sustainability condition in the post-FRBM period. At the India level, this ratio declined in the post-FRBM period from 2.28 to 1.75 in phase III and IV, respectively. This implied that both Punjab and all India had seen an improvement with respect to this indicator and the debt was repaid increasingly from the revenue received by the governments. It also indicated a gradual decline in debt accumulation.

In terms of tax revenue, the States with higher taxes can afford more debt than the States with the lower taxes as higher taxes generate more revenue for the government which indicates increased ability of the State to repay the debts. Thus, for the deficits to reduce, debt-to-tax

revenue ratio must decline over time, which means the tax revenue must increase and that the increased revenue should be used for debt repayment and not the current expenditure. In view of this definition, it was found that in the pre-FRBM period Punjab's debt to tax revenue ratio increased from 5.13% in phase I to 6.11 in phase II. After the implementation of FRBM, the situation of this indicator improved and this ratio declined to 3.56% in phase IV. Similarly, for all India the condition improved post-FRBM. This indicates that the governments of Punjab and all India were able to generate more tax revenue relative to debt, which relatively improved their debt repayment capability.

Own tax revenue refers to the income of the States from taxes (taxes that are imposed and collected by the States). When the ratio of debt to own tax revenue declines, it suggests that the State can generate enough own tax revenue to repay its debts and its dependence on the Centre's assistance decreases. The results in Table 4.4 shows that the ratio of debt-to-own tax revenue has declined from 5.63 in phase III to 4.32 in phase IV for Punjab and from 4.81 in phase III to 3.57 in phase IV for all India.

The trends for interest payments of Punjab and India (indicator 7a, 7b and 7c) have reported a decline. Fall in the proportion of interest payments in the total revenue receipts and revenue expenditure implying more resources in the hands of the government. In the case of Punjab, interest payments crossed one-fourth of revenue receipts during the pre-FRBM period, before falling to 20.85% in phase IV. Interest burden, which is defined as interest payment as a percentage of GDP, also declined after 2005. Interest burden fell from 3.9% in phase II to 2.41% in phase IV.

Overall assessment indicators showed that the fiscal position of Punjab vis-à-vis all India during the pre-FRBM period was unsustainable. However, it improved after the enactment of the FRBM Act as confirmed by most of the indicators.

4.4 Conclusion

In this chapter, debt sustainability of Punjab was assessed through Domar sustainability criteria, present value budget constraint approach and indicator analysis. The Domar necessary

debt sustainability criterion and sufficiency condition of adequate primary balance were found to be violated during the pre-FRBM period (1991-92 to 2004-05). However, these conditions were satisfied in the post–FRBM period (2005-06 to 2016-17). The results suggested improvement in Punjab's debt situation in the post- FRBM Act.

Present Value Budget Constraint Approach tested the presence of unit root to indicate debt unsustainability. The exercise confirmed the presence of unit root for the overall (1991-91 to 2014-15) period and post FRBM (2005-06 to 2016-17) period as well.

The sustainability analysis through indicator approach revealed that most of the indicators of debt sustainability showed improvement during the last two phases (2005-06 to 2016-17) as compared to previous two phases (1995-96 to 2004-05). But, overall the performance of these indicators failed to suggest stable debt situation in Punjab. Among these indicators, parameters that examined debt situation with respect to primary balance showed weak sustainability. This was because primary balance as a proportion of GSD and primary revenue balance as a share GDP, on an average were found to be in deficit for the entire study period. This indicated that Punjab continued to deploy its resources into servicing its debt. Other parameters that suggested weak sustainability of Punjab were the growth of debt relative to growth in income and cost of servicing debt. Performance of these indicators had deteriorated in recent years, showing that growth in the State's income was insufficient to support the growth in its debt as well as the associated interest payments.

Chapter 5 TAX CAPACITY AND TAX EFFORT OF PUNJAB

5.1 Introduction

Government revenue generation by way of taxation is central to robust and stable economic growth. An effective tax generating mechanism not only develops a progressive State but also secures its fiscal sustainability. In this pursuit, policymakers have been looking for effective taxation methods that ensure higher tax revenues without deviation from the path of economic growth. To achieve this objective, it is important to examine the tax collection capacity and effort of the government.

Chapter 2 of this report made a preliminary investigation into Punjab's revenue profile. Identified as one of the components of Revenue Receipt (RR), the share of Punjab State's Own Tax Revenue (SOTR) in the total Revenue Receipt (RR) was found to have significantly increased in the recent years. However, Punjab's SOTR share in GSDP stagnated at below 10 per cent in the past decades. At the disaggregated level, it was found that sales tax made the maximum contribution to Punjab's tax revenue. Building on these observations, this chapter empirically examines Punjab's performance in terms of revenue generation. This chapter analyses how the tax revenue generation in Punjab has fared vis-à-vis other major states in India?

Using two alternative Econometric methodologies, this study aims to estimate the tax-capacity and tax-effort from 2002-03 to 2014-15 for a panel of 16 Indian States. The methodologies involved estimation of tax-capacity and effort through Panel Regression Approachand Stochastic Frontier Approach. These methodologies were chosen with an objective to account for the socio-political and economic structure and other environmental factors which affect the tax-capacity and tax-effort of the States. Using the panel regression approach, we first carried out an aggregate analysis of the socio-political and economic factors determining the tax-capacity and tax-effort. In the second step, we examined the same at a disaggregate level for six major taxes of the states. And lastly, under the Stochastic Frontier Approach, we computed the cross-state tax efficiency by measuring it relative to the best practice frontier.

The rest of the chapter is organized in the following subsections. Section 5.2 discusses the alternative empirical models employed for the estimation of tax-capacity and tax-effort and the sources of data used in the empirical analysis. Results and implications of the analysis are discussed in section 5.3 and the conclusions are made in section 5.4.

5.2 Methodology and Data

This section presents a discussion on alternative methodologies employed to find out the tax-capacity and tax- effort.

As mentioned earlier in chapter 3, tax capacity of theStates is defined as the fitted or predicted values calculated using the estimated coefficients obtained from the Regression Analysis, which is also the dependent variable that measures the state's State Own Tax Revenue as a share of GSDP. Thereafter tax-effort was estimated by dividing the actual revenue of a State by its predicted tax-capacity.

$$\mathbf{E_i = T_i/\hat{T}_i}$$

Where, E_i is tax-effort of a particular State *i*, T_i is the actual tax revenue obtained by each State *i* and, $\hat{T}_i$ is the estimated tax-capacity. If $E_i>1$, State *i*is making more than the average tax-effort to raise revenue from its resources. Conversely, $E_i< 1$, the State is putting less effort than the average tax-effort to raise revenue.

The methods for assessing tax-capacity are discussed hereunder:

5.2.1 Aggregate Regression Approach

For the aggregate analysis, we followed the empirical methodology applied by Le, Moreno-Dodson and Bayraktar (2012) to estimate tax-capacity of the selected States in India. The empirical methodology used a set of panel regressions to estimate the possible values of a state's determinants of tax revenue as a percentage of their GSDP. The panel regressions were carried out using relevant data for the16 Indian States for three years 2001, 2011 and2013. Our dependent variable is tax capacity which is the measure of State's Own Tax Revenue as a share of GSDP. The estimated panel regression equations are given below:

Regression

$(TAX/GSDP)_{it} = \alpha 0 + \alpha 1.PCI_{it} + \alpha 2.POP_{it} + \alpha 3.AGR_{it} + \alpha 4.GOVT.\ CAPABILITIES_{it} + \varepsilon_{it}$

Where tax capacity=TAX/GSDP

TAX is the State Own Tax Revenue and GSDP is the Gross State Domestic Product. The dependent variables in the equation are state level variables estimating tax capacity for the state $_i$ in time $_t$.

Explanatory variables are discussed below:

- **PCI** is GSDP per capita at current prices (2004-05 base year) and represents the level of economic activity in the State. The income level i.e. GSDP of a state is expected to have a significant bearing on the 0061ctual tax collection. Thus, it is expected that an increase in GSDP per capita of a State will have a positive effect on tax revenue. As a proxy to income level of the states, we used Income Categorical Dummy. It is also expected to have a positive influence on Tax/GSDP, provided people don't get the opportunities to evade taxes. The Income Categorical Dummy was developed by categorizing states into three types: High, Medium and Low income GSDP.
- **POP** stands for the demographic variable included in the regression. Particularly in conventional literature, POP signifies growth rate of population between 15-64 years old, or the Age Dependency Rate, or share of urban population in total population. A higher growth rate of population and age dependency rate are likely to reduce a State's tax collection. Thus, the expected sign of POP is negative. The share of urban population is measured as the ratio of urban population in a State to its total population. Expectedly, a highly urbanized state is likely to have more tax collection. Thus, the expected sign of share of urban population on tax capacity is positive.
- **AGR** indicates the share of agriculture GSDP in total GSDP. Proportion of agricultural GSDP to total GSDP is used as a proxy measure for the proportion of low tax intensity. As a hardly taxed sector in India, agriculture accounts for low tax intensity in the State income. Thus, the expected sign of the agriculture GSDP share ratio is negative. As an alternative specification, we also tried to incorporate the share of the tertiary sector and

the share of rest of the sectors excluding agriculture in total GSDP. These are expected to have a positive influence on tax capacity.

- **GOVT. CAPABILITIES** measured as the institutional and governance quality are important factors determining tax collection effort (see Tanzi and Davoodi, 1997; Ghura, 1998; Bird, et al., 2004; Gupta, 2007 for these issues). An efficient tax collection procedure is an essential factor ensuring higher tax collection. Quality Index can be thus constructed to measure how institutional and governance quality impact tax collection. Higher the index, higher is the government capabilities in tax collection and better is its tax capacity.

Govt. Quality-A wide range of indicators measuring the quality of governance across States was processed to account for four major dimensions of governance. Our choice of governance indicators was derived from the three pillars of the State, i.e., the Executive, the Judiciary, and the Legislature. Twelve indicators were selected to capture the delivery of four broad classes of services, namely - Infrastructure, Social Services, Justice, Law &Order, and quality of the Legislature. We used the Principal Component Analysis (PCA) technique for analysing Government Quality Index. Principal Component Analysis is a statistical procedure to reduce the dimensionality of a data set, reveal data structure and compress it accordingly.

Economic Freedom: In order to gauge the bureaucratic efficiency of a State, two major dimensions were taken up: Regulation of labour & business and legal structure & security of property rights. We used 13 indicators to reflect these two major dimensions. We also used the PCA technique to construct Economic Freedom Index.

This empirical analysis was carried out using data retrieved from various issues of the *Reserve Bank of India State Finances: A Study of Budgets, Economic Survey of Punjab,* many reports of the Punjab State Finances, and the Economic and Political Weekly Research Foundation.

5.2.2 Disaggregate Regression Approach

After having the aggregate regression approach formulated for the aggregate analysis of tax capacity estimation, it is now justified to point out in the literature review (Bahl, 1972; Rao,

1993; Jha et al., 1998; Purohit, 2006; Gupta, 2007; Le, Moreno-Dodson, and Bayraktar, 2012; Garg, Goyal, and Pal, 2014) for tax-capacity and tax-efforts to be estimated with the help of RTS (Representative Tax System) and regression analysis in a disaggregated approach. But due to non-availability of data required for the RTS approach,[21] this study adopted the regression approach. Under the regression approach, we estimated tax-capacity and tax-efforts at the disaggregated level for six major taxes of the States. The analysis was based on a set of panel regressions using relevant data of 16 Indian States for the study period 2004-2005 to 2014-2015. As the dependent variables were the States' six major own taxes, we run six panel regressions. The tax-capacity and tax-effort were computed for the following group of taxes:

1. **Stamp Duty and Registration Fees:** A stamp duty and registration fees is paid to the government while transferring or registering various financial instruments or deeds relating to financial transactions. This tax is generally impacted by the value of property bought and/or sold in the State. However, due to non-availability of data relating to various categories of property transacted, we use GSDP and density of population as the factors influencing the potential revenue from Stamp Duty and Registration Fees.
2. **Sales Tax:** The elements of sales tax are general sales tax, Central sales tax, tax on petroleum products and purchase tax on sugarcane etc. As it was difficult to get data for individual elements of sales tax, we used total sales tax[22]levied on the sales and/or purchases in the States. Thus, keeping in view the statistical requirements and theoretical argument for selecting the tax bases, we used per-capita manufacturing state domestic product and per-capita agricultural state domestic product.
3. **Land Revenue and Agricultural Income Tax:** Land revenue is the tax levied on land, including cesses and surcharges on the land revenue, and special crop. The tax amount is determined by the size of land holdings and the productivity of land. The same factors also determine agricultural income hence GSDP from agricultural sector can be treated as the potential base for land revenue. With regard to Indian States, not many levy agricultural income tax. But land revenue prevalent in all States of India. For the same reason, in our analysis the two have been aggregated and the arrived figures are called land revenue.

[21] Under RTS approach detailed data on every type of tax base or a close proxy for each and on collection of tax by different tax base categories are required.
[22] General sales tax laws were replaced with the Value Added Tax Act (2005) and associated VAT rules.

4. **Motor Vehicles and Passengers and Goods Tax:** Motor vehicles tax is levied under the Indian Motor Vehicles Act, 1939. The motor vehicles tax rate varies from one State to another. Passengers and goods tax is a levy on the movement of goods and persons from one place to another. In view of this, our study analysed the tax-capacity of the two taxes together. Under this tax, total registered vehicle and transport sector SDP (excluding railways) was taken as the base for analysing the tax-capacity of the selected States.[23]
5. **Electricity Duty:** The electricity duty refers to the tax imposed by the State governments on the consumption of electricity. The consumers are divided into different categories (such as industrial consumers, commercial consumers etc.). This study took total sales of electricity and the share of domestic sector in the total sales as the potential tax base.[24]
6. **State Excise Duty**: following heads are covered under state excise duty-all kinds of alcoholic liquor, opium, hemp and other narcotics. Due to the non-availability of complete data on the value of consumption of liquor and narcotics or their total quantities, we used GSDP as a proxy base for this duty.

Based on the above grouping, the following equations were used to estimate the tax-capacity and tax-effort across 16 major states of India:

Regression I

$$Ln(STAMP)_{i,t} = a + b1\ Ln(GSDP)_{i,t} + b2\ Ln(DENS)_{it} + \epsilon_{i,t} \text{.....(1)}$$

Regression II

$$Ln(PCS)_{i,t} = a + b1\ Ln(PMANF)_{i,t} + b2\ Ln(PGSDP_a)_{i,t} + \epsilon_{i,t} \text{.....(2)}$$

Regression III

$$Ln(LR)_{i,t} = a + b\ Ln(GSDP_a)_{i,t} + \epsilon_{i,t} \text{ .....(3)}$$

[23] An attempt has also been made by taking alternative potential base, but unfortunately the fit was not good. For Motor vehicle tax following equation has been tried for estimating tax-capacity $Ln(MVT) = a + b_1\ Ln(NTW) + b_2\ Ln(NTF) + b_3\ Ln(NBUS) + b_4\ Ln(NTTO) + \epsilon$, where, MVT- Motor Vehicle and Passenger tax, NTW- number of registered two wheelers, NTF- number of registered three and four wheelers, NBUS-number of registered buses, NTTO-number of registered trucks, trailers and others.

[24] An attempt was also been made here to fit the equation separately for electricity duty. Unfortunately, the fit was not good. For electricity duty the following equation has been attempted: $Ln(EDUTY) = a + b_1\ Ln(SALE) + b_2\ Ln(SAGR) + b_3\ Ln(SIND) + \epsilon$. Where, EDUTY= Electricity duty, SALE=Total sale of electricity, SAGR= Share of agriculture in total sale of electricity and SIND=share of industry in total sale of electricity.

Regression IV

$$Ln(MVT)_{i,t} = a + b1\ Ln(TGSDP)_{i,t} + b2Ln(REG)_{i,t} + \epsilon_{i,t} \text{ .....(4)}$$

Regression V

$$Ln(EDUTY)_{i,t} = a + b1\ Ln(SALE)_{i,t} + b2Ln(SHDOM)_{i,t} + \epsilon_{i,t} \text{ .....(5)}$$

Regression VI

$$Ln(EX)_{i,t} = a + b\ Ln(GSDP)_{i,t} + \epsilon_{i,t} \text{ .....(6)}$$

Where,

- Ln(STAMP)$_{i,t}$:- is logarithmic of stamp duty and registration fees;
- Ln(PCS)$_{i,t}$ is logarithmic of per capita sales tax;
- Ln(LR)$_{i,t}$ is logarithmic of land revenue and agricultural income tax;
- Ln(MVT)$_{i,t}$ is logarithmic of motor vehicle and passenger and goods tax;
- Ln(ELEC)$_{i,t}$: is logarithmic of electricity duty;
- Ln(EX)$_{i,t}$ is logarithmic of state excise duty.

Thus, the above dependent variables account for the major six taxes in a State *i* at time *t*.

Explanatory variables used in the above regressions are as discussed:

Ln(DENS)$_{i,t}$: The logarithmic of population density of a State i at time *t* is taken as potential base for the tax stamp duty and registration fees. In equation (I), with high density of population, transaction of property is expected to be high and thus, would increase revenue collection. Accordingly, the sign of *Ln*(DENS)$_{i,t}$ is expected to be positive.

Ln(GSDP)$_{i,t}$: The logarithmic of gross state domestic product of State *i* at time *t* is also taken as potential base in the regression equation (I), which represents the income level across the States. The expected sign of *Ln*(GSDP)$_{i,t}$ is positive.

Ln(PMANF)$_{i,t}$: The logarithmic of per-capita manufacturing SDP of State *i* at time *t* is treated as potential base in the regression equation (II), which is expected to significantly impact the collection of sales tax in each State. Here, also the sign of *Ln(PMANF)*$_{i,t}$ is expected to be positive.

Ln(PGSDP$_a$)$_{i,t}$: The logarithmic of per-capita agricultural SDP of State *i* at time *t* is used as a close potential base in regression equation (II), mainly because with predominantly first point of taxation. Accordingly the sign of *Ln*(PGSDP$_a$)$_{i,t}$ is expected to be positive.

Ln(GSDP$_a$)$_{i,t}$: The logarithmic of share of agriculture in SDP of State *i* at time *t* is taken as close potential base in the regression equation (III). It is assumed here that the agricultural taxes are simply taken to be a function of SDP from agriculture in the State. The expected sign of *Ln*(GSDP$_a$)$_{i,t}$is positive.

Ln(TGSDP)$_{i,t}$: The logarithmic of transport sector SDP of State *i* at time *t* is taken as close potential base in the regression equation (IV). Transport sector SDP is expected to impact more and directly related to the motor vehicles and passengers and goods tax. The expected sign of *Ln*(TGSDP)$_{i,t}$ is positive.

Ln(REG)$_{i,t}$: The logarithmic of number of registered motor vehicles of State *i* at time *t* is also treated as a close potential base for the motor vehicles and passengers and goods tax. In the equation (IV), with more number of registered motor vehicles, registration of vehicles is expected to be high and thus, would increase the revenue collection. Accordingly, the sign of *Ln*(REG)$_{i,t}$ is expected to be positive.

*Ln(SHDOM)$_{i,t}$ and Ln(SALE)$_{i,t}$:*The two variables i.e. *Ln*(SHDOM)$_{i,t}$ which is logarithmic of Share of domestic sector in total sales of electricity and *Ln*(SALE)$_{i,t}$ which is logarithmic of total sale of electricity are taken as potential base for the electricity duty and both are self-explanatory and it is expected that it will significantly impact the collection of electricity. The sign of both the variables is expected to be positive.

*Ln(GSDP)$_{i,t}$***:** The logarithmic of state excise duty of State i at time t is taken as potential base in the regression equation (VI). As mentioned earlier, due to non-availability of data on consumption of liquor and narcotics we have used GSDP as a proxy tax base for the estimation of tax-capacity. Hence, in this tax the expected sign is to be positive for *Ln*(GSDP)$_{i,t.}$

The data on the above variables is collected from the Reserve Bank of India (RBI), Central Statistics Organization (CSO), Ministry of Transport& Highways, Ministry of Power, NITI Aayog and other sources.

5.2.3 Stochastic Frontier Analysis

As discussed in chapter 3, several studies have attempted to estimate tax-capacity and tax-effort using stochastic and non-stochastic frontier models. As a non-stochastic frontier model, Data Envelopment Analysis (DEA) is a popular technique as it can deal with production processes that have multiple inputs and outputs, with no parametric imposition on the data. But, as DEA excludes socio-political and environmental variables due to theoretical base of the model, Stochastic Frontier Analysis (SFA) was implemented. Stochastic Frontier Analysis provides a more powerful tool to account for other factors that impacta State's ability to generate optimal tax revenue. As our study aimed to incorporate socio-political and environmental factors in analysing relative tax-capacity and tax-effort across states, we used Stochastic Frontier Analysis (SFA) model to attain the desirable results.

In SFA, the stochastic tax frontier measures the maximum output i.e., in our case, maximum revenue a state can achieve, given a set of factors that determine tax revenue generation. All deviations from the maximum output (revenue in our case) are described as inefficiency. Thus, the difference between the actual revenue and the maximum revenue indicates the technical inefficiency of that state in revenue collection (Pessino and Fenochietto, 2010, 2013). Battese and Coelli (1995) have used a two-stage approach for estimation of these inefficiency scores. In this approach, coefficients of the stochastic frontier and the inefficiency determinants model are estimated by maximum likelihood method with the help of Frontier 4.1 software. Through Battese and Coelli (1995) approach we attempted to examine how different factors of tax collection influenced tax-efficiency in Punjab relative to other selected states in India. We carried out this investigation for a panel of 16 states for the period 2002-03 to 2013-14. Following is a standard textbook econometric description of SFA model. A detail description of explanatory variables impacting tax-capacity and efficiency at the sub-national level in India is provided thereafter.

The SFA model as documented in the literature was originally developed by Aigner, Lovell, and Schmidt (1977). The general formulation of the model that serves as the foundation for other specifications is:

$$y = \acute{\beta} x + v - u$$

Where yis the observed outcome, $\acute{\beta}$x+ v is the optimal frontier goal (e.g., maximal production output or minimum cost) pursued by the unit, $\acute{\beta}x$is the deterministic part of the frontier and *v*~ N[0,σ_v^2] is the stochastic part. The two parts together constitute the stochastic frontier. The amount by which a unit fails to reach the optimum (the frontier) is u, where

u= |U| and U~ N[0,σ_v^2]

In this setup, *u* is the inefficiency. This is the normal-half normal model which forms the basic form of the stochastic frontier model.

Typically, the production or cost model is based on a Cobb-Douglas, translog, or other form of logarithmic model, so that the essential form is:

$$logy_{it} = \acute{\beta}x_{it} + v_{it} - u_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

In our case, y_{it} denotes the own tax revenue for i[th] state (i=1, 2, . . . , N) at t[th] time (t= 1, 2, . . . , T); x_{it} is vector of values of function of inputs affecting tax revenue capacity and other explanatory variables; β is a vector of unknown parameters; error component is decomposed into two parts v_{it} and u_{it}, where u_{it} is a nonnegative error component, which represents the time varying technical inefficiency term. The shortfall of actual output from the optimal output is captured via term u_{it}, termed as technical inefficiency. Inefficiency term obtained from this model is assumed to be a function of explanatory variables Z_{it}, which is given as

$$u_{it} = \gamma Z_{it} + W_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (8)$$

Where Z_{it} is the vector of variables explaining efficiency and W_{it} is a random variable, defined by the truncation of normal distribution with zero mean and variance σ^2.

Dependent and explanatory variables are discussed as below:

Dependent Variable

In estimation, our dependent variable $logy_{it}$ is the logarithmic of tax revenue to GSDP ratio of i[th] state in time t. It accounts for a state's own tax revenue generation.

Independent Variables

The variables impacting cross state tax-capacity are included in the *x* vector and factors that affect tax-effort are included in the Z vector.

Variables Explaining Tax-capacity

As conventional in the literature, our study considers a list of factors that capture different aspects of sub-national economic structure, income levels and demographic characteristics. Studies have found that these factors exert a strong influence on the amount of revenue generated and the mechanisms through which tax revenue is raised. Going by the literature, we have included a list of factors that account for different aspects of the sub-national economy. Per capita income (PCI) is included to account for the income level of the states'; urban population rate (UBR) and working population rate (WPR) are incorporated to capture the effect that the share of the population engaged in economic activities and the states' economic structure exert on revenue generation; literacy rate (LIT) is included to proxy for the education level and the socio-economic progress achieved by the states'; per capita electricity consumption (ELEC) captures the infrastructural development.

As far as the relevant signs on the coefficients are concerned, PCI is expected to bear a positive sign as high-income states are expected to generate higher tax revenue. As a larger number of economically productive population increases, the revenue generation coefficients of UBR and WPR are expected to be positively related to tax-capacity. Again, LIT and ELEC have positive signs too as educated population and better infrastructure contribute to tax collection.

Variables Explaining Tax-Effort

Variables included for examining the determinants of tax-effort mainly describe fiscal and socio-political factors that impact the States' efficiency in tax collection. These include a set of fiscal variables such as the share of Central transfers in total revenue receipts, lagged Central transfers as a proportion of revenue receipts, net of loans (CENT); lag of total expenditure as a proportion of GSDP (EXP); and lagged outstanding liabilities as a share of GSDP (LIA). The coefficient on CENT is expected to have a negative sign. This is because transfers are not

repayable; States that heavily depend on the Central transfers may not find much encouragement to improve their tax collection. EXP is expected to be positively associated with tax effort. As EXP indicates the size of the government across States, it highlights the states' approaches in delivering public goods and services and providing social protection. LIA captures the impact of past accumulated debt on the State government efforts towards tax collection. On this ground, the States with historical debt burden are expected to put more effort to increase tax revenue. Because LIA influences the governments' reaction on their mounting debt, the sign of LIA is ambiguous.

Other factors that account for the economic environment in which a revenue agency functions include administrative and policy variables like reciprocal of crime rate (CRIME), reciprocal of dependency rate of IPC, cases in courts (PEND),[25] police strength per lakh (POLICE) and Fiscal Responsibility and Budget Management Act (FRBM) dummy. The administrative factors- CRIME, POLICE and PEND - are expected to have positive sign as low level of crime, greater police capabilities and high disposal rate of court cases signifies high administrative quality and thus exert positive influence on tax collection. FRBM dummy is fiscal policy change variable, it takes value one for years when FRBM Act is in implementation and zero otherwise.

Data on these variables have been retrieved from RBI's Handbook of Statistics on State Government Finances, Economic Political Research Foundation, Census Reports, and India stat web series.

5.3 Results and Estimation of Tax-capacity and Tax-effort of States

Aggregate Regression Method

In the following discussion, we present the estimates of tax-capacity and tax-effort based on Aggregate Regression Approach. Table 5.1 presents the estimates of tax-capacity and tax-effort along with the actual tax revenue of the states for the FY 2011-12 and 2013-14. The ranking of Punjab's tax-capacity and tax-effort vis-à-vis other major states is also reported in Table 5.1.

[25] Reciprocal of CRIM and POL are considered so that higher value represents improvement in administrative quality.

The definition of the tax-capacity is similar i.e., predicted value of tax to GSDP, calculated using the estimated coefficients reported in Annexure-V-I model 6. To test whether to use a random effect or a fixed effect, the Hausman test was carried out for the respective specifications. As for the next step, estimates of tax-effort were calculated by dividing the actual revenue of a State by its predicted tax-capacity as per the specifications of model 6. The specification of model 6 takes tax-revenue as a function of income per capita, the share of agriculture in GSDP, the share of urban population to total population, FRBM dummy and economic freedom index.

Ranking of tax-capacity across States support the earlier findings documented in the literature determining factors affecting tax and fiscal revenues. The States with higher income levels, a higher share of the urban population, lower agriculture share in GDP, and higher institutional quality tend to collect higher tax revenues. Thus, we found that Tamil Nadu, Kerala, Gujarat, Maharashtra and Karnataka were the top five states with the highest potential of tax collection for both the FY 2011-12 and 2013-14. However, Punjab seemed to be an exception. In spite of it being a high-income state, Punjab's potential tax-capacity ranked 11thin FY 2011-12 and 8thin FY 2013-14.[26] Though the upward shift in Punjab's prospective tax-capacity ranking indicated a relative improvement, when compared with capacity ranking secured by other high-income states, Punjab's performance was less impressive.

During 2011-12, some States like Karnataka, Uttar Pradesh and Madhya Pradesh were found to be collecting higher tax revenue than their estimated tax capacity. But in 2013-14, Madhya Pradesh recorded a revenue fall, while Karnataka and Uttar Pradesh generated tax-revenue over and above their potential. However, in the case of Punjab revenue collection was not higher than its estimated tax revenue capacity for the reference years.

[26] Income level of the states is identified by ranking the states as per their GSDP per capita (nominal) in the year 2013-14.

Table 5.1: Tax Capacity and Tax Effort Ranking of the States: Aggregate Analysis

	2011-12					2013-14				
States	Actual SOTR	Predicted Tax Capacity	Rank	Tax Effort	Rank	Actual SOTR	Predicted Tax Capacity	Rank	Tax Effort	Rank
Andhra Pradesh	7.98	8.32	9	0.96	4	7.49	8.54	7	0.88	6
Bihar	5.18	6.38	16	0.81	9	5.81	6.69	16	0.87	7
Chhattisgarh	7.42	8.34	8	0.89	6	7.72	8.38	9	0.92	4
Gujarat	7.39	9.81	3	0.75	14	7.36	9.64	4	0.76	11
Haryana	6.83	8.81	6	0.78	12	6.57	9.16	6	0.72	13
Jharkhand	5.13	7.81	12	0.66	15	5.43	7.99	11	0.68	15
Karnataka	10.21	9.09	5	1.12	1	10.19	9.38	5	1.09	1
Kerala	8.23	10.18	2	0.81	10	8.07	10.76	1	0.75	12
Madhya Pradesh	8.84	8.55	7	1.03	3	7.72	7.92	12	0.97	3
Maharashtra	7.49	9.8	4	0.76	13	7.19	10.06	3	0.71	14
Odisha	6.09	7.7	13	0.79	11	6.19	7.68	14	0.81	10
Punjab	**7.35**	**8.09**	**11**	**0.91**	**5**	**7.58**	**8.4**	**8**	**0.9**	**5**
Rajasthan	6.13	7.52	14	0.82	8	6.47	7.85	13	0.82	9
Tamil Nadu	8.92	10.31	1	0.87	7	8.63	10.4	2	0.83	8
Uttar Pradesh	7.68	7.11	15	1.08	2	7.72	7.47	15	1.03	2
West Bengal	4.72	8.24	10	0.57	16	5.07	8.35	10	0.61	16

As far as the results of tax-effort were concerned, we found that tax effort scores of the states varied from 0.57 to 1.12 in FY 2011-12. In the year 2013-14, scores of tax-effort varied between 0.61 and 1.09. Our results showed that for the two (2011-12 and 2013-14) reference years Karnataka topped tax effort, while West Bengal ranked last. Tax-effort scores of Andhra Pradesh, Madhya Pradesh, Punjab and Chhattisgarh were found to be less than one for both the reference years. Punjab remained at the 5th position in tax-effort and did not report any improvement during the two reference years. Overall, results showed Punjab as a State with low tax-capacity and stagnated tax-effort.

Disaggregate Regression Approach

This section presents the estimates of tax-capacity and tax-effort using the Disaggregate Regression Approach for the period 2004-05 to 2014-15. A Hausman specification test chooses a Fixed Effect model over a Random Effect model. Fixed effect estimates of regression equations for the State level analysis are given in (Annexure-V-II). In this Annexure, *regression* report coefficients use all the six state taxes as the dependent variables.

Table 5.2 shows the estimated tax-capacity and tax-effort of stamp duty and registration fees which is derived from regression equation 1. The coefficients of this equation were found to be significant and positively related to the dependent variable. It is evident from the table that Rajasthan, Andhra Pradesh and Madhya Pradesh were the most efficient in the collection of stamp duty and registration fees and achieved top three ranks. In terms of the respective tax-capacity, these states ranked 16, 13 and 15, respectively. Punjab was also performing well with regard to the collection of this tax. The state ranked 9th on average in terms of tax-efforts for the given period (2004-05 to 2014-15).The actual revenue and tax-capacity of Punjab were Rs. 210571 lakh and Rs. 313042 lakh, respectively.

Bulk of own tax revenue in almost all the States was raised through sales tax and therefore tax-effort in this area was the most important determinant in the overall tax-effort of the States. The sales tax-capacity of the States, estimated with the help of equation 2, is given in Table 5.3.

The coefficients of our independent variables, per-capita manufacturing SDP and per-capita agricultural SDP are positively and significantly related to sales tax. Tax-effort index indicates that Kerala and Goa performed very well in the sales tax collection. Punjab was average with 8th rank in the reference years. The actual difference between Punjab's revenue and tax-capacity was Rs. 540290 lakh. In terms of tax-effort, Punjab was found to be the least performing state and attained 16th rank in utilizing its potential base.

Table 5.2: Stamp Duty and Registration Fees (2004-2005 to 2014-2015)

State	Actual Tax Revenue(Rs. Lakh)	Predicted Tax-capacity (Rs Lakh)	Rank	Tax-Effort	Rank
		Regression Equation I			
Andhra Pradesh	346669	23468.2	13	15.41	2
Assam	15351.7	57476.6	11	0.26	12
Bihar	134744	2756276	2	0.04	16
Goa	21425.5	47469	12	0.43	11
Gujarat	296665	68653.7	10	4.16	5
Haryana	210505	399965	6	0.57	10
Karnataka	389173	226680	8	1.74	7
Kerala	219850	1962415	4	0.11	14
Madhya Pradesh	228965	18368.6	15	12.47	3
Maharashtra	1154340	222856	9	5.14	4
Odisha	42922.4	21110.2	14	2.09	6
Punjab	**210571**	**313042**	**7**	**0.71**	**9**
Rajasthan	199635	11734.8	16	17.75	1
Tamil Nadu	494594	504278	5	0.94	8
Uttar Pradesh	609663	2673272	3	0.23	13
West Bengal	234979	4477915	1	0.05	15

The tax capacities of land and agricultural income tax are given in Table 5.4. The study used equation 3 to calculate the tax-capacity. The gross domestic product, which is our independent variable, was positively and significantly related to land revenue and agricultural income tax. Estimates presented in Table 5.4 show that West Bengal held the first rank in the tax-effort index; Gujarat and Odisha achieved second and third rank, respectively. Top three States with highest tax-capacity were Uttar Pradesh, Andhra Pradesh and Maharashtra. Punjab

Table 5.3: Sales Tax (2004-2005 to 2014-2015)

State	Actual Tax-Revenue (Rs. Lakh)	Predicted Tax-capacity (Rs Lakh)	Rank	Tax-Effort	Rank
Regression Equation II					
Andhra Pradesh	2707322	2528462	3	1.07	7
Assam	406780	347915	15	1.17	6
Bihar	503425	486349	14	1.04	8
Goa	118770	69975.7	16	1.7	2
Gujarat	2067630	2837725	2	0.73	14
Haryana	937813	1359437	10	0.69	15
Karnataka	1859432	1381203	9	1.35	4
Kerala	1477872	632495	13	2.34	1
Madhya Pradesh	914708	1198751	11	0.76	12
Maharashtra	3651242	3053744	1	1.2	5
Odisha	585278	636211	12	0.92	9
Punjab	**890418**	**1430708**	**8**	**0.62**	**16**
Rajasthan	1174759	1510511	7	0.78	11
Tamil Nadu	2788823	1860185	5	1.5	3
Uttar Pradesh	2252468	2525760	4	0.89	10
West Bengal	1177556	1570177	6	0.75	13

and Haryana ranked low in tax-effort at 15th and 16thposition, respectively. This was not surprising as agricultural income is least taxed in Punjab and Haryana.

The estimated tax-capacity of motor vehicle, passenger and goods tax was derived from equation 4 and is given in Table 5.5. Coefficients of regression equation were found to be

Table 5.4: Land Revenue and Agricultural Income Tax (2004-2005 to 2014-2015)

State	Actual Tax Revenue (Rs. Lakh)	Predicted Tax-capacity (Rs Lakh)	Rank	Tax-Effort	Rank
Regression Equation III					
Andhra Pradesh	11795.5	36777.8	2	0.37	14
Assam	16965.9	7765.96	15	2.07	6
Bihar	13041.2	15826.2	12	0.8	13
Goa	1055.71	431.48	16	2.32	5
Gujarat	114860	27429.7	5	4.03	2
Haryana	1155.18	16275.9	11	0.08	16
Karnataka	18026.4	19113.8	10	1.02	9
Kerala	9032	10795.3	13	0.82	11
Madhya Pradesh	27763.5	23820.8	7	1.15	7
Maharashtra	83103.1	28155	3	2.91	4
Odisha	32257.3	10543.4	14	3.01	3
Punjab	**2456.18**	**20091.9**	**8**	**0.12**	**15**
Rajasthan	19397.8	25224.7	6	0.81	12
Tamil Nadu	14145.6	19439.7	9	0.86	10
Uttar Pradesh	50962.7	48871.6	1	1.02	8
West Bengal	143668	28018	4	5.32	1

significant and positively related to independent variable i.e. motor and vehicle tax. Bihar, Madhya Pradesh and Orissa ranked first, second and third in the tax effort for the study period. Uttar Pradesh, Gujarat and Punjab made least efforts in utilizing their potential base. These three least performing states did not even cross the 70%mark in their efforts index to utilize the resources at their disposal.

Table 5.5: Motor Vehicle and Passenger and Goods Tax (2004-2005 to 2014-2015)

State	Actual Tax Revenue (Rs. Lakh)	Predicted Tax-capacity (Rs Lakh)	Rank	Tax-Effort	Rank
Regression Equation IV					
Andhra Pradesh	236064	314054	5	0.78	9
Assam	52847.6	35949.6	15	1.41	5
Bihar	218919	60100.6	14	3.54	1
Goa	30055.1	22893.9	16	1.33	6
Gujarat	192528	318275	4	0.62	15
Haryana	102618	150041	10	0.76	10
Karnataka	396349	239120	6	1.67	4
Kerala	132862	181716	7	0.72	11
Madhya Pradesh	261813	139859	11	1.81	2
Maharashtra	382071	545428	1	0.68	13
Odisha	158923	97934.5	13	1.69	3
Punjab	**71725.3**	**110227**	**12**	**0.64**	**14**
Rajasthan	182940	161611	8	1.18	7
Tamil Nadu	388649	418237	2	0.92	8
Uttar Pradesh	200913	374052	3	0.53	16
West Bengal	114705	151711	9	0.7	12

The tax-effort of electricity duty reflects the timeliness of the remittance of revenue collected by the State Electricity Boards (SEBs) to their respective governments. Tax-capacity related to electricity duty was estimated with the help of regression equation 5. Explanatory variables, transport sector SDP and the total number of registered vehicles were found to be significantly and positively related to electricity duty. The top three states that stood out in terms of tax-effort with respect to electricity duty for the study duration were Gujarat, Madhya Pradesh and Odisha. The worst performers were Kerala, Uttar Pradesh and Andhra Pradesh ranked 15, 14 and 13, respectively, for their tax-effort. Punjab secured 6th position in efforts for electricity revenue collection.

Table 5.6: Electricity Duty (2004-2005 to 2014-2015)

State	Actual Tax Revenue (Rs. Lakh)	Predicted Tax-capacity (Rs Lakh)	Rank	Tax-Effort	Rank
Regression Equation V					
Andhra Pradesh	23648.9	89352	4	0.27	13
Assam	3221.27	4409.9	15	0.95	9
Bihar	6684	8394.15	14	0.91	10
Gujarat	315174	52019.4	6	6.01	1
Haryana	13591	18408.6	12	0.74	11
Karnataka	60255	40101.1	9	1.48	8
Kerala	4188	55768.5	5	0.07	15
Madhya Pradesh	128447	29204.8	11	4.65	2
Maharashtra	379076	144733	2	2.49	5
Odisha	46257.7	14558.8	13	3.24	3
Punjab	**104387**	**40130**	**8**	**2.43**	**6**
Rajasthan	87133.7	30841.1	10	3.01	4
Tamil Nadu	58831	112077	3	0.47	12
Uttar Pradesh	42042.7	156446	1	0.26	14
West Bengal	78036	48329.2	7	1.52	7

The estimated tax-capacity of excise duty, which is estimated using equation 6, is given in Table 5.7. The coefficient values were found to be positive and highly significant. The table indicates the best tax-effort by Karnataka with a tax-effort index of 3.14. Gujarat had the lowest tax-effort index of 2.24, which was mainly on account of ban on consumption of alcohol in the State. Punjab had an average tax-capacity and tax-effort with regard to excise duty and ranked 9th in the index. Other States with relatively high tax-effort were Madhya Pradesh (2.13), Uttar Pradesh (1.80), Tamil Nadu (1.78), Andhra Pradesh (1.66), while the laggards were Assam (0.61), Goa (0.90) and Maharashtra (0.91).

Table 5.7: State Excise Duty (2004-2005 to 2014-2015)

State	Actual Tax Revenue (Rs. Lakh)	Predicted Tax-capacity (Rs Lakh)	Rank	Tax-Effort	Rank
Regression Equation VI					
Andhra Pradesh	583323	350834	3	1.66	5
Assam	34936.9	57217.2	15	0.61	15
Bihar	146010	116808	13	1.25	10
Goa	13607.9	15008.2	16	0.9	14
Gujarat	7005.18	312049	5	0.02	16
Haryana	224318	143476	12	1.56	6
Karnataka	762448	242957	7	3.14	1
Kerala	149434	153464	11	0.97	11
Madhya Pradesh	335023	157268	10	2.13	2
Maharashtra	611476	669817	1	0.91	13
Odisha	99200.8	103834	14	0.96	12
Punjab	**269708**	**211158**	**8**	**1.28**	**9**
Rajasthan	282839	195007	9	1.45	7
Tamil Nadu	623637	349782	4	1.78	4
Uttar Pradesh	665153	368925	2	1.8	3
West Bengal	366386	264340	6	1.38	8

Table 5.8 presents Punjab's total tax-capacity and total tax-effort relative to other states for six major taxes considered in our study. Total tax revenue and total tax-capacity were estimated by summing up the respective revenues and estimated capacities of the six taxes levied by the States. The tax-effort was estimated as a ratio of total tax revenue and total tax-capacity. In terms of utilization of tax base potential, Punjab under-performed in the generation of tax revenue. The State's actual revenue generation (1535423.7 Rs. Lakh) was significantly lower in comparison to its estimated capacity (2037603Rs. Lakh). Accordingly, Punjab's tax-capacity ranked 11thin the group of 16 States.

Table 5.8: Total Taxable Capacity and Tax-effort: Disaggregate Analysis (2004-2005 to 2014-2015)

State	Actual Tax Revenue (Rs. Lakh)	Predicted Tax-capacity (Rs Lakh)	Rank	Tax-Effort	Rank
Andhra Pradesh	3908822	3342948	6	1.17	6
Assam	530103	510734	15	1.04	8
Bihar	1022823	3443754	5	0.3	15
Goa	184915	155778	16	1.19	5
Gujarat	2993862	3616153	4	0.83	10
Haryana	1490000	2087603	10	0.71	12
Karnataka	3485684	2149176	9	1.62	1
Kerala	1993239	2996653	8	0.67	13
Madhya Pradesh	1896720	1567272	13	1.21	4
Maharashtra	6261308	4664734	3	1.34	2
Orissa	964839	884192	14	1.09	7
Punjab	**1535424**	**2037603**	**11**	**0.75**	**11**
Rajasthan	1946705	1934930	12	1.01	9
Tamil Nadu	4368679	3263999	7	1.34	3
Uttar Pradesh	3821203	6147326	2	0.62	14
West Bengal	1920630	6559437	1	0.29	16

The study found tax-effort ranged from 162 percent to 29 percent. SixStates– West Bengal, Bihar, Uttar Pradesh, Kerala, Haryana, Punjab and Gujarat – were found to be putting less effort in exploiting their potential base. This indicated a considerable scope for improvement in their tax-effort.

In this study, Punjab ranked 11th amongst the 16 States in tax-effort from 2004-05 to 2014-15. Punjab's poor performance was more worrisome given the fact that it had witnessed decades of economic prosperity.

The state has shown average performance in utilizing its excise base and worst performance in utilizing its sales tax base. These two taxes constitute almost two-thirds of the total tax revenue of the State and hence there is a need to scale up the efforts in tapping revenue from these two taxes.

Results of Stochastic Frontier Analysis

Table 5.9 presents tax-capacity and tax-effort based on SFA approach. The tax-capacity and tax-effort were estimated based on specifications of model 2 reported in annexure table V-III. The coefficients reported correspond to alternative specifications of the tax frontier part and the technical inefficiency part of equation (7). Time dummies were included for time-specific fixed effects.

According to the annexure table, signs of coefficients on variables explaining tax-capacity were in line with our expectations. Also, the signs and levels of significance of parameter estimates did not seem to vary much across specifications. PCI was positively and significantly associated with tax to GSDP, this supported the premise that larger tax base was directly related to higher tax revenue generation. Explanatory variables UBR and WPR that capture the impact of proportion of economically active population and economic structure were found to share positive relation with tax capacity in all specifications. LIT and ELEC accounted for education level and the socio-economic progress achieved by the states. Infrastructural development was also found to be positive and significant in all the models.

Coefficients on variables explaining tax-inefficiency showed some variation signs and significance across specifications. However, broadly our results were robust across model specifications. The negative (positive) signs on tax-inefficiency variables imply positive (negative) association with tax-effort. We found coefficient on FRBM dummy as negative significant, indicating positive impact of FRBM Act on tax-effort. Central transfers and outstanding liabilities with one-year lag were found to be positively associated with tax-inefficiency and negatively associated with tax-effort. Punjab's aggregate expenditure with one-year lag was found to have a negative impact on tax-effort. Signs on coefficients of variable accounting for the administrative quality such as crime rate, pendency rate of crime by courts, and population strength were broadly in line with our expectation.

Table 5.9: Tax-Effort and Rank of States: SFA

State	2002-03	Rank	2006-07	Rank	2010-11	Rank	2013-14	Rank
Andhra Pradesh	0.85	8	0.930	4	0.88	10	0.92	9
Bihar	0.72	16	0.818	10	0.86	11	0.91	10
Chhattisgarh	0.74	13	0.802	11	0.93	4	0.96	4
Goa	0.99	1	0.989	1	0.98	1	0.97	3
Gujarat	0.83	9	0.790	14	0.82	12	0.89	11
Haryana	0.95	3	0.979	2	0.93	5	0.92	8
Jharkhand	0.75	12	0.743	15	0.79	14	0.82	15
Karnataka	0.90	4	0.976	3	0.96	3	0.97	2
Kerala	0.85	7	0.919	6	0.96	2	0.98	1
Madhya Pradesh	0.80	10	0.900	8	0.92	6	0.93	7
Maharashtra	0.89	5	0.797	12	0.80	13	0.80	16
Odisha	0.73	14	0.713	16	0.73	16	0.83	14
Punjab	**0.98**	**2**	**0.920**	**5**	**0.91**	**7**	**0.89**	**12**
Rajasthan	0.78	11	0.795	13	0.75	15	0.83	13
Tamil Nadu	0.88	6	0.918	7	0.90	9	0.96	5
Uttar Pradesh	0.72	15	0.823	9	0.91	8	0.94	6
West Bengal	0.65	17	0.603	17	0.70	17	0.70	17

Note: Tax-effort scores were obtained from Model 2 in Annexure table VIII.

Table 5.9 presents tax-effort scores obtained from Model 2 in Annexure table VIII. The table illustrates state-wise tax-effort scores for financial years2002-03, 2006-07, 2010-11 and 2013-14.The tax-effort raking based on the inefficiency scores obtained from SFA analysis showed that tax-effort of Punjab declined over the reference years. Considering the full sample, inefficiency scores from SFA suggested considerable variation in the range of the tax-effort scores for the study years. Range of the tax effort scores varied from 72%to 99% in 2002-03; 70% to 98% in 2006-07; 73% to 98% in 2010-11; 80% to 98% in 2013-14. Over these years,

Punjab's tax-effort ranking declined from the 2nd position in 2002-03 to 5th in 2006-07 and 7th in 2010-11 and slipped to 12th position in 2013-14.

5.4 Conclusion

This chapter estimated the tax-capacity and tax-effort during the period 2002-03 to 2014-15 for a panel of 16 Indian states through Panel Regression and Stochastic Frontier Approach. Using the aggregate approach in regression method, it was found that states with a higher economic growth and better institutional quality collected higher tax revenues. Tamil Nadu, Kerala, Gujarat, Maharashtra and Karnataka were found to be top five states with highest potential of tax collection for 2011-12 and 2013-14. But despite being a high-income state, Punjab ranked 11thin FY 2011-12 and 8thin FY 2013-14 in potential tax capacity making itself count as an exception. Punjab was never found to be generating higher tax revenue than its estimated tax capacity. Karnataka was found to be most efficient in tax-effort and West Bengal was the least efficient. Punjab ranked 5thin tax-effort for the two financial years. These rankings suggest low tax-capacity and stagnated tax-effort in Punjab.

It is also important to know the specific effects of the six major taxes (Stamp Duty and Registration Fees, Sales Tax, Land Revenue and Agricultural Income Tax, Motor Vehicles and Passengers and Goods Tax, Electricity Duty and State Excise Duty) collected by each of the 16 States in terms of the tax-capacity and tax effort of the States with respect to the major taxes mentioned in the disaggregated approach.

Results of the disaggregate approach showed Punjab as a well-performing state in the collection of stamp duty and registration fees during 2004-05 to 2014-15. Punjab ranked 8thin collecting sales tax but was amongst the least performing states in terms of tax-effort. For land and agricultural income Punjab ranked 15thin tax-effort. Agricultural income is least taxed in this State. On the other hand, West Bengal, Odisha and Gujarat were the top achievers. Gujarat, Madhya Pradesh and Odisha excelled in tax effort in electricity duty, while Punjab was an average performer with 6th rank in tax-efforts in revenue generation from electricity duty. Punjab showed an average tax-capacity and tax-effort in excise duty and ranked 9thin the index for the same. Therefore, it can be concluded that Punjab was an average performer in tax-effort

with respect to stamp duty, registration fees and electricity duty but the worst performer in motor vehicle, passenger and goods tax, tax on agricultural income and sales tax. The results of the empirical analysis of tax-capacity and tax-effort suggested that Punjab did not utilize its available tax base in an effective manner. The study indicated the scope for Punjab State to optimize its tax efforts relative to that of all other states as a whole.

Overall, it can be concluded that Punjab had a low tax capacity and stagnated tax effort. Goods and Services Tax is expected to be implemented from July 1 this year. It is a consumption-base indirect tax subsuming all the prevalent indirect taxes under it. In light of this new tax policy regime, Punjab is likely to improve its revenue generation given the fact that it is majorly a consumption state. Against this background, Punjab can improve its rankings of tax-capacity and tax-effort to be able to collect more tax revenue in the future. It requires significant effort tap its untapped tax potential. This will help Punjab in achieving fiscal sustainability.

Annexure Table: V-I

Determinant of Tax Capacity: Aggregate Approach

Dependent Variable=Share of state own tax revenue as a % of GSDP

	2000-01 & 2010-11				2010-11 & 2013-14	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	0.0944***	0.0748***	0.0877*	0.0770***	0.0679***	0.0614***
	(0.0000)	(0.0020)	(0.0570)	(0.0010)	(0.0000)	(0.0000)
Income per capita	-2.2e-07**					-5.65e-08
	(0.0460)					(0.2410)
Categorical Dummy		0.0048	0.0048	0.0046	0.0049	
(Proxy for Total Income)		(0.1950)	(0.1950)	(0.2080)	(0.2920)	
FRBM Dummy	0.0249***	0.0134***	0.0134***	0.0130***		
	(0.0000)	(0.0000)	(0.0000)	(0.0000)		
Share of agriculture in GSDP	0.0191	0.0130			-0.0692**	-0.0581**
	(0.6930)	(0.7870)			(0.0360)	(0.0210)
Share of other Sector			-0.0130			
(Excluding Agriculture)			(0.7870)			
Share of Tertiary sector				0.288e-04		
(proportion of GSDP)				(0.9900)		
share of Dependency ratio	-0.0393*	-0.0251	-0.0251	-0.0242		
	(0.0690)	(0.2320)	(0.2320)	(0.2430)		
Share of Urban Population					0.0082	0.0466*
					(0.7760)	(0.0860)
Govt. Quality Index	0.0198*	0.0120	0.0120	0.0111		
	(0.0680)	(0.2590)	(0.2590)	(0.2750)		
Economic Freedom					0.0005**	0.0006*
					(0.0490)	(0.0550)
No. of observations	32	32	32	32	32	32
Hausman	FIXED	FIXED	FIXED	RANDOM	FIXED	FIXED
R-square	0.7390	0.6150	0.6150	0.6194	0.4422	0.4060
Adjusted R-square	0.6890	0.5410	0.5410	0.5462	0.3595	0.3182

NOTE-The regression technique is Panel regression; P-values are reported in parenthesis. Categorical Dummy=2 for states with high Income, =1 for middle income, =0 for states with low income. Share of dependency ratio is the ratio of dependency rate of state with the average of dependency rate of 16 states. Share of urban population is the ratio of urban population of a State to its total population.

Annexure Table: V-II

Determinant of Tax Capacity: Disaggregate Approach

Dependent Variables	Stamp Duty and Registration Fee	Sales Tax	land revenue and Agricultural income tax	Motor Vehicles Tax and Passengers and Goods Tax	Electricity Duty	State Excise Duty
	Reg. I	**Reg. II**	**Reg. III**	**Reg. IV**	**Reg. V**	**Reg. VI**
Intercept	-21.377*** (0.001)	-3.322*** (0.000)	-5.132** (0.027)	0.070 (0.921)	-6.173*** (0.000)	-6.975*** (0.000)
GSDP	0.711*** (0.000)					1.109*** (0.000)
DENS	3.495** (0.012)					
PMANF		0.461*** (0.000)				
$PGSDP_a$		0.755*** (0.000)				
$GSDP_a$			0.966*** (0.000)			
TGSDP				0.451*** (0.000)		
REG				0.642*** (0.000)		
SALE					1.471*** (0.000)	
SHDOM					0.063 (0.002)***	
R Square	0.88	0.93	0.47	0.86	0.47	0.89
Adjusted R Square						
Hausman	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
Total Observations	176	176	176	176	165	176

Note: p values are given in parenthesis, *indicates 1 percent level of significance, ** indicates 5 percent level of significance, *** indicates 10 percent level of significance

Annexure IV-I: Variables Used for Constructing Economic Freedom Index

	Indicators
1	Ratio of value of property recovered to total value of property stolen
2	Inverse of vacant posts to total sanctioned judiciary posts
3	Inverse of total number of cases under economic cases pending to total number of cases
4	Percentage of cases where trials were completed by police
5	Percentage of cases where trials were completed by courts
6	Inverse of violent crimes to total crimes
7	Ratio of average wage of unskilled wage workers (males) to minimum wages
8	Ratio of average wage of unskilled wage workers (females) to minimum wages
9	Inverse of man-days lost in strikes lockouts/ total number industrial workers
10	Inverse of minimum license fee for traders
11	Implementation rate of industrial entrepreneurs memorandum (IEM)
12	Inverse of power shortage as a percentage of total demand
13	Inverse of pendency of cases registered under corruption and related acts

Annexure IV-II: Indicators for construction of Governance Index

1. Percentage of MLA's with serious criminal charges pending, 2003
2. Percentage of Women MLA's, 2003-08
3. Rate of Violent Crimes
4. Proportion of trials completed within 3 years (%)
5. Standard State Highway (in kms) per 100 sq. km. of Area, 2001
6. Per Capita Consumption (kWh) of electricity: 2001/02
7. Literacy rate 2001
8. Gross Enrolment Ratio 2001-02 (6-18 years)
9. Average Years in school 1995-96
10. Infant Mortality Rate 2001
11. Maternal Mortality Rate 2001-03
12. Life Expectancy at Birth 2001-05

Chapter 6 Future Prospects of Fiscal Consolidation in Punjab

Introduction 6.1

Over the last two decades, assessment of sub-national government finances, its sustainability and forecasting have gained importance in the country. This was necessary because with expanding role of the State governments in varied areas of public welfare, their respective expenditures and debt also grew. While the expenditure-revenue gap is an inevitable aspect of State finance, accumulation of debt can have serious implications for national finances and macroeconomic stability. Thus, prudent fiscal policies should aim at management of long-term pilling up of debts and persisting trends in deficits.

Due to the deterioration seen in its public finances, Punjab had been a source of consideration and discussion in the contemporary policy debates. Punjab figures amongst the states with the highest fiscal deficit and debt burden in the country. The situation has gradually begun to improve primarily due to the efforts of the governments towards fiscal consolidation and removal of constraints to economic growth. However, in the previous chapters of this report, it was found that Punjab had an unsustainable debt situation. The persistent presence of negative primary balance poses a challenge to the state's debt sustainability. This chapter attempts to project Punjab's debt burden for the next 20 years with an objective to provide inputs for subsequent policy formulation.

The rest of the chapter is structured as follows: section 6.2 discusses the key parameters and basic debt arithmetic employed to forecast future debt. In Section 6.3 we construct possible future debt dynamics in a baseline as well as in four adverse shock scenarios. Section 6.4 illustrates fiscal consolidation paths (2016-17 to 2026-27) attainable for Punjab through revenue augmentation and expenditure compression. These scenarios were designed to be in line with Debt-GSDP targets envisaged by the 12th and 13th Finance Commissions for sub-national governments in India. Section 6.5 presents concluding remarks.

6.2 Methodology

In chapter 3 of the report, we have discussed various methods in forecasting national and sub-national level debt burden. In this context, Ianchovichina, Liu, and Nagarajan, (2006) have forecasted debt burden of the State of Tamil Nadu for the period 2004-05 – 2026-27. Using a scenario-based approach they concluded that Tamil Nadu was on a debt sustainable path.

Thinking in lines of Ianchovichina, Liu, and Nagarajan, (2006), we were motivated to analyze future prospects of Punjab's debt burden. We attempted this by constructing possible future debt dynamics in a baseline scenario as well as in four adverse shock scenarios for the period 2016-17 to 2036-37.

To begin with, the dynamics of debt accumulation can be described in absolute terms as:

$$B_t - B_{t-1} = n_t B_{t-1} - X_t \dots\dots\dots\dots\dots\dots (1)$$

where B denotes a State's gross public debt, n denotes the domestic interest rate and X represents the government's primary fiscal balance. Time is discrete, debt matures in one period and financing and interest payments take place evenly through the year. For the budget constraint to hold, the primary balance should include all flows that affect the debt level.

For the purpose of practical fiscal sustainability analysis, it was important to normalize the quantities of equation (1) by some measure of the government's ability to service and repay its debt such as government revenues, GDP and exports in the case of external debt. For the purpose of sub-national fiscal sustainability, the most common choice for normalizing the public debt is GSDP. Expressing equation (1)as fraction of GSDP we get:

$$\frac{B_t}{GSDP_t} = (1 + n_t).\frac{B_{t-1}}{GSDP_{t-1}} . \frac{GSDP_{t-1}}{GSDP_t} - \frac{X_t}{GSDP_t} \dots\dots\dots\dots\dots\dots (2)$$

After rearranging and denoting ratios to GSDP by lowercase symbols, we obtain

$$b_t = \frac{(1 + r_t)}{(1 + g_t)} b_{t-1} - x_t \dots\dots\dots\dots\dots\dots (3)$$

$where r_t = \frac{n_t+1}{\pi_t+1} - 1$, the real rate of interest, and g_t, the real growth rate of GSDP

Using constraint (3), we projected debt sustainability under different scenarios with consistent set of projections for interest rate, primary balance, growth rate and inflation rate. The higher the real interest rate, the lower the real GDP growth and the lower the primary balances, the higher was the public debt to GSDP. Thus, the budget constraint shows that the sustainability of the sub-national government's fiscal policies depends on the primary balance (X), the real interest rate (r), which in turn depends on a nominal interest rates(n) and inflation(π), and sub-national economic growth (g).

Thus, in a scenario analysis framework, we use constraint (3) to consider medium/long-term debt dynamics for a baseline as well as different adverse shock scenarios. Following Ianchovichina, Liu, and Nagarajan (2006) assumptions on interest rates are based on data retrieved from the World Bank Databank. The assumptions on GSDP growth rate and the primary balance are based on the government of Punjab Economic Survey.

6.3 Debt Dynamics in Punjab

In this section, we construct future debt path of Punjab for time period 2016-17 to 2026-27. For this, we focus on Public Debt as a % of GSDP (at current price), which is the conventionally used indicator for debt burden of a State. The public debt consists of market loans, loans from banks/financial institutions, and loans and advances from the GoI. We constructed baseline scenario taking the values of the relevant debt flow variables at their post-FRBM average (i.e. 2005-06 to 2015-16) and at past 5-year average (2011-12 to 2015-16). In the first three shock scenarios, we considered adverse single variable shocks in the real interest rate, real GDP growth rate and the primary deficit. The fourth shock scenario was an adverse multi variable shock in all three variables at the same time. All shocks were assumed to be temporary in nature lasting for a period of three years.

6.3.1 Baseline Scenario

Macroeconomic Assumptions:

We started by assessing Punjab's debt dynamics for the next 10 years in the absence of unexpectedly strong fiscal consolidation and/or major adverse economic shocks in the State. Punjab government's initial debt for the scenario analysis was 30.45% of the GSDP, which was he level at the end of 2015-16 as per the Punjab Economic Survey 2015-16.

In order to prevent bias of either positive or negative nature, we took the key parameters at their post-FRBM average (i.e. 2005-06 to 2015-16) and at past five-year average (2011-12 to 2015-16).

1. Real interest rate (% p.a.)

Though the Article 293 of the Indian Constitution prohibits the States to borrow from abroad, there are still multiple borrowing channels available to the States. Each channel has its own rules, which make the State borrowing regime in the country complex. The average real interest rate paid on public debt is difficult to calculate because of different maturities and interest payments of debt instruments. For the purpose of our study, we have used interest rate on government securities of India adjusted for inflation. Data on interest rate on government securities of India was retrieved form RBI.

2. Real GDP Growth (% p.a.)

For Debt/GSDP ratio to stabilize, the output growth rate should exceed the rate of interest. For the baseline scenario, we calculated the average real GDP growth (% p.a.) over 2005-06 to 2015-16 using data from RBI: "*Handbook of Statistics on Indian States"*. The averages calculated for the post-FRBM period and the past five financial years were 6.54%and 5.63%, respectively. These rates were taken to construct the baseline scenario and were used to track the future direction and pace of Punjab's debt dynamics.

3. Primary Deficit

Simply put, primary deficit refers to the fiscal balance before net interest payments and thus is an important indicator explaining accumulation of government debt. As highlighted in the previous chapter on debt sustainability, ensuring government debt-to-GSDP ratio to remain at sustainable levels an adequate primary surplus needs to be generated such that growth rate exceeds interest rate. Punjab had been incurring primary deficits continuously since 1990-91 with exception of only three financial years1995-96, 1996-97 and 2005-06. For the baseline scenario, we took the primary deficit at the post-FRBM average (2005-06 to 2015-16) and at its past five-year average. With this, the scenario analysis modestly predicted the future debt burden and its sustainability. Here, the assumption was that the government did not undertake unexpected strong policy stance towards fiscal consolidation. Further, it was assumed that the government did not indulge in profligate expenditure. These two assumptions were likely to hold true. This was because even though Punjab was showing the political will for fiscal consolidation and would benefit from the increased devolution as recommended by the14th Finance Commission, it was caught up in the web of populist policies such as power subsidy, pay and pension hikes on the line of Centre's 7th pay Commission and farm-loan waivers.

Though the projected debt/GSDP ratio is susceptible to even minor change in the assumptions, significant alterations to the debt dynamics are unlikely without the presence of major economic shocks and/or austere and bold fiscal policy adjustments by the government. These possibilities are discussed later in the chapter.

The results suggested that if Punjab continued its Post-FRBM trend (2005-06 to 2015-16), it would achieve its debt/GSDP target of 25% by the year 2026-27(Table 6.1). However, the results of simulation conducted using the last five-year averages suggest that the debt/GSDP ratio of Punjab will keep on increasing over the simulation period (Table 6.2).

Baseline public debt to GSDP projections

Table 6.1: Baseline Simulation (Post FRBM average)

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Real Interest Rate		2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52
Real Growth Rate		6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
Primary Deficit		0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Debt Dynamics												
Debt (% of GSDP)	30.45	29.81	29.20	28.60	28.04	27.49	26.96	26.45	25.96	25.50	25.04	24.61

NOTE: Real Interest Rate, Real Growth Rate and Primary Deficit have been taken at their computed average value for the years 2005-06 to 2015-16.

Table 6.2: Baseline Simulation (last 5 years average)

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Real Interest Rate		4.36	4.36	4.36	4.36	4.36	4.36	4.36	4.36	4.36	4.36	4.36
Real Growth Rate		5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63	5.63
Primary Deficit		0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Debt Dynamics												
Debt (% of GSDP)	30.45	30.70	30.95	31.20	31.45	31.69	31.93	32.16	32.40	32.63	32.86	33.08

*Real Interest Rate, Real Growth Rate and Primary Surplus have been taken at their computed average value of the period 2011-12 to 2015-16.

Source:The initial level of Punjab government debt as a % of GSDP is taken as per the Punjab Economic Survey 2015-16. Further simulation in based on Equation (3) discussed in Section 7.2.

Under the baseline projections, when parameters were allowed to follow their past five-year trend, Punjab's debt/GDSP ratio, which was already high to begin with, further increased by about 3 percentage points at over 33% by 2026-27. An increase in the debt/GSDP ratio hints towards instability. Thus, our baseline scenario projections based on the past five-year averages suggested that Punjab's debt dynamics was unsustainable and a cause of concern. Austere and bold policy adjustments are necessary for the State to avoid an increase in public debt burden during the forecast period.

6.3.2 Shock Scenarios

A major shortcoming of simple analytical models in assessing fiscal sustainability is their general disregard of the effects of uncertainty. (Ianchovichina, Liu, and Nagarajan, 2006). This can lead to bias in the policy recommendations. In order to factor in the downside risks, we assessed Punjab's public debt stocks under four alternative shock scenarios: (A) A real GSDP shock growth shock scenario, (B) A real interest rate shock, (C) A primary deficit shock, and (D) and combined shock scenario where all the three shock factors were considered. These shocks were assumed to be short-term, about three years, and then returning to the baseline values.

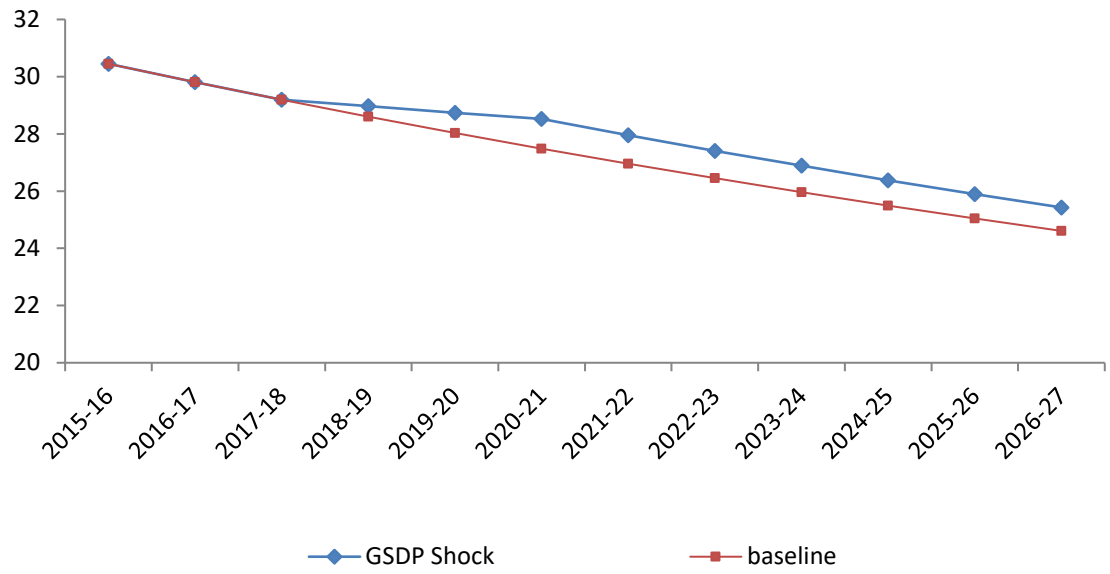
A. Real GSDP growth shock scenario

In this shock scenario growth was assumed to be weaker than in the baseline scenario. For many reasons growth can turn out to be much weaker than anticipated. In the case of Punjab, one such risk is the agricultural slowdown. The evolution of Punjab's economy reveals that Punjab has overstayed in agriculture. This overstay has resulted in an economic and ecological disaster for the State. Agriculture slowdown impacted and stunted the growth of other sectors of the economy and resulted in the marginalization of the State's economy relative to the other Indian States. As a result, Punjab has fallen from a top to middle-income State in India and now ranks eighth in terms of per capita domestic product (Chapter 2). Another risk is large subsidies and continuation of populist policies such as free electricity to farmers. Large subsidies can lead to a shortage of money for the government investments and a decline in

growth rate. Further, Punjab's governance deteriorated relative to other Indian States (Mundle, Chowdhury and Sikdar, 2016).

In order to incorporate the risk of a slowdown in Punjab, we constructed a sensitivity test where we set a real GSDP growth shock to the baseline scenario. The real growth rate was set at the historical average over the period 2005-06 to 2015-16 minus 1 standard deviation (1.35). This hypothetical slowdown lasted over a period of three years starting from 2018-19. This real GSDP shock is depicted in Figure 6.1 vis-à-vis the baseline scenario.

Figure 6.1: Real GSDP growth rate (Baseline and Shock Scenario)



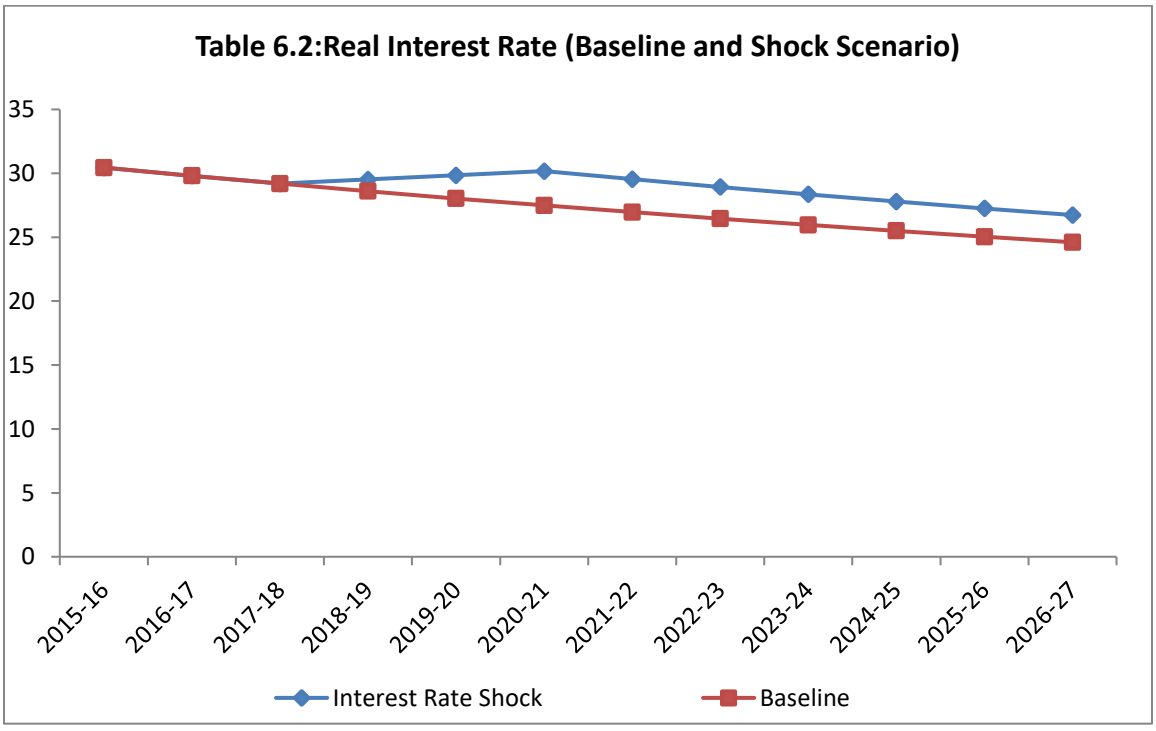
Note: Real GSDP shock lasting 3 years from 2018-19 has been set of minus 1 standard deviations of the historical average over 2005-06 to 2015-16.

From Figure 6.1 it is evident that a temporary slowdown in economic growth will have a long-term impact on the State's debt burden. Even though the shock was temporary, its impact on the debt/GSDP ratio was permanent for the forecast period. This was because debt/GSDP ratio under the shock scenario remains higher than that of the baseline scenario with no signs of convergence for the entire forecast period.

B. Real Interest Rate Shock Scenario

The second sensitivity test was conducted to account for the unexpected changes in the real rate of interest. This scenario described the unease among the investors and the demand for a higher interest rate. The interest rate can also increase following an upturn in the international interest rates. The higher interest rate increases the cost of debt repayment. The problem becomes severe if the State is already burdened with a high level of debt. This can lead to a vicious cycle where the State has to borrow to meet its debt service obligations. This can ultimately threaten the fiscal stability of the State.

In order to incorporate this risk, we visualized the impact of a sharp rise in the real interest rate in the baseline scenario with the other factors as constant. The real interest rate was set at the historical average for the period 2005-06 to 2015-16 plus 1 standard deviation(SD=3.35). This hypothetical increase was designed to last over a period of three years starting from 2018-19. The real interest shock scenario is depicted in Figure 6.2 vis-à-vis the baseline scenario.



Note: Real interest rate shock lasting 3 years from 2018-19 was set at the historical average over 2005-06 to 2015-16 plus 1 standard deviations.

As shown in the figure, the real interest rate shock causes a steep increase in the debt/GSDP ratio. While in the baseline forecast the debt/GSDP ratio at the end of 2026-27 was 24.61%, in the case of a temporary real interest shock scenario it reached over 26.74%. Here also, as in the case of real GSDP shock scenario, the impact was permanent throughout the period irrespective of the decrease in the real interest rate.

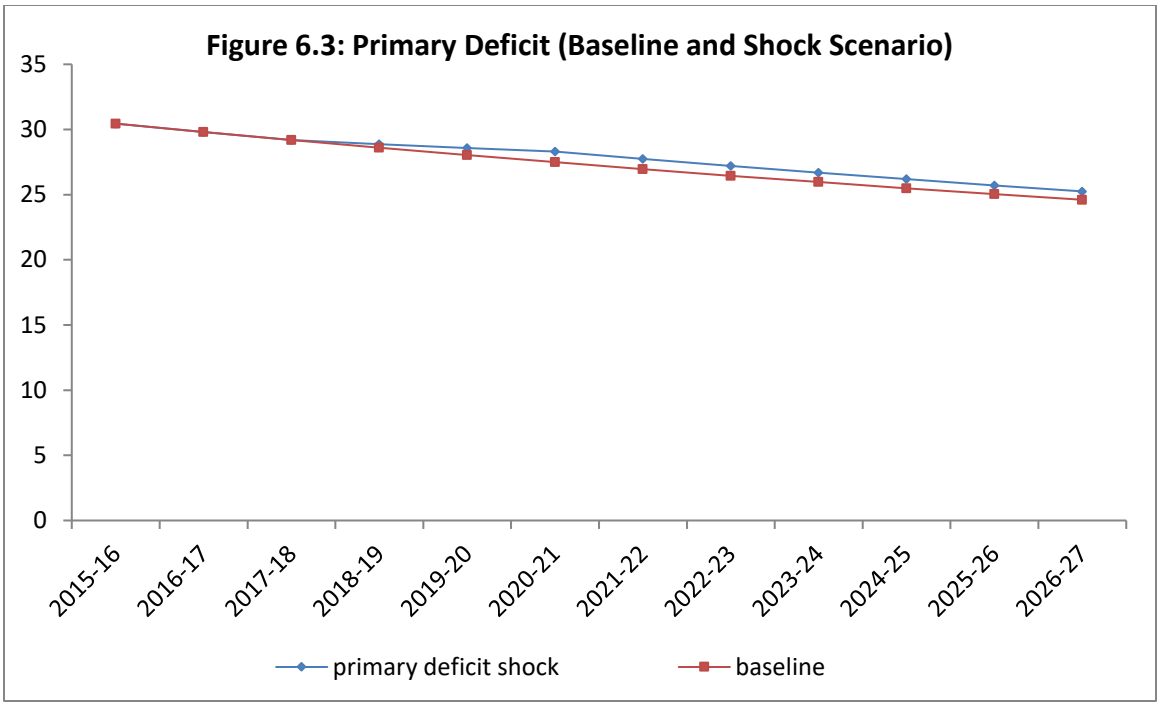
C. **Primary Deficit Shock Scenario**

Under this scenario, we captured the impact of the deterioration in public finances. This can arise in two ways –the slump in revenue income and increased expenditures. States generate revenue from their own sources — tax and non-tax revenue — and funds devolved by the Centre as the State share in the Central taxes and grants. A significant decrease in a State's revenue due to any reason makes it difficult for the State to stay on the debt sustainable path. A higher proportion of a State's own revenue relative to total revenue will, to a certain extent, insulate it from the cyclical variations and fluctuations in the national economic growth. Similarly, the rapid increase in the State's expenditure can sway it off the debt sustainable path.

In the case of Punjab, this risk was foreseeable given its high cost of subsidies, higher interest payment obligations and increased salaries and pension payments. Given Punjab's huge committed expenditures, it was less resilient to primary balance shocks.

Our third sensitivity test pertained to temporary primary deficit shock. The primary deficit (as a % of GSDP) was set at the historical average over the period 2005-06 to 2015-16 minus 2 standard deviation (SD=0.28). This hypothetical decrease in the primary balance lasts for a period of three years starting from 2018-19. This shock is depicted below in Figure 3 vis-à-vis the baseline scenario.

From Figure 6.3 it is evident that for Punjab deterioration of public finances would have a very little impact on its debt sustainability. While in the baseline forecast, the debt/GSDP ratio at the end of 2026-27 was 24.61%, the primary balance shock increased it to 25.25%, an increase of less than one percentage point.

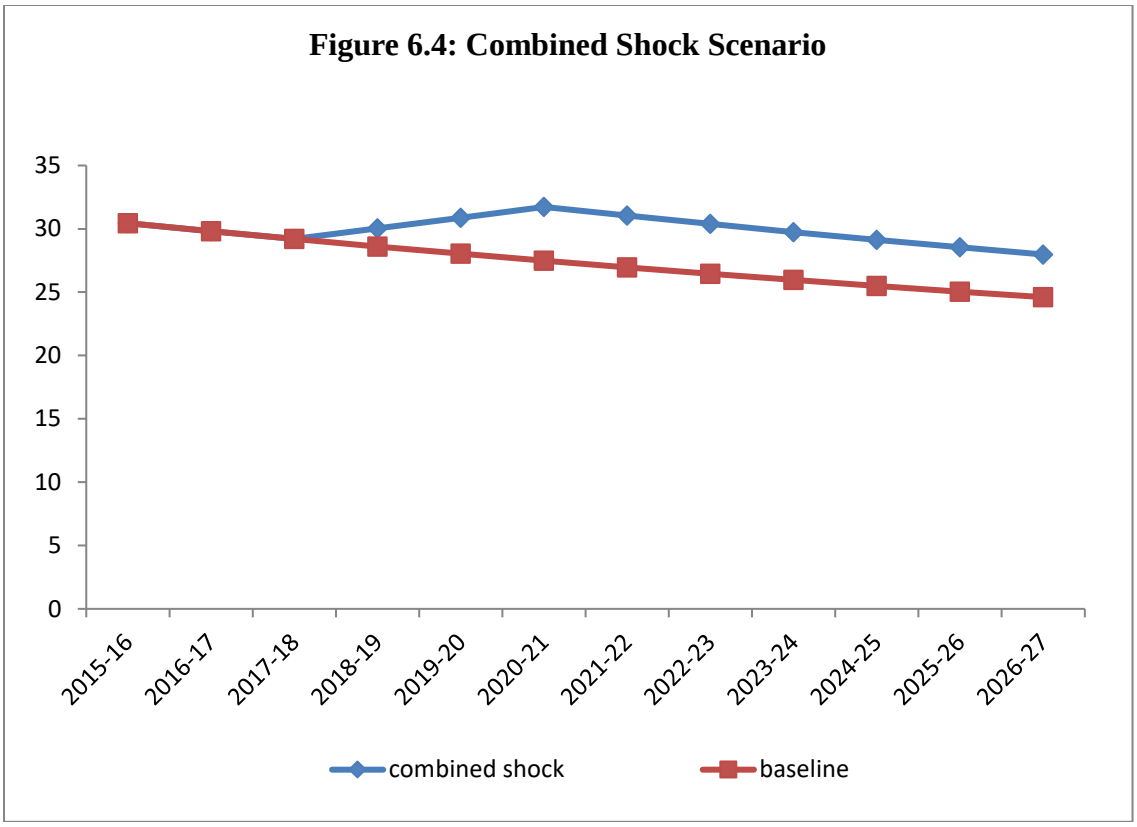


Note: Primary surplus shock lasting for 3 years beginning 2018-19 is set at the historical average over 2005-06 to 2015-16 plus 2 standard deviations.

D. **Combined Shock Scenario**

Burnside (2004) considers scenarios where only one variable is affected as highly improbable. In order to take account of a combined shock to all the three debt flow variables (growth, interest rates and primary balances), we conducted the fourth sensitivity test. The combined shock was calculated as per the historical average for the period 2005-06 to 2015-2016 minus (for real GDP growth) and plus (for real interest rates and primary deficit) 1 standard deviation. The shock, like previous 3 scenarios, was considered to last for three financial years starting 2018-19. The result of this scenario is depicted in Figure 6. 4.

Figure 6.4: Combined Shock Scenario



Note: Real interest rate and the primary balance are set at their historical averages for the period 2005-06 to 2015-16 plus1 standard deviation, while the GSDP is at the historical average minus 1 standard deviation.

It is evident from figure 6.4 that a multivariable shock would threaten the debt sustainability of Punjab. Under this scenario, the debt/GSDP ratio did not achieve its target of 25% and remained at 27.98% at the end of the forecast period, around 3% percentage points above baseline value. It must be noted that here the shock was considered to be short-term, lasting up to 3 years. A prolonged shock of this kind can extend the time taken to achieve the target of 25% debt/GSDP ratio.

6.4 Path to Fiscal Consolidation (2016-17 to 2026-27)

It was evident from the analysis of the shock scenarios that Punjab's debt/GSDP would continue to rise in the absence of strong fiscal measures. The State is advised to formulate effective strategies for debt management and resource mobilization so that debt stability is ensured. In the following discussion, we analyse a series of baseline scenarios using policy

variables to show the path of the deficit and debt indicators of Punjab in the next ten years (2016-17 to 2026-27).These scenarios give disaggregate analysis of Punjab's revenue growth and expenditure. The conclusions drawn would suggest possible areas for expenditure compression, revenue expansion and acceleration of capital outlay to lay out the path for the fiscal consolidation of Punjab. The consolidation paths were constructed for Punjab to achieve a public debt ratio of less than 25% of its GSDP. The critical threshold for debt-GSDP ratio was set at 25% to be in line with the recommendations of the 12th and 13th Finance Commission.

6.4.1 Revenue Receipts and Revenue Expenditure: Disaggregate Analysis

Revenue Receipts (RR) and Revenue Expenditure (RE): Debt to GSDP Baseline Simulation

As mentioned in the report, Punjab's RR to GSDP declined from 15% in 2005-06 to 10% in 2011-12 and then increased by 2% points in 2016-17. The post-FRBM average of RR to GSDP was around 11%. This has resulted in a negative growth of revenue generation in Punjab during the post-FRBM period (CAGR of -1.47). On the expenditure side, revenue expenditure declined from around 16% in 2005-06 to 12 % in 2011-12 and thereafter increased to 14% in 2016-17. Post-FRBM average of RE to GSDP was about 13.25%. Accordingly, growth of revenue expenditure in Punjab in the post-FRBM period was negative (CAGR of -2.06).

Table6.3 : Baseline Scenario for Revenue Receipts and Revenue Expenditure of Punjab (2015-16 to 2026-27)

		Post-FRBM Avg.	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
GSDP(SIMULATED by CAGR 13.13)		243982	276017	312258	353257	399640	452113	511476	578632	654607	740557	837792	947794
1.REVENUE RECEIPTS(SIMULATED for CAGR-1.47)	value Cr.	27409	30551	34055	37960	42313	47165	52573	58602	65321	72812	81161	90468
	in % GSDP	11.23	11.1	10.9	10.7	10.6	10.4	10.3	10.1	10.0	9.8	9.7	9.5
2.REVENUE EXPENDITURE(SIMULATED for CAGR-2.59)	value Cr.	32601	35936	39602	43641	48092	52998	58403	64361	70925	78160	86132	94917
	in % GSDP	13.4	13.0	12.7	12.4	12.0	11.7	11.4	11.1	10.8	10.6	10.3	10.0
3. REVENUE DEFICIT(1-2)	value Cr.	5192	5385	5547	5681	5780	5833	5830	5759	5604	5348	4971	4449
Rd	in % GSDP	2.13	1.95	1.78	1.61	1.45	1.29	1.14	1.00	0.86	0.72	0.59	0.47
4. CAPITAL OUTLAY (SIMULATED constant as % GSDP)	value Cr.	2445	2766	3129	3540	4005	4531	5125	5798	6560	7421	8395	9498
	in % GSDP	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5. NET LENDINGS(SIMULATED constant as % GSDP)	value Cr.	-243	-274	-311	-351	-397	-450	-509	-575	-651	-736	-833	-943
	in % GSDP	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10
6. GROSS FISCAL DEFICIT (3+4+5)	value Cr.	7395	7876	8365	8870	9387	9914	10447	10982	11513	12032	12533	13004
7. Interest payments (estimated)*	value Cr.	6138	7035	8240	9315	10494	11788	13208	14769	16486	18376	20457	22752
	in % GSDP	2.52	2.55	2.64	2.64	2.63	2.61	2.58	2.55	2.52	2.48	2.44	2.40

PRIMARY DEFICIT (6-7)	value Cr.	1256	841	**126**	**-445**	**-1107**	**-1874**	**-2761**	**-3788**	**-4974**	**-6344**	**-7925**	**-9747**
gfd (%)		3.03	2.85	2.68	2.51	2.35	2.19	2.04	1.90	1.76	1.62	1.50	1.37
pd(%)		0.52	0.30	**0.04**	**-0.13**	**-0.28**	**-0.41**	**-0.54**	**-0.65**	**-0.76**	**-0.86**	**-0.95**	**-1.03**
r(post FRBM Avg.in %)			2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51
g(post FRBM Avg. in %)			6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
ratio (1+r/1+g)			0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
bt(%)		30.5	29.6	28.5	27.3	26.0	**24.6**	**23.1**	**21.6**	**20.0**	**18.4**	**16.8**	**15.1**

Note: r=real rate of interest; g= real growth of GSDP; rd= Revenue Deficit to GSDP estimated as Revenue Expenditure subtracted by Revenue Receipts; gfd= Gross Fiscal Deficit estimated as Revenue Deficit plus Capital outlay+ Net Lending;pd= primary deficit to GSDP; b_t= debt to GSDP estimated as $b_{t-1}*(1+r/1+g)+pd_t$;*Interest payments is estimated by multiplying the debt to GSDP ratio of the previous year with the post FRBM average of Nominal Rate of Interest and GSDP of the current year.

While a decline in Punjab's RE was a positive sign for the correction in the State's revenue deficit, slow growth in revenue generation neutralised the gain. It is for the same reason that Punjab missed the target of eliminating its revenue deficit despite several revisions of fiscal consolidation targets by the government.

In this backdrop, we conducted a baseline simulation to demonstrate the expected path of the deficit and debt indicators in the next 10 years in the business as usual scenario. Table 6.3 presents the 10-year path of debt flow variable under the assumption that Punjab's RR and RE will continue to grow at their respective post-FRBM CAGR.

The aggregate analysis of RR and RE in the baseline simulation bring out the following features:

- RR to GSDP is expected to decline from the post-reform average of 11.2% to 9.5% in 2026-27(1.5% point decline). Given the negative growth of revenue generation, Punjab's revenue is likely to increase by Rs 63059crore by 2026-27.
- RE, if allowed to reduce as per its post-FRBM growth rate (-2.59), is expected to cause a 3.3%point decline in RE to GSDP over the simulation period.
- A slow growth in revenue generation would impede reduction in the revenue deficit, otherwise expected from reducing revenue expenditure. The baseline simulation showed that it would take more than 10 years for the government of Punjab to completely eliminate the revenue and expenditure gap.
- In terms of RR and RE, if Punjab continued to follow its track record, the state is expected to attain debt to GSDP threshold of less than or equal to 25% of GSDP in the FY 2020-21(24.1%).

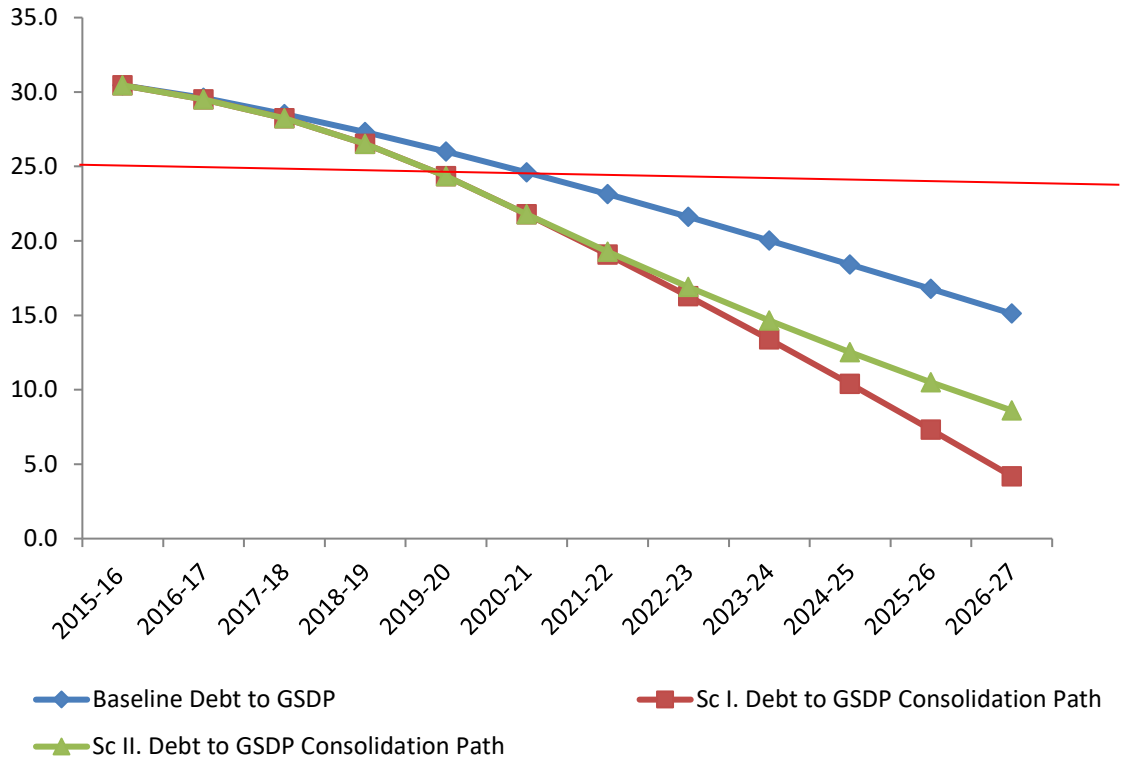
Revenue Receipts and Revenue Expenditure: Debt to GSDP Consolidation Path

The baseline simulation showed that the declining revenue generation obstructed the fiscal consolidation in Punjab. It is thus important for the State to accomplish a positive growth of revenue. This section describes the debt to GSDP consolidation path for Punjab through improved revenue generation. Figure 6.5 plots the consolidation paths under the alternative

scenarios vis-à-vis the baseline scenario for the 10-year period. The following two scenarios were considered for this purpose:

- Sc I. Debt to GSDP Consolidation Path: Increase in RR/GSDP by 0.25% lasting for 3 years(2018-19 to 2020-21), held constant thereafter and allowing for the revenue surplus
- Sc II. Debt to GSDP Consolidation Path: Increase in RR/GSDP by 0.25% lasting for 3 years(2018-19 to 2020-21), held constant thereafter and preventing the revenue surplus

Figure 6.5:Revenue Reciepts and Revenue Expenditure:Debt to GSDP(%) Baseline Path vis-a-vis Consolidation Path



Note: Sc I. Debt to GSDP Consolidation Path (Increase in RR/GSDP by 0.25 last for 3 years (2018-19 to 2020-21) and held constant thereafter; allowing for revenue surplus);Sc II. Debt to GSDP Consolidation Path (increase in RR/GSDP by 0.25 last for 3 years (2018-19 to 2020-21) and held constant thereafter; preventing for revenue surplus)

Figure 6.5 illustrates the improvement in debt to GSDP ratio in scenario I and II (detailed simulations of the scenarios are presented in Annexure Table 6.1a and 6.1b). Under scenario I and II, the debt to GSDP threshold of 25% was achieved one year ahead of the baseline case. Moreover, the decline in public debt was more rapid under the consolidation paths. This implied that the State would be accumulating surplus at a faster rate. Moving along the consolidation path, revenue deficit was expected to be eliminated in the FY 2021-22 and turn into surplus thereafter. On this account, it was likely for revenue surplus to increase by 1.17% points between 2021-22 (Rs 982cr.) and 2026-27 (Rs12878cr.).

6.4.2 ExpenditureCompression: Disaggregate Analysis

Components of Committed Expenditure: Debt to GSDP Baseline Simulation

Our analysis of Punjab's committed revenue expenditure (2002-03 to 2017-18) revealed a significantly high percentage share of expenditures in the State's own revenue. This strained the State finances. Further, the expenditure component 'wages and salaries' showed the fastest growth. Similarly, expenditure on interest payments, pensions and subsidies comprised a significant proportion of the State's own revenue. Power subsidy alone accounted for 97% of all subsidies. In the post-FRBM period (2005-06 to 2015-16) the growth of committed expenditure on wages and salaries (CAGR of -0.55), interest payments (CAGR of -0.4.09) and power subsidy (CAGR of -4.93) was negative and the growth in expenditure on pensions (CAGR of 2.63) was positive. The negative growth in major components of committed expenditure indicated the State government's effort to bring about fiscal viability in revenue expenditures. Given the negative growth in the majority of the components, we conducted a baseline simulation to assess Punjab's debt to GSDP path assuming business as usual scenario.

Table 6.4 demonstrates Punjab's debt to GSDP path simulated over the period of 10 years (2016-17 to 2026-27) assuming that the components of committed expenditure continue to move as per their historical growth rates (post-FRBM period- 2005-06 to 2015-16). The disaggregate analysis of the committed expenditure attempted in the baseline scenario brought out the following features:

- If power subsidy continued to grow at its post-FRBM growth rate (CAGR-4.923), total subsidy on power would increase by Rs 6603crore between 2017-18 and 2026-27. However, its proportion in GSDP would decelerate from 2.3% in 2017-18(BE) to 1.4% in 2026-27.
- The proportion of Wages and Salaries in GSDP, simulated as per the historic growth rate (CAGR -0.55), would decrease from the post-FRBM average of 4.3% to 4.1% in 2026-27. This would increase the burden of committed expenditure on wages and salaries by Rs28042crore in the next 10 years.
- Growth in expenditure on pensions, simulated as per the post-FRBM growth rate (CAGR, 2.63) would increase its proportion in GSDP from an average of 1.9 % to 2.5% in 2026-27. Accordingly, the committed expenditure on pension would increase from the post-FRBM average of Rs. 4588crore to Rs. 23716crore in 2026-27.
- The proportion of interest payments in GSDP, when allowed to move according to the historical growth rate (CAGR -4.09), would reduce from 2.5% on average to 1.6% in 2026-27. As a result, the total committed expenditure of interest payment was expected to increase from Rs. 8924crore over the simulation period of 10 years.
- Other expenditure (comprising all other plan and non-plan revenue expenditures), when simulated for the post-FRBM CAGR of -5.33, would increase from the post-FRBM average of Rs.7650crore to Rs. 16268crore in 2026-27. Accordingly, as a proportion of GSDP, outgo on other expenditure would decelerate by 1.4% points in the next 10 years.
- Total revenue expenditure would increase by Rs. 75053crore. The combined effect of the respective growth rates on the components of committed expenditure would result in a decline in revenue expenditure to GSDP by 1.9 % points during 2015-16 to 2026-27.
- Revenue deficit would decline from an average of 2% of GSDP to 0.5% in 2024-25.By 2026-27 (0.09%) the deficit would be eliminated and a surplus achieved in the following years.
- The prudent threshold for the gross fiscal deficit at 3% of GSDP would be attained in 2019-20. However, with the assumptions of baseline simulation in effect, the gross fiscal balance would not report a surplus until 2030-31.
- Debt to GSDP threshold of less than or equal to 25% of GSDP would be attained in 2022-23(24.5%). The ratio was likely to fall to 16.7% in 2026-27 from the baseline scenario.

Table 6.4: Baseline Scenario for the Components of Committed Revenue Expenditure(2015-16 to 2026-27)

		2015-16 (Post FRBM Avg.)	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
GSDP(increased by post FRBM CAGR 13.13)		243982	276017	312258	353257	399640	452113	511476	578632	654607	740557	837792	947794
REVENUE EXPENDITURE(1+2+3+4+5)	value Rs Cr.	32601	41326	42996	47463	52438	57984	64172	71083	78808	87450	97126	107971
	in % GSDP	13.4	15.0	13.8	13.4	13.1	12.8	12.5	12.3	12.0	11.8	11.6	11.4
1. POWER SUBSIDY(simulated for post FRBM CAGR-4.923)	value Rs Cr.	3386	8966	7123	7662	8241	8864	9534	10255	11031	11865	12762	13727
	in % GSDP	1.4	3.2	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4
2. WAGES AND SALARIES (simulated for post FRBM CAGR-0.55)	value Rs Cr.	10558	11878	13364	15036	16916	19032	21413	24091	27104	30494	34309	38600
	in % GSDP	4.3	4.3	4.3	4.3	4.2	4.2	4.2	4.2	4.1	4.1	4.1	4.1
3. PENSION(simulated for CAGR 2.63)	value Rs Cr.	4588	5327	6185	7182	8338	9681	11240	13051	15153	17593	20426	23716
	in % GSDP	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.3	2.3	2.4	2.4	2.5
4. INTEREST PAYMENT(estimated)*	value Rs Cr.	6138	6660	7227	7841	8508	9231	10016	10868	11792	12794	13882	15063
	in % GSDP	2.5	2.4	2.3	2.2	2.1	2.0	2.0	1.9	1.8	1.7	1.7	1.6
5.OTHERS(simulated for post FRBM CAGR -5.33)	value Rs Cr.	7931	8494	9097	9743	10434	11175	11969	12819	13729	14703	15747	16865
	in % GSDP	3.3	3.1	2.9	2.8	2.6	2.5	2.3	2.2	2.1	2.0	1.9	1.8

REVENUE RECEIPTS (simulated as constant % of GSDP Cr.)	value Rs Cr.	27409	31007	35079	39684	44895	50790	57458	65003	73537	83193	94116	106473
	in % GSDP	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
REVENUE DEFICIT	value Rs Cr.	5192	10319	7918	7779	7543	7195	6714	6081	5271	4257	3010	1497
	in % GSDP	2.13	3.74	2.54	2.20	1.89	1.59	1.31	1.05	0.81	0.57	0.36	**0.16**
gfd (%)		3.03	4.64	3.44	3.10	**2.79**	**2.49**	**2.22**	**1.95**	**1.71**	**1.48**	**1.26**	**1.06**
pd(%)		0.51	2.09	0.80	0.47	0.16	-0.11	-0.37	-0.60	-0.81	-1.00	-1.18	-1.34
r(post FRBM Avg.in %)			2.51	2.510	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51
g(post FRBM Avg. in %)			6.54	6.540	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
ratio (1+r/1+g)			0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
bt(%)		30.5	31.4	31.0	30.3	29.3	28.1	26.7	**25.1**	**23.3**	**21.4**	**19.4**	**17.3**

Note: r=real rate of interest; g= real growth of GSDP; rd= Revenue Deficit to GSDP estimated as Revenue Expenditure subtracted by Revenue Receipts; gfd= Gross Fiscal Deficit estimated as Revenue Deficit plus Capital outlay+ Net Lending; pd= primary deficit to GSDP; b_t= debt to GSDP estimated as $b_{t-1}*(1+r/1+g)+pd_t$; Revenue Expenditure is defined as the summation of expenditure on Power subsidy, Wage and Salaries, Pensions, Interest Payments and Others(all other plan and non-plan revenue expenditures); GSDP simulated by it Post FRBM CAGR of 13.13; Power Subsidy for FY 2016-17 is taken as Revised Estimates(RE) and for FY 2017-18 is taken as Budget Estimate(BE) adjusted to proportion of average Account Estimates(A) in average Revised Estimates(RE).

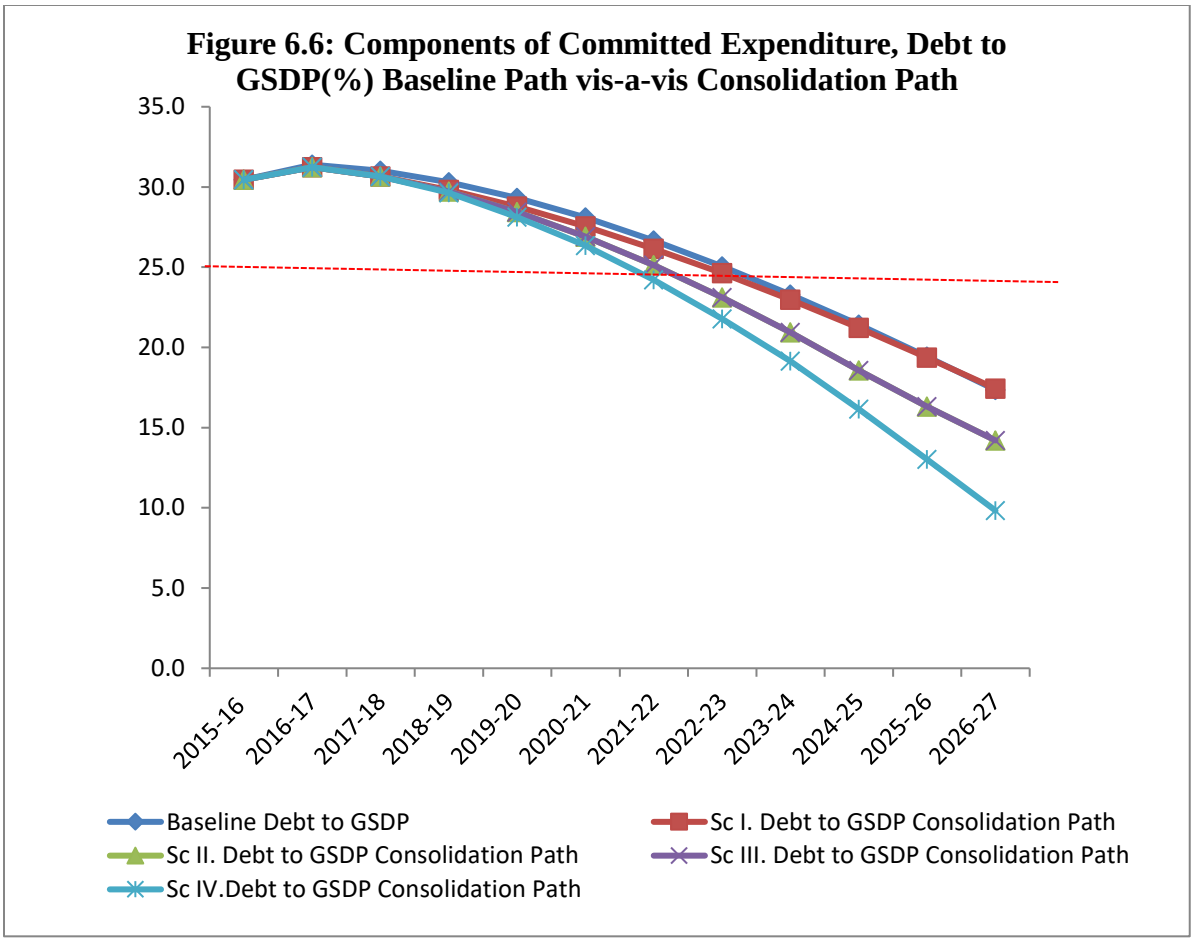
Components of Committed Expenditure: Debt to GSDP Consolidation Path

In this section we discuss the consolidation path that can be attained by compressing expenditure on the items of committed expenditure. As mentioned earlier, among the components of committed expenditure, expenditure on pensions had witnessed a positive growth in the post-FRBM period (CAGR 2.63). Thus, preventing further increase in its post-FRBM average proportion to GSDP would affect fiscal correction. Power subsidy was another component on which expenditure can be compressed to accelerate the pace of fiscal correction in Punjab. As power subsidy comprises a substantial portion of total subsidy in Punjab, its proportion as GSDP can be reduced to improve revenue deficit. In chapter 2 of this report we have presented a comparison of power subsidy given by the government of Punjab and the government of Karnataka. It was observed that power subsidy given by Punjab (on an average 97% of the total subsidy and 1.4% of the GSDP during 2011-12 to 2015-16) was twice as large as that given by Karnataka (on an average 49% of the total subsidy and 0.78 % of GSDP during 2011-12 to 2015-16). Thus, Karnataka's power subsidy to GSDP was taken as a prudent threshold for Punjab to achieve over the simulation period. In view of the above, alternative scenarios were designed to accommodate the reduction in Punjab's committed expenditure on pension and power subsidy.

Figure 6.6 plots the consolidation paths under four alternative scenarios vis-à-vis the baseline scenario over the period of 10 years. Following were the four scenarios that were considered for this purpose:

- Sc I: Debt to GSDP Consolidation Path: Power Subsidy/GSDP and Pensions/GSDP held constant
- Sc II: Debt to GSDP Consolidation Path: Pension/GSDP constant and preventing revenue surplus
- Sc III: Debt to GSDP Consolidation Path: Pension/GSDP constant and allowing revenue surplus
- Sc IV: Debt to GSDP Consolidation Path: Power Subsidy/GSDP reduced to 5-year avg. Power subsidy/GSDP of Karnataka; Pensions/GSDP constant; allowing revenue surplus

Figure 6.6: Components of Committed Expenditure, Debt to GSDP(%) Baseline Path vis-a-vis Consolidation Path



Note: Baseline Debt to GSDP: Components of committed expenditure simulated by their post-FRBM growth rate; Sc I. Debt to GSDP Consolidation Path: Power Subsidy/GSDP and Pensions/GSPD held constant; Sc II. Debt to GSDP Consolidation Path: Pension/GSDP constant and preventing for revenue surplus; Sc III. Debt to GSDP Consolidation Path: Pension/GSDP constant and allowing for revenue surplus; Sc IV. Debt to GSDP Consolidation Path: Power Subsidy/GSDP reduced to 5-year avg. power subsidy/GSDP of Karnataka; Pensions/GSDP constant; allowing for revenue surplus.

As evident from figure 6.6, expenditure reduction suggested in scenario II, III and IV would ensure fast fiscal correction as compared to scenario I and baseline simulation. By allowing phased reduction in power subsidy (from 2.1% in 2017-18 to 0.78 % by 2026-27) and simultaneously holding proportion of pension to GSDP constant (at post-FRBM average of 1.8% for five years) would enable Punjab to achieve Debt to GSDP target of 25% by FY 2021-22(one year ahead of the baseline). Also, debt to GSDP would fall at a faster rate in the scenario I, II, II and IV. Particularly in the case of scenario IV, debt to GSDP was expected to fall by 14 % points between 2021-22 and 2026-27.

In contrast to the baseline simulation, the consolidation path given in the scenario II and III (i.e. retaining pension to GSDP at its post-FRBM average), would save the government of Punjab Rs 5891crore on commitments towards pensions over the period of 10 years. These paths were also likely to eliminate revenue deficit by FY 2024-25 and attain a revenue surplus of Rs 2218crore in 2025-26 and Rs 4992crore in 2026-27. Similarly, reduction in the proportion of power subsidy in GSDP, as proposed in scenario IV(i.e. reducing power subsidy to 0.78% of GSDP), would eliminate revenue deficit by 2022-23, attain target of 3% fiscal deficit in 2018-19 and surplus of Rs1583crore in primary balance in 2019-20(detailed simulations of the scenarios are presented in Annex Table 6.2 a, b, c and d).Attaining these fiscal corrections would essentially mean availability of more resources with the state government to be directed towards capital outlay and health and education expenditure.

6.4.3 Revenue Augmentation: Disaggregate Analysis

State's Own Tax Revenue (SOTR), GST Revenue and Non-GST Revenue: Debt to GSDP Baseline Simulation

Earlier in the report, analysis of revenue receipt of Punjab highlighted the slow growth of revenue generation in Punjab (Post-FRBM CAGR of RR is -1.47). The correction paths have suggested revenue augmentation through growth improvements in the state's own tax revenue (SOTR) as well as non-tax revenue (SONTR). The recent changes in the tax structure of India through introduction of Goods and Service tax (GST) can be seen as an opportunity for the States to improve their revenue generation. Under the Indian federal structure, GST is levied by both the Centre (CGST) and the States (SGST), at same price or value. Apart from the items taxable under GST, certain goods and services are not subsumed under GST. These are taxes, price and value that can be controlled by the states and thus form the non-GST component of States' own tax revenue. Tax items exempted from GST include State Excise on Liquor (LIQ), Land revenue (LR), Stamp and Registration Fees(S&R), Motor and Vehicle Taxes (M&V), electricity duty (ELEC) and Petroleum.[27] Table 6.5 presents item wise non-GST, GST and SONTR revenue generation in Punjab during the post-FRBM period (2005-06 to 2017-18).

[27]Considering the ongoing discussion on the treatment of petroleum, tax on petroleum has been excluded from non-GST items.

As observed from table 6.5, non-GST revenue of Punjab, on an average, was 2.9% of GSDP. This ratio declined from 3.8% in 2005-06 to 2.8% in 2015-16. Accordingly, it registered a negative growth over the post-FRBM period (CAGR-0.91). Revenue from GST on an average was 4% of GSDP. During the post- FRBM period, GST revenue as a percentage of GSDP reported a positive growth (CAGR 1.53). Together, GST and non-GST revenue constitute SOTR.As a component of revenue receipt (RR),SOTR on average accounts for 7%of Punjab's GSDP and had grown at a positive rate (CAGR 0.49). The other component of revenue receipt i.e. SONTR to GSDP was found to average around 2.1 % and had registered a negative growth (CAGR -13.81%) in the post-FRBM period.

In view of the above observations, we conducted a baseline simulation to demonstrate debt to GSDP path of Punjab over the next 10 years assuming that SONTR, SOTR and components continue to grow at their post-FRBM growth rates. Table 6.6presents the debt to GSDP forecast of Punjab for the period 2016-17 to 2026-27. The disaggregate analysis of Punjab's revenue generation under the GST structure attempted in the baseline scenario brought out the following features:

- Fast growth in SOTR, expected on account of positively growing GST revenue, was impeded by slow growth in non-GST revenue. As a result, over the period of 10 years, SOTR to GSDP would be likely to increase by 0.5% points from its post-FRBM average of 7%.
- A lingering growth of SOTR combined with a negative growth of SONTR, *ceteris paribus*, would result in a decline of RR to GSDP by0.9% points from an average of 11.2%.By 2026-27, revenue receipts would be likely to increase by Rs.70910crore.

Table 6.5:Revenue generation of Punjab from Taxes and Duties under GST and Non- GST

(in Rs. Crore)

Year	LIQ	LIQ/GSDP(%)	GR	LR	LR/GSDP(%)	GR	S&R	S&R/GSDP(%)	GR	M&V	M&V/GSDP(%)	GR	ELEC	ELEC/GSDP(%)	GR
2004-05	1478	1.47	-	7	0.01	-	966	0.96	-	404	0.40	-	279	0.28	-
2005-06	1524	1.35	-0.08	16	0.01	1.14	1671	1.48	0.54	431	0.38	-0.05	669	0.59	1.14
2006-07	1572	1.19	-0.12	15	0.01	-0.20	1804	1.36	-0.08	468	0.35	-0.07	528	0.40	-0.33
2007-08	1846	1.17	-0.02	17	0.01	-0.05	1568	0.99	-0.27	499	0.32	-0.11	604	0.38	-0.04
2008-09	1784	0.99	-0.15	15	0.01	-0.22	1730	0.96	-0.03	524	0.29	-0.08	631	0.35	-0.09
2009-10	2101	1.02	0.04	15	0.01	-0.13	1551	0.76	-0.21	555	0.27	-0.07	230	0.11	-0.68
2010-11	2367	1.01	-0.02	19	0.01	0.10	2318	0.99	0.31	654	0.28	0.03	1423	0.60	4.40
2011-12	2745	1.03	0.02	25	0.01	0.15	3079	1.15	0.17	850	0.32	0.15	928	0.35	-0.42
2012-13	3322	1.12	0.08	37	0.01	0.33	2920	0.98	-0.15	995	0.33	0.05	2035	0.68	0.96
2013-14	3611	1.08	-0.03	42	0.01	0.02	2500	0.75	-0.24	1146	0.34	0.02	1710	0.51	-0.25
2014-15	4003	1.09	0.01	47	0.01	0.01	2474	0.67	-0.10	1393	0.38	0.11	1875	0.51	0.00
2015-16	5068	1.29	0.19	55	0.01	0.10	2449	0.63	-0.07	1475	0.38	-0.01	1967	0.50	-0.01
2016-17(RE)	6386	1.49	0.15	67	0.02	0.11	2600	0.61	-0.03	1479	0.35	-0.08	1984	0.46	-0.08
2017-18(BE)	-	-	-	220	0.05	-	2400	0.52	-	3175	0.68	-	2400	0.52	-
Post-FRBM CAGR			-1.13			6.95			-3.81			-0.57			5.57

Year	SOTR	SOTR/GSDP (%)	GR	Total Non-GST Rev.	Non-GST/GSDP (%)	GR	Total GST Rev.	GST/GSDP (%)	GR	SONTR	SONTR/GSDP (%)	GR
2004-05	6945	6.90	-	3133	3.11	-	3812	3.78	-	5358	5.32	-
2005-06	8989	7.96	0.15	4311	3.82	0.23	4678	4.14	0.09	4536	4.02	-0.25
2006-07	9017	6.82	-0.14	4387	3.32	-0.13	4631	3.50	-0.15	3973	3.00	-0.25
2007-08	9899	6.25	-0.08	4535	2.86	-0.14	5365	3.39	-0.03	5254	3.32	0.10
2008-09	11150	6.16	-0.01	4686	2.59	-0.10	6465	3.57	0.05	5784	3.20	-0.04
2009-10	12039	5.86	-0.05	4452	2.17	-0.16	7587	3.69	0.03	5653	2.75	-0.14
2010-11	16828	7.15	0.22	6781	2.88	0.33	10047	4.27	0.16	5330	2.27	-0.18
2011-12	18840	7.07	-0.01	7627	2.86	-0.01	11213	4.21	-0.02	1400	0.53	-0.77
2012-13	22588	7.59	0.07	9309	3.13	0.09	13278	4.46	0.06	2629	0.88	0.68
2013-14	24079	7.19	-0.05	9009	2.69	-0.14	15070	4.50	0.01	3191	0.95	0.08
2014-15	25570	6.95	-0.03	9793	2.66	-0.01	15777	4.29	-0.05	2880	0.78	-0.18
2015-16	28515	7.28	0.05	11015	2.81	0.06	17500	4.47	0.04	4062	1.04	0.33
2016-17(RE)	30547	7.14	-0.02	12516	2.93	0.04	18031	4.21	-0.06	3807	0.89	-0.14
2017-18(BE)	-	-	-	-	-	-	-	-	-	-	-	-
Post-FRBM CAGR			0.49			-0.91			1.52			-13.8

SOURCE: Budget Papers various years.

Note: State Excise on Liquor(LIQ), Land revenue(LR), Stamp and Registration fees(S&R), Motor and Vehicle Taxes(M&V), Electricity duty (ELEC)and Petroleum are outside the purview of GST and are added to form the Non-GST revenue (excluding Petroleum); GST Revenue includes revenue from all other taxes that are non-GST. Values of Land Revenue and Electricity Duty for year 2004-05 are estimated; figures for State excise on liquor for years 2005-06, 2006-07 and 2016-17 are estimated by using growth rate; SOTR=State's own tax revenue; SONTR= State's own non-tax revenue; GR= Growth Rate; GST Rev=Goods and Services Tax Revenue; Non-GST Rev = Non-Goods and Services Tax Revenue; Post-FRBM CAGR= Compound Annual Growth Rate for the period 2005-06 to 2015-16.

Table 6.6: Baseline Scenario for GST and Non-GST Revenue (2015-16 to 2026-27)

(values in Rs. Crore)		**(post FRBM average)**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**
GSDP (increased by post FRBM CAGR:13.13)		243982	276017	312258	353258	399641	452113	511476	578633	654607	740557	837792	947794
Revenue Receipt(1+2+3+4)	value Rs Cr.	27409	30476	33980	37978	42541	47744	53676	60438	68143	76923	86925	98319
	in % GSDP	11.2	11.0	10.9	10.8	10.6	10.6	10.5	10.4	10.4	10.4	10.4	10.4
1. SOTR(a+b)	value Rs Cr.	17047	19389	22055	25092	28550	32491	36979	42094	47923	54566	62139	70772
	in % GSDP	7.0	7.0	7.1	7.1	7.1	7.2	7.2	7.3	7.3	7.4	7.4	7.5
a. GST Rev. (Simulated by CAGR 1.52)	value Rs Cr.	10146	11653	13384	15371	17653	20275	23286	26743	30715	35276	40514	46530
	in % GSDP	4.2	4.2	4.3	4.4	4.4	4.5	4.6	4.6	4.7	4.8	4.8	4.9
b. Non-GST Rev. (simulated by CAGR -0.91)	value Rs Cr.	6900	7735	8671	9721	10897	12216	13694	15351	17208	19291	21625	24242
	in % GSDP	2.8	2.8	2.8	2.8	2.7	2.7	2.7	2.7	2.6	2.6	2.6	2.6
2.SONTR (simulated by CAGR -13.81)	value Rs Cr.	4063	3962	3863	3767	3673	3581	3492	3405	3320	3237	3156	3078
	in % GSDP	1.7	1.4	1.2	1.1	0.9	0.8	0.7	0.6	0.5	0.4	0.4	0.3
3. Share in Central Taxes (simulated as constant % of GSDP)	value Rs Cr.	3346	3785	4282	4845	5481	6200	7014	7935	8977	10156	11490	12998
	in % GSDP	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
4. Grants-in-Aid (simulated as constant % of GSDP)	value Rs Cr.	2953	3341	3779	4276	4837	5472	6191	7003	7923	8963	10140	11471
	in % GSDP	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

Revenue Expenditure (simulated as a constant % of GSDP Cr.)	value Rs Cr.	32601	36881	41724	47202	53400	60411	68343	77317	87468	98953	111945	126644
	in % GSDP	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4	13.4
Revenue Deficit	value Rs Cr.	5192	6405	7744	9224	10859	12667	14667	16879	19325	22030	25021	28325
rd	in % GSDP	2.1	2.3	2.5	2.6	2.7	2.8	2.9	2.9	3.0	3.0	3.0	3.0
gfd (%)		3.03	3.22	3.38	3.51	3.62	3.70	3.77	3.82	3.85	3.88	3.89	3.89
pd(%)		0.51	0.67	0.74	0.88	0.99	1.10	1.19	1.27	1.34	1.40	1.45	1.49
r(post FRBM Avg. in %)		2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52
g(post FRBM Avg. in %)		6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
ratio (1+r/1+g)		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
bt(%)		30.5	30.0	29.6	29.3	29.2	29.2	29.3	29.5	29.7	30.0	30.3	30.6

Note: r=real rate of interest; g= real growth of GSDP; rd= Revenue Deficit to GSDP estimated as Revenue Expenditure subtracted by Revenue Receipts; gfd= Gross Fiscal Deficit estimated as Revenue Deficit plus Capital outlay+ Net Lending; pd= primary deficit to GSDP estimated as Gross fiscal deficit subtracted by Interest payments; b_t= debt to GSDP estimated as $b_{t-1}*(1+r/1+g)+pd_t$; GSDP simulated by it Post FRBM CAGR of 13.13; State Excise on Liquor(LIQ), Land revenue(LR), Stamp and Registration fees(S&R), Motor and Vehicle Taxes(M&V), Electricity duty (ELEC)and Petroleum are outside the purview of GST and are added to form the Non-GST revenue (excluding Petroleum due to unavailability of data);GST Revenue is revenue from all other taxes apart from non-GST items. Values of Land Revenue and Electricity Duty for year 2004-05 are estimated; figures for State excise on liquor for years 2005-06, 2006-07 and 2016-17 have been interpolated by using growth rate.

- The declining RR to GSDP ratio would hit hard on revenue deficit. With RE to GSDP held constant at historical average (13.4%), revenue deficit as a percentage of GSDP would increase from an average of 2% to 3% in 2026-27.
- On account of the poor revenue generation, fiscal consolidation targets were likely to go astray. As a percentage of GSDP, the fiscal deficit and public debt would continue to remain above target of 3% and 25% respectively.

GST Revenue and Non-GST Revenue: Debt to GSDP Consolidation Path

As evident from the results of the baseline simulation, decline in RR to GSDP caused by negative growth of non-GST revenue and SONTR would negatively impact the deficit and debt indicators. It was thus essential for the government of Punjab to augment revenue generation for achieving consolidation targets. As fiscal consolidation policy, increase in non-GST revenue and SONTR could accelerate revenue generation in Punjab

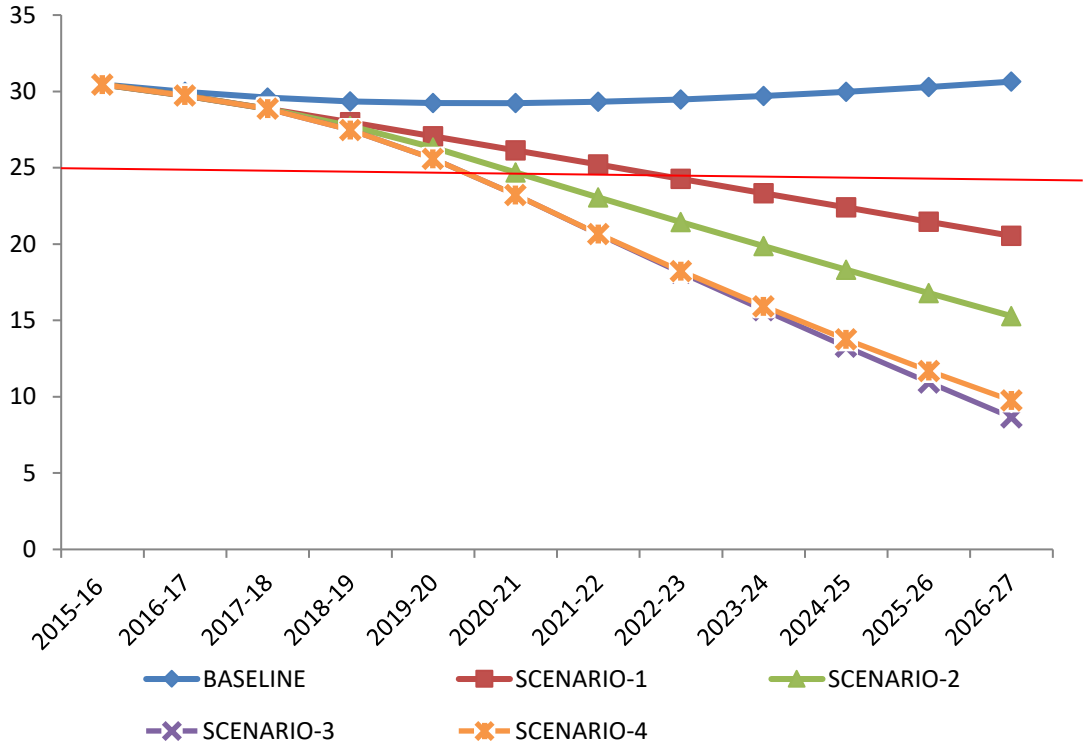
In the following discussion, we describe the alternative debt to GSDP consolidation paths for Punjab by improving non-GST revenue and SONTR. Figure 6.7 plots the consolidation paths under the alternative scenarios vis-à-vis the baseline scenario over the period of 10 years. Following were the four scenarios considered for this purpose:

- Scenario-1: Non-GST Revenue /GSDP and SONTR/GSDP held constant as a percentage of GSDP
- Scenario-2: Non-GST Revenue/GSDP increased by 0.25 percentage points for 3 years (2018-19 to 2020-21) and SONTR/GSDP (%) held constant
- Scenario-3: Non-GST Revenue / GSDP and SONTR/GSDP increased by 0.25 percentage points from 2018-19 for 3 years and allowing for revenue surplus
- Scenario-4: Non-GST/ GSDP and SONTR/GSDP increased by 0.25 percentage points from 2018-19 for 3years but preventing revenue surplus

Consolidation paths plotted in figure 6.7 clearly show the decline in public debt under these alternative scenarios. Improvements in SONTR and non-GST revenue by 0.25% for 3 years had a long-term positive impact on the deficits and public debt of Punjab. Debt to GSDP target

was most likely to be met by FY 2020-21 under scenario 2, 3 and 4.Fiscal policies ensuring movement along scenario 3would be likely to generate revenue surplus by 2021-22(Rs 82crore) and its increase by 0.36% points by 2026-27(Rs.3532crore) (simulations of the scenarios are presented in Annexure Table 6.4a,b,c and d).

Figure 6.7: GST and Non-GST Revenue, Debt to GSDP(%) Baseline Path vis-a-vis Consolidation Path



Note: Baseline: GST, Non-GST and SONTR simulated by their Post-FRBM CAGR, holding Share in Central Taxes and Grants-in-aid to GSDP constant; Scenario-1: Non-GST Revenue /GSDP and SONTR/GSDP kept constant as a percentage of GSDP; Scenario-2: Non-GST Revenue/GSDP increased by 0.25 percentage points for 3 years from 2018-19 and SONTR/GSDP (%) held constant; Scenario-3: Non-GST Revenue / GSDP and SONTR/GSDP increased by 0.25 percentage points from 2018-19 for 3 years (allowing for surplus); Scenario-4: Non-GST/ GSDP and SONTR/GSDP increased by 0.25 percentage points from 2018-19 for 3 years (preventing revenue surplus)

Overall the baseline simulations suggested that rationalization of unproductive expenditures and augmentation of revenue generation can facilitate attainment of fiscal consolidation targets as well as secure a surplus situation in the revenue account. In the event of a surplus, additional resources could be directed towards asset building and productive expenditure to ensure the

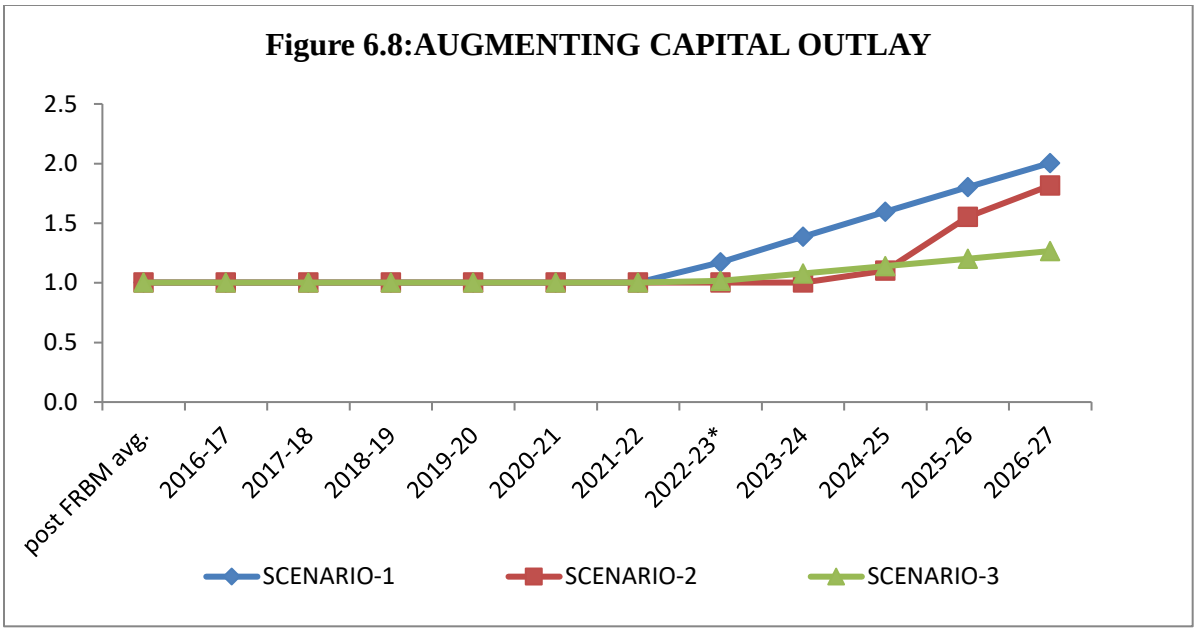
provision of satisfactory levels of social and economic infrastructure. In the next section, we discuss the likely path of Punjab's capital outlay in the event of revenue surplus.

6.4.4 Augmenting Capital Outlay

It was found that Punjab can achieve revenue surplus through fiscal consolidation and improved revenue receipts. Punjab can increase its revenue receipts by increasing its non-GST revenue and the State's own non-tax revenue. Punjab can also achieve revenue surplus by reducing its revenue expenditure, especially its expenditure on power subsidy. This surplus should be directed to increase the capital outlay and asset building. This will have a positive long-lasting effect. Figure 6.8 illustrates these possibilities by considering the following scenarios:

- SCENARIO-1: Increase in capital outlay from the revenue surplus generated through improved aggregate revenue receipts
- SCENARIO-2: Increase in capital outlay from revenue augmentation through phasing out of power subsidy
- SCENARIO-3: Increase in capital outlay using the surplus attained from an increase in Non-GST revenue and SONTR

Figure 6.8:AUGMENTING CAPITAL OUTLAY



NOTE: SCENARIO-1: Increase in Capital Outlay by Revenue Surplus attained by improving aggregate revenue generation; SCENARIO-2: Increase in Capital Outlay attained by revenue augmentation through phasing out of power subsidy; SCENARIO-3: Increase in Capital Outlay using surplus attained by increase in Non-GST revenue and SONTR.

According to figure 6.8, capital outlay would double (2%) under scenario 1 by 2029-6-27 from its post-FRBM average of 1%. With scenario 2 and 3, capital outlay is expected to converge to 2% with a lag of one year and 4 years respectively.

At the disaggregate level, some components of capital outlay observed needed special attention. Table 6.7 compares component wise average capital outlay of Punjab vis-à-vis all-States during the post –FRBM period (2005-06 to 2015-16). Punjab is recommended to divert its revenue surplus mainly towards that development expenditure, where Punjab's expenditure is almost half of the all-States average. Healthcare was identified as another component where revenue surplus needs to be directed. Being a major agrarian state, its capital outlay on this component is very low. This can be increased. Punjab's expenditure on rural development was lower than the all-States average. This, too, needs better allocations. Although Punjab has high revenue expenditure on power subsidy, its capital outlay on energy is quite low. However, its capital outlay on general economic services was more than the all-States average.

Table 6.7:POST-FRBM AVERAGES OF COMPONENTS OF CAPITAL OUTLAY (as a percentage of GSDP)		
	PUNJAB	ALL-STATES
CAPITAL OUTLAY	**1.11**	**2.46**
A. DEVELOPMENT EXPENDITURE	**1.03**	**2.37**
i. SOCIAL SERVICES	**0.31**	**0.47**
1. EDUCATION	0.06	0.06
2. HEALTH	0.11	0.24
3. OTHERS	0.13	0.17
ii. ECONOMIC SERVICES	**0.73**	**1.9**
1. AGRICULTURE AND ALLIED ACTIVITIES	0.01	0.08
2. RURAL DEVELOPMENT	0.06	0.15
3. SPECIAL AREA PROGRAMME	0	0.03
4.MAJOR AND MINOR IRRIGATION PROGRAMME AND FLOOD CONTROL	0.22	0.74
5. ENERGY	0.02	0.29
6. INDUSTRY AND MINERALS	0.00	0.03
7. TRANSPORT	0.27	0.55
8. COMMUNICATION	0	0
9. SCIENCE, TECHNOLOGY AND ENVIRONMENT	0	0
10. GENERAL ECONOMIC SERVICES	0.14	0.03
B. NON-DEVELOPMENT EXPENDITURE	**0.08**	**0.10**

NOTE: unavailability of data on GSDPs of Maharashtra, Rajasthan and West Bengal for the year 2015-16, and the all states average does not include the figures for these states for the given year.

6.5 Conclusion

Unsustainable debt paths may eventually lead to sharp adjustments, if not to crises. Hence, sustainability is the most desirable quality. Our debt forecasting analysis for Punjab highlights that its debt is weakly sustainable. The State can no longer afford to indulge in loose fiscal policy. In the scenario analysis, Section 6.3, it was observed that adverse economic shocks, such as a rise in the real interest rate, can steadily increase the Debt/GSDP ratio of the State. Shocks of a more permanent nature can render the State into macroeconomic instability. Thus, Punjab is recommended to plan strategies for debt management and additional resource mobilization to attain debt stability. In this regard, we carried out a series of simulations to demonstrate the consolidation paths that can stabilize public debt and deficit situation of Punjab. The main conclusion derived from the scenario analysis was the need for strengthening the fiscal situation by augmenting revenue generation and expenditure compression. Revenue receipts can be improved by increasing SONTR and non-GST. This will enable Punjab to eliminate revenue deficit and register a surplus. Similarly, expenditure compression by phasing out power subsidy (at least by 30% of its ratio to GSDP) and retaining pension to GSDP ratio at it post-FRBM average would ensure attainment of debt to GSDP target by 2022-23.

Annexure 6

Table6.1a : Sc I Debt to GSDP consolidation Path for Revenue Receipts and Revenue Expenditure of Punjab (2015-16 to 2026-27)

		Post-FRBM Avg.	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
GSDP(SIMULATED by CAGR 13.13)		243982	276017	312258	353258	399641	452113	511476	578633	654607	740557	837792	947794
1.REVENUE RECEIPTS(SIMULATED for CAGR-1.47)	value Cr.	27409	31007	35079	40567	46893	54180	61294	69342	78447	88747	100399	113582
	in % GSDP	11.23	11.2	11.2	11.5	11.7	12.0	12.0	12.0	12.0	12.0	12.0	12.0
2.REVENUE EXPENDITURE(SIMULATED for CAGR-2.59)	value Cr.	32601	36121	40021	44342	49130	54434	60312	66824	74039	82033	90891	100704
	in % GSDP	13.4	13.1	12.8	12.6	12.3	12.0	11.8	11.5	11.3	11.1	10.8	10.6
3. REVENUE DEFICIT(1-2)	value Cr.	5192	5114	4942	3775	2237	254	-982	-2518	-4408	-6714	-9509	-12878
rd	in % GSDP	2.13	1.85	1.58	1.07	0.56	0.06	-0.19	-0.44	-0.67	-0.91	-1.13	-1.36
4. CAPITAL OUTLAY (SIMULATED constant as % GSDP)	value Cr.	2445	2766	3129	3540	4005	4531	5125	5798	6560	7421	8395	9498
	in % GSDP	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5. NET LENDINGS(SIMULATED constant as % GSDP)	value Cr.	-243	-274	-311	-351	-397	-450	-509	-575	-651	-736	-833	-943
	in % GSDP	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10
6. GROSS FISCAL DEFICIT (3+4+5)	value Cr.	7395	7605	7761	6963	5844	4335	3634	2705	1501	-29	-1947	-4323

7. Interest payments (estimated)*	value Cr.	6138	7035	8240	9315	10494	11788	13208	14769	16486	18376	20457	22752
	in % GSDP	2.52	2.55	2.64	2.64	2.63	2.61	2.58	2.55	2.52	2.48	2.44	2.40
PRIMARY DEFICIT (6-7)	value Cr.	1256	570	**-479**	**-2352**	**-4650**	**-7453**	**-9574**	**-12065**	**-14986**	**-18405**	**-22404**	**-27074**
gfd (%)		3.03	2.76	2.49	1.97	1.46	0.96	0.71	0.47	0.23	0.00	-0.23	-0.46
pd(%)		0.51	0.21	**-0.15**	**-0.67**	**-1.16**	**-1.65**	**-1.87**	**-2.09**	**-2.29**	**-2.49**	**-2.67**	**-2.86**
r(post FRBM Avg.in %)			2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51
g(post FRBM Avg. in %)			6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
ratio (1+r/1+g)			0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
bt(%)		30.5	29.5	28.2	26.5	24.3	**21.8**	**19.1**	**16.3**	**13.4**	**10.4**	**7.3**	**4.2**

Note: r=real rate of interest; g= real growth of GSDP; rd= Revenue Deficit to GSDP estimated as Revenue Expenditure subtracted by Revenue Receipts; gfd= Gross Fiscal Deficit estimated as Revenue Deficit plus Capital outlay+ Net Lending; pd= primary deficit to GSDP; bt= debt to GSDP estimated as bt-1*(1+r/1+g)+pd;*Interest payments is estimated by multiplying the debt to GSDP ratio of the previous year with the post FRBM average of Nominal Rate of Interest and GSDP of the current year; Sc I. Debt to GSDP Consolidation Path (Increase in RR/GSDP by 0.25 last for 3 years(2018-19 to 2020-21) and held constant thereafter; allowing for revenue surplus).

Table6.1 b: Sc II Debt to GSDP consolidation Path for Revenue Receipts and Revenue Expenditure of Punjab (2015-16 to 2026-27)

		Post-FRBM Avg.	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
GSDP(SIMULATED by CAGR 13.13)		243982	276017	312258	353258	399641	452113	511476	578633	654607	740557	837792	947794
1.REVENUE RECEIPTS(SIMULATED for CAGR-1.47)	value Cr.	27409	31007	35079	40567	46893	54180	61294	69342	78447	88747	100399	113582
	in % GSDP	11.23	11.2	11.2	11.5	11.7	12.0	12.0	12.0	12.0	12.0	12.0	12.0
2.REVENUE EXPENDITURE(SIMULATED for CAGR-2.59)	value Cr.	32601	36121	40021	44342	49130	54434	60312	66824	74039	82033	90891	100704
	in % GSDP	13.4	13.1	12.8	12.6	12.3	12.0	11.8	11.5	11.3	11.1	10.8	10.6
3. REVENUE DEFICIT(1-2)	value Cr.	5192	5114	4942	3775	2237	254	0	0	0	0	0	0
	in % GSDP	2.13	1.85	1.58	1.07	0.56	0.06	0	0	0	0	0	0
4. CAPITAL OUTLAY (SIMULATED constant as % GSDP)	value Cr.	2445	2766	3129	3540	4005	4531	5125	5798	6560	7421	8395	9498
	in % GSDP	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5. NET LENDINGS(SIMULATED constant as % GSDP)	value Cr.	-243	-274	-311	-351	-397	-450	-509	-575	-651	-736	-833	-943
	in % GSDP	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10	-0.10
6. GROSS FISCAL DEFICIT (3+4+5)	value Cr.	7395	7605	7761	6963	5844	4335	4617	5223	5909	6685	7562	8555
7. Interest payments (estimated)*	value Cr.	6138	7035	8240	9315	10494	11788	13208	14769	16486	18376	20457	22752

	in % GSDP	2.52	2.55	2.64	2.64	2.63	2.61	2.58	2.55	2.52	2.48	2.44	2.40
PRIMARY DEFICIT (6-7)	value Cr.	1256	570	**-479**	**-2352**	**-4650**	**-7453**	**-8592**	**-9547**	**-10578**	**-11692**	**-12895**	**-14196**
gfd (%)		3.03	2.76	2.49	1.97	1.46	0.96	0.90	0.90	0.90	0.90	0.90	0.90
pd(%)		0.51	0.21	**-0.15**	**-0.67**	**-1.16**	**-1.65**	**-1.68**	**-1.65**	**-1.62**	**-1.58**	**-1.54**	**-1.50**
r(post FRBM Avg.in %)			2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51
g(post FRBM Avg. in %)			6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
ratio (1+r/1+g)			0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
bt(%)		30.5	29.5	28.2	26.5	24.3	21.8	19.3	16.9	14.6	12.5	10.5	8.6

Note: r=real rate of interest; g= real growth of GSDP; rd= Revenue Deficit to GSDP estimated as Revenue Expenditure subtracted by Revenue Receipts; gfd= Gross Fiscal Deficit estimated as Revenue Deficit plus Capital outlay+ Net Lending; pd= primary deficit to GSDP; bt= debt ot GSDP estimated as bt-1*(1+r/1+g)+pd;*Interest payments is estimated by multiplying the debt to GSDP ratio of the previous year with the post FRBM average of Nominal Rate of Interest and GSDP of the current year; Sc II. Debt to GSDP Consolidation Path (Increase in RR/GSDP by 0.25 last for 3 years (2018-19 to 2020-21) and held constant thereafter; preventing for revenue surplus).

Table 6.2 a : Scenario I.: Expenditure Compression Scenario for Components of Committed Revenue Expenditure(2015-16 to 2026-27)

		2015-16 (Post FRBM Avg.)	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
GSDP(increased by post FRBM CAGR 13.13)		243982	276017	312258	353258	399641	452113	511476	578633	654607	740557	837792	947794
REVENUE EXPENDITURE(1+2+3+4+5)	value Cr.	32601	41189	42683	47322	52491	58255	64685	71859	79869	88814	98806	109974
	in % GSDP	13.4	14.9	13.7	13.4	13.1	12.9	12.6	12.4	12.2	12.0	11.8	11.6
1. POWER SUBSIDY(simulated as constant % to GSDP)	value Cr.	3386	8966	7123	8059	9117	10314	11668	13200	14933	16894	19112	21621
	in % GSDP	1.4	3.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
2. WAGES AND SALARIES (simulated by post FRBM CAGR-0.55)	value Cr.	10558	11878	13364	15036	16916	19032	21413	24091	27104	30494	34309	38600
	in % GSDP	4.3	4.3	4.3	4.3	4.2	4.2	4.2	4.2	4.1	4.1	4.1	4.1
3. PENSION(simulated as constant % to GSDP)	value Cr.	4588	5191	5873	6644	7516	8503	9619	10882	12311	13927	15756	17825
	in % GSDP	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
4. INTEREST PAYMENT(simulated by post FRBM CAGR-4.09)	value Cr.	6138	6660	7227	7841	8508	9231	10016	10868	11792	12794	13882	15063
	in % GSDP	2.5	2.4	2.3	2.2	2.1	2.0	2.0	1.9	1.8	1.7	1.7	1.6
5.OTHERS(simulated by post FRBM CAGR -5.33)	value Cr.	7931	8494	9097	9743	10434	11175	11969	12819	13729	14703	15747	16865
	in % GSDP	3.3	3.1	2.9	2.8	2.6	2.5	2.3	2.2	2.1	2.0	1.9	1.8

REVENUE RECEIPTS (simulated as constant % of GSDP Cr.)	value Cr.	27409	31007	35079	39684	44895	50790	57458	65003	73537	83193	94116	106473
	in % GSDP	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
REVENUE DEFICIT	value Cr.	5192	10182	7605	7637	7596	7466	7226	6857	6331	5621	4690	3501
	in % GSDP	2.13	3.69	2.44	2.16	1.90	1.65	1.41	1.19	0.97	**0.76**	**0.56**	**0.37**
gfd (%)		3.03	4.59	3.34	**3.06**	**2.80**	**2.55**	**2.32**	**2.09**	**1.87**	**1.66**	**1.46**	**1.27**
pd(%)		0.51	2.04	0.70	0.43	0.18	-0.05	-0.27	-0.46	-0.65	-0.82	-0.98	-1.13
r(post FRBM Avg.in %)			2.51	2.510	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51
g(post FRBM Avg. in %)			6.54	6.540	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
ratio (1+r/1+g)			0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
bt(%)		30.5	31.3	30.9	30.1	29.2	28.0	**26.7**	**25.2**	**23.6**	**21.9**	**20.1**	**18.2**

Note: r=real rate of interest; g= real growth of GSDP; rd= Revenue Deficit to GSDP estimated as Revenue Expenditure subtracted by Revenue Receipts; gfd= Gross Fiscal Deficit estimated as Revenue Deficit plus Capital outlay+ Net Lending; pd= primary deficit to GSDP; bt= debt ot GSDP estimated as bt-1*(1+r/1+g)+pd; Revenue Expenditure is defined as the summation of expenditure on Power subsidy, Wage and Salaries, Pensions, Interest Payments and Others(all other plan and non-plan revenue expenditures); GSDP simulated by it Post FRBM CAGR of 13.13; Power Subsidy for FY 2016-17 is taken as Revised Estimates(RE) and for FY 2017-18 is taken as Budget Estimate(BE) adjusted to proportion of average Account Estimates(A) in average Revised Estimates(RE); Sc I. Debt to GSDP Consolidation Path: Power Subsidy/GSDP and Pensions/GSPD held constant.

Table 6.2b : Scenario II: Expenditure Compression Scenario for Components of Committed Revenue Expenditure(2015-16 to 2026-27)

		2015-16 (Post FRBM Avg.)	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
GSDP(increased by post FRBM CAGR 13.13)		243982	276017	312258	353258	399641	452113	511476	578633	654607	740557	837792	947794
REVENUE EXPENDITURE(1+2+3+4+5)	value Cr.	32601	41189	42683	46925	51616	56806	62551	68915	75966	83784	92456	102080
	in % GSDP	13.4	14.9	13.7	13.3	12.9	12.6	12.2	11.9	11.6	11.3	11.0	10.8
1. POWER SUBSIDY(simulated by post FRBM CAGR-4.923)	value Cr.	3386	8966	7123	7662	8241	8864	9534	10255	11031	11865	12762	13727
	in % GSDP	1.4	3.2	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4
2. WAGES AND SALARIES (simulated by post- FRBM CAGR-0.55)	value Cr.	10558	11878	13364	15036	16916	19032	21413	24091	27104	30494	34309	38600
	in % GSDP	4.3	4.3	4.3	4.3	4.2	4.2	4.2	4.2	4.1	4.1	4.1	4.1
3. PENSION(simulated as constant % of GSDP)	value Cr.	4588	5191	5873	6644	7516	8503	9619	10882	12311	13927	15756	17825
	in % GSDP	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
4. INTEREST PAYMENT((simulated by post FRBM CAGR-4.09)	value Cr.	6138	6660	7227	7841	8508	9231	10016	10868	11792	12794	13882	15063
	in % GSDP	2.5	2.4	2.3	2.2	2.1	2.0	2.0	1.9	1.8	1.7	1.7	1.6
5.OTHERS(simulated by post FRBM CAGR -5.33)	value Cr.	7931	8494	9097	9743	10434	11175	11969	12819	13729	14703	15747	16865

	in % GSDP	3.3	3.1	2.9	2.8	2.6	2.5	2.3	2.2	2.1	2.0	1.9	1.8
REVENUE RECEIPTS (simulated as constant % of GSDP Cr.)	value Cr.	27409	31007	35079	39684	44895	50790	57458	65003	73537	83193	94116	106473
	in % GSDP	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
REVENUE DEFICIT	value Cr.	5192	10182	7605	7241	6721	6016	5093	3912	2429	592	-1660	-4394
	in % GSDP	2.13	3.69	2.44	2.05	1.68	1.33	1.00	0.68	0.37	**0.08**	**-0.20**	**-0.46**
rd=0; allowed											0	0	0
gfd (%)		3.03	4.59	3.34	**2.95**	**2.58**	**2.23**	**1.90**	**1.58**	**1.27**	**0.90**	**0.90**	**0.90**
pd(%)		0.51	2.04	0.70	0.32	-0.04	-0.37	-0.68	-0.97	-1.24	-1.58	-1.54	-1.50
r(post FRBM Avg.in %)			2.51	2.510	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51
g(post FRBM Avg. in %)			6.54	6.540	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
ratio (1+r/1+g)			0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
bt(%)		30.5	31.3	30.9	30.0	28.8	27.4	**25.6**	**23.7**	**21.6**	**19.2**	**16.9**	**14.8**

Note: r=real rate of interest; g= real growth of GSDP; rd= Revenue Deficit to GSDP estimated as Revenue Expenditure subtracted by Revenue Receipts; gfd= Gross Fiscal Deficit estimated as Revenue Deficit plus Capital outlay+ Net Lending; pd= primary deficit to GSDP; bt= debt to GSDP estimated as bt-1*(1+r/1+g)+pd; Revenue Expenditure is defined as the summation of expenditure on Power subsidy, Wage and Salaries, Pensions, Interest Payments and Others(all other plan and non-plan revenue expenditures); GSDP simulated by it Post FRBM CAGR of 13.13; Power Subsidy for FY 2016-17 is taken as Revised Estimates(RE) and for FY 2017-18 is taken as Budget Estimate(BE) adjusted to proportion of average Account Estimates(A) in average Revised Estimates(RE); Sc II. Debt to GSDP Consolidation Path: Pension/GSDP constant and preventing for revenue surplus

Table6.2.c : Scenario III: Expenditure Compression Scenario for Components of Committed Revenue Expenditure(2015-16 to 2026-27)

		2015-16 (Post FRBM Avg.)	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
GSDP(increased by post FRBM CAGR 13.13)		243982	276017	312258	353258	399641	452113	511476	578633	654607	740557	837792	947794
REVENUE EXPENDITURE(1+2+3+4+5)	value Cr.	32601	41189	42683	46925	51616	56806	62551	68915	75966	83784	92456	102080
	in % GSDP	13.4	14.9	13.7	13.3	12.9	12.6	12.2	11.9	11.6	11.3	11.0	10.8
1. POWER SUBSIDY(simulated by post FRBM CAGR-4.923)	value Cr.	3386	8966	7123	7662	8241	8864	9534	10255	11031	11865	12762	13727
	in % GSDP	1.4	3.2	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4
2. WAGES AND SALARIES (simulated by post-FRBM CAGR-0.55)	value Cr.	10558	11878	13364	15036	16916	19032	21413	24091	27104	30494	34309	38600
	in % GSDP	4.3	4.3	4.3	4.3	4.2	4.2	4.2	4.2	4.1	4.1	4.1	4.1
3. PENSION(simulated as constant % of GSDP)	value Cr.	4588	5191	5873	6644	7516	8503	9619	10882	12311	13927	15756	17825
	in % GSDP	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
4. INTEREST PAYMENT(simulated by post FRBM CAGR-4.09)	value Cr.	6138	6660	7227	7841	8508	9231	10016	10868	11792	12794	13882	15063
	in % GSDP	2.52	2.41	2.31	2.22	2.13	2.04	1.96	1.88	1.80	1.73	1.66	1.59
5.OTHERS(simulated by post FRBM CAGR -5.33)	value Cr.	7931	8494	9097	9743	10434	11175	11969	12819	13729	14703	15747	16865
	in % GSDP	3.3	3.1	2.9	2.8	2.6	2.5	2.3	2.2	2.1	2.0	1.9	1.8

REVENUE RECEIPTS (simulated as constant % of GSDP Cr.)	value Cr.	27409	31007	35079	39684	44895	50790	57458	65003	73537	83193	94116	106473
	in % GSDP	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
REVENUE DEFICIT	value Cr.	5192	10182	7605	7241	6721	6016	5093	3912	2429	592	-1660	-4394
	in % GSDP	2.13	3.69	2.44	2.05	1.68	1.33	1.00	0.68	0.37	**0.08**	**-0.20**	**-0.46**
rd<0; allowed											0	0	0
gfd (%)		3.03	4.59	3.34	**2.95**	**2.58**	**2.23**	**1.90**	**1.58**	**1.27**	**0.90**	**0.90**	**0.90**
pd(%)		0.51	2.04	0.70	0.32	-0.04	-0.37	-0.68	-0.97	-1.24	-1.58	-1.54	-1.50
r(post FRBM Avg.in %)			2.51	2.510	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51
g(post FRBM Avg. in %)			6.54	6.540	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
ratio (1+r/1+g)			0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
bt(%)		30.5	31.3	30.9	30.0	28.8	27.4	**25.6**	**23.7**	**21.6**	**19.2**	**16.9**	**14.8**

Note: r=real rate of interest; g= real growth of GSDP; rd= Revenue Deficit to GSDP estimated as Revenue Expenditure subtracted by Revenue Receipts; gfd= Gross Fiscal Deficit estimated as Revenue Deficit plus Capital outlay+ Net Lending; pd= primary deficit to GSDP; bt= debt to GSDP estimated as bt-1*(1+r/1+g)+pd; Revenue Expenditure is defined as the summation of expenditure on Power subsidy, Wage and Salaries, Pensions, Interest Payments and Others(all other plan and non-plan revenue expenditures); GSDP simulated by it Post FRBM CAGR of 13.13; Power Subsidy for FY 2016-17 is taken as Revised Estimates(RE) and for FY 2017-18 is taken as Budget Estimate(BE) adjusted to proportion of average Account Estimates(A) in average Revised Estimates(RE). Sc III. Debt to GSDP Consolidation Path: Pension/GSDP constant and allowing for revenue surplus

Table6.2 d : Scenario IV: Expenditure Compression Scenario for Components of Committed Revenue Expenditure(2015-16 to 2026-27)

		2015-16 (Post FRBM Avg.)	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
GSDP(increased by post FRBM CAGR 13.13)		243982	276017	312258	353258	399641	452113	511476	578633	654607	740557	837792	947794
REVENUE EXPENDITURE(1+2+3+4+5)	value Cr.	32601	41189	42683	46925	51616	56806	62551	68915	75966	83784	92456	102080
	in % GSDP	13.4	14.9	13.7	13.3	12.9	12.6	12.2	11.9	11.6	11.3	11.0	10.8
1. POWER SUBSIDY(reduced to Karnataka's last 5 year average power subsidy to GSDP= 0.78)	value Cr.	3386	8966	7123	7662	8241	8864	9534	10255	11031	11865	12762	13727
	in % GSDP	1.4	3.2	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4
2. WAGES AND SALARIES (simulated bypost FRBM CAGR-0.55)	value Cr.	10558	11878	13364	15036	16916	19032	21413	24091	27104	30494	34309	38600
	in % GSDP	4.3	4.3	4.3	4.3	4.2	4.2	4.2	4.2	4.1	4.1	4.1	4.1
3. PENSION(simulated as constant % of GSDP)	value Cr.	4588	5191	5873	6644	7516	8503	9619	10882	12311	13927	15756	17825
	in % GSDP	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
4. INTEREST PAYMENT(simulated by post FRBM CAGR-4.09)	value Cr.	6138	6660	7227	7841	8508	9231	10016	10868	11792	12794	13882	15063
	in % GSDP	2.5	2.4	2.3	2.2	2.1	2.0	2.0	1.9	1.8	1.7	1.7	1.6

5.OTHERS(simulated by post FRBM CAGR -5.33)	value Cr.	7931	8494	9097	9743	10434	11175	11969	12819	13729	14703	15747	16865
	in % GSDP	3.3	3.1	2.9	2.8	2.6	2.5	2.3	2.2	2.1	2.0	1.9	1.8
REVENUE RECEIPTS (simulated as constant % of GSDP Cr.)	value Cr.	27409	31007	35079	39684	44895	50790	57458	65003	73537	83193	94116	106473
	in % GSDP	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
REVENUE DEFICIT	value Cr.	5192	10182	7605	6997	5673	4883	3231	1179	-746	-4608	-7719	-10728
	in %												
rd>0; allowed	GSDP	2.13	3.69	2.44	1.98	1.42	1.08	0.63	0.20	-0.11	**-0.62**	**-0.92**	**-1.13**
gfd (%)		3.03	4.59	3.34	**2.88**	**2.32**	**1.98**	**1.53**	**1.11**	**0.79**	**0.28**	**-0.02**	**-0.23**
pd(%)		0.51	2.04	0.70	0.25	-0.30	-0.62	-1.05	-1.45	-1.73	-2.20	-2.46	-2.63
r(post FRBM Avg.in %)			2.51	2.510	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51	2.51
g(post FRBM Avg. in %)			6.54	6.540	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
ratio (1+r/1+g)			0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
bt(%)		30.5	31.3	30.9	29.9	28.5	26.8	**24.7**	**22.4**	**19.8**	**16.8**	**13.7**	**10.6**

Note: r=real rate of interest; g= real growth of GSDP; rd= Revenue Deficit to GSDP estimated as Revenue Expenditure subtracted by Revenue Receipts; gfd= Gross Fiscal Deficit estimated as Revenue Deficit plus Capital outlay+ Net Lending; pd= primary deficit to GSDP; bt= debt to GSDP estimated as bt-1*(1+r/1+g)+pd; Revenue Expenditure is defined as the summation of expenditure on Power subsidy, Wage and Salaries, Pensions, Interest Payments and Others(all other plan and non-plan revenue expenditures); GSDP simulated by it Post FRBM CAGR of 13.13; Power Subsidy for FY 2016-17 is taken as Revised Estimates(RE) and for FY 2017-18 is taken as Budget Estimate(BE) adjusted to proportion of average Account Estimates(A) in average Revised Estimates(RE); Sc IV.Debt to GSDP Consolidation Path: Power Subsidy/GSDP reduced to 5 year avg. power subsidy/GSDP of Karnataka

Table 6.3 a: Fiscal Consolidation Scenario for components of GST and Non-GST Revenue (2015-16 to 2026-27)

(Rs. Crore)		2015-16 (post FRBM average)	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
GSDP (increased by post FRBM CAGR:13.13)		243982	276017	312258	353258	399641	452113	511476	578633	654607	740557	837792	947794
Revenue Receipt(1+2+3+4)	value Cr.	27409	31182	35477	40365	45929	52263	59474	67683	77030	87672	99790	113589
	in % GSDP	11.2	11.3	11.4	11.4	11.5	11.6	11.6	11.7	11.8	11.8	11.9	12.0
1. SOTR(a+b)	value Cr.	17047	19460	22215	25362	28956	33062	37751	43109	49229	56221	64209	73336
	in % GSDP	6.99	7.02	7.06	7.1	7.14	7.19	7.23	7.27	7.32	7.37	7.42	7.47
a. GST Revenue (increased by CAGR 1.52)	value Cr.	10146	11653	13384	15371	17653	20275	23286	26743	30715	35276	40514	46530
	in % GSDP	4.16	4.22	4.29	4.35	4.42	4.48	4.55	4.62	4.69	4.76	4.84	4.91
b. Non-GST Revenue (simulated as constant % of GSDP)	value Cr.	6900	7806	8831	9991	11303	12787	14466	16365	18514	20945	23695	26806
	in % GSDP	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83
2.SONTR (simulated as constant % of GSDP)	value Cr.	4063	4596	5200	5883	6655	7529	8518	9636	10901	12332	13952	15783
	in % GSDP	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67
3. Share in Central Taxes (simulated as constant % of GSDP)	value Cr.	3346	3785	4282	4845	5481	6200	7014	7935	8977	10156	11490	12998

	in % GSDP	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
4. Grants-in-Aid (simulated as constant % of GSDP)	value Cr.	2953	3341	3779	4276	4837	5472	6191	7003	7923	8963	10140	11471
	in % GSDP	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
Revenue Expenditure (simulated as a constant % of GSDP Cr.)	value Cr.	32601	36881	41724	47202	53400	60411	68343	77317	87468	98953	111945	126644
	in % GSDP	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36
Revenue Deficit	value Cr.	5192	5699	6247	6837	7471	8148	8869	9633	10438	11281	12155	13055
	in % GSDP	2.13	2.06	2.00	1.94	1.87	1.80	1.73	1.66	1.59	1.52	1.45	1.38
gfd (%)		3.03	2.97	2.90	2.84	2.77	2.70	2.64	2.57	2.50	2.43	2.35	2.28
pd(%)		0.51	0.42	0.26	0.20	0.15	0.10	0.05	0.01	-0.02	-0.06	-0.09	-0.12
r(post FRBM Avg.in %)		2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52
g(post FRBM Avg. in %)		6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
ratio (1+r/1+g)		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
bt(%)		30.5	29.7	28.9	28.0	27.1	26.1	25.2	24.3	23.3	22.4	21.5	20.5

Note: State Excise on Liquor, Land revenue, Stamp and Registration fees, Motor and Vehicle Taxes, Electricity duty and Petroleum are outside the purview of GST, and are added to form the Non-GST revenue(excluding petroleum due to unavailability of data); GST Revenue includes revenue collection from all other taxes; figures of Land Revenue and Electricity Duty for FY2004-05 are interpolated by their proportion in total; figures for State excise on liquor for FYs 2005-06, 2006-07 and 2016-17 have been interpolated by using growth rate.

Table 6.3 b: Fiscal Consolidation Scenario for components of GST and Non-GST Revenue (2015-16 to 2026-27)													
(values in Rs. Crore)		**2015-16 (post FRBM average)**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**
GSDP (increased by post FRBM CAGR:13.13)		243982	276017	312258	353258	399641	452113	511476	578633	654607	740557	837792	947794
Revenue Receipt(1+2+3+4)	value Cr.	27409	31182	35477	41248	47927	55654	63310	72023	81940	93226	106074	120698
	in % GSDP	11.23	11.30	11.36	11.68	11.99	12.31	12.38	12.45	12.52	12.59	12.66	12.73
1. SOTR(a+b)	value Cr.	17047	19460	22215	26245	30954	36453	41588	47448	54138	61775	70492	80445
	in % GSDP	6.99	7.05	7.11	7.43	7.75	8.06	8.13	8.2	8.27	8.34	8.41	8.49
a. GST (increased by CAGR 1.52)	value Cr.	10146	11653	13384	15371	17653	20275	23286	26743	30715	35276	40514	46530
	in % GSDP	4.16	4.22	4.29	4.35	4.42	4.48	4.55	4.62	4.69	4.76	4.84	4.91
b. Non-GST (increased by 0.25 percentage points from 2018-19 for 3 years)	value Cr.	6900	7806	8831	10874	13301	16178	18302	20705	23424	26499	29978	33915
	in % GSDP	2.83	2.83	2.83	3.08	3.33	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2.SONTR (simulated as constant % of GSDP)	value Cr.	4063	4596	5200	5883	6655	7529	8518	9636	10901	12332	13952	15783
	in % GSDP	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67

3. Share in Central Taxes (simulated as constant % of GSDP)	value Cr.	3346	3785	4282	4845	5481	6200	7014	7935	8977	10156	11490	12998
	in % GSDP	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
4. Grants-in-Aid (simulated as constant % of GSDP)	value Cr.	2953	3341	3779	4276	4837	5472	6191	7003	7923	8963	10140	11471
	in % GSDP	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
Revenue Expenditure (simulated as a constant % of GSDP Cr.)	value Cr.	32601	36881	41724	47202	53400	60411	68343	77317	87468	98953	111945	126644
	in % GSDP	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36
Revenue Deficit	value Cr.	5192	5699	6247	5954	5472	4757	5033	5294	5529	5727	5872	5946
	in % GSDP	2.13	2.06	2.00	1.69	1.37	1.05	0.98	0.91	0.84	0.77	0.70	0.63
gfd (%)		3.03	2.97	2.90	2.59	2.27	1.95	1.89	1.82	1.75	1.68	1.60	1.53
pd(%)		0.51	0.42	0.26	-0.05	-0.35	-0.65	-0.70	-0.74	-0.77	-0.81	-0.84	-0.87
r(post FRBM Avg.in %)		2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52
g(post FRBM Avg. in %)		6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
ratio (1+r/1+g)		0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962
bt(%)		30.45	29.72	28.86	27.73	26.33	24.68	23.05	21.45	19.87	18.31	16.78	15.28

Note: State Excise on Liquor, Land revenue, Stamp and Registration fees, Motor and Vehicle Taxes, Electricity duty and Petroleum are outside the purview of GST, and are added to form the Non-GST revenue(excluding petroleum due to unavailability of data); GST Revenue includes revenue collection from all other taxes; figures of Land Revenue and Electricity Duty for FY2004-05 are interpolated by their proportion in total; figures for State excise on liquor for FYs 2005-06, 2006-07 and 2016-17 have been interpolated by using growth rate.

Table 6.3 c: Fiscal Consolidation Scenario for components of GST and Non-GST Revenue (2015-16 to 2026-27)													
(values in Rs. Crore)		**2015-16 (post FRBM average)**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**
GSDP (increased by post FRBM CAGR:13.13)		243982	276017	312258	353258	399641	452113	511476	578633	654607	740557	837792	947794
Revenue Receipt(1+2+3+4)	value Cr.	27409	31182	35477	42131	49926	59045	68425	77809	88486	100632	114452	130176
	in % GSDP	11.23	11.30	11.36	11.93	12.49	13.06	13.38	13.45	13.52	13.59	13.66	13.73
1. SOTR(a+b)	value Cr.	17047	19460	22215	26245	30954	36453	41588	47448	54138	61775	70492	80445
	in % GSDP	6.99	7.05	7.11	7.43	7.75	8.06	8.13	8.2	8.27	8.34	8.41	8.49
a. GST (increased by CAGR 1.52)	value Cr.	10146	11653	13384	15371	17653	20275	23286	26743	30715	35276	40514	46530
	in % GSDP	4.16	4.22	4.29	4.35	4.42	4.48	4.55	4.62	4.69	4.76	4.84	4.91
b. Non-GST (increased by 0.25 percentage points from 2018-19 for 3 yrs)	value Cr.	6900	7806	8831	10874	13301	16178	18302	20705	23424	26499	29978	33915
	in % GSDP	2.83	2.83	2.83	3.08	3.33	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2.SONTR (increased by 0.25 percentage points from 2018-19 for 4 years)	value Cr.	4063	4596	5200	6766	8653	10920	13632	15422	17447	19738	22330	25261

	in % GSDP	1.67	1.67	1.67	1.92	2.17	2.42	2.67	2.67	2.67	2.67	2.67	2.67
3. Share in Central Taxes (simulated as constant % of GSDP)	value Cr.	3346	3785	4282	4845	5481	6200	7014	7935	8977	10156	11490	12998
	in % GSDP	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
4. Grants-in-Aid (simulated as constant % of GSDP)	value Cr.	2953	3341	3779	4276	4837	5472	6191	7003	7923	8963	10140	11471
	in % GSDP	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
Revenue Expenditure (simulated as a constant % of GSDP Cr.)	value Cr.	32601	36881	41724	47202	53400	60411	68343	77317	87468	98953	111945	126644
	in % GSDP	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36
Revenue Deficit	value Cr.	5192	5699	6247	5071	3474	1366	-91	-503	-1029	-1692	-2521	-3548
	in % GSDP	2.13	2.06	2.00	1.44	0.87	0.30	-0.02	-0.09	-0.16	-0.23	-0.30	-0.37
gfd (%)		3.03	2.97	2.90	2.34	1.77	1.20	0.88	0.82	0.75	0.67	0.60	0.53
pd(%)		0.51	0.42	0.26	-0.30	-0.85	-1.40	-1.70	-1.74	-1.77	-1.81	-1.84	-1.87
r(post FRBM Avg.in %)		2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52
g(post FRBM Avg. in %)		6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
ratio (1+r/1+g)		0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962
bt(%)		30.45	29.72	28.86	27.48	25.58	23.22	20.64	18.13	15.67	13.27	10.93	8.65

Note: State Excise on Liquor, Land revenue, Stamp and Registration fees, Motor and Vehicle Taxes, Electricity duty and Petroleum are outside the purview of GST, and are added to form the Non-GST revenue(excluding petroleum due to unavailability of data); GST Revenue includes revenue collection from all other taxes; figures of Land Revenue and Electricity Duty for FY2004-05 are interpolated by their proportion in total; figures for State excise on liquor for FYs 2005-06, 2006-07 and 2016-17 have been interpolated by using growth rate.

Table 6.3 d: Fiscal Consolidation Scenario for components of GST and Non-GST Revenue (2015-16 to 2026-27)

(values in Rs. Crore)		**2015-16 (post FRBM average)**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**
GSDP (increased by post FRBM CAGR:13.13)		243982	276017	312258	353258	399641	452113	511476	578633	654607	740557	837792	947794
Revenue Receipt(1+2+3+4)	value Cr.	27409	31182	35477	42131	49926	59045	68425	77809	88486	100632	114452	130176
	in % GSDP	11.23	11.30	11.36	11.93	12.49	13.06	13.38	13.45	13.52	13.59	13.66	13.73
1. SOTR(a+b)	value Cr.	17047	19460	22215	26245	30954	36453	41588	47448	54138	61775	70492	80445
	in % GSDP	6.99	7.05	7.11	7.43	7.75	8.06	8.13	8.2	8.27	8.34	8.41	8.49
a. GST (increased by CAGR 1.52)	value Cr.	10146	11653	13384	15371	17653	20275	23286	26743	30715	35276	40514	46530
	in % GSDP	4.16	4.22	4.29	4.35	4.42	4.48	4.55	4.62	4.69	4.76	4.84	4.91
b. Non-GST (increased by 0.25 percentage points from 2018-19 for 3 years)	value Cr.	6900	7806	8831	10874	13301	16178	18302	20705	23424	26499	29978	33915
	in % GSDP	2.83	2.83	2.83	3.08	3.33	3.58	3.58	3.58	3.58	3.58	3.58	3.58
2.SONTR (increased by 0.25 percentage points	value Cr.	4063	4596	5200	6766	8653	10920	13632	15422	17447	19738	22330	25261

from 2018-19 for 4 years)													
	in % GSDP	1.67	1.67	1.67	1.92	2.17	2.42	2.67	2.67	2.67	2.67	2.67	2.67
3. Share in Central Taxes (simulated as constant % of GSDP)	value Cr.	3346	3785	4282	4845	5481	6200	7014	7935	8977	10156	11490	12998
	in % GSDP	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
4. Grants-in-Aid (simulated as constant % of GSDP)	value Cr.	2953	3341	3779	4276	4837	5472	6191	7003	7923	8963	10140	11471
	in % GSDP	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
Revenue Expenditure (simulated as a constant % of GSDP Cr.)	value Cr.	32601	36881	41724	47202	53400	60411	68343	77317	87468	98953	111945	126644
	in % GSDP	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36	13.36
Revenue Deficit	value Cr.	5192	5699	6247	5071	3474	1366	-91	-503	-1029	-1692	-2521	-3548
	in % GSDP	2.13	2.06	2.00	1.44	0.87	0.30	-0.02	-0.09	-0.16	-0.23	-0.30	-0.37
preventing revenue surplus								0	0	0	0	0	0
gfd (%)		3.03	2.97	2.90	2.34	1.77	1.20	0.90	0.90	0.90	0.90	0.90	0.90
pd(%)		0.51	0.42	0.26	-0.30	-0.85	-1.40	-1.68	-1.65	-1.62	-1.58	-1.54	-1.50
r(post FRBM Avg.in %)		2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52
g(post FRBM Avg. in %)		6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54	6.54
ratio (1+r/1+g)		0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962	0.962
bt(%)		30.45	29.72	28.86	27.48	25.58	23.22	20.66	18.23	15.93	13.75	11.69	9.75

Table 6.2 : Fiscal Sustainability Scenario for Punjab

Assumptions*	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**
Real Interest Rate		4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55
Real Growth Rate		8	8	8	8	7.5	7.5	7.5	7.5	7.5	7
Primary Surplus(x)		-0.40	-0.40	-0.35	-0.35	-0.30	-0.30	-0.30	-0.25	-0.25	-0.25
Debt Dynamics											
Debt(%of GSDP)	30.45	29.86	29.30	28.70	28.12	27.63	27.16	26.70	26.21	25.73	25.37

	2026-27	**2027-28**	**2028-29**	**2029-30**	**2030-31**	**2031-32**	**2032-33**	**2033-34**	**2035-36**	**2036-37**
Real Interest Rate	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.55
Real Growth Rate	7	7	7	7	7	7	7	7	7	7
Primary Surplus(x)	-0.20	-0.20	-0.10	0.00	0.00	0.10	0.15	0.25	0.25	0.25
Debt Dynamics										
Debt(%of GSDP)	25.31	25.25	25.08	24.82	24.56	24.21	23.81	23.31	22.82	22.33

* The primary deficit of the state government improves gradually eventually turning into a surplus. The real economic growth of the state is assumed to be 8% for the years 2016-17 through 2019-20, then staying at 7.5% for 5 more years and then declining to 7% in 2025-26 and staying at this rate thereafter. The real interest rate is considered to be same as in the baseline scenario.

Chapter 7 FISCAL REFORMS IN PUNJAB AND RECOMMENDATIONS

The previous chapters of this report comprehensively explored the fiscal scenario of Punjab and analysed it vis-a-vis major States in India. In this attempt, the report examined different aspects of the State's finances, such as growth and composition of fiscal parameters, revenue generation capacity, debt burden, and debt sustainability. This chapter discusses the chronology of federal laws and policies that shaped the fiscal reforms in Punjab. It also discusses the experience of other Indian States that have shown encouraging progress in fiscal management. Based on the study, this chapter suggests strategies for the fiscal reforms. Section 7.1 critically assesses the State policies in light of the fiscal consolidation objectives and related achievements and failures. Section 7.2 gives a comparative assessment of the fiscal progress of best performing Indian States vis-à-vis Punjab. Section 7.3 presents the challenges and recommendations for execution of the fiscal reforms in Punjab.

7.1 Fiscal Reforms, Targets and Achievements

As discussed earlier, Punjab's fiscal problem began building in the early-1980s; its revenue account turned in deficits in 1984–85. During the 1990s, its growing expenditure on salaries and wages, loss-making PSUs, and considerable subsidies on irrigation, transportation, and electricity led to the debt burden and to decline in the State expenditure on health, education, and social services (Punjab CAG Report 2000; Sawhney 2005). By the late 1990s, its debt and deficit indicators had assumed worrisome proportions. Its debt as a proportion of GSDP rose from 36.38% in end-March 1991 to 40.66%in end-March 2001.As a result, its debt servicing had become unsustainable.

To manage this instability, the Union Government of India and the government of Punjab signed a memorandum of understanding (MoU) in 1999 to initiate a fiscal reform programme in the state. Its main objective was to increase revenue and reduce expenditure. The MoU recommended that the State government implement a plan to improve the fiscal situation and listed certain measures: management of non-plan revenue expenditure, tax restructuring, disinvestment, and public debt management. In November 2000, the Government of Punjab submitted an Action Taken Report (ATR) to the Centre, which indicated poor progress on the fiscal consolidation. Regarding this, studies have suggested that a weak implementation and

the absence of strategic action and a delivery mechanism severely compromised the fiscal initiatives undertaken in the wake of 1999 MoU (Sawhney 2005). Financial problems continued, and the fiscal deficit more than tripled between 1993–94 and 2003–04.

In the late 1990's, fiscal situation deteriorated sharply not only in Punjab but in India as a whole. The 12th Finance Commission (2005) identified that during 1993–96 revenue deficit was high (2.0 per cent of GSDP) in Odisha, Punjab, Uttar Pradesh, and West Bengal. No state had a revenue surplus between2000–01 and 2003–04. A need to institutionalize a new fiscal discipline framework emerged at that time. The 12th Finance Commission considered this need and included some new initiatives to promote fiscal stability, consolidation, and institutional reform. One such initiative was the Fiscal Responsibility and Budget Management Act 2003 (FRBM Act).

The FRBM Act was based on the presumption that the fiscal deficit was the key parameter that adversely affected all other macroeconomic variables. Therefore, the three main aspects of the FRBM Act related to formulating rules for fiscal deficit, debt, expenditure, and transparency. As part of the fiscal restructuring plan, the Act required the States to enact fiscal responsibility legislation to eliminate revenue deficit and reduce fiscal deficit to 3 per cent of GSDP by 2008–09. It recommended that the States draw up a Fiscal Correction Path for the five-year period 2005–06 to 2009–10 to improve their fiscal position as committed in their respective FRBM Acts/Rules.

Punjab was one of the earliest States to enact the fiscal responsibility legislation. It passed its FRBM Act in May 2003. This Act was passed to achieve fiscal stability, ensure prudence in fiscal management, and provide for greater transparency in the medium-term conduct of fiscal policy and operations. Government of Punjab (GOP) also signed an MOU with the Ministry of Finance, GoI in July 2003 to achieve fiscal sustainability in medium term. In January 2006, The Government of Punjab enacted the Punjab FRBM (Amendment) Act 2005 and fixed the time frame for achieving the fiscal targets set in May 2003. The Act, as amended in 2005, prescribed the following fiscal targets.

- Reduce fiscal deficit to 3 per cent of GSDP by 2008–09

- Eliminate revenue deficit by 2008–09 and generate revenue surplus
- Attempt to reduce the ratio of debt (including contingent liabilities) to GSDP to 28 per cent within the five-year period 2005–06 to 2009–10

As per the recommendation of the 12th Finance Commission, Punjab drew up its Fiscal Consolidation Path for 2005–06 to 2009–10. Under this, Punjab planned to eliminate revenue deficit by 2009–10, reduce fiscal deficit to 3% of GSDP, and raise capital expenditure to about 3% of GSDP.

After these initiatives, the State finances improved in the following ways:-

- The fiscal deficit reduced from over 5 per cent of GSDP between 2000–01 and 2003–04 to 3.12 per cent of GSDP in 2009–10
- The revenue deficit reduced from over 4%of GSDP to 2.66% of GSDP in 2009–10
- The debt-to-GSDP ratio dropped from about 50% in 2004-05 to 34 % in 2009–10

The fiscal indicators in 2009–10 suggested considerable improvement by Punjab. But despite the achievements, the State had missed its targets. Its fiscal deficit should have been less than 3%; it had declined significantly, but it still exceeded 3 per cent. Similarly, the State should have eliminated its revenue deficit. Given that the State received a non-plan revenue deficit grant from the Centre, the decline in its revenue deficit was not considered good enough.

Punjab's fiscal policy had been criticized heavily as it did not set targets for investment (in human resource development and infrastructure) and reduction in wastage or leakage in expenditure programmes. Its capital outlay fell sharply from 2 per cent of GSDP in 1998–99 to 0.5 per cent of GSDP in 2002–03, and its non-development expenditure, which consists mainly of interest payments and pensions, was as high as 11 per cent of GSDP in 2002–03. Several programmes contributed to the deterioration in Punjab's fiscal affairs. These included huge losses in the procurement of food grains; losses on account of damaged wheat stock; interest on delayed payment by the Food Corporation of India (FCI); penal interest: carry-over charges on stock in hand; along with non-reimbursement of handling and transporting charges (White Paper, 2017).

In Chapter 2 of this report, we have analysed the reasons that made Punjab's debt burden unmanageable between 1999–2000 and 2005–06. The most important being the fall in GSDP growth rate and persisting high revenue deficit. Collectively, these reasons also led to the non-attainment of the FRBM, 2005 targets.

Punjab's huge debt burden translated into unsustainable interest payments: between 1998–99 and 2003–04, it spent 33 per cent of the total revenue receipts, or about 19 per cent of the total revenue expenditure, on servicing its debt. Critics have argued that Punjab's fiscal consolidation policy neglected to formulate interest payment targets. Punjab reported the highest interest payment among the states like Rajasthan, Haryana, Uttar Pradesh, and West Bengal (Sawhney 2005; Gayam and Khullar 2016).

As noted at the outset of this report, prior to the initiation of the FRBM Act 2005, a majority of Indian States exhibited alarming fiscal situation. Most of the States followed public fiscal reforms for correction in the State finances. Apart from the policy initiative taken by the State governments, the Central government also made a significant effort to improve the fiscal situation of the Indian States. Two policy measures initiated by the Centre towards the reduction of the debt burden of the States were: Debt Swap Scheme and Debt Consolidation and Relief Facility.

Debt Swap Scheme (DSS) (2002-03 to 2004-05)

Debt Swap Scheme (DSS) was aimed to reduce the States' burden of interest payments. The scheme enabled the States to prepay expensive loans (with interest rate of 13% and above) contracted from GOI by swapping them against low coupon bearing small savings and open market loans. Punjab benefitted from this scheme by swapping loans worth Rs. 5359 cr. Other states that benefitted from this scheme were Maharashtra, U.P., Gujarat and West Bengal (Table7.1).

Debt Consolidation and Relief Facility (DCRF) (2005-06 to 2009-10)

The 12th Finance Commission recommended Debt Consolidation and Relief Facility (DCRF) for those States that implemented the FRBM Act. It provided the States debt consolidation and debt write-off on the Central loans issued to the States by the Ministry of Finance up to

Table 7.1: Debt Swap Scheme

States	Total Debt swapped till March, 2005 (in Cr)
Andhra Pradesh	7321.2
Gujarat	9660.27
Karnataka	5642.45
Maharashtra	14671.28
Punjab	**5358.78**
Rajasthan	5798.36
Tamil Nadu	6720.62
Uttar Pradesh	11182.39
West Bengal	9175.86

Source: Ministry of Finance, GoI

March 31, 2004, and outstanding as on March 31, 2005. The DCRF converted the outstanding into fresh loans for 20years at an interest rate of 7.5%.The facility gave Punjab a total relief of

Table 7.2: Debt Consolidation and Relief Facility (DCRF) (2005-06 to 2009-10

State	Total Debt Relief	Total Interest Relief
Andhra Pradesh	2592	2515
Bihar	770	1271
Chhattisgarh	465	312
Goa	40	56
Gujarat	2204	1674
Haryana	291	295
Jharkhand	315	214
Karnataka	1790	1315
Kerala	102	697
Madhya Pradesh	1815	1319
Maharashtra	1360	995
Orissa	1528	959
Punjab	371	599
Rajasthan	1236	884
Tamil Nadu	1315	907
Uttar Pradesh	4256	3913
West Bengal	.	.

Source: Ministry of Finance, GoI

970 crore, including debt relief and interest relief. All the States in India availed this facility. However, Uttar Pradesh and Gujarat got the maximum from this facility (Table 7.2).

Since Punjab could not meet the targets set under FRBM (2005), it amended its FRBM Act in 2011 as per the recommendation of the 13th Finance Commission (2009) and prepared a Fiscal Consolidation Roadmap for 2010–11 to 2014–15. Table 7.3 depicts the targets given in the Punjab FRBM Legislation (amended March 2011). Clearly, there were lapses in the revenue deficit achieved, thus implying revenue account imbalance and squeeze on the capital for investments.

Table 7.3: Targets of Punjab's FRBM Act,2011

(in percentage)	Fiscal Deficit to GSDP		Revenue Deficit to GSDP		Debt to GSDP	
	Target	Actual	Target	Actual	Target	Actual
2010-11	3.5	3.0	.	2.2	42.5	31.8
2011-12	3.5	3.2	1.8	2.6	41.8	31.1
2012-13	3.5	3.1	1.2	2.5	41	31.0
2013-14	3	2.6	0.6	2.0	39.8	30.6
2014-15	3	2.9	0 or Surplus	2.1	38.7	30.5
Beyond 2014-15	3	3.0*	Surplus	1.9*	.	33.3*

Note: * are figures for 2015-16(RE)

In the post-FRBM 2011 period, Punjab's fiscal situation improved. Its outstanding liabilities averaged 32 per cent of GSDP between 2011–12 and 2016-17(RE). This was below the fiscal legislation targets set by Punjab but was considerably higher than the debt stock target of 25% legislated in the FRBM Act.

The state met its fiscal deficit targets for two FYs 2013–2014 (2.63%) and 2014–2015(2.95%), but failed to meet the targets that stabilized its revenue deficit. Punjab had not once eliminated its revenue deficit (which averaged around 2.14% between 2013–14 and 2016-17) because it diverted the borrowed funds for revenue expenditure.[28]Punjab's revenue expenditure was high mainly because of its high preemptable expenditures on interest payments, salaries and

[28] Other States that report high average revenue deficit during this period are Kerala (2.3 per cent), Haryana (1.7 per cent), and West Bengal (1.2 per cent)

pensions, and subsidies. This was reflected in the committed expenditure figures, which accounted for 83.4 per cent of total revenue receipts during 2014–15. Prolonged and heavy use of revenue expenditure for these purposes had led to huge debt accumulation. Its debt burden was even heavier on the State exchequer in the recent years because of the declining GSDP growth rate. As pointed out in Chapter 2 of this report, Punjab's GSDP growth rate had significantly fallen (at constant prices, about 5 per cent in 2015–16, quick estimates and 5.9 per cent, advance estimates) from its previous high levels (at constant prices, 10 per cent in 2006–07, actual estimates).

Up to 2015, public finance management system (PFMS) reforms in Punjab were not linked to a strong agenda of wider governance or public sector reforms, except for some linked to efforts at better processing of payments, accounting, and reporting of transactions. The years from 2007 to 2010 were marked by an overall slowdown in the governance and public sector reforms, following earlier efforts made to lay down the road map for fiscal management.

7.2 Punjab's fiscal management: Comparison with the best performing States

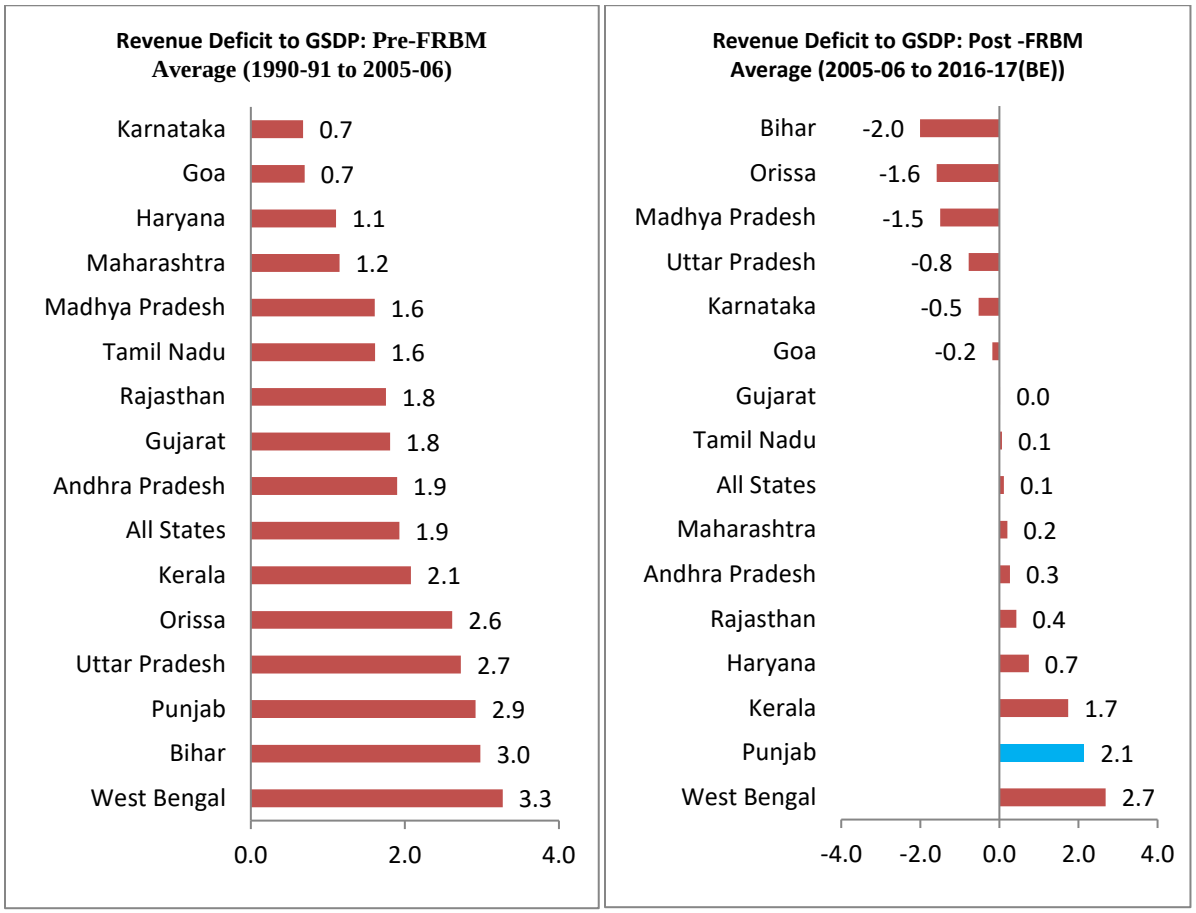
This section compares fiscal performance of Punjab vis-à-vis other selected States of India during the pre and post FRBM period. The discussion would highlight the fiscal strategies of the best performing States that can be applied in the fiscal consolidation of Punjab. The recent fiscal discipline targets envisaged by the 14th Finance Commission (FC) mandate for the sub national governments to maintain fiscal deficit of 3% of GSDP, eliminate revenue deficit, debt stock ratio of 25% and stall interest payments at 10% of the total revenue receipts. The commission has placed significant importance on the quality of deficits such that expenditure compression is not achieved at the cost of social sector spending. We discuss the achievements of the States in the light of the fiscal standards drawn by the 14th FC.

Figure 7.1 presents a comparative illustration of the average revenue deficit across selected States in the pre and post-FRBM period. Revenue deficit in India was high across major States in the pre-reform period. During this period, average revenue deficit of Punjab (2.9%) along with Kerala (2.1), Odisha (2.6%), Uttar Pradesh (2.7%), Bihar (3%) and West Bengal (3.3%)

was above the all-State average (1.9%). After the fiscal management laws were enforced, revenue deficit target was achieved by Bihar (post-FRBM average revenue surplus of 2%) and Odisha (post-FRBM average revenue surplus of 1.6%) despite heavy historic revenue deficits. The fiscal discipline in these States was achieved mainly through effective expenditure control and revenue expansion. This broadened the fiscal space of these governments. It paved the way for the budgetary reforms, expenditure management to improve the quality of public spending and development oriented fiscal policy. Odisha realized revenue augmentation by capturing non-tax revenue as a significant own-source of revenue for the State. Other sources of non-tax revenue such as dividends and profits from the State enterprises, forestry and wildlife, and irrigation also contributed higher revenues. In chapter 2 of this report we had discussed the dismal performance of Punjab in non-tax revenue generation and also identified certain heads such as petroleum, power and tourism which brought negligible revenue earnings to the State. On the expenditure side, Odisha and Bihar achieved the reduction in interest payment that led to lower average cost of debt, shrinking debt stocks, and the decline in other non-development general service. This affected compression of revenue expenditure. For Punjab, expenditure control essentially required compression of expenses accruing from power losses and subsidies.

Figure 7.2, presents the average fiscal deficit across the major States during the pre-FRBM (1990-91 to 2005-06) and post-FRBM (2005-06 to 2016-17(BE) period. With regard to the fiscal deficit, Punjab had attained the target of 3% of GSDP, but the best performer, yet again was Odisha with an average post-reform fiscal deficit of 0.8%. The outcome of this fiscal management in Odisha was very successful where the outstanding debt burden reduced by more than half from a high 43.81 per cent of GSDP to 17.87 per cent during this period. The Comptroller and Auditor General of India (2011-12) carried out a debt sustainability

Figure 7.1: Pre and post FRBM average revenue deficit to GSDP of selected States in India

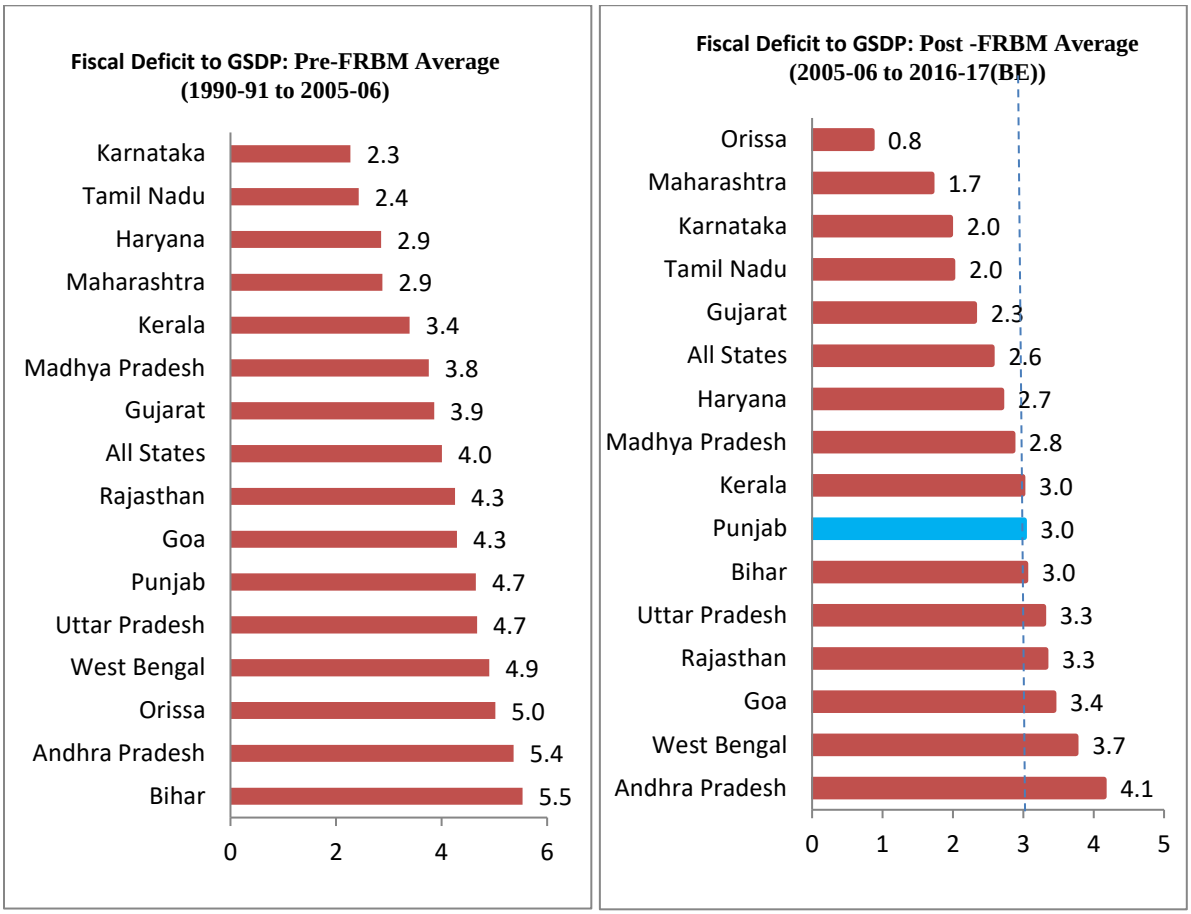


Source: RBI, State Finances

assessment of Odisha, in terms of debt stabilization, sufficiency of non-debt receipts, net availability of borrowed funds, interest payment burden, and maturity profile of State government securities. They concluded that the debt burden of the state was stable (Review of Compliance to Odisha FRBM-2005, 2011-12).

Figure 7.3 and 7.4 illustrate average debt stock and interest payments as a proportion of total revenue receipts across major States in the pre and post-reform period. A comparison of the debt stock across the States in the pre-reform period revealed Bihar, Goa, Odisha, Andhra Pradesh, Uttar Pradesh and Punjab as high-debt. States. Among them Odisha (with average

Figure 7.2: Pre and Post-FRBM average fiscal deficit to GSDP of selected States in India

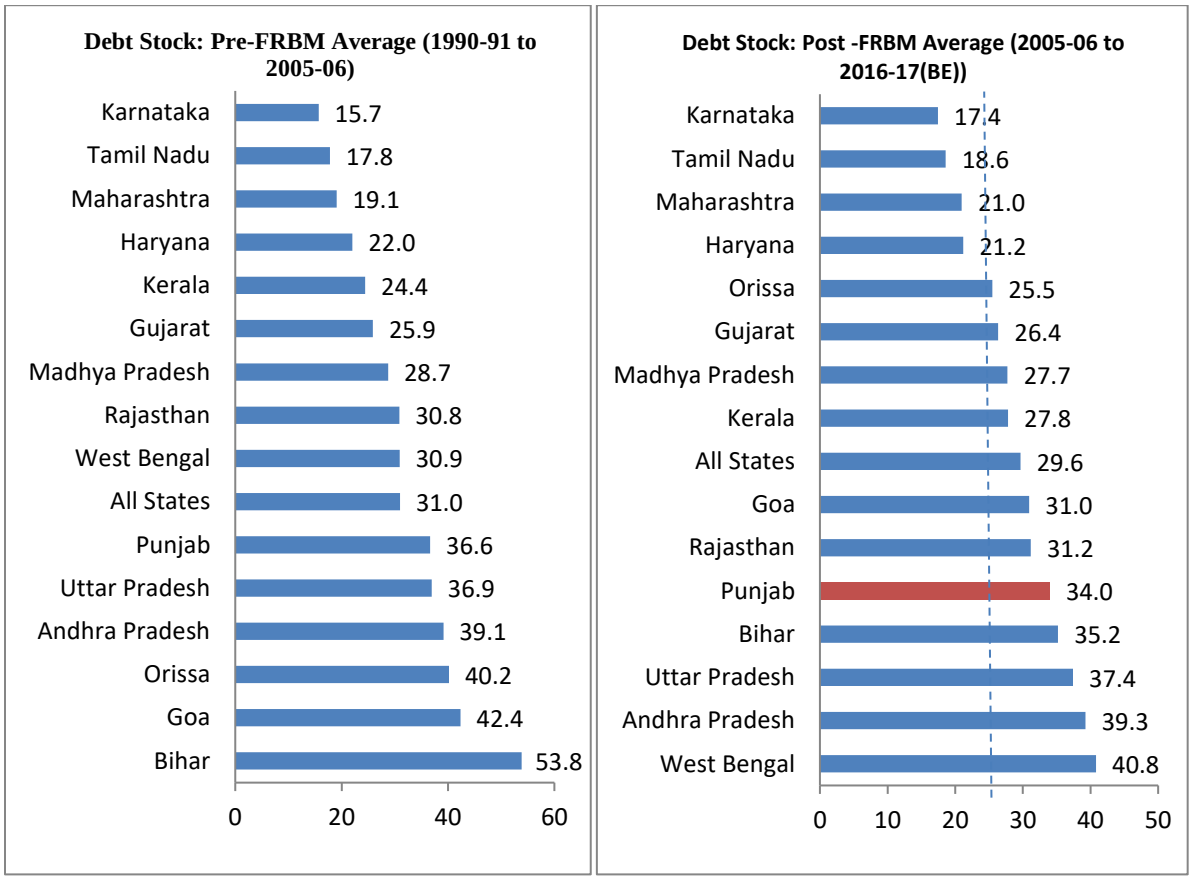


Source: RBI, State Finances

debt of 25.5 % of GSDP in the post-FRBM period) was the only State that exhibited significant fall in the debt stock ratio.

If we consider the post-FRBM average IP/RR, as illustrated in Figure 7.4, it was the highest in West Bengal, followed by Punjab, Haryana, Gujarat, and Kerala, with an interest outgo of more than 10% of revenue receipts. Of the 15 States, seven States had average ratio above 16% (post-FRBM all-State average) and eight States with below 16% IP/RR ratio, including major States like Karnataka, Madhya Pradesh, Bihar and Odisha. Only two States viz., Karnataka and Madhya Pradesh met the interest payment target envisaged by the 14th FC.

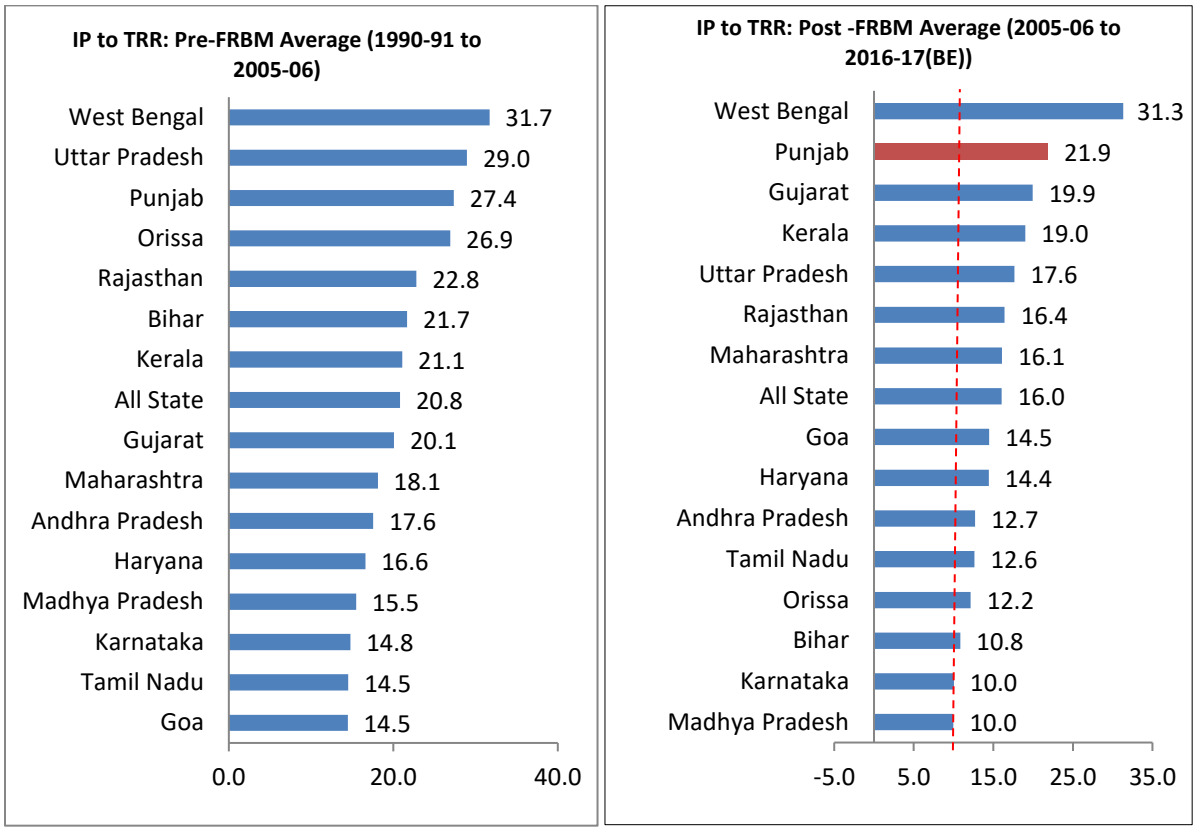
Figure 7.3: Pre and Post-FRBM average debt stock of the selected States in India



Source: RBI, State Finances

Given the slow pace of fiscal consolidation and squeezed fiscal space, the capital outlay of the Government of Punjab had remained at its pre-reform level. Figure 7.5 compares the average capital outlay of the major States in the pre and post FRBM period. For Punjab, capital outlay as the ratio of GSDP had stagnated at an average of 1.1 % of GSDP. In contrast, Bihar followed by Uttar Pradesh, Andhra Pradesh and Goa made significant improvements in their investments on asset building as was evident from the expansion in capital outlay in the post-reform period.

Figure 7.4: Pre and post-FRBM average interest payments (IP) to revenue receipts (RR) of the selected States in India



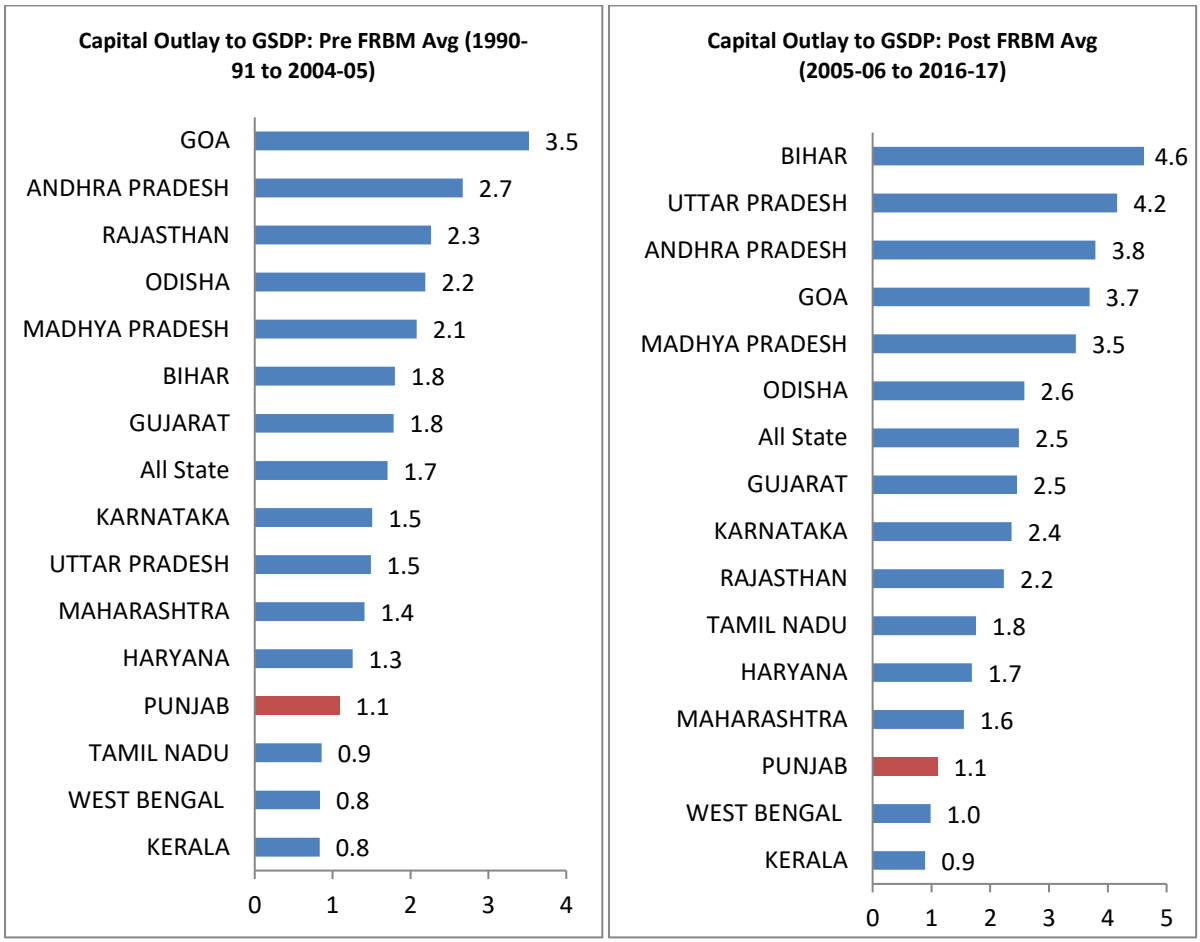
Source: RBI, State Finances

Similarly, with regard to expansion of social expenditure, Punjab made little progress. Figure 7.6 makes this observation evident. The fiscal priority spending in aggregate social services continued to be the lowest in Punjab relative to GSDP and in fact, health sector spending from budgetary sources declined during this period (refer to chapter 2 for detail discussion). Whereas, the States like Goa, Kerala, Uttar Pradesh, and Rajasthan increased their budgetary spend on education, health, water supply and sanitation (Figure 7.7, 7.8 and 7.9).

A well-established finding in the literature purports high debt ratios cause reduction in the capital and social expenditure (Fosu 2007; Lora and Olivera 2006). Literature is conclusive

Figure 7.5: Pre and Post FRBM Average Capital Outlay to GSDP of Selected States in India

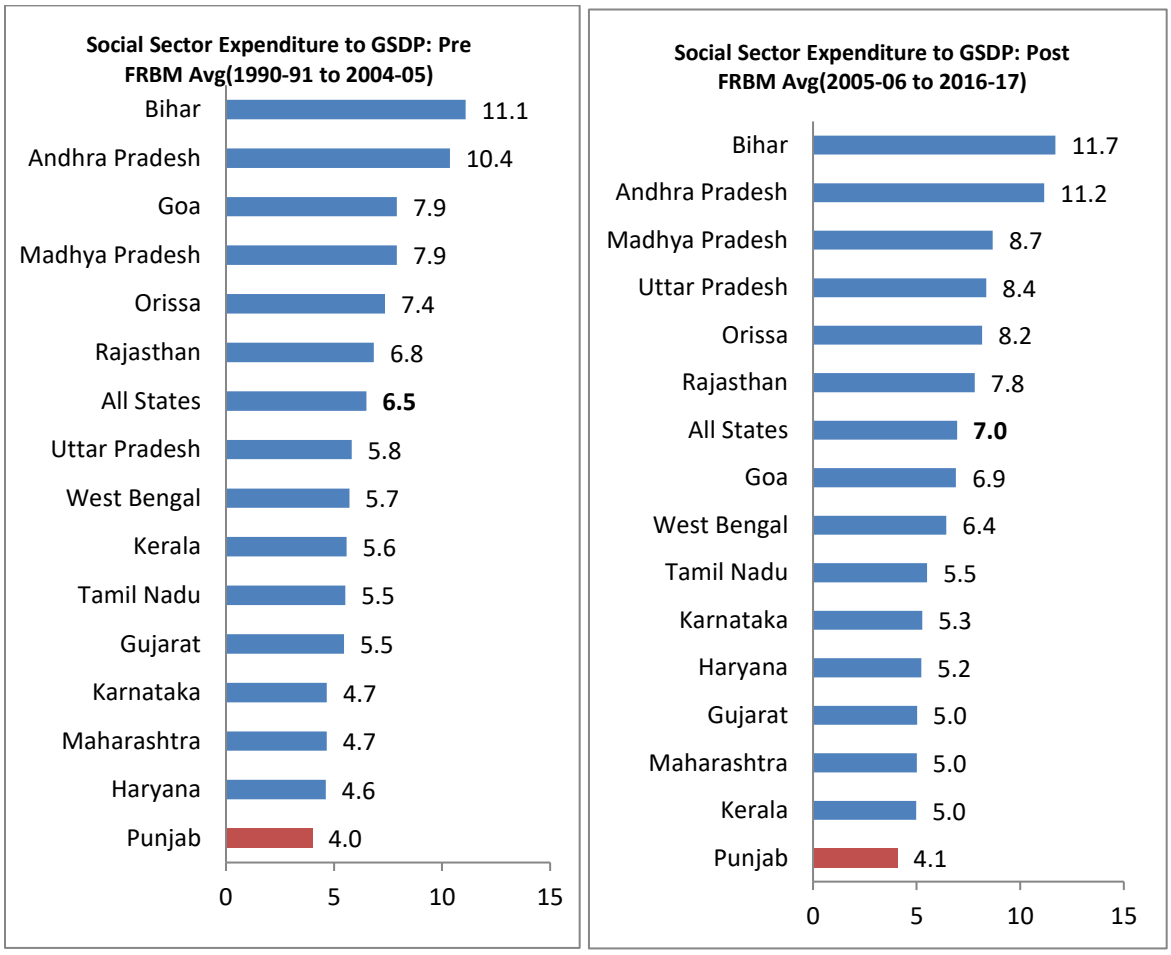
in the finding that social expenditure is more significantly impacted by stock of debt and



Source: RBI, State Finances

non-significantly by debt service payments, indicating that debt displaces social expenditures not so much because it raises the debt burden, but because it reduces the fiscal space for further indebtedness (Ghosh et al. 2013). Moreover, though both health and education expenditure decrease when debt increases, but proportional to the size of expenditure the impact on health expenditure is much larger (Mahdavi, 2004; Lora and Olivera, 2006). In case of Punjab, persisting unstable level of debt stock crowded out the fiscal priority spending. This observation was validated by the following comparative assessment of the social sector spending in Punjab vis-à-vis other major States in India.

Figure 7.6: Pre and post-FRBM average social sector expenditure to GSDP of Selected States in India



Note: Social Sector Expenditure includes expenditure on social services, rural development and food storage and warehousing under revenue expenditure, capital outlay and loans and advances by the State governments.
Source: RBI, State Finances

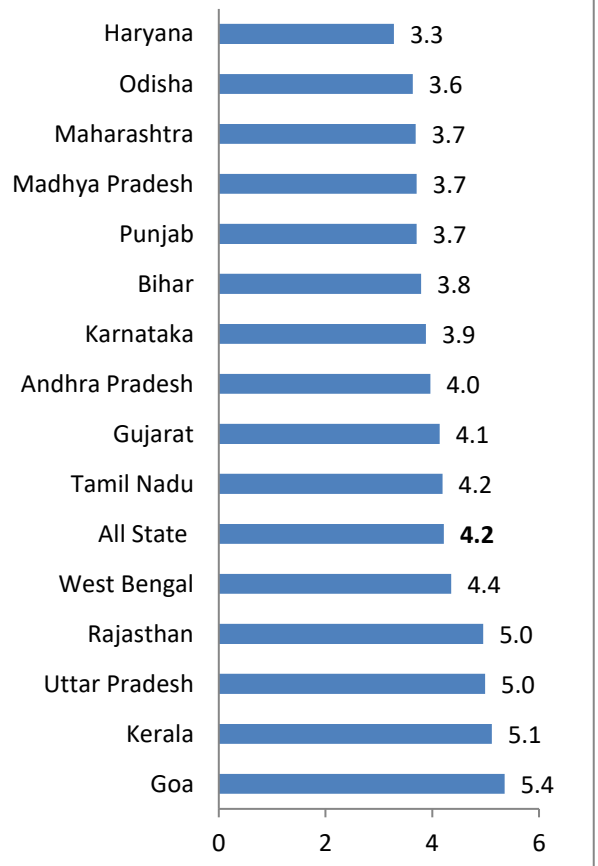
As far as allocation to social sector expenditure by all-States as percentage to GDP was concerned, in comparison to the pre-reform period the average ratio increased by 1.5 percentage point in the post-FRBM period. It is interesting to note that no significant improvement in social sector expenditure was observed for high debt States like Punjab (0.1 % point increase) and Kerala (0.6 % point decrease). However, among the high debt States in India, West Bengal, Bihar, Andhra Pradesh and Uttar Pradesh had pursued policies of social expenditure expansion.

As evident from Figure 7.7 and 7.8, Punjab made no substantial progress in human development in terms of effective public policy intervention through expansion of budgetary spend on education, health and water and sanitation. Post-reform average education and health spending in Punjab as a proportion of total expenditure (12.8% and 3.7%) was less than the all-State average (15.5% and 4.2%). Similarly, post-reform average spend on water and sanitation was 1.4% of total expenditure (Figure 7.9), which is again below the all-State average of 2.4%. In the wake of Punjab's shrunken fiscal priorities, the resource allocation was required to give a boost to socio-economic development through infrastructure building and human development through better budgetary allocations in the key areas of education, health, rural development and water and sanitation.

The States exhibited greater fiscal discipline in other expenses. It is interesting to note that the States that set interest payment targets, achieved stable levels of debt stock. The Government of Odisha planned to cut interest payment to 18%–25%of revenue receipts by 2005–06.By 2011–12, the ratio declined to 6.40%. Punjab did not consider setting this target. Odisha's FRBM Act aimed to reduce the ratio of salaries to the State's own revenue and the ratio of non-interest committed revenue expenditure to state's own revenue (Choudhury 2013). Punjab's FRBM Act overlooked such measures. Its policies under the Act were inherently weak and resulted in lopsided developments in fiscal consolidation.

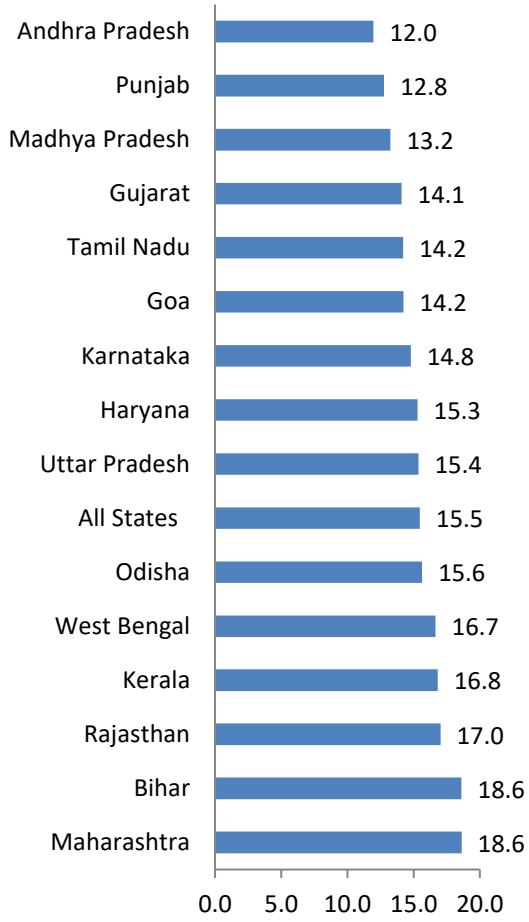
Punjab's FRBM Act neglected another important fiscal indicator – the tax-to-GSDP ratio, which started declining in the late-1990s. Punjab required tax reforms to improve its tax revenue generation, but Punjab's FRBM Act did not recognize the need for effective tax administration and collection or the need to target it. On the other hand, Haryana's strong revenue performance since 2003–04 showed how a reformed tax regime could alter the unsustainable fiscal conditions. Haryana increased its revenue receipts by improving its own tax and non-tax revenue, adopting the value-added tax, and improving collection of other State taxes. Haryana achieved revenue surplus within a few years of implementing its FRBM Act (Verma 2005).

Figure 7.7: Expenditure on Medical and Public Health and Family Welfare* - As Ratio to Aggregate Expenditure: Post FRBM Average



Source: RBI, State Finances

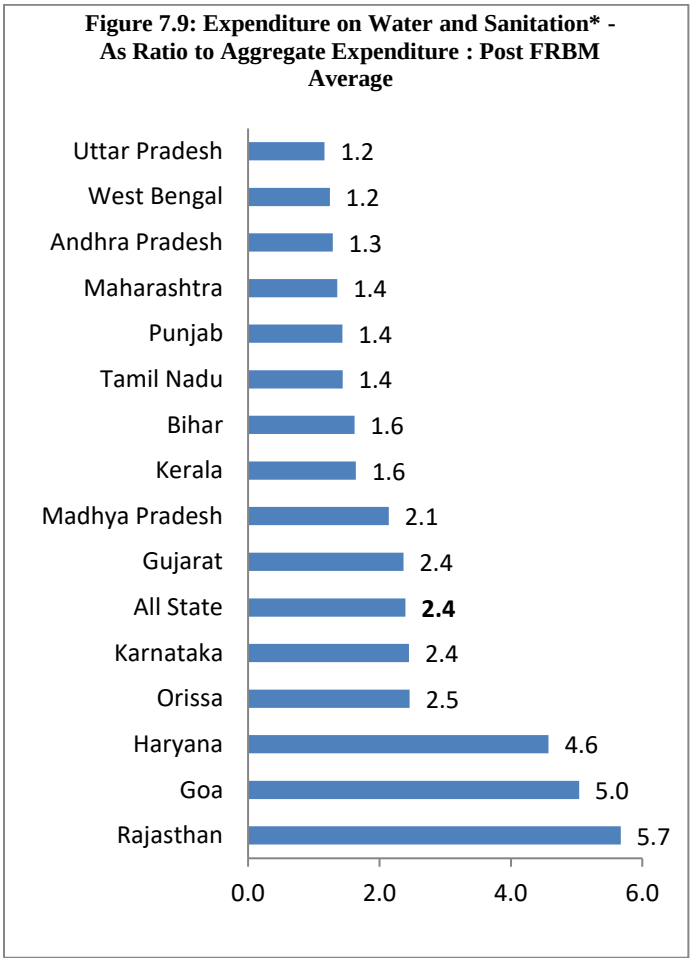
Figure 7.8: Expenditure on Education* - As Ratio to Aggregate Expenditure: Post FRBM Average



Source: RBI, State Finances

It is interesting to compare Haryana's case with that of Punjab. Haryana has shown tremendous improvement in its fiscal situation through expenditure control. The State government considered the Finance Commission's recommendations to improve the quality of public expenditure and adopted expenditure compression measures in both revenue and capital account. Its fiscal management objectives prescribed norms for prioritizing capital expenditure and pursuing expenditure policies that could help economic growth, reduce poverty, and improve human welfare (Verma 2005). Punjab's Fiscal Consolidation Path too required public expenditure targets.

Figure 7.9: Expenditure on Water and Sanitation* - As Ratio to Aggregate Expenditure : Post FRBM Average



Note: *: Includes expenditure on Sports, Art and Culture under revenue expenditure and capital outlay.
Source: RBI State Finances

Andhra Pradesh is another state that has improved its finances by introducing budgetary reforms and ensuring expenditure efficiency. As part of the fiscal reforms, the government brought in changes in several budgetary practices, introduced new procedures, and attempted to demystify and simplify the budget. To avoid overlapping, it merged similar schemes into generic programmes and integrated the respective heads of accounts to conserve precious and scarce resources. The government formulated a new cash management system that complied with the budget and was consistent with seasonality.

After the recommendations of the 13th Finance Commission, the Gujarat government too took effective measures: rationalization of the tax structure, imposing ceilings on the guarantees, and the introduction of the VAT and new pension scheme (Yadav and Baxi 2014). However,

Punjab did not take such steps. Gujarat's fiscal consolidation path included measures that improved the efficiency of fiscal management processes: the introduction of an Integrated Financial Management System (IFMS), online budget-making, and process reforms in VAT administration (which required widespread usage of an e-governance platform). Bhatanagar (2003) highlights the importance of e-governance in improving the transparency of government systems and increasing revenue collection of the States. Unfortunately, Punjab skipped these technological advancements.

To improve its finances, the Punjab government would need to make sustained efforts starting with shunning out its populist policies. To do so, the government would be required to take steps which may seem harsh at the beginning but will accelerate economic growth and sustain progress towards fiscal consolidation in the long run. The government of Punjab would also need to effectively use the funds allocated under centrally sponsored schemes -such as for capacity building in sectors like industry, agriculture, and infrastructure—and not for loan interest repayments (Sawhney 2005; Gaya and Khullar 2016).

In 2015, under the fiscal consolidation roadmap the 14th Finance Commission had recommended the States to maintain the fiscal deficit at 3% of GSDP and eliminate the revenue deficit. In the context of new goods and services tax (GST) regulations, it recommended that the new tax regime take legislative action to create an autonomous and independent 'GST Compensation Fund' to facilitate the compensation process. The share of the States in the net proceeds of the Union tax revenues has increased from 32%to 42%. With a greater fiscal space, the States can meaningfully spend on the overall growth and development in their regions, and thereby the nation.

7.3 Challenges and Recommendations

The States are yet to set their Fiscal Consolidation Path for 2015–2020. Punjab can learn from the experience of other States that have successfully implemented the FRBM Act, made progress in fiscal consolidation, and eliminated their revenue deficit. As the State is facing a tight fiscal situation, it would do well to follow a constructive approach towards augmenting

revenue, compression of wasteful expenditure and debt stabilization. Moreover, it is important that the fiscal consolidation is not achieved at the cost of human development in the State. In the discussion that follows, we present the specific challenges and recommendations for the fiscal consolidation in Punjab based on our analysis of the State's fiscal performance.

1. TARGET DEBT SUSTAINABILITY

The empirical analysis (Chapter 4 of this report) suggested that post-FRBM (2005) Punjab's debt position was unsustainable. The observations in Chapter 6 implied that in the future, finances were unlikely to follow the baseline scenario. If Punjab continued to follow its track record, its debt would escalate in case there is any kind of shock. For this, Punjab needs to reduce its debt burden below 25% (as suggested by the 12th Finance Commission).

Our analysis of Punjab's future debt (2016–17 to 2036–37) at the aggregate and disaggregate level suggests that its debt is weakly sustainable. From the scenario analysis, it was observed that adverse economic shocks such as a rise in the real interest rate can steadily increase the debt/GSDP ratio of the State. Shocks of a more permanent nature can render the state into macroeconomic instability. Thus, Punjab needs to articulate well thought out strategies for debt management and additional resource mobilization to ensure stability to its debt. In this regard, we carried out a series of simulations to demonstrate the consolidation paths that can stabilize public debt and deficit situation of Punjab. The scenario analysis pointed towards the necessity to augment revenue generation and expenditure compression. Other key suggestions based on the analysis include:

- Increase aggregate revenue receipts (RR) to GSDP by 0.25%for three years (2018–19 to 2020–21) and retain this growth thereafter. This would eliminate revenue deficit by the FY 2021-22 and give a surplus thereafter. On this account, revenue surplus would be likely to increase by 1.17% points between 2021-22(Rs 982cr.) and 2026-27(Rs12878cr.).
- Increase non-GST revenue and SONTR as a percentage of GSDP. Increase SONTR and non-GST revenue by 0.25% lasting for 3 years. This would be likely to ensure the long-term positive impact on the deficits and public debt of Punjab – achieving the debt to GSDP target of 25% by FY 2020-21;and, revenue surplus by 2021-22(Rs 82crore),

which is expected to increase by 0.36% points by 2026-27(Rs.3532crore). These strategies would be likely to result in better gains when implemented individually. However, a simultaneous increase in non-GST revenue and SONTR is recommended to achieve a faster and smoother transition to debt sustainability.

- Maintain the negative growth in revenue expenditure at its post-FRBM growth rate (CAGR of -2.06).Reduction of RE as per its post FRBM negative growth rate would allow a 3.3% decline in RE to GSDP by FY2026-27.
- Retain the pension-to-GSDP ratio at its post-FRBM average of 1.8% for the next five years (2018–19 to 2022–23) to achieve the debt-to-GSDP target of 25% by FY 2021–22. This would allow debt-to-GSDP to fall 14 percentage points between 2021–22 and 2026–27. By retaining the pension to GSDP at its post-FRBM average, Punjab would save Rs 5,891crore towards pension commitments in the next 10 years.
- Phase out the proportion of power subsidy in GSDP to 0.78%from its post-reform average of 1.4 %. This would eliminate the revenue deficit by 2022–23, and reach the target of 3% fiscal deficit in 2018–19 and surplus of Rs1,583 crores in primary balance in 2019–20.
- Retain the slow growth in salaries and wages at its post-FRBM CAGR of -0.55. This will ensure salaries and wages as a proportion of GSDP to decrease from its post-FRBM average of 4.3% to 4% in 2026-27.
- The fiscal gains realized from the fiscal consolidation path recommended in the report should be channelized towards augmenting capital outlay and priority sector spending to boost development in the long-neglected sectors of health, education, sanitation, rural development, R&D, skill development of labour force. Social sector expenditure expansion can lead to asset creation and the desired economic growth.

The strategies of expenditure compression and revenue augmentation proposed in the report can be implemented simultaneously for a faster realisation of the desired outcomes. Various combinations of these strategies are possible which would render significant gains in the debt stock stabilisation. Moreover, simultaneous implementation of these strategies would enable achievement of the debt sustainability targets with expenditure cuts and revenue rise at the much lower rates. For example, in the present situation, slow growth in RR in Punjab seems

to neutralise the positive impact of the reduction in RE on correction of revenue deficit. If the movement in RR and RE lack correlation, then a slow growth in revenue generation is likely to impede the correction of revenue deficit, otherwise expected due to declining revenue expenditure. Thus, the strategies for revenue augmentation need to go hand in hand with expenditure compression policies.

2. AUGMENT REVENUE GENERTION

Punjab's own tax revenue has not grown, and non-tax revenue has declined significantly. Therefore, as a percentage of revenue receipts, its total own revenue (tax plus non-tax) has stagnated over the study period (1990–91 to 2016–17). The primary reasons for the poor revenue generation from SONTR were i) uneconomic pricing of social, economic and general services comprising of guarantee fees and lottery receipts, receipt in respect of jails, supplies and disposals, animal husbandry, industries and tourism departments (CAG various issues), ii) negligible revenue generated from SONTR components like power, petroleum and tourism, and iii)low returns from the public enterprises. The State government's PSUs like Punjab State Electricity Board (PSEB)(unbundled into Punjab State Power Corporation Ltd for managing generation and distribution and Punjab State Transmission Corporation Ltd (Transco), Punjab State Pepsu Road Transport Corporation (PRTC), Punjab State Industrial Development Corporation Ltd. (PSIDC), Pungrain and Cooperative Apex Institutions, etc. incurred huge losses and were liable to pay an outstanding amount of Government loans on entities and institutions of Rs 17030.92 crore and Rs 22593.95 crore, respectively (White Paper,2017).

Also, Punjab's tax buoyancy, assessed in chapter 2, pointed out the problem of poor responsiveness of tax revenue to growth in GSDP. The analysis found that the tax buoyancy coefficient was less than 1 during 2003-04 to 2016-17.This showed that the growth in tax revenue receipts did not match the corresponding growth in income. Chapter 5 of the report has highlighted Punjab's inefficient utilisation of its potential tax base. Punjab's ranking in tax capacity and effort was found to be relatively low vis-à-visthe other major States in India. This was indicative of the poor collection of the state's own tax revenue. This has, in turn, led

to the State's dependence on the Central transfers. The share of total Central transfers in revenue receipts had progressively increased from 22.7% in 2006–07 to 31.5%in 2016–17.

In the backdrop of these observations, the following policy efforts are recommended to augment revenue generation in Punjab:

- **IMPROVE TAX BUOYANCY**
    - Increase economic activities in the key sectors of the economy- such as agri-infrastructure, agro- industrial development, manufacturing (primarily SMEs), IT and IT enabled services.
    - Widen the tax base by increasing capital expenditure to create infrastructure in key sectors like agriculture, manufacturing, and trade and commerce and R&D.
    - Restore investor confidence by improving administrative efficiency, elimination of corrupt and inefficient state machinery.
    - Identify new potential sources of revenue for revenue diversification in order to minimize the cost and dependence on single revenue source.

      Minimize the leakages in tax collection and expenditure through use of technology

- **IMPROVE THE STATE'S OWN NON-TAX REVENUE GENERATION**: As noted earlier in the report, revenue generation in Punjab is lagging on account of the declining share of SONTR in total revenue receipts. Following policy efforts are suggested for augmenting Punjab's non-tax revenue generation:
    - **Increase User Charges and Fees**: Identify sub-head in power, petroleum and tourism where the increase in user charges /fees is feasible without reducing the benefits accruing to the weaker sections of the society.
    - **Improve Returns from Public Sector Units** (PSUs): Review the administrative and establishment cost of public enterprises. Divest or close loss-making state enterprises or improve their operational efficiency by upgrading the scale of their operations or partially privatizing based on the evidence..

      Punjab State Power Corporation Ltd.: Supplying electricity for the agricultural purpose at a flat rate is undesirable. Over a period of time, the system should be

replaced with metered supply. Flat rate tends to make the marginal cost of energy 'zero'. As the prevailing price does not give a correct picture of the scarcity price, it tends to encourage the uneconomic use of both energy and water. Eliminate the practice of obtaining domestic connections in the name of agricultural use or even theft of power for industrial purposes, which are very often misclassified as agricultural consumption (Sen 1994, 2016, Sahwney 2016).

Pepsu Road Transport Corporation (PRTC): There is a need to install a rational fare structure for PRTC that has the coordinated structure of taxes and passenger fare. This can be achieved through cooperation between the Transport and Taxation Departments.

- **INCREASE TAX-EFFORT**
    - The State government needs to focus its policies on enhancing efficiency in tax collection, increasing administrative capabilities and e-governance.
    - Use of information technology and e-governance can optimally tap the State-GST potential.
    - E-governance can provide tax-payers access to information, facilities to fulfil legal obligations, and the means of financing IT infrastructure expansion.
    - Allocate more budgetary resources for revenue collection, provide incentives to revenue officers, and introduce means for identifying and dismissing the incompetent or corrupt system.

3. CONTROL NON-PRODUCTIVE EXPENDITURE

Punjab needs to curtail its revenue expenditure on interest payments, salaries and pensions, and subsidies. High expenditure under these heads is reflected in the State's committed expenditures (43% of total revenue receipts during 2016-17(BE), excluding subsidies). Considering the State's debt burden (34% in 2016-17(BE)), it is essential to set interest payment targets, rationalise subsidies, and control salaries and pensions. These expenditure control measures would reduce Punjab's fiscal deficit to 3% and eliminate the revenue deficit, as envisaged in the FRBM recommendations.

Punjab needs to follow some of the expenditure control measures and target (as recommended by the 14th Finance Commission). These include:

- A cut-back of 2.56% of GSDP in revenue expenditure between 2014-15 and 2019-20. The cut-back is extended to general services, social services and economic services.
- A rise in capital expenditure by 1.14% of GSDP.

Apart from the above, our analysis of expenditure compression scenarios for Punjab suggested that by allowing phased reduction in power subsidy (from 2.1% in 2017-18 to 0.78 % by 2026-27) and simultaneously holding proportion of pension to GSDP constant (at post FRBM average of 1.8% for five years) would enable Punjab to achieve debt to GSDP target of 25% by FY 2021-22. Also, debt to GSDP ratio declines faster under this strategy of expenditure control. This would eliminate revenue deficit by 2022-23, reduce fiscal deficit to 3% in the FY2018-19, and generate a surplus of Rs1583crore in primary balance in 2019-20.Attaining these fiscal corrections would essentially mean availability of more resources with the State government for capital outlay, and health and education expenditure.

In this backdrop the following policy efforts are recommended for expenditure control:

- **WAGES AND SALARIES**: As noted earlier in the report, the share of general services as a percentage of GSDP (termed as Non-development expenditure) was the highest across other functional expenditures. Also, the salary levels of the employees of Punjab government were higher than those of the Central government employees (White Paper Punjab, 2017).
    - In order to reduce the share of General services in GSDP, the State must do away with overstaffing of government executives to limit the expenditure (Sen 2016).
    - It is important to bring into line the pay scale of employees of government of Punjab with pay scale at the Centre. It is better to adopt prudent fiscal management practices and restrain from the policy of generous pay revisions in the times of mounting debt.
    - The State government needs to identify the government departments that are overstaffed and incur a high administrative cost. Operations of departments should be rationalized by withdrawing certain facilities such as bonus, travel concessions, transport and telecommunication facilities (Sen 1994, Sahwney 2012, 2016).

- **POWER SUBSIDY**: Power subsidy forms the bulk of total subsidy in Punjab. After accounting for power subsidy, the State's total committed expenditure in 2016-17 was 102% of revenue receipts. The undermentioned recommendations would help the State government in reviewing and rationalising its power subsidy.
    - Review policy on power subsidy to target it to the intended and deserving beneficiaries.
    - Channelize power subsidy to effect the greater social and economic benefits than the cost of provision (Sahwney 2016).
    - Establish a transparent system to ensure efficient financial accounting of power utilities (Sen 2016).
    - Mitigate inefficiencies (undue fiscal cost and losses) caused by power subsidy by making subsidies more explicit and user charged.
    - Conduct the periodic review of the usefulness of the subsidy

- **CLASSIFICATION INTO MERIT AND NON-MERIT SUBSIDIES**: To keep check of excess subsidization of goods and services, it is important to classify public provision of subsidy of goods and services as high, intermediate or low priority requirement.

Subsidies need to be classified into two categories viz., **merit** and **non-merit subsidies**. Merit Subsidies include goods and services that are under-consumed and need to be subsidized at the point of use so that the consumption does not depend on the ability to pay. Further classified by the level of subsidization required, Merit 1(high priority)elementary education, primary health centre, prevention & control of disease; Merit 2(medium priority)family welfare, food for BPL families, sanitation service, non-conventional source of energy, etc. According to Srivastav and Nath, (2001), at the all-India level, a bulk of subsidies arise on the provision of economic services (88%), of which 10% were merit services and 78% non-merit services. Subsidies on non-merit goods were five times more than those on merit goods. About 78% of subsidies, which go for non-merit economic services, were amenable to economic pricing and could be charged at an individual level instead of subsidizing in general. Thus, it is important for the government of Punjab to classify its subsidies as merit and non-merit subsidies. This classification would make it easy for the State government to reduce or eliminate the subsidy that fall under the non-merit category.

4. EXPAND SOCIAL SECTOR EXPENDITURE

Inadequate resource allocation for the social sector expenditure in Punjab was highlighted in the previous sections of this chapter and in detail in chapter 2 of the report.

The report discussed the dynamic causal relationship between government debt and social spending propounded in the literature. Popular opinion holds that with a higher debt ratio, a government will reduce its social expenditures, while a government with a higher social expenditures leads to an increase of its public debt (Fosu 2007; Lora and Olivera 2007; Fernández, 2012). The role of political decision-making in welfare policies is also an important factor that determines the direction of social spending. However, empirical investigations have provided evidence, as opposed to the popular view, that governments can increase their spending on social welfare programmes without jeopardizing the fiscal balance of revenue and expenditure (Chang et al., 2016). With respect to expenditure on social welfare for governments facing high debt, literature gives a conclusive suggestion that social welfare authorities should prepare in advance for austerity in a budget so that the effect of social spending crowding out by public debt can be minimised.

In the case of Punjab, low levels of social spending seemed to have resulted from high public debt. Therefore, the government should adopt an appropriate policy to enhance social welfare with a greater allocation to social spending. Particularly, special attention is required in healthcare, education and sanitation where the social sector spending of Punjab has remained less than the all-State average in the post-FRBM period.

5. LINK FISCAL MANAGEMENT REFORMS TO OTHER PUBLIC SECTOR AND GOVERNANCE REFORMS

Reforms in Public Financial Management System (PFMS) should be in tandem with the governance and public sector reforms. Analysis of the trends, progress made, and operational engagement usually gets divided between civil authorities, management committees and other reforms. Though this division encourages the necessary technical depth, it may lose sight of

crucial links. In the case of Punjab, to promote effective expansion and implementation of PFMS reforms, it is important to link fiscal management to governance reforms. The State needs to focus on more responsive and cross-cutting measures for the efficient delivery of public goods and services. Reform efforts across the range of government functions should be initiated in simultaneity and in a similar frame of reference to leave a definite impact on the overall fiscal position.

Punjab can follow good practices that have been developed to manage public expenditure. In the report, we have discussed the practices pursued by the better performing States. Odisha, Haryana, Gujarat and Andhra Pradesh have developed good practices in drafting budgets, cash management, accounting and auditing, and IT systems to support public expenditure management, etc. These are available to be adopted and implemented. However, policy adoption should not be a mere imitation. Adoption of good practices should be aimed at actually resolving the key concerns, achieving the desired improvements, and should involve innovation to suit the specific needs of Punjab.

On the basis of the key findings summarized earlier as well as the recommendations of the report, the following are the broad strategies recommended for directing the reform efforts through specific fiscal management channels:

- Track the obstacles to fiscal consolidation: It is essential to track the functional challenges in the execution of reforms as well as the improvements made. This will facilitate government efforts in sustaining the reforms in critical times and encourage good practices.
- Simultaneous implementation of Fiscal Consolidation Strategies: The strategies of expenditure compression and revenue augmentation, proposed in the report, need to be implemented simultaneously, even at a lesser individual speed, for the faster realisation of the desired outcomes. Various combinations of these strategies are possible which would render significant gains in debt stock stabilization.
- Target transformational progress: The quantitative analysis indicated a slow and incremental improvement in the fiscal indicators of Punjab. To attain definite gains, it is important that policy action brings out transformational changes. This can be achieved if efforts at strengthening public finance reforms focus on the time frame for reform agenda, monitor it,

and seek to offset policies that can backslide the progress. This is because for fiscal consolidation to be successful, reforms must deliver the expected results and benefits promised.

Chapter 8 CONCLUSIONS

This report responds to

> *…examine the extent and causes of fiscal stress of the state of Punjab, and find out the necessary policy initiatives to reduce mounting revenue and fiscal deficit of the state government, and advice the state about the best practices and policies of other states which are performing well.*

Going by the parameters that determine the strength of the State finances, this report recognises that fiscal management in Punjab had been poor, which has negatively impacted its fiscal situation, debt repayment capability, and prospects of raising additional funds. Therefore, the State requires effective and sustainable remedies to reduce the fiscal distress.

In this context, the report provides

- The analysis of the trends and patterns of deficit indicators in Punjab
- Assessment of the pattern (and components) of committed expenditure vis-à-vis fiscal consolidation targets
- Analysis of the government's debt position using mathematical and empirical methods
- Discussion on the alternative approaches to the State's debt sustainability
- Estimation of the tax-capacity and tax-effort using relevant econometric methods
- Critical assessment of the fiscal policy measures initiated to leverage the pace of fiscal correction; and
- Recommendations for policies to cope with the challenges of fiscal consolidation in Punjab.

This report describes and analyses the fiscal scenario in Punjab (Chapter 2) by comparing several indicators/financial ratios between 1980–81 and 2015–16. An overview suggests that Punjab has a history of high fiscal, revenue, and primary deficit, and there was stark deterioration in these deficit indicators as a proportion of GSDP between 1998–99 and 2005–06. For example, in FY 2001–02, as a percentage of GSDP, the fiscal deficit was around 6.5%, revenue deficit 5%, and primary deficit about 2%. Perpetually rising fiscal and primary deficit indicates the increase in the State government's net borrowings and interest payments and,

consequently, the fiscal imbalance trap in which the State of Punjab found itself. In FY 2005–06, Punjab's debt-to-GSDP ratio was as high as 49 per cent.

In 2003, the GoI passed the Fiscal Responsibility and Budget Management (FRBM) Act, which prescribed a 3%limit for the fiscal deficit and sought to eliminate revenue deficit. In the following years, Punjab and other States passed their respective FRBM Act, which imposed similar limits on their borrowings. In January 2006, Punjab FRBM (Amendment) Act 2005 was passed. It fixed the timeframe for achieving the fiscal management targets. Also, as per the recommendations of the 12th Finance Commission, Punjab drew up its Fiscal Consolidation Path for 2005–06 to 2009–10, which committed it to eliminate its revenue deficit by 2009–10, reduce its fiscal deficit to 3% of GSDP, and raise capital expenditure to about 3% of GSDP.

After these measures were implemented in 2009–10, fiscal indicators of Punjab improved considerably as a proportion of GSDP (fiscal deficit dropped to 4%,revenue deficit to 2%and the primary deficit to 1%), but the FRBM Act targets were not achieved: fiscal deficit exceeded 3 per cent, and revenue deficit was not eliminated. Towards the same objective, and on the recommendation of the 13th Finance Commission (2009), the State amended its FRBM Act in 2011 and prepared a Fiscal Consolidation Roadmap for 2010–11 to 2014–15.

The FRBM Act (2011) had envisaged elimination of revenue deficit, but Punjab has not yet attained this target. Its revenue deficit averaged around 2.1% between 2013–14 and 2016–17, and outstanding liabilities averaged 32% of GSDP between 2011–12 and 2016–17.

Our analysis of the sources of funds revealed that after 2006–2007, the government of Punjab raised excessive finances through market borrowings and ways and means advances (WMA) from the RBI. In 2005–06, the State government's market borrowings were around 1%of GSDP, which increased to 3–4% of GSDP in 2008-09. Also, the proportion of WMA to GSDP, which was almost negligible in 2008–09, increased to 5.2 per cent in 2014–15. From FY 2013–14 to 2016–17, WMA from RBI was the primary source of borrowing for Punjab, and in 2016–17, it comprised 4.6%of its GSDP. In the wake of such heavy dependence on WMA, the RBI suspended payments to the State government of Punjab per the scheme of WMA to state governments for the year 2016–17 with effect from 29 March 2017(White Paper, 2017). States like Kerala, Himachal Pradesh, Gujarat, and West Bengal had raised substantial funds by way

of market loans; however West Bengal like Punjab had also raised additional funds through RBI's WMA. No other major State resorted to borrowing from the RBI.

The report highlights that the declining growth of GSDP was an important reason for the sharp rise in Punjab's debt burden. Also, the shallow growth in the State's own tax revenue and significant decline in the share of non-tax revenue in total revenue receipts were cited as thefactors that led to increase in deficits of the State. From FY 2003–04 to 2016–17, Punjab's tax buoyancy coefficient was less than 1. This indicated the poor responsiveness of tax revenue to growth in GSDP, and that the growth of tax revenue receipts did not match the corresponding growth in income.

Our analysis of Punjab's expenditure profile disclosed no encouraging trends. The development expenditure component of revenue expenditure was 6–9% of the GSDP for the study period, and non-development expenditure increased from 4% in 1991– 92 to 11 per cent in 2002–03 before decreasing to 6.2% in 2016–17 (BE). Assessment of distribution of revenue expenditure by functional groups revealed that general services as a percentage of GSDP, or the salaries component (non-development expenditure), was the highest across functional expenditures, and the allocation to social services was the lowest. Allocation towards capital expenditure declined significantly from FY 2007–08 to 2016–17. The average share of capital expenditure from FY 2007–08 to 2016–17 was 1.9%and that of capital outlay to about 1 per cent. Capital expenditure as a percentage of GSDP in Punjab was consistently lower than the all-State average. The compound annual growth rate (CAGR) of capital expenditure in Punjab during the study period was 2.6%, below the all-State average of 3.5%. In terms of capital outlay, most States increased their expenditure on capital outlay as a percentage of GSDP, but not Punjab; its CAGR was 1% against the all-State average of 2.02%.

Analysis of the committed expenditure showed that Punjab spent a significant proportion of its revenue expenditure on contractual expenditures. Revenue expenditure on committed expenditure (43.29% in 2016–17 (BE)) was substantially larger than the all-State average of committed expenditure (29.6% of revenue expenditure in 2016–17 (BE)). The ratio for Punjab (43.3%) was more than double of the States like Madhya Pradesh and Chhattisgarh (less than 22%). In Punjab, salaries and wages as a proportion of the State's own revenue increased from 44% in 2010–11 to 57 per cent in 2016–17.With the exception of FY 2008–09, over the entire

study period, Punjab had the highest per capita expenditure on salaries and wages as a percentage of GSDP and one of the highest salaries-to-GSDP ratios among high-income States. Despite its deteriorating fiscal scenario, the State did not curtail the growth of expenditure on salaries. Over the years (FY 2000–01 to 2015–16), Punjab's CAGR of expenditure on salaries as a percentage of GSDP (4.58%) exceeded the all-state average (3.94%). During the five-year period from FY 2008–09 to 2012–13, the absolute value of expenditure on salaries and wages increased 106%.

With respect to interest payments as a proportion to GSDP, the ratio for Punjab increased from about 1%in 1990–91 to around 4% in 2003–04, before declining to 2.5% in 2014–15. The interest payment as a proportion to GSDP was 3.2% in FY 2017–18(BE). Among the major States, total interest payment as a percentage of total expenditure was high in Punjab, Gujarat, Maharashtra, Kerala, and West Bengal.

Punjab's uncomfortably high subsidy burdens were a cause for concern, too. The subsidy burden increased mostly on account of the power subsidy, which constitutes more than 95 per cent of the total subsidy. Punjab gave a much higher proportion of its total subsidy as power subsidy (on average 97%of total subsidy and 1.4 per cent of GSDP during 2011–12 to 2015–16).

The study also highlighted the poor fiscal provisioning for social sectors such as education, healthcare and rural development. This revealed that Punjab consistently accorded low fiscal priority to the social sector and broader development expenditure. For the study period (FY 1990–91 to 2016–17), Punjab spent less than the sub-national average on social sector.

Overall, weak revenue generation, poor expenditure control and debt management impeded fiscal consolidation in Punjab. The report empirically examines three core issues related to the current fiscal problems: tax generation capacity vis-à-vis other major states in India; debt sustainability in the periods before and after the FRBM; and scenario-based debt projections.

Chapter 3reviewsthe literature on the core issues and the concepts underlying the theoretical understanding on the capacity of sub-national governments to generate tax revenue, attain debt

sustainability, and forecast the debt burden. This chapter also highlights the existing theoretical and empirical studies that examine these aspects of sub-national finances.

Chapter 4 of the report builds upon the assessment of outstanding liabilities discussed in Chapter 2 to analyse Punjab's debt burden and debt sustainability perspectives. Three alternative approaches *viz.*, Domar debt sustainability criterion, present value budget constraint approach, and indicator approach were used to assess Punjab's debt sustainability overall (1990–91 to 2014–15) and in the post-FRBM period (2005–06 to 2014–15). The results confirm that Punjab's debt was weakly sustainable.

The report estimates Punjab's tax-capacity and tax-effort relative to other major states of India between 2002–03 and 2014–15 (Chapter 5). The analysis was motivated by the findings of the preliminary investigation of Punjab's revenue profile in Chapter 2. The State's own tax revenue is a component of revenue receipts. For Punjab, the share of the State's own tax revenue in total revenue receipts increased significantly in the recent years, but its share in GSDP stagnated at below 10% in the past decades.

The report empirically examined tax revenue generation in Punjab vis-à-vis other selected states in India using econometric methodologies such as the panel regression approach, carried out at the aggregate and disaggregate level, and stochastic frontier approach (SFA). The analysis was performed using a panel of 16 Indian states for selected financial years. The methodologies were chosen to account for socio-political and economic structure and other environmental factors that impact a state's tax-capacity and tax-effort. Results obtained from the aggregate panel regression for FY 2010–11 and 2012–13 identified low tax-capacity and stagnated tax-effort in the case of Punjab. Our ranking of tax-capacity across states was broadly in line with the existing literature (Jha et al. 1998; Thirtle et al. 2002; Le, Moreno-Dodson, and Bayraktar 2012; Karnik and Raju 2015; Garg et al. 2017). Tax revenue tends to be higher in the States with higher income levels, higher share of urban population, the lower share of agriculture in GDP, and better institutional quality. Thus, we found that Tamil Nadu, Kerala, Gujarat, and Maharashtra had the highest potential for tax collection in both FY 2011–12 and 2013–14. However, despite being a high-income state, Punjab ranked 11thin tax capacity

potential in FY 2011–12 and 8th in FY 2013–14.[29] Punjab's ranking in tax-capacity improved, but this improvement seemed less significant in comparison to other States. With respect to the ranking on tax effort, Punjab ranked 5thfor both the years.

Subsequently, a disaggregate regression analysis was carried out on six types of State tax. The results ranked states on the basis of revenue generated through each tax. With regard to stamp duty and registration fees, Punjab ranked 9th on tax-effort. Sales tax contributed majorly to tax revenue of Punjab,but the State ranked last (16th) on the tax-effort index with respect to sales tax collection. In land and agricultural income tax revenue Punjab ranked 15th on tax-effort and Haryana ranked 16th. This was not surprising as agriculture income is least taxed in Punjab and Haryana. Similarly, Punjab's collection of motor vehicle, passenger, and goods taxes was not satisfactory. Punjab, Uttar Pradesh, and Gujarat were found to be making the least effort in utilising their potential base. With respect to electricity revenue (rank 6th) and revenue generation from electricity duty (rank 9th), Punjab's performance was average.

Overall, for the study period, Punjab under-performed in tax revenue generation. Actual tax revenue Punjab generated was significantly lower than its predicted capacity, and it ranked 11th out of 16 States. The results on tax-effort showed that West Bengal, Bihar, Uttar Pradesh, Kerala, Haryana, Punjab, and Gujarat made little effort in exploiting their potential base and that there was a considerable scope for improvement.

Punjab ranked 11th among 16 states on tax effort between 2004–05 and 2014–15. This poor performance was worrisome given that Punjab had enjoyed a decade of economic prosperity. Its large tax-base and high economic growth notwithstanding, Punjab's performance in tax revenue generation was dismal in comparison to some of low-income states. Sales and excise tax revenue constitutes almost two-thirds of a state's total tax revenue, but Punjab's utilisation of its sales tax and state excise base was average and needs to improve.

The tax-effort ranking based on the inefficiency scores obtained from the SFA analysis showed that Punjab's tax effort declined over the reference years. Considering the full sample, the SFA inefficiency scores suggested that the range of the tax-effort scores varied considerably over

[29] Ranking states by GSDP per capita (nominal) in 2014–15.

the years. The scores were between 72% and 99%in 2002–03; between 70% and 98% in 2006–07; between 73% and 98% in 2010–11; and between 80% and 98% in 2013–14. On tax-effort, Punjab ranked 2nd in 2002–03, 5th in 2006–07, 7th in 2010–11, and 12th in 2013–14.

Given the above observations, the importance of debt sustainability for the State governments has increased in recent times. The debt of sub-national governments should be sustainable, and sound management of debt is essential to secure sustainability. Recognising this, and to provide inputs for policy formulation, Chapter 6 of this report attempts to evaluate Punjab's debt prospects and to project its debt burden over the period 2016-17 to 2036-37 and 2016-17 to 2026-27.

A scenario-based analysis of the path and magnitude of Punjab's debt burden over the period 2016-17 to 2036-37 (at the aggregate level) and 2016-17 to 2026-27(at a disaggregate level) suggest that Punjab's debt stock would be likely to increase in the future years in the absence of strong fiscal adjustment.

Baseline scenario for period 2016-17 to 2036-37(aggregate), constructed taking the values of the parameters (such as debt stock as 30.45%, real interest rate as 4.55%, real growth rate as 5.63%, primary deficit as 0.57%) at their 5-year average (i.e. 2011-12 to 2015-16) showed that Punjab's debt dynamics were weak and a cause of concern. Further, any temporary/short-term shock (such as real GDP growth shock, interest rate shock, primary balance shock or a combination of these shocks), lasting for about three FYs would leave a prolonged negative impact that can be disastrous for the economy.

Baseline scenarios for the period 2016-17 to 2026-27 (disaggregate) conducted to draw the path of growth in revenue, expenditure and their components at their post-FRBM averages and corresponding debt stock of Punjab suggested the following:

- *Revenue Receipts (RR) and Revenue Expenditure (RE) - Debt to GSDP Baseline Simulation:* Given the negative growth of revenue generation (CAGR: -1.47) and revenue expenditure (CAGR: -2.59), *ceteris paribus*, RR to GSDP was expected to decline from the post-reform average of 11.2% to 9.5% in 2026-27(1.5% point decline). On the expenditure side, RE, if allowed to reduce as per its post-FRBM growth rate, would cause

a 3.3% decline in RE to GSDP over the simulation period. However, a negative growth in revenue generation would be likely to continue impeding the correction of revenue deficit, otherwise expected due to declining revenue expenditure. It is for the same reason that Punjab missed the target of eliminating its revenue deficit despite several revisions of fiscal consolidation targets by the government. The baseline simulation showed that it would take more than 10 years for the government of Punjab to completely eliminate the revenue deficit. In terms of RR and RE, if Punjab continued to follow its track record, the state would attain debt to GSDP threshold of less than or equal to 25% of GSDP in the FY 2020-21.

- *Components of Committed Expenditure - Debt to GSDP Baseline Simulation*: Given the post-reform trends of components of committed expenditure (such as wages and salaries with CAGR of -0.55;interest payments with CAGR of -4.09; power subsidy with CAGR of -4.93; pensions with CAGR of 2.63), *ceteris paribus*, total revenue expenditure was expected to increase by Rs. 75053 crore. The combined effect of the respective growth rate on the components of committed expenditure would be likely to result in the decline of revenue expenditure to GSDP by 1.9 % points during 2015-16 to 2026-27. This would result in a decline in revenue deficit from an average of 2% of GSDP to 0.5% in 2024-25 and to 0.09% by 2026-27. The prudent threshold for gross fiscal deficit at 3% of GSDP would be likely to be attained in 2019-20. Debt to GSDP threshold of less than or equal to 25% of GSDP would be likely to be attained in 2022-23(24.5%).
- *State's Own Tax Revenue (SOTR), GST Revenue and Non-GST Revenue - Debt to GSDP Baseline Simulation:* Taking account of the recent changes in the tax structure of India brought about with the introduction of Goods and Service tax (GST), our analysis categorised SOTR into non-GST revenue and GST revenue. Non-GST includes revenue from items that are not subsumed under GST and price and value of which can be controlled by the states such as state excise on liquor, land revenue, stamp and registration fees, motor and vehicle taxes, electricity duty and petroleum).

  Baseline simulation conducted using the post-FRBM growth in SONTR (CAGR: -13.81), SOTR(CAGR: 0.49) and components such as GST revenue(CAGR: 1.53) and Non-GST revenue(CAGR-0.9), *ceteris paribus*, showed that positive growth in SOTR, expected on account of positively growing GST revenue continues to be impeded by negative growth

in non-GST revenue. As a result, over the period of 10 years SOTR to GSDP was likely to increase by 0.5% points from its post-FRBM average of 7%. Also, lingering growth of SOTR combined with a negative growth of SONTR, *ceteris paribus*, was likely to result in a decline of RR to GSDP by 0.9% points from an average of 11.2% by 2026-27.

The declining RR to GSDP ratio would hit hard on revenue deficit. With RE to GSDP held constant at post-reform average (13.4%), revenue deficit as a percentage of GSDP would be likely to increase from an average of 2% to 3% in 2026-27.On account of poor revenue generation, fiscal consolidation targets were go astray. As a percentage of GSDP, fiscal deficit and public debt will continue to remain above target of 3% and 25% respectively.

The report also elaborates on the policy measures formulated by the Government of Punjab to leverage its pace of fiscal correction. Chapter 7 of this report discusses the chronology of the federal laws and policies that shaped fiscal reforms in Punjab. It assesses state policies in light of the fiscal consolidation achieved by other States and compares Punjab's fiscal progress with the best-performing Indian States. The fiscal achievements and best practices of the States have been discussed in light of the fiscal standards drawn by the 14th Finance Commission.

The all-State average revenue deficit (1.9 per cent) during the study period was less than in Punjab (2.9 per cent), Kerala (2.1 per cent), Odisha (2.6 per cent), Uttar Pradesh (2.7 per cent), Bihar (3 per cent), and West Bengal (3.3 per cent). After fiscal management laws were enforced, and despite heavy historic revenue deficits, Bihar and Odisha eliminated their revenue deficit mainly through effective expenditure control and revenue expansion (Bihar's post-FRBM average revenue surplus was 2 per cent, and Odisha's post-FRBM average revenue surplus was 1.6 per cent). Post-reform, Punjab attained the fiscal deficit target of 3% of GSDP but the best performer was Odisha with the post-reform average fiscal deficit of 0.8%.Also, Odisha's outstanding debt burden dropped by over half from 43.81% of GSDP to 17.87%. Bihar, Goa, Odisha, Andhra Pradesh, Uttar Pradesh, and Punjab had high debt; in the post-reform period, the debt-stock ratio fell significantly only in the case of Odisha (25.5% of GSDP average debt in the post-FRBM period).

In terms of interest payments, the post-FRBM average interest payments to revenue receipts (IP/RR) ratio was the highest in West Bengal, followed by Punjab, Haryana, Gujarat, and

Kerala, with an outgo of more than 10% of revenue receipts towards interest payment. Of the 15 states, 7 States had average IP/RR ratio above 16% (post-FRBM all-State average) and 8 States had below 16% IP/RR ratio, including major states like Karnataka, Madhya Pradesh, Bihar, and Odisha. Only two states viz., Karnataka, Madhya Pradesh met the interest payment target envisaged by the 14th Finance Commission.

Fiscal priority spending in aggregate social services relative to GSDP is the lowest in Punjab. The State's Health sector spending from the budgetary sources has declined. In contrast, Goa, Kerala, Uttar Pradesh, and Rajasthan have increased priority sector spending on education, health, water supply, and sanitation. There has been no improvement in social sector expenditure in high-debt states like Punjab (0.1 per cent point increase) and Kerala (0.6 per cent point decrease), but West Bengal, Bihar, Andhra Pradesh, and Uttar Pradesh have expanded social expenditure.

In the post-reform Punjab, the average spending on education (12.8%)and health(3.7%) as a proportion of total expenditure is less than the all-State average (respectively, 15.5% and 4.2%). Expenditure on water and sanitation was 1.4 per cent, below the all-State average (2.4%). Punjab seems to have made no substantial progress in human development in terms of effective public policy intervention through expansion of spending in education, health, and sanitation. In the era of hard budget constraints, more resource needs to be allocated towards the key areas of infrastructure building and human development, which will ensure both socio-economic development and debt stability in the long run.

Political and policy commitment cannot be induced externally; it must arise within the Government of Punjab. This report has suggested the ways to encourage and reinforce political commitments; it highlighted the key areas for the State to strengthen its finances and made recommendations for the fiscal policy framework under the 14th Finance Commission. In conclusion, the report provides a stronger empirical basis for some key questions related to the public financial reforms in Punjab in a way that stimulates further discussion and also delivers some useful ideas for current and emerging operational issues.

Key findings:

The objective of a stable debt stock is achievable by augmenting revenue and compressing non-productive expenditure. An increase in aggregate revenue receipts to GSDP by 0.25% for three years (2018–19 to 2020–21) and retaining this growth thereafter would eliminate revenue deficit by the FY 2021-22 and create a surplus thereafter. On this account, revenue surplus would be likely to increase by 1.17% points between 2021-22(Rs 982cr.) and 2026-27(Rs12878cr.).

An increase in non-GST revenue and SONTR as a percentage of GSDP by 0.25% lasting for 3 years would ensure the long-term positive impact on the deficits and public debt of Punjab. Debt to GSDP target of 25% would most likely be met by FY 2020-21 under this strategy. Fiscal policies ensuring movement along this path would be likely to generate revenue surplus by 2021-22(Rs 82crore), which is expected to increase by 0.36% points by 2026-27(Rs.3532crore). These strategies would result in similar gains when implemented individually. However, a simultaneous increase in non-GST revenue and SONTR is recommended to achieve a faster and smoother transition to debt sustainability.

Improvement in the ratio of SONTR to GSDP would increase non-tax revenue from components like power, tourism and by improving returns from public enterprises. Similarly, increased revenue collection can be realised from non-GST items such as the State excise on liquor, stamp and registration fees, motor and vehicle taxes, electricity duty, and petroleum.

On the expenditure side, the implementation of stringent policies to control expenditure would establish transformational reforms. Expenditure control strategies recommended in the report include policies like retaining the pension-to-GSDP ratio at its post-FRBM average of 1.8% for the next five years (2018–19 to 2022–23) to achieve the debt-to-GSDP target of 25% by FY 2021–22. This would allow debt-to-GSDP to fall 14% points between 2021–22 and 2026–27. By retaining the pension to GSDP at its post-FRBM average, Punjab would save Rs 5,891crore towards pension commitments in the next 10 years.

Phasing out the proportion of power subsidy in GSDP to 0.78% from its post-reform average of 1.4% would eliminate the revenue deficit by 2022–23 and reach the target of 3% fiscal

deficit in 2018–19 and a surplus of Rs 1,583crore in the primary balance in 2019–20. Also continuing with the policy of slow growth in salaries and wages (at its post-FRBM CAGR of -0.55) would ensure salaries and wages, as a proportion of GSDP, decrease from its post-FRBM average of 4.3% to 4% in 2026-27. Moreover, maintaining the negative growth in revenue expenditure at its post-FRBM growth rate (CARG of -2.06) would allow a 3.3% point decline in RE to GSDP by FY2026-27.

Basic public financial management reforms: This report makes the following suggestions to facilitate government spending and a reduction in the debt level:

- Take advantage of the new GST regime by allocating resources and skilled personnel for efficient tax administration to increase revenue receipts.
- Increase tax buoyancy by increasing economic activities in key sectors such as agri-infrastructure, agro-industrial development, manufacturing (primarily small and medium enterprises), and IT and ITES.
- Widen tax base by increasing capital expenditure to create infrastructure in key sectors like agriculture, manufacturing, trade and commerce, and R&D.
- Minimise leakages in tax collection and expenditure programmes through e-governance. This would make government transactions and tax administration transparent and efficient.
- Reduce the proportion of general services in revenue expenditure; identify overstaffed government departments that incur a high administrative cost and eliminate overstaffing to limit the outgo on the salaries of the government employees.
- Align the State government pay with the Central government pay scale by adopting prudent fiscal management practices and avoiding generous pay revisions.
- Review the administrative and establishment cost of public enterprises; recommend closure or disinvestment for loss-making enterprises; and increase operational efficiency by upgrading their scale of operations or partially privatising them, based on evidence.
- Link fiscal management reforms to other public sector and governance reforms.

- Make the delivery of public goods and services efficient.
- Reform government functions to improve the overall fiscal position.
- Follow the best practices developed by other States to manage public expenditure but avoid policy standardisation and imitation.

Expansion in fiscal priority spending in Punjab: This report has highlighted inadequate resource allocation towards social sector expenditure like healthcare, education, sanitation, rural development, R&D, and skill development in Punjab. In this regard, this study recommends channelizing the fiscal gains realized from the fiscal consolidation path towards augmenting capital outlay and priority sector spending. This will contribute in capacity creation in the economy and ensure debt sustainability in the long run.

Given the key findings summarized above as well as the detailed findings discussed in the chapters of the report, this study recommends the following broad strategies for directing the fiscal reform efforts in Punjab

- **Track the obstacles to fiscal consolidation**: It is essential to track the functional challenges in the execution of reforms and the improvements made. This would facilitate government efforts of sustaining the reforms in critical times and encourage good practices.
- **Enforce simultaneous implementation of fiscal consolidation strategies**: The strategies of expenditure compression and revenue augmentation proposed in the report be implemented simultaneously, even though it impedes the speed of reforms, for a faster realisation of the desired outcomes. Various combinations of these strategies are possible which would render significant gains in the debt stock stabilization.
- **Target transformational progress:** The quantitative analysis indicated a slow and incremental improvement in the fiscal indicators of Punjab. However, for the State to attain definite gains, it is important that the policy action brings out transformational changes. Efforts at strengthening public finance reforms need to focus on developing a timeframe for the implementation of reforms, monitor the development, and offset the policies that can backslide the progress. This is because for fiscal consolidation to be successful, reforms not only need to progress but also deliver the full level of results or benefits promised.

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