Fiscal Prudence for What? Analysing the State Finances of Karnataka

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Abstract

Karnataka is the first state in India to have introduced a fiscal rules framework, even before the central government had enacted the Fiscal Responsibility and Budget Management (FRBM) Act, 2003. The Karnataka Fiscal Responsibility Act was enacted in 2002. Karnataka is consistently fiscally-prudent with its revenue deficit-to-GSDP ratio reducing to near-zero and the fiscal deficit-to-GSDP ratio below 3%. How the state has achieved fiscal prudence? Is it through revenue buoyancy or through expenditure compression? Our analysis shows that the tax-to-GSDP ratio of the state is not increasing and it is around 7% of GSDP. As around 70% of state finances come from own revenue resources, has the declining buoyancy in "own revenue" prompted the state to go for selective expenditure compression to maintain fiscal prudence? Examining the expenditure side, we found that the state has compressed its capital expenditure and marginally decreased its spending on education and social welfare and nutrition. This has its ramification on the outcomes of education, on the one hand, in terms of declining enrolment at the primary level and increasing dropout rates in secondary level, and on the other hand, rendering Karnataka as one of the most vulnerable states in terms of nutrition (anthropometric) indicators. There seems to be a shift in the focus of public spending from education and health to water and sanitation, within the social sector budget. At this juncture, it is intriguing that the state, with comfortable levels of fiscal consolidation since 2005, has resorted to heavy off-budget borrowing to finance state programmes. This has added to the already increasing ratio of interest payment to own revenue receipt, albeit off budget borrowing being hardly one percent of GSDP. The fiscal marksmanship analysis showed systematic bias in the forecasting of own tax revenue, grants and capital expenditure. This calls for the reduction in the volatility of intergovernmental fiscal transfers to the state as well as improving the assumptions and forecasting methodologies of the macro-fiscal variables like own tax revenue and capital spending.

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Karnataka is the first state to abide by the fiscal rules by framing the Karnataka Fiscal Responsibility Act (KFRA) in 2002, even before the centre's FRBM Act came into being in 2003. The Act lays down the threshold limit for key fiscal indicators in order to maintain fiscal discipline, where ideally the state's revenue deficit is completely eliminated, fiscal deficit is contained below three percent of GSDP and liabilities does not cross 25 percent of GSDP. The Act also provides for prudent debt management by limiting State Government borrowings and calls for greater transparency in fiscal operations and mandates the state government to lay down a medium-term fiscal plan (MTFP) along with the annual budget (KFRA, 2002). The state had brought out the first MTFP for the period 2000-05, based on the parameters laid down by the Eleventh Finance Commission, even before the enactment of KFRA. From then on, the state has not only been able to meet its fiscal targets as early as 2005, but it also has been able to sustain its fiscal prudence following the path of fiscal consolidation (CAG, 2018). The state has also consistently maintained the government guarantees within the limits given under Karnataka ceiling on Government Guarantees Act, 1999. However, during the 2008-09 and 2009-20 financial crisis, on the recommendation of the Government of India (GOI)[2], the state had resorted to higher borrowing to finance public spending to tide over the crisis situation, by amending the KFRA[3].

The CAG report on Karnataka State Finance, nevertheless, has flagged some accounting adjustments in the Public Accounts, it has found on close scrutiny of some high end transaction during 2016-17. This has made the CAG to raise doubts on the way the state has affected fiscal prudence and stated that it was through accounting adjustments rather than through fiscal management (CAG, 2018). Moreover, it is also found that, the states in general, resort to expenditure compression in order to meet the targets of fiscal indicators. Empirical studies show that the states have succeeded in achieving the fiscal targets primarily by cutting on capital expenditure, especially the high income and middle-income states have reduced their expenditure on social services. The major casualties here are the health and education expenditure, where the major share of spending on children are earmarked. At this juncture it is important to ponder on the fiscal space for child budgeting. It is even more important to analyse the existing fiscal space of the state finances for additional development spending. In this paper we attempt to analyse the fiscal space of Karnataka state finances.

The Fifteenth Finance Commissions (FC XV) while assessing the fiscal position of Karnataka called attention to the existence of a dual state with high per capita income and high poverty numbers. The state, in this financial year, has proposed to expand its investment in development activities and has demanded for special grants for the state's

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[2] GOI relaxed the limits for fiscal deficit of states to 3.5 percent of GSDP in 2008-09 and 4 percent of GSDP in 2009-10 as one time relaxation, as part of its stimulus package.
[3] Amending Act 6 of 2009: [LA Bill No.22 of 2009, File No.DPAL 16 Shasana 2009]; Amending Act 14 of 2009: [L.A.Bill No.35 of 2009, File No.DPAL 35 Shasana 2009].

overall development, particularly for increasing facilities under the urban local bodies, doubling farmers' income in the next five years, drinking water supply scheme and for infrastructure development in colleges and other capacity building programmes in education sector. This clearly indicates higher development expenditure for 2019-20, which needs to be efficiently managed to ensure fiscal prudence.

Against this backdrop, the rest of the paper is organised as follows. Section 2 outlines the economic growth trends of the state, while section 3 illustrates the profile of the state finances. Section 4 analyses the fiscal marksmanship of the state. Section 5 looks into the outcomes of expenditure compression on human development. Section 6 concludes.

2. Economic Growth

The annual growth rate of GSDP varies from a low of six percent in 2012-13 to a high of 11 percent in 2015-16 (Table 1). The average annual growth rate (AAGR) of GSDP from 2012-13 to 2018-19 comes up to 8.66 percent. On the other hand, the compound annual growth rate (CAGR) of GSDP from 2012-13 to 2018-19, comes to 0.09 percent. This means that the effective annual growth rate of GSDP is only 0.09 percent, due to wide fluctuations in between years. The same is the case with gross state value addition (GSVA), where the AAGR is 8.48 percent and CAGR is only 0.08 percent.

The trends in the annual growth rate of GSVA and GSDP of Karnataka, shows that 2015-16 recorded the highest value addition and 2012-13 recorded the lowest (Table 1). The major contributors to high growth in 2015-16 are manufacturing industry in the secondary sector and transport and communication, especially railways and air transport, and real estate businesses in the services sector (Appendix 1). On the other hand, the low growth rate in 2012-13 was due to negative growth rate in primary sector both in agriculture and mining, along with negative growth in electricity, gas and water supply industry, and construction industry in the secondary sector.

Clearly, service sector is the growth engine of Karnataka's economy with highest and increasing GSVA to GSDP ratio. The ratio increased from 51.8 percent in 2011-12 to 59.6 percent in 2018-19 (Table 2). However, this increasing ratio is largely a contribution of real estate businesses, having the highest GSVA component throughout the decade and is increasing. Among the industries, the GSVA is almost stagnant in manufacturing and electricity, gas and water supply sector. The GSVA in primary sector is also on the decline and also with almost stagnant ratio in mining works. In short, Karnataka's economy survives on service sector growth, especially real estate sector.

Table 1: Growth of Macro Aggregate at constant (2011-12) prices

Growth Rate of Key Macro Aggregates								CAGR	AAGR
Item	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2012-19	2012-19
GSVA	**5.96**	**9.72**	**6.53**	**10.45**	**6.95**	**10.33**	**9.41**	**0.08**	**8.48**
Taxes on Products	6.23	7.90	5.56	12.05	9.54	11.21	10.84	0.09	9.05
Subsidies on products	1.57	8.06	13.60	-6.39	-8.84	11.49	9.12	0.04	4.08
GSDP	**6.11**	**9.55**	**6.24**	**11.09**	**7.61**	**10.41**	**9.59**	**0.09**	**8.66**
NSVA	5.48	9.24	5.08	11.08	6.55	10.30	9.37	0.08	8.16
NSDP	5.69	9.10	4.90	11.74	7.32	10.39	9.57	0.08	8.39
Growth Rate of GSVA by Economic Activity									
Primary	-5.54	9.07	6.16	-7.11	5.20	8.73	-4.37	0.02	1.73
Secondary	1.76	7.32	0.49	14.65	5.66	6.40	7.65	0.06	6.28
Tertiary	11.01	10.97	9.31	12.37	7.79	12.21	12.33	0.11	10.86

Source: CSO, Ministry of Statistics and Programme Implementation (MOSPI) (Various years)

Table 2: Gross State Value Added (GSVA) by Economic Activity at constant (2011-12) prices

GSVA as Percentage of GSDP								
Item	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Agriculture, forestry and fishing	12.47	11.15	10.91	10.71	8.69	8.34	8.62	7.49
Mining and quarrying	0.74	0.61	0.79	0.99	1.09	1.23	0.79	0.73
Primary	**13.21**	**11.76**	**11.71**	**11.70**	**9.78**	**9.56**	**9.42**	**8.22**
Manufacturing	16.03	15.98	15.32	14.35	15.64	16.15	15.63	15.24
Electricity, gas, water supply	1.79	1.65	1.59	1.65	1.65	1.32	1.27	1.30
Construction	8.31	7.42	7.64	7.22	6.67	6.06	5.77	5.73
Secondary	**26.12**	**25.05**	**24.54**	**23.21**	**23.96**	**23.52**	**22.67**	**22.27**
Trade, repair, hotels and restaurants	9.97	10.02	10.07	10.10	9.30	9.06	9.44	9.75
Transport, storage, communication	5.53	5.65	5.58	5.89	6.22	6.07	6.02	5.91
Financial services	4.75	4.93	4.94	5.31	5.44	5.41	5.22	5.09
Real estate, ownership of dwelling & professional services	23.71	25.48	26.36	27.10	28.45	29.01	29.79	30.69
Public administration	2.46	2.59	2.55	2.52	2.35	2.21	2.21	2.45
Other services	5.37	5.52	5.39	5.54	5.36	5.46	5.48	5.72
Tertiary	**51.79**	**54.18**	**54.88**	**56.47**	**57.12**	**57.21**	**58.15**	**59.60**

Source: CSO, Ministry of Statistics and Programme Implementation (MOSPI) (Various years)

3.   Profile of Karnataka State Finance

The state's fiscal indicators deteriorated sharply from 1998-99 to 2001-02. The fiscal deficit (FD) which stood at 2.7 percent of NSDP (GOI, 2007), rose to 4.1 percent in 1998-99 and recorded a high of 6 percent in 2001-02. However, the centre's stance on fiscal rules and the state's adherence to it (by enacting KFRA), enabled it to rein in the escalating revenue and fiscal deficits and to bring its liabilities under the permissible limit by 2005.

3.1. Trends in Debts and Deficits

Against the backdrop of Karnataka's economic growth story and its fiscal prudence post KFRA, the state's fiscal health looks promising with declining revenue deficit (RD) where it reached near zero (0.01) in 2018-19 RE; and fiscal deficit (FD) and liabilities maintained below the threshold limit stipulated by the KFRA, even as these have an increasing trend over the years from 2011-12 to 2019-20 (Table 3; Figure 1).

Table 3: Debts and Deficits as a Percentage of GSDP

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019RE	2019-2020BE
Revenue Deficit	0.77	0.27	0.04	0.06	0.17	0.11	0.33	0.01	0.02
Fiscal Deficit	-2.03	-2.09	-2.09	-2.14	-1.83	-2.37	-2.30	-2.62	-2.65
Outstanding Liabilities	17.00	16.79	16.57	17.35	16.80	17.46	17.26	17.57	19.44

Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

Figure 1: Revenue Deficit, Fiscal Deficit and Liabilities as a Percentage of GSDP
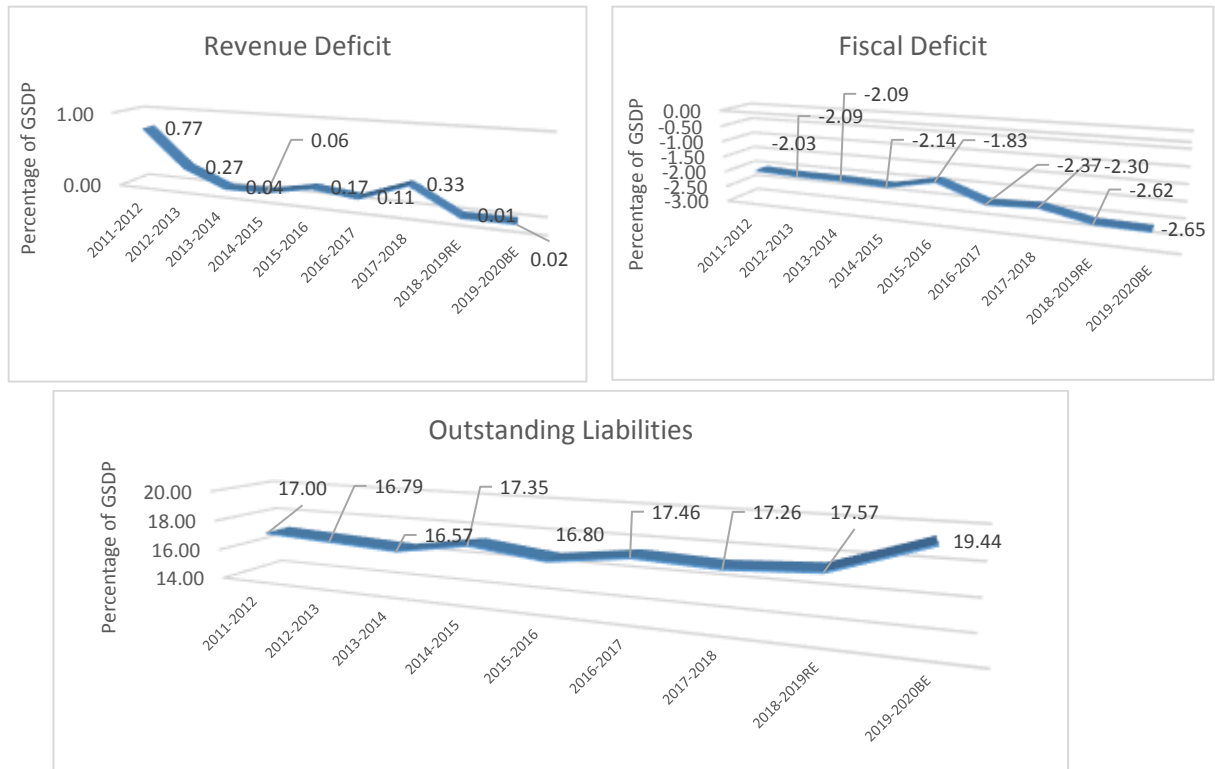
Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

3.2. Trends in Revenue Receipts

On the revenue front the state has remained poised between 11 and 11.5 percent of GSDP from 2011-12 to 2016-17 and is budgeted to be 11.45 percent of GSDP in 2019-20 BE, though it fell marginally below 11 percent in 2013-14 (Table 4). The fluctuation in its revenue receipt seems to be hovering around increase and decrease in central transfers, as witnessed by a decrease in RR in the initial part of the decade from 11.5 percent of GSDP in 2011-12 to 10.96 percent of GSDP in 2013-14 and a corresponding fall in central transfers (both in tax devolution and grant-in-aid) from 3.2 percent of GSDP to 2.8 percent of GSDP. The increase in RR in the subsequent years also witnessed an increase in central transfers, especially, higher tax devolution owing to fourteenth finance commission recommendation. However, even with higher central transfers at 4.07 percent of GSDP in 2017-18, the revenue receipt to GSDP ratio fell marginally by 0.31 percentage points from the previous year, owing to a fall in own tax revenue to GSDP ratio by 0.53 percentage points. This fall in tax revenue is mainly attributed to a shortfall in commodities and services tax (Table 5), which revisit shortly. The revenue receipt is expected to be 11.45 percent of GSDP in 2019-20BE, with own tax revenue at 6.4 percent of GSDP and tax devolution at 2.5 percent of GSDP, and total central transfers at 4.5 percent of GSDP.

The grant-in-aid from the centre has declined from 1.35 percent of GSDP in 2011-12 to 1.11 percent in 2013-14 but increased to 1.60 percent in 2014-15 (Table 4). This

increase could be due to the central government's decision to route all its grants through the concerned state government from 2014-15. However, there was a decline in grants to GSDP ratio in 2015-16 to 1.33 percent predominantly due to 92.01 percent decline in grants for centrally sponsored schemes as compared to 2014-15 (Finance Accounts, Karnataka, 2015-16, Vol. II), but later increased to 1.63 percent 2017-18 and is expected to be at 2.03 percent in 2019-20BE.

Table 4: Revenue Receipts (% of GSDP)

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019RE	2019-2020BE
Own Revenue Receipts	8.34	8.30	8.16	8.19	7.74	7.34	6.93	6.70	6.91
Own Tax Revenue	7.67	7.73	7.67	7.68	7.23	6.86	6.45	6.22	6.41
Own Non-tax Revenue	0.67	0.57	0.49	0.51	0.51	0.48	0.48	0.47	0.51
Central Transfers	3.18	2.94	2.80	3.20	3.63	3.68	3.95	4.11	4.54
Tax Devolution	1.83	1.82	1.69	1.60	2.29	2.38	2.35	2.36	2.51
Grant-in-aid	1.35	1.12	1.11	1.60	1.33	1.30	1.60	1.75	2.03
Revenue receipts	11.52	11.24	10.96	11.40	11.37	11.02	10.89	10.81	11.45

Source: CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

The decline in own tax revenue is more systemic as it is, largely, a consequence of tax reforms brought in through the implementation of the goods and services tax (GST) and the tax collection is expected to increase once the GST system streamlines (RBI, 2018). Nevertheless, the tax on commodities and services (budget head prior to GST) is still the largest contributor to OTR, though it has decreased from 2017-18 onwards (Table 5). Therefore, the state has much to look forward to from GST, as it has very little to expect from income tax and other forms of taxes, as understood from their trends since 2011-12. The effect of the GST reforms is also reflected in the growth pattern of OTR, where its growth rate, though buoyant from 2011-12 to 2014-15, has taken a declining trend, but is expected to be buoyant again in 2019-20BE (Figure 2). However, the state can enhance its own revenue receipts by expanding on non-tax revenue, as it has been stable throughout the period from 2011-12 to 2018-19. The state may have to device measures to raise user charges wherever possible as proposed by RBI (RBI, 2019), to diversify the means to enhance non-tax revenue to augment its revenue receipts.

Table 5: Composition of OTR as a Percentage of GSDP

|	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019RE	2019-2020BE
Own Tax Revenue	7.67	7.73	7.67	7.68	7.23	6.86	6.45	6.22	6.41
Direct Taxes									
Taxes on Income	0.10	0.10	0.10	0.10	0.08	0.07	0.07	0.06	0.06
Agricultural Income Tax	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Professional Tax	0.10	0.10	0.10	0.10	0.08	0.07	0.07	0.06	0.06
Taxes on Property and Capital Transactions	0.80	0.78	0.78	0.79	0.80	0.66	0.68	0.70	0.76
Land revenue	0.04	0.03	0.02	0.02	0.02	0.02	0.01	0.02	0.01
Stamps and registration fee	0.76	0.75	0.76	0.77	0.79	0.65	0.67	0.68	0.74
Indirect Taxes									
Taxes on Commodities and Services	6.77	6.85	6.78	6.79	6.34	6.12	5.70	5.46	5.59
State GST	0.00	0.00	0.00	0.00	0.00	0.00	1.79	2.71	2.69
State Excise	1.61	1.59	1.57	1.51	1.47	1.36	1.33	1.29	1.32
Sales Tax	4.13	4.09	4.13	4.19	3.87	3.81	1.86	0.88	0.95
Other indirect taxes	1.03	1.17	1.08	1.09	1.01	0.95	0.72	0.58	0.63

Source: CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

Figure 2: Trends in Growth Rate of Tax Revenue and GSDP, Karnataka
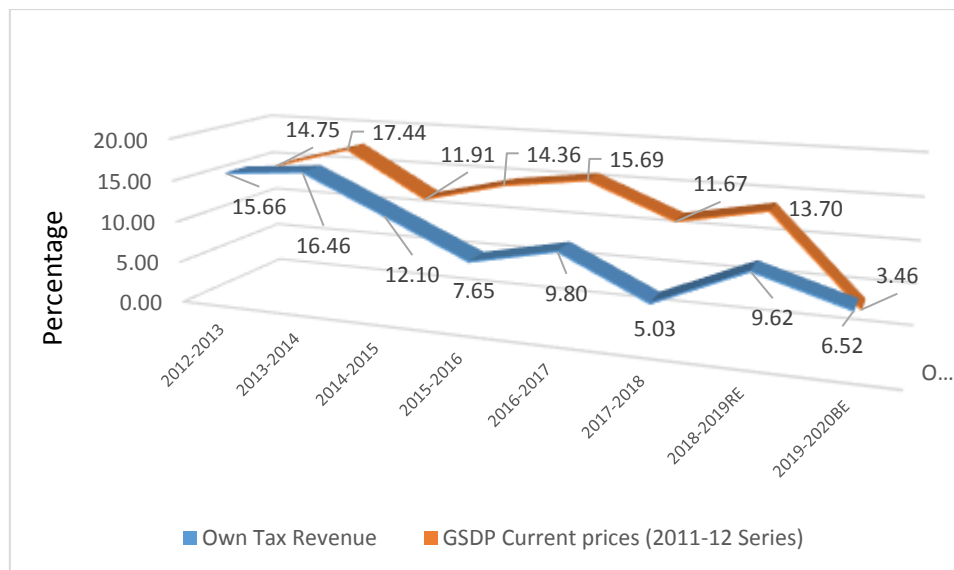
Source: CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

Even with a declining trend in own tax revenue and the consequent decrease in own revenue receipts, the state has managed to maintain revenue surplus, partly due to increased central transfer through devolution following the recommendation of the Fourteenth Finance Commission (FFC). This is also evident from the share of each components of the state's total revenue receipts. The state's share of own revenue receipts and central transfers in the total revenue receipts, is budgeted to be 60 percent and 40 percent, respectively (Table 6). This is an increase of 12 percentage point in case of central transfers and almost the same percentage point decrease in own revenue. Of this decline in own revenue, the own tax revenue's contribution is considerable with a decline of 11 percentage points from 2011-12 to 2019-20BE. Thus, the increased share of central transfers has, partly, helped the state to maintain zero revenue deficit, in keeping with the KFRA rules.

Table 6: Composition of Revenue Receipts , Karnataka

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019BE	2018-2019RE	2019-2020BE
Own Revenue Receipts	72.43	73.83	74.42	71.89	68.09	66.62	63.68	62.50	61.97	60.37
Own Tax Revenue	66.58	68.76	69.91	67.39	63.59	62.27	59.27	57.59	57.57	55.95
Own Non-tax Revenue	5.85	5.07	4.50	4.50	4.51	4.35	4.41	4.92	4.39	4.43
Central Transfers	27.57	26.17	25.58	28.11	31.91	33.38	36.32	37.50	38.03	39.63
Tax Devolution	15.87	16.18	15.42	14.07	20.19	21.59	21.60	21.76	21.83	21.89
Grant-in-aid	11.70	9.99	10.16	14.04	11.72	11.79	14.72	15.73	16.20	17.74
Revenue receipts	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

3.2.1. Tax Buoyancy

Tax buoyancy is the responsiveness of the state's tax revenue to its GSDP growth. It differs to tax elasticity in that it does not account for the variations resultant to discretionary changes in tax policies of the state. Tax buoyancy is often calculated by ordinary least square regression, using double log equation taking the form:

$$\log T_k = \alpha_1 + \beta_1 \log G_k + \mu_1$$

Where, T_k refers to annual tax revenue of the state of Karnataka, G_k is the gross state domestic product of Karnataka and μ_1 is the stochastic error term. α_1 is the constant and β_1 is the coefficient of GSDP, which estimates the percentage change in tax revenue with

one percentage change in GSDP. We have repeated this exercise to estimate the buoyancy of total revenue receipts, own revenue receipts, own tax revenue, own non-tax revenue, tax devolution and total central transfers. Additionally, we have estimated the buoyancy of individual components of own tax revenue. Accordingly, T_k takes the corresponding value of the dependent variable.

The regression results on tax buoyancy suggest that the taxes are not buoyant with GSDP as indicated by the coefficients of tax revenue (0.907) and own tax revenue (0.758) (Table 7). But tax devolution from the centre and total central transfers as well, are buoyant with a coefficient of 1.408 and 1.421, respectively. The coefficient of revenue receipts is high (0.97), though not buoyant, whereas those of own revenue receipts and own tax revenue are much less, 0.756 and 0.758, respectively. The only other form of own tax revenue that is buoyant is electricity tax with a coefficient of 1.281 (Table A7).

Table 7: Buoyancy of Tax and Non-Tax Revenue, Karnataka

Dependent Variables	Intercept	Coefficients	t Statistic	P-value	Adjusted R Square
Revenue Receipt (RR)	-1.642	0.970*	40.869	0.000	0.995
Own RR	1.916	0.756*	25.577	0.000	0.988
Tax Revenue	-0.664	0.907*	39.705	0.000	0.995
Own Non-Tax Revenue	-0.542	0.744*	9.691	0.000	0.921
Own Tax Revenue	1.815	0.758*	21.645	0.000	0.983
Tax Devolution	-11.412	1.408*	12.841	0.000	0.953
Central Transfers	-11.115	1.421*	18.380	0.000	0.977

Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

3.3. Trends in Public Expenditure

The apparent fiscal prudence of the state, in the milieu of declining own revenue receipts, also has to do with the spending pattern of the state. The expenditure compression in these years could be, in general, attributed to respective decline in capital expenditure, where, the capital expenditure to GSDP ratio had seen a steady decline from 2011-12 to 2013-14; though it increased by 0.07 percentage points in 2014-15, it fell by 0.17 percentage points in 2015-16. The ratio had moderated at 2.34 percent of GSDP in 2017-18 and is expected to be 2.52 percent of GSDP in 2019-20BE. The apparent consistency in the total expenditure level seems to have been maintained through higher revenue expenditure, mainly due to pay revision of sixth and seventh pay commissions (GoI, 2008 and GoI, 2015), and through a moderately stable spending on social, economic and general services. Of the total expenditure, the spending on social and economic services, each on an average at 5 percent of GSDP, constitutes the major expenditure component throughout the period from 2011-12 to 2019-20BE (Figure 4). On the whole,

the state seems to have maintained an even pace on its total spending on general services, social services and economic services over the years from 2011-12 to 2019-20BE. The state's spending on general services has been maintained below four percent of GSDP and it even reduced to near three percent of GSDP in 2016-17 and 2017-18 but increased thereafter (Table 8).

Figure 3: Expenditure Components (as % of GSDP), Karnataka

Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

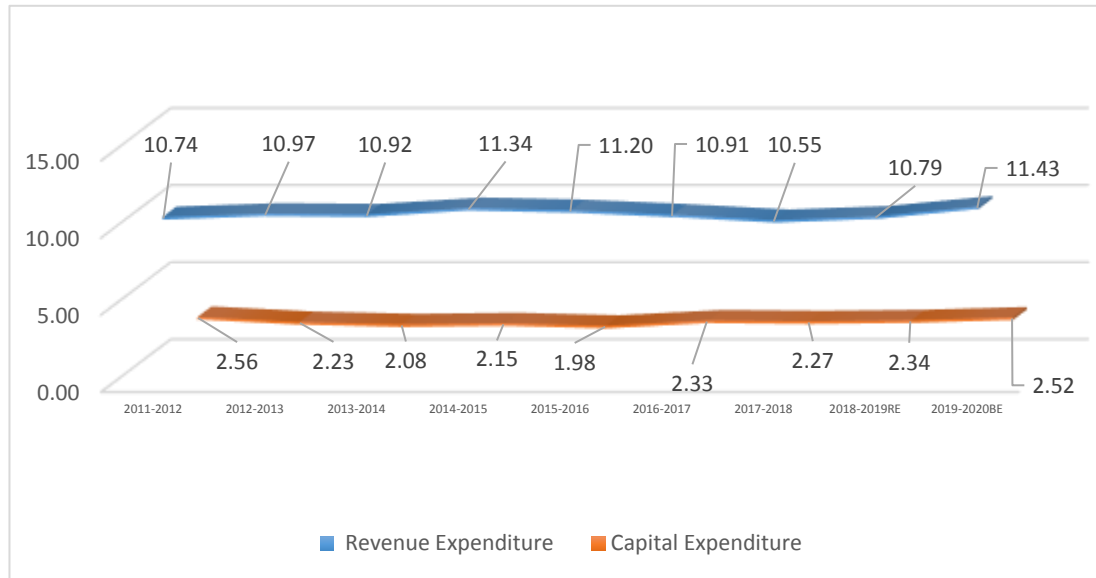**Figure 4: Expenditure on Social and Economic Services (as % of GSDP), Karnataka**
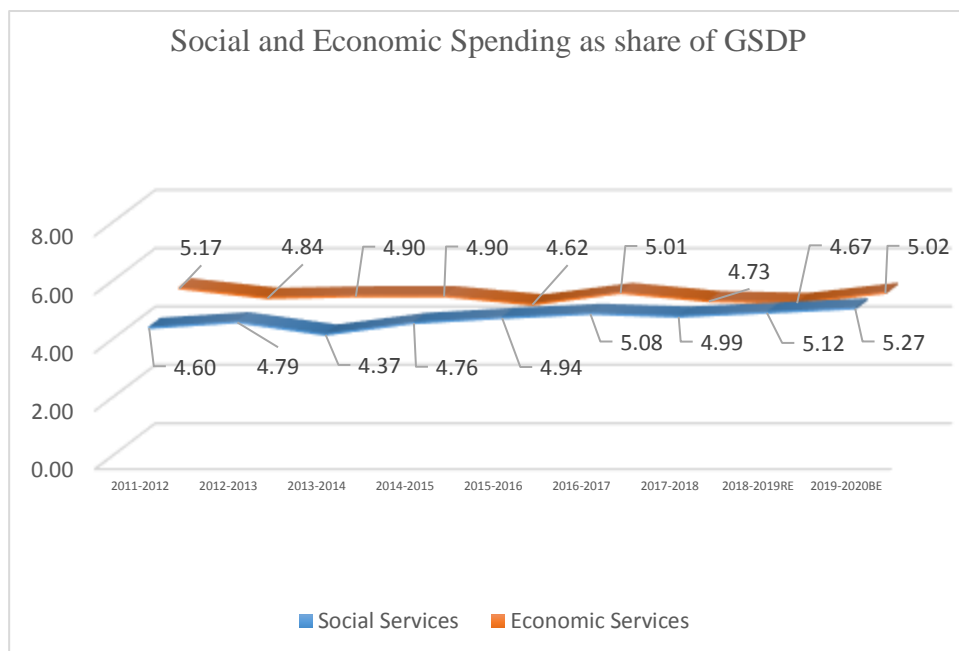
Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

Table 8: Total Expenditure and its Major Components as a Percentage of GSDP

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019RE	2019-2020BE
Revenue Expenditure	10.74	10.97	**10.92**	11.34	**11.20**	10.91	10.55	10.79	11.43
Capital Expenditure	2.56	2.23	**2.08**	2.15	**1.98**	2.33	**2.27**	2.34	2.52
Total Expenditure	13.30	13.20	**13.00**	13.48	**13.18**	13.24	**12.82**	13.13	13.96
Social Services	4.60	4.79	**4.37**	4.76	4.94	5.08	**4.99**	5.12	5.27
Education, Sports, Art, Culture	2.07	2.15	**2.03**	2.01	**1.86**	**1.83**	**1.71**	**1.87**	**1.76**
Medical and Public Health	0.55	0.57	0.56	0.64	0.56	0.60	0.62	0.70	0.61
Water, Sanitation, Housing, Urban Development	0.58	0.59	**0.47**	0.61	0.86	1.13	1.13	0.87	0.88
Welfare of SC, ST & OBC	0.53	0.57	0.57	0.70	0.72	0.78	0.88	0.82	0.70
Social Welfare and Nutrition	0.06	0.05	0.05	0.05	0.06	0.05	0.06	0.05	0.05
Labour and Employment	0.04	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02
Economic Services	5.17	**4.84**	4.90	4.90	**4.62**	5.01	**4.73**	**4.67**	5.02
Agricultural & Allied Services	0.94	1.10	1.57	**1.18**	1.08	1.08	1.12	1.31	1.40
Rural Development	0.35	0.37	**0.29**	0.55	0.50	0.48	**0.41**	0.50	0.49
Irrigation & Flood Control	1.04	**0.84**	0.87	0.95	**0.79**	0.88	0.93	1.02	0.99
Energy	1.06	1.18	**0.77**	**0.77**	**0.88**	0.87	**0.78**	**0.76**	0.83
Transport	0.94	0.96	0.96	0.92	**0.86**	1.08	**0.94**	**0.93**	**0.79**
General Services	3.53	3.56	3.73	3.82	3.62	3.14	3.11	3.34	3.67
Interest Payments	1.00	0.98	0.96	1.03	1.03	1.00	1.03	1.02	**1.20**

Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

However, a disaggregated analysis of the total public spending reveals where exactly the expenditure compression and expansion has been affected to maintain the fiscal prudence of the state. While there is no major decrease in total public expenditure on social services, except in 2013-14 and 2017-18, the disaggregated figures of expenditure across social services show a steady decline in public expenditure on education from 2013-14 onwards (Table 8). The public expenditure on education to GSDP ratio decreased by 0.44 percentage points from 2012-13 to 2017-18. The ratio increased marginally in 2018-19 by 0.16 points from the previous year and the ratio is expected to be at 1.76 percent in 2019-20BE. The spending on medical and public health has almost remained constant while the spending on social welfare and nutrition has marginally declined from 0.06 percent 2011-12 to 0.05 percent of GSDP in 2019-20BE. Similarly, the spending on labour and employment has also declined over the same period from 0.04 percent to 0.02 percent of GSDP (Table 8).

Nevertheless, the public expenditure on social services was able to maintain the level of its total spending by effecting an expansion on its expenditure on water supply, sanitation, housing and urban development. This expenditure on as a percentage to GSDP has expanded by 0.66 percentage points from 2013-14 to 2017-18 (Table 8). The ratio declined by 0.26 points in 2018-19RE though, and is expected to be at 0.88 percent of GSDP in 2019-20BE. The increased public expenditure on social services is mainly concentrated on water and sanitation as a result of the centre's Swatch Bharat Mission. There is hardly any increase in spending on social welfare and nutrition, its share being 0.05 percent of GSDP, on an average throughout the period.

Similarly, the disaggregated figures of total expenditure show a compression in total expenditure on economic services, where its ratio to GSDP declined by 0.55 percentage points from 5.2 percent of GSDP in 2011-12 to 4.6 percent of GSDP in 2015-16 (Table 8). The following year, the ratio increased to reach a high of 5.01 percent of GSDP but again declined by 0.34 percentage points in the next two year. It is expected to be 5 percent of GSDP in 2019-20. The expenditure compression in 2015-16 as compared to those of 2011-12 could be traced to a compression in spending on irrigation and flood controls, energy, transport and general economic services (Table 8 and Table A2). In the year 2017-18 the expenditure compression was meted out through a cut in spending on rural development, energy, transport and general economic services, while in 2018-19 it was through an expenditure cut on energy, transport and general economic services.

On the other hand, the average expenditure level on economic services seems to have been maintained by increased spending on agricultural and allied services and rural development. The expenditure on agriculture and allied services as a percentage of GSDP, increased by 0.46 percentage points from 2011-12 to 2019-20 BE and that of rural development increased by 0.14 percentage points. As a share of total expenditure on economic services, agricultural and allied services had lower share than those of irrigation and flood control, energy and transport services in 2011-12, but from 2012-13 onwards it holds the highest share of total spending on economic services (Table A3). However, its growth in value addition, as a percentage of GSDP, has declined steadily from 2011-12 to 2019-20BE (Table A4). The increase in expenditure on economic services also reflects the increased value addition, as a percentage of GSDP, on transport services and real estate, ownership of dwelling and professional services (Table A4).

The total spending of the state was boosted by increased debt servicing in terms of higher interest payments. Though the interest payment decreased during the early part of the decade, it increased consistently from 2014-15 and is budgeted to be 1.20 percent of GSDP in 2019-20BE (Table 8). This is also evident from its share in the total expenditure which has also gone up over the years from 2011-12 to 2019-20BE (Table A3).

As a share of the total expenditure, the state's revenue expenditure constitutes almost 80 percent of its total expenditure, whereas its capital expenditure fluctuated between 15 to 19 percent during the same period (Table 9), with a resultant high RE to CE ratio. While the share of expenditure on social services increased by almost three percentage points, the corresponding share on economic services declined by almost the same percentage points over the years from 2011-12 to 2019-20BE. The state's public

spending priority seems to be on education as revealed by its highest share in the total public expenditure, though its share has declined from 2012-13 to 2019-20BE. However, there seems to be a shift in the focus of public spending from education to water and sanitation, as evident from its rising share in the total public expenditure. The priority spending under economic services seems to be on agricultural and allied services as indicated by its rising share in the total public spending.

Table 9. Expenditure Components as % of Total Expenditure

Expenditure Components as % of Total Expenditure									
	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019RE	2019-2020BE
Revenue Expenditure	80.77	83.13	84.03	84.08	84.96	82.42	82.29	82.18	81.92
Capital Expenditure	19.23	16.87	15.97	15.92	15.04	17.58	17.71	17.82	18.08
Total Expenditure	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
RE/CE ratio	**4.20**	**4.93**	**5.26**	**5.28**	**5.65**	**4.69**	**4.65**	**4.61**	**4.53**
Expenditure on Major Heads as % of Total Expenditure									
Social Services	34.57	36.32	33.61	35.34	37.48	38.39	38.89	39.02	37.74
Economic Services	38.87	36.66	37.67	36.35	35.03	37.86	36.89	35.54	35.95
General Services	26.56	27.01	28.71	28.32	27.49	23.75	24.23	25.44	26.32
Interest Payments	7.52	7.45	7.38	7.63	7.80	7.52	8.04	7.74	8.60
Expenditure on Social Services - Minor Heads as % of Total Expenditure									
Education, Sports, Art and Culture	15.58	16.33	15.60	14.91	14.12	13.24	12.97	13.03	12.60
Medical & Public Health	4.11	4.28	4.27	4.75	4.23	4.30	4.69	4.89	4.37
WASHUD	4.33	4.49	3.63	4.55	6.54	8.15	8.57	6.04	6.32
Welfare of SC, ST & OBC	3.99	4.31	4.35	5.16	5.50	5.64	6.66	5.72	5.01
Social Welfare and Nutrition	0.43	0.36	0.38	0.36	0.47	0.39	0.42	0.38	0.33
Labour and Employment	0.32	0.28	0.25	0.21	0.19	0.16	0.15	0.13	0.12
Expenditure on Economic Services - Minor Heads as % of Total Expenditure									
Agricultural & Allied Services	7.07	8.31	12.11	8.79	8.23	7.79	8.52	9.12	10.06
Rural Development	2.61	2.83	2.21	4.06	3.80	3.50	3.07	3.46	3.54
Irrigation & Flood Control	7.82	6.39	6.70	7.07	5.96	6.39	7.07	7.15	7.12
Energy	7.95	8.97	5.94	5.68	6.69	6.31	5.91	5.31	5.92
Transport	7.10	7.31	7.40	6.80	6.50	7.79	7.13	6.50	5.63

Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

Overall, the fiscal discipline of Karnataka shows almost a constant path, where the revenue receipts to GSDP ratio and revenue expenditure to GSDP ratio has remained more

or less the same, both ranging between 10 and 12 percent of GSDP, but of course maintaining a revenue surplus throughout the period from 2011-12 to 2019-20BE (Figure 5) . On the other hand, the capital expenditure to GSDP ratio, though stable throughout the same period, has been maintained at a very low level, hovering barely above two percent of GSDP, holding the state within the fiscal rules.

Figure 5: Total Expenditure and Revenue Receipts (as % of GSDP), Karnataka
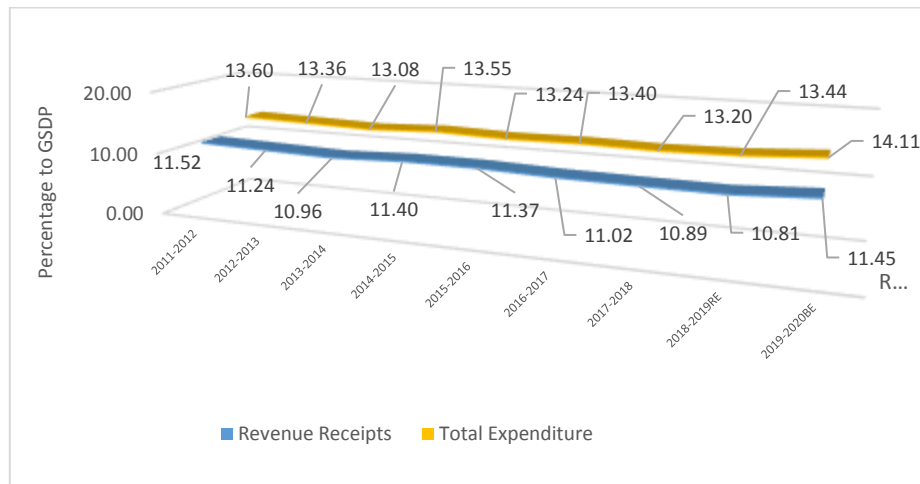
Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

The state seems to have failed to fully avail the provisions of FFC recommendation[4] in terms of relaxation in fiscal deficit limit up to a maximum of 3.5 percent of GSDP, for those states that have maintained their debt liabilities to GSDP ration within 25 percent and have maintained interest payments less than or equal to 10 percent of their revenue receipts, in the preceding year, provided they don't have a revenue deficit in the current as well as the immediately preceding year. Looking at Karnataka's fiscal profile, the state has met all these criteria over the years. Its debt to GSDP ratio has been way below 25 percent. Its interest payments have never crossed 10 percent of revenue receipts, except in 2019-20 BE where it is budgeted to be 10.5 percent (Figure 6) and it has always been a revenue surplus state. It is intriguing that Karnataka has not amended its KFRA to incorporate these provisions of fiscal flexibilities recommended by FFC, (CAG, 2018).

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[4] XIV FC recommendations on the fiscal deficit targets and annual borrowing limits for the States during the award period are enunciated as follows:

i. Fiscal deficit of all States will be anchored to an annual limit of 3 per cent of GSDP. The States will be eligible for flexibility of 0.25 per cent over and above this for any given year for which the borrowing limits are to be fixed if their debt-GSDP ratio is less than or equal to 25 per cent in the preceding year.

ii. States will be further eligible for an additional borrowing limit of 0.25 per cent of GSDP in a given year for which the borrowing limits are to be fixed if the interest payments are less than or equal to 10 per cent of the revenue receipts in the preceding year.

Figure 6: Interest Payment as a Percentage of Own Revenue Receipts and Total Revenue Receipts

Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

3.4. Growth Trends in Revenue and Expenditure

The trend in the growth rate of revenue and expenditure (Figure 7) also reveals a balance in the growth of revenue receipts and total expenditure throughout the period from 2011-12 to 2019-20BE, except in 2016-17, where the growth rate in total expenditure was higher than the growth rate of total receipts (Figure 7), mainly due to higher capital expenditure (Figure 8). This was the same for 2018-19RE, though not the same growth rate of capital expenditure as in 2016-17; but of course, the capital expenditure to GSDP ratio was still barely above two percent, even for these years (Table A2). Interestingly, in these two years, 2018-17 and 2018-19RE, the growth rate of expenditure on interest payments was lower than the growth rate of revenue receipts, whereas in the rest of the yeas, the interest payments had grown at a higher rate than those of revenue receipts (Figure 9).

It is noteworthy that the state was able to maintain itself within the fiscal rules even with high growth rate in CE as compared to RR in 2016-17 and 2018-19RE, probably because it was able to reduce the interest payments in these years.

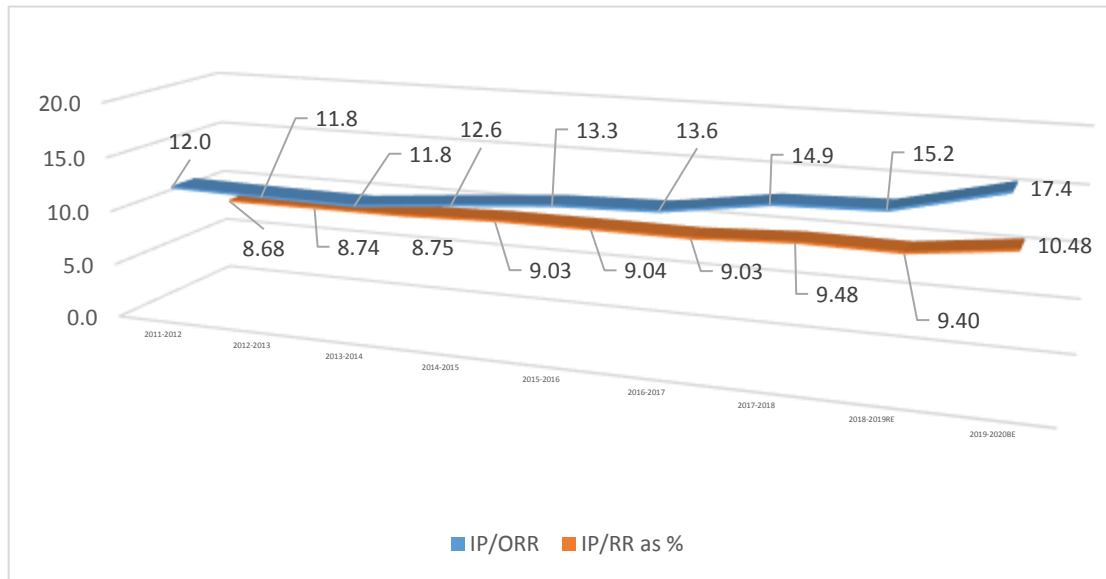**Figure 7. Trends in Growth Rate of Revenue Receipts and Total Expenditure**

Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

Figure 8: Growth Trends in Revenue Receipts and Expenditure
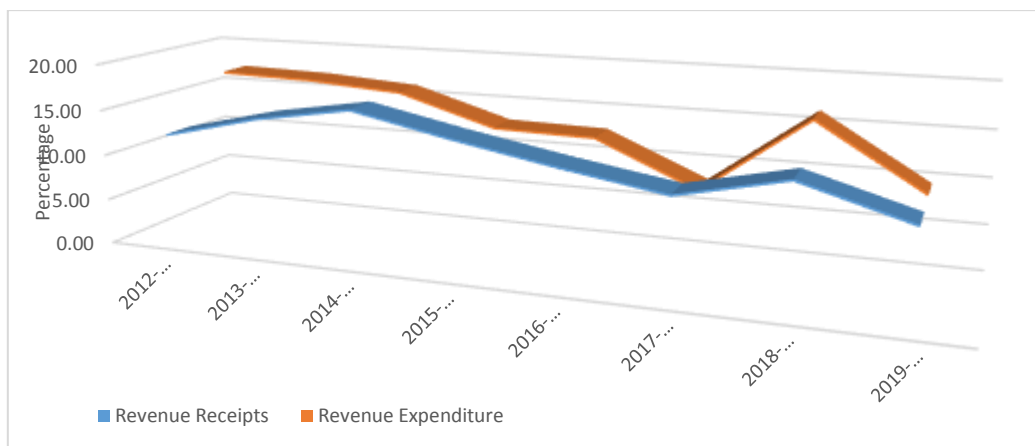
Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

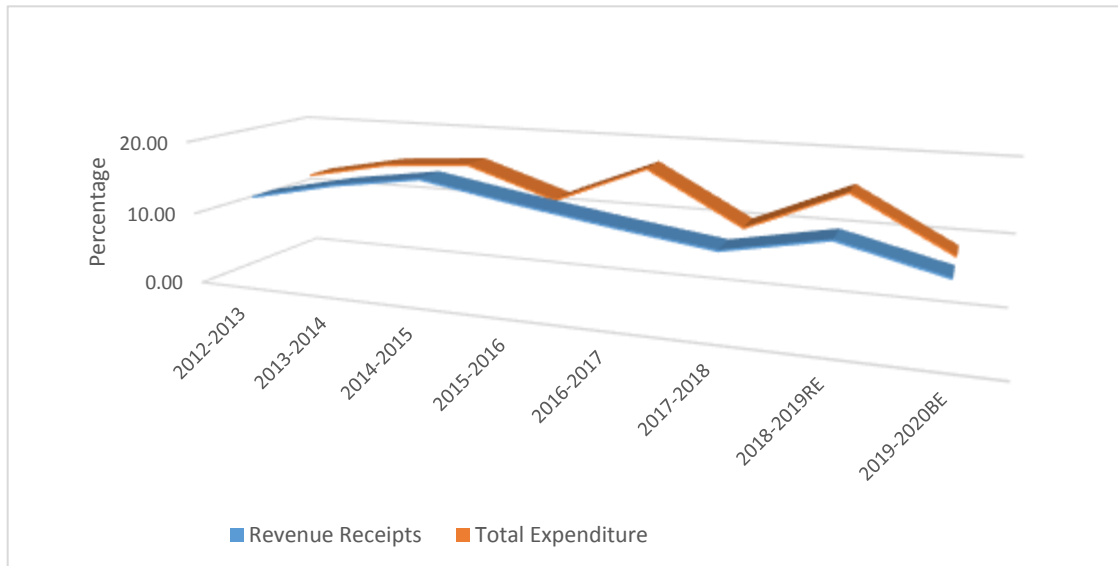**Figure 9. Growth Trends in Revenue Receipts and Interest Payment**

Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

3.5 Financing of Off-Budget Borrowing

Karnataka has been able to consolidate its fiscal position since 2004-05, having been able to record revenue surplus and maintain fiscal deficit and debt liabilities well within the prescribed limits under KFRA. It has also not failed to maintain its guarantees within the prescribed limits under the Karnataka Ceiling on Government Guarantees Act, 1999. In this context, it is prudent to look into the off-budget borrowings (OBB) of the state.

OBBs are those loans availed by public sector undertakings (PSU) to implement various state programmes which does not have financial provisions in the state budget. In these cases the Government stands as guarantor for these loans availed by PSUs and pays back the principle amount with interest, through regular budget provisions under capital accounts until 2010-11 and thereafter under revenue accounts. Hence, these loans, ultimately, adds to the liabilities of the government and being provisioned through capital accounts overstated capital expenditure (without any net capital addition) and understated interest payment (IP) which in turn overstated revenue surplus.

Therefore, the Thirteenth Finance Commission (XIIIFC) put forward recommendations for fiscal correction and laid down new ceilings for fiscal targets. Accordingly, the Karnataka government amended KFRA in 2011 incorporating the recommendations of the XIIIFC and in the medium term fiscal policy (MTFP) 2011-15, the government allowed for OBB in a limited manner. The KFRA was further amended in 2014 to expand the scope of total liabilities of the government, which thereafter included those borrowings by PSUs and SPVs and other equivalent instruments, where the principal and / or interest were serviced out of the state budget.

The state has been criticised for the growing preponderance of OBB even when it is a fiscally disciplined state. The OBB of the state as a per cent of GSDP has been increasing over the year from 2011-12 to 2017-18, but its year on year growth has reduced, considerably, from 2014-15 (Figure 10). However, in 2014-15 the year on year growth of OBB was 95 per cent which could be a reflection of the provisions of MTFP 2011-15, where the government allowed for limited amount of OBB, taking advantage of its comfortable position at the fiscal front. Interestingly, its fiscal position has not been hampered much even with high OBB as reflected in the meagre difference in liabilities to GSDP ratio, when OBB is included[5] in and excluded from the total liabilities (Figure 11). The year 2014-15 which saw 95 per cent increase in OBB over the previous year, shows a difference of 0.47 percentage points in the share of liabilities to GSDP, with and without OBB (Figure 11); both being well within the targeted limit under KFRA.

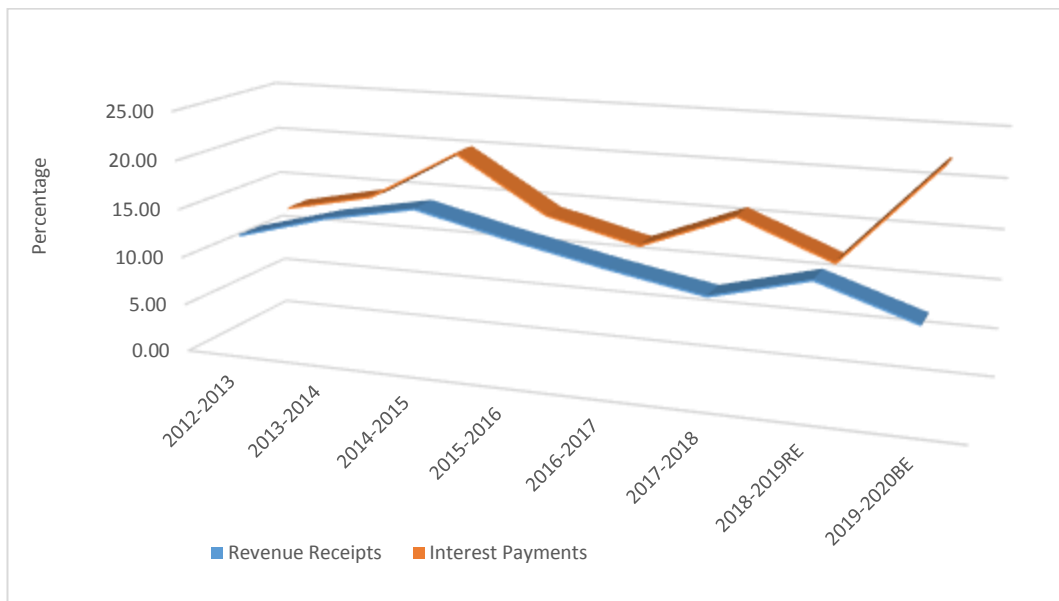**Figure 10: Off Budget Borrowing (OBB) as % of GSDP**
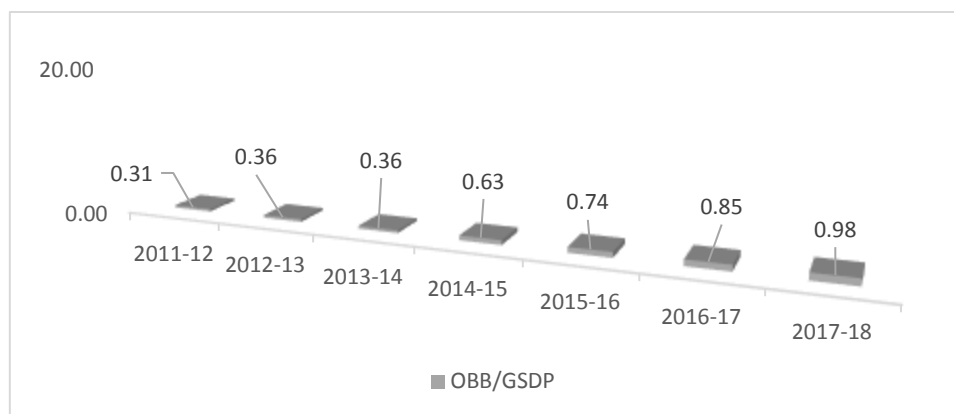
Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

This is not to undermine the escalating share of interest payment on OBB in the total interest payment of the state. The share of IP on OBB in the total IP stood at 8.21 percent in 2001-12 but reduced to 2.37 percent in 2013-14. Thereafter, it increased but at a decreasing rate to reach 6.97 percent in 2017-18. The rising IP on OBB has fiscal implications as it inflates the size of the revenue expenditure on total IP of the state and may eventually overturn the revenue surplus to revenue deficit. As such the IP (excluding those on OBB) as a share of RR shows a rising trend from 2011-12 and as a share of RE and TE it shows a rising trend from 2013-14 onwards (Table 9). According to the Report of the Comptroller and Auditor General (CAG) of India, share of fiscal liabilities (OBB included) to RR is alarming, as it increased from 150 percent in 2011-12 to 167 percent in 2017-18 (Table 10).

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[5] The Fiscal liabilities with OBB is sourced from CAG report, 2013 to 2019 and Fiscal liabilities without OBB is computed by the authors using data from Ministry of Statistic and Programme Implementation (MOSPI) and National Institute of Public Finance and Policy.

Figure 11: Trend in Outstanding Liabilities to GSDP Ratio with and without OBB
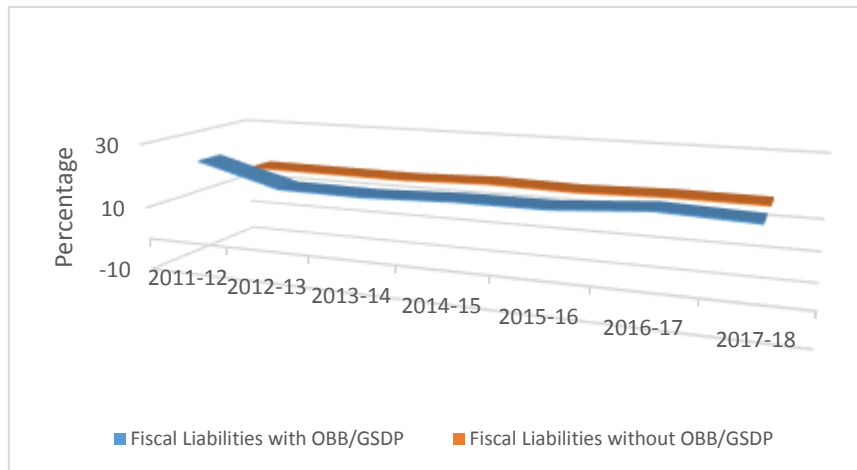
Source: CAG Reports 2013, 2014, 2016, 2017, 2018, 2019; CSO, Ministry of Statistics and Programme Implementation (MOSPI) and National Institute of Public Finance and Policy Database on Finance Accounts (various years).

Table 10: Trend in IP on OBB, Total IP, and Fiscal Liabilities

	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
IP on OBB/Total IP as %	8.21	8.33	2.37	4.08	5.26	6.36	6.97
Total IP/RR as %	8.68	8.74	8.75	9.03	9.04	9.03	9.48
Total IP/RE	9.31	8.96	8.79	9.08	9.18	9.12	9.78
Total IP/TE as %	7.52	7.45	7.38	7.63	7.8	7.52	8.04
Fiscal Liabilities*/RR	150.32	152.57	154.41	157.75	154.29	166.13	167.5

Note: * Includes OBB
Source: CAG Report 2013, 2014, 2016, 2017, 2018, 2019; Ministry of Statistic and Programme Implementation (MOSPI).

4.   Fiscal Marksmanship

The period of analysis is 2011-12 to 2016-17. We used the data from the Finance Accounts for the State of Karnataka for this analysis. The methodology used in the paper - using Theil's Index - is elaborated as follows.

4.1: The Theil's Index

The methodology which is used to assess the accuracy of a forecast is Theil's Index (Theil 1958). It is defined as:

$$U_1 = \frac{\sqrt{1/n \sum (P_t - A_t)^2}}{\sqrt{1/n \sum P_t^2} + \sqrt{1/n \sum A_t^2}} \qquad (1)$$

Here, P_t is the predicted value at time t, and A_t is the actual value at time t. U_1 is the inequality coefficient. The range of U_1, is from zero to 1. In case of a perfect forecast, the value of U_1 is 0, that is, P_t equals A_t. The value of U_1 equals one when either the value of P_t is equal to 0, for all A_t or the value of A_t equals 0 for all P_t. Unfortunately, this method has some serious defects. When one considers the actuals and the predicted values which have similar forecast errors but are at different distance from the origin they give very different values of U_1. This is a limitation of U_1.

There is a revised version of the Theil's Index (Theil 1966). It is measured as follows:

$$U_2 = \frac{\sqrt{1/n \sum (P_t - A_t)^2}}{\sqrt{1/n \sum A_t^2}} \qquad (2)$$

Unlike U_1, which had a fixed range of 0 and 1, U_2 is not bounded on both sides. While it does have a lower bound of 0, it does not have an upper bound. This is because the denominator does not consist of the root of the summation of P-squared divided by n, unlike U_1. Similar to U_1, perfect forecast in case of U_2 is equal to 0.

A more rigorous index is the U3. Here, Q_t and a_t are lags, that is Q_t equals $P_t - P_{(t-1)}$ and $a_t = A_t - A_{(t-1)}$.

$$U_1 = \frac{\sqrt{1/n \sum (Q_t - a_t)^2}}{\sqrt{1/n \sum Q_t^2} + \sqrt{1/n \sum a_t^2}} \qquad (3)$$

4.2: Types of Errors

There are two types of errors - systematic and unsystematic errors. We attempt to derive it in this section. To begin with,

$$\frac{1}{n} \sum (P_i - A_i)^2 = (\bar{P} - \bar{A})^2 + (sp - sA)^2 + 2(1 - r)sp\, sA$$

If we divide both sides by $\left(\sqrt{1/n \sum P_t^2} + \sqrt{1/n \sum A_t^2} \right)^2$ (we will call this term D) we will get equation (1),

$$\frac{\frac{1}{n}\sum (P_i - A_i)^2}{D^2} = \frac{(\bar{P} - \bar{A})^2}{D^2} + \frac{(sp - sA)^2}{D^2} + \frac{2(1 - r)sp\, sA}{D^2}$$

And,

$$U_1^2 = \frac{(\bar{P} - \bar{A})^2}{D^2} + \frac{(sp - sA)^2}{D^2} + \frac{2(1 - r)sp\, sA}{D^2}$$

Dividing both sides by D^2 we have,

$$1 = \frac{(\bar{P} - \bar{A})^2}{\sqrt{1/n \sum (P_t - A_t)^2}} + \frac{(sp - sA)^2}{\sqrt{1/n \sum (P_t - A_t)^2}} + \frac{2(1 - r) sp \, sA}{\sqrt{1/n \sum (P_t - A_t)^2}}$$

For the sake of simplicity, we will label the above equation as,

$$1 = U_m + U_s + U_c$$

The first two components (U_m and U_s) of the equation is termed as the systematic error whereas the term U_c is the random error (David, 1978). If the systematic component of error is high, one can improve the forecasting by improving the forecasting method, which has been interpreted in the empirical studies relate to India (Nitin and Roy, 2016, Chakraborty, et al, 2018). This can be done adding more variables into the forecasting model or also by incorporating the fluctuations in the variables in the model. In case the random error is high, one cannot improve the forecasting further and the model used to estimate the error is a good model (Theil, 1958).

Table 11: Forecast Errors for BE-Actuals

S. N.	Variables	U1	U2	U3	E1	E2	E3
	BE-Actuals						
1	Revenue Deficits	0.450	1.368	1.064	0.432	0.524	0.044
2	Fiscal Deficit	0.300	0.494	1.198	0.025	0.555	0.420
3	Primary Deficit	0.580	0.790	1.086	0.200	0.379	0.420
4	Revenue	0.064	0.125	0.880	0.073	0.151	0.776
5	Tax Revenue	0.070	0.136	1.023	0.193	0.085	0.722
6	State's Own Tax Revenue	0.014	0.028	0.242	0.285	0.576	0.139
7	Share in Central Taxes	0.036	0.073	0.286	0.092	0.146	0.762
8	Non-Tax Revenue	0.119	0.249	0.688	0.157	0.000	0.843
9	State's Own Non-Tax Revenue	0.045	0.089	0.661	0.274	0.573	0.153
10	Grants from the Centre	0.170	0.366	0.722	0.179	0.013	0.808
11	Loans & Advances Recoveries	0.300	0.544	0.596	0.058	0.091	0.851
12	Revenue Expenditure	0.168	0.348	0.819	0.004	0.001	0.011
13	Revenue Expenditure non-Development	0.047	0.099	0.481	0.745	0.007	0.249
14	Revenue Expenditure Development	0.159	0.324	0.811	0.030	0.003	0.027
15	Capital Expenditure	0.034	0.067	0.448	0.484	0.036	0.480
16	Capital Expenditure non-Development	0.078	0.155	0.652	0.003	0.000	0.997
17	Capital Expenditure Development	0.035	0.068	0.476	0.491	0.048	0.461

Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

The sources of errors of fiscal forecasting are not mostly random in case of fiscal variables like own tax revenue, own non-tax revenue and capital expenditure. This requires the Department of Finance to review the forecasting techniques and assumptions relate to these variables. The magnitude of errors re relatively higher for revenue expenditure (development components) and grants from centre. This indicates that the volatility in the intergovernmental fiscal transfers affect the state finances.

Table 12: Forecast Errors for RE-Actuals

S. N.	Variables	U1	U2	U3	E1	E2	E3
RE-Actuals							
1	Revenue Deficits	0.302	0.474	0.466	0.600	0.246	0.153
2	Fiscal Deficit	0.051	0.101	0.675	0.006	0.603	0.390
3	Primary Deficit	0.103	0.199	1.034	0.008	0.693	0.299
4	Revenue	0.081	0.155	1.103	0.144	0.273	0.582
5	Tax Revenue	0.095	0.178	1.463	0.320	0.348	0.331
6	State's Own Tax Revenue	0.008	0.015	0.159	0.729	0.000	0.271
7	Share in Central Taxes	0.013	0.026	0.106	0.261	0.022	0.717
8	Non-Tax Revenue	0.118	0.256	0.692	0.363	0.026	0.612
9	State's Own Non-Tax Revenue	0.067	0.135	0.822	0.000	0.582	0.418
10	Grants from the Centre	0.165	0.368	0.726	0.339	0.036	0.625
11	Loans & Advances Recoveries	0.271	0.487	1.204	0.118	0.079	0.803
12	Revenue Expenditure	0.170	0.353	0.837	0.000	0.004	0.005
13	Revenue Expenditure non-Development	0.020	0.041	0.318	0.131	0.015	0.854
14	Revenue Expenditure Development	0.171	0.354	0.841	0.000	0.007	0.013
15	Capital Expenditure	0.042	0.082	0.733	0.330	0.092	0.579
16	Capital Expenditure non-Development	0.082	0.165	0.945	0.012	0.009	0.979
17	Capital Expenditure Development	0.045	0.088	0.790	0.322	0.086	0.592

Source: (Basic Data) , CSO, Ministry of Statistics and Programme Implementation (MOSPI) (various years) and National Institute of Public Finance and Policy (NIPFP) database on Finance Accounts (various years)

In case of the RE-Actual analysis also, the fiscal marksmanship trends remain the same. This requires a review of budget credibility in the state relates to the macro-fiscal variables like state's own tax and non-tax receipts, revenue expenditure (developmental) and capital expenditure.

5.   Outcomes of Expenditure Compression

The expenditure compression on the outlay for health and education has been reflected in its outcomes as seen in the decreasing enrolment in schools and increasing dropouts in higher levels of school education. The enrolment is a function of many determinants including public spending. Having said that, we found that the number of enrolments in all levels of schools education, except higher secondary level, decreased in 2017-18[6] compared to 2011-12 (Table 13). But when compared to 2014-15 enrolment figures, even higher secondary level shows a decline in enrolment. (Also see appendix A11 for district-wise enrolment trends and appendix A12 for district-wise increase in number of schools). Likewise, the rate of dropouts in secondary level of education increased by 9.6 percentage points from 2011-12 to 2017-18 and those of higher secondary level stood at 94.14 percent in 2016-17 (Table 14).

Table 13: Level-wise Enrolment in Schools from 2012-13 to 2017-18

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Primary	312795	238200	271671	225441	228720	236198
Upper Primary	163407	123144	143865	117044	119836	121414
Secondary	92218	71239	85367	68745	70519	71615
Higher Secondary	1679	4624	12286	14338	3607	9853

Source: District Information System for Education (DISE) (various years)

Table 14: Level-wise Rate of Drop-outs in School Education from 2011-12 to 2017-18

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Primary	50.46	26.24	NA	20.32	1.31	1.35
Upper Primary	53.02	26.71	NA	22.52	2.68	2.46
Secondary	75.3	59.69	34.22	52.2	44.78	84.89
Higher Secondary	NA	NA	NA	0.41	94.14	NA

Source: District Information System for Education (DISE) (various years)

The compression in expenditure outlay on nutrition has manifested as a huge expenditure cut on Integrated Child protection Scheme (ICPS), particularly, in 2015-16 and 2016-17.In 2016-17 (as on 31.12.2016) the grants sanctioned for ICDS programmes were 86.25 percent lower than what was sanctioned in 2014-15 (Chakraborty, et al, 2019). This is despite having 75 percent utilisation rate in 2014-15 and even higher rate of 84 percent in 2015-16 for SABLA scheme and 87 percent for Maternity Benefits Scheme, both under ICDS.

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[6] The data on enrolment and dropouts are sourced from DISE website and the latest data available is of 2017-18. The latest data available on dropouts in the higher secondary level is for the year 2016-17.

These expenditure compression has been effected even as the anthropometric indicators of the state show an increase in the percentage of children who are stunted, wasted and under weighed from 1998-99 to 2015-16 as reported by various National Family Health Survey (NFHS) rounds (Figure 13). Karnataka has the highest percentage for all anthropometric indicators among the southern states and is even worse than Gujarat and Odisha (Table 15) and some north-eastern states (Appendix A16).

Figure 13: Nutrition Status in Karnataka: Trends in Anthropometric Indicators
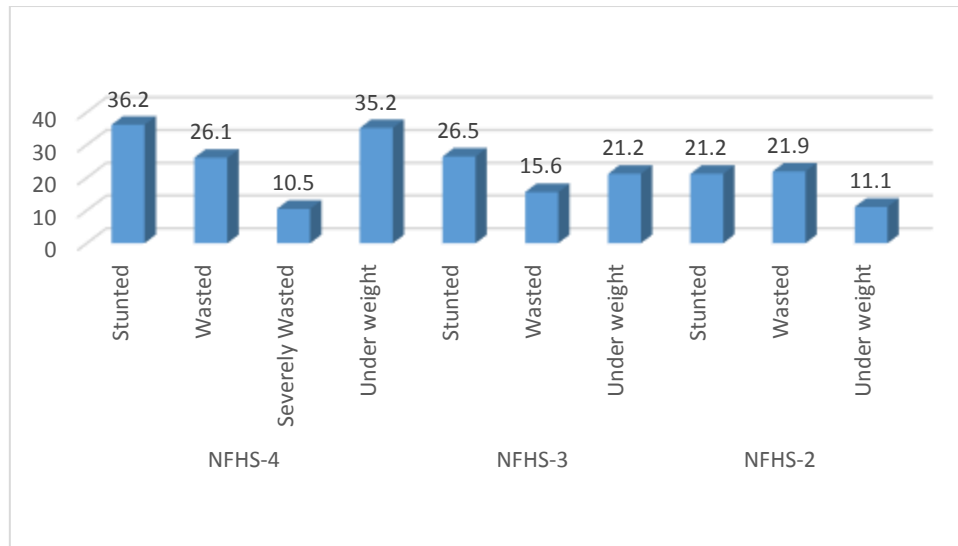
Source: NFHS reports (various years)

Table 15: Nutrition Indicators in Karnataka: Anthropometric data, Survey Wise

State	NFHS-4 (2015-16)				NFHS-3 (2005-06)			NFHS-2 (1998-99)		
	Stunted	**Wasted**	**Severely Wasted**	**Under weight**	**Stunted**	**Wasted**	**Under weight**	**Stunted**	**Wasted**	**Under weight**
Andhra Pradesh	31.4	17.2	4.5	31.9	37	17	29.7	29.7	26.5	7.9
Karnataka	**36.2**	**26.1**	**10.5**	**35.2**	**26.5**	**15.6**	**21.2**	**21.2**	**21.9**	**11.1**
Kerala	19.7	15.7	6.5	16.1	-	-		-	-	-
Tamil Nadu	27.1	19.7	7.9	23.8	34.1	24	35.2	35.2	-	-
Telangana	28.1	18	4.8	28.5	-	-		-	-	-
Chhattisgarh	37.6	23.1	8.4	37.7	43.2	17.2	24.9	24.9	36.8	12.5
Gujarat	31.7	26.4	9.5	39.3	43.3	22.4	38.2	38.2	50	5.-3
Odisha	34.1	20.4	6.4	34.4	34.7	10.2	23.9	23.9	39.2	7.1

Source: NFHS reports (various years)

The infant mortality rate (IMR) of the state has increased as per the NFHS-4 (2015-16) compared to that of NFHS-3 (2005-06), whereas the under-five mortality rate (U-5MR) has declined consistently from NFHS-2 to NFHS-4 round (Figure 14). Among the

southern states, Karnataka is the third worst state with high IMR and U-5MR (Table 16). (Also refer appendix A 17 for detailed table on IMR and U-5MR for all states).

Figure 14: Trends in Infant Mortality Rate and Under-five Mortality Rate - Karnataka
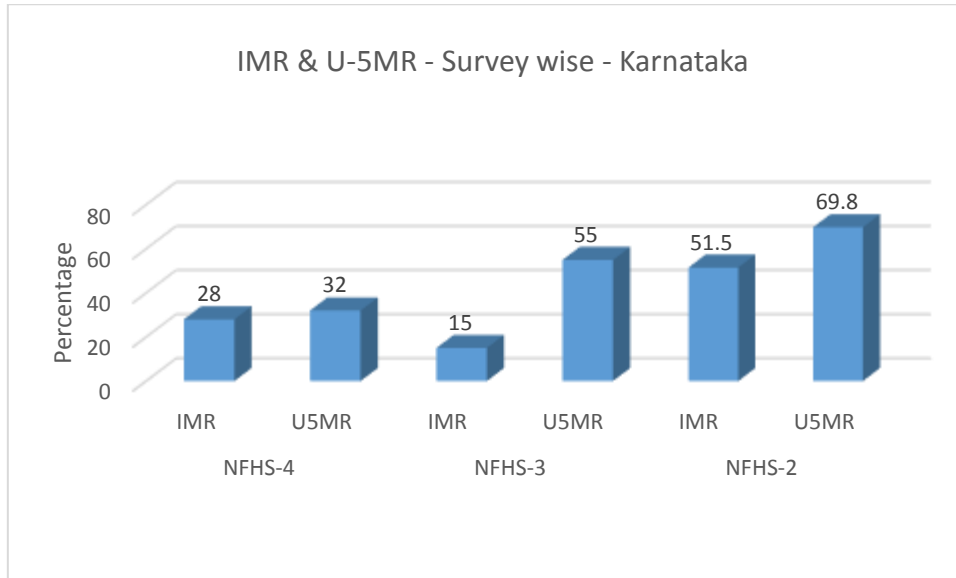
Source: NFHS (various rounds)

Table 16: Infant Mortality Rates (IMR) and Under-Five Mortality Rates (U5MR): Survey Wise

State	NFHS-4		NFHS-3		NFHS-2	
	IMR	U5MR	IMR	U5MR	IMR	U5MR
Andhra Pradesh	35	41	-	-	65.8	85.5
Karnataka	**28**	**32**	**15**	**55**	**51.5**	**69.8**
Kerala	6	7	-	16	16.3	18.8
Tamil Nadu	20	27	30	36	48.2	63.3
Telangana	30	34	-	-	-	-
Chattisgarh	54	64	71	90	-	-
Gujarat	34	43	42	61	62.6	85.1
Odisha	40	49	65	91	81	104.4

Source: NFHS (various rounds)

6. Conclusion

Prima facie, Karnataka seems to be fiscally prudent, abiding by fiscal rules by keeping all fiscal indicators within the KFRA limits. The state was able to rein in its revenue deficit to near zero by 2005 and has been able to maintain it throughout 2011-12 to 2019-20BE. The state's fiscal deficit is below three percent and outstanding liabilities is below 20 percent. However, while maintaining fiscal prudence, the state has

curtailed on the capital expenditure, restricting it to a meagre two percent of GSDP. There was episodic expenditure compression in social sector as well. There was reprioritisation of social sector expenditure, away from education, health and nutrition. This has ramifications on human development outcome, as revealed by the analysis of education outcomes and the nutrition outcomes captured from the anthropometric data.

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Appendix

Table A1: Growth Rate of Gross State Value Added by economic activity at constant (2011-12) prices

S.No.	Item	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
1.	Agriculture, forestry and fishing	**-5.1**	7.2	4.3	-9.9	3.2	14.2	-4.8
1.1	Crops	-7.9	9.7	4.7	-14.6	3.8	17.6	-9.3
1.2	Livestock	4.3	3.1	4.5	3.6	4.1	7.5	7.5
1.3	Forestry and logging	-2.9	-2.7	-4.0	-1.1	-0.9	-0.8	-2.1
1.4	Fishing and aquaculture	**-2.4**	4.5	11.9	-4.9	-4.8	22.3	4.7
2.	Mining and quarrying	-12.9	42.8	31.8	22.7	21.3	-28.7	0.7
	Primary	-5.5	9.1	6.2	-7.1	5.2	8.7	-4.4
3.	Manufacturing	5.8	5.0	-0.5	**21.1**	11.1	6.9	6.8
4.	Electricity, gas, water supply	**-2.3**	5.6	10.7	10.6	-13.8	6.1	12.5
5.	Construction	**-5.2**	12.8	0.3	2.8	-2.3	5.2	8.8
	Secondary	1.8	7.3	0.5	14.6	5.7	6.4	7.7
6.	Trade, repair, hotels and restaurants	6.6	10.1	6.6	2.3	4.8	15.1	13.2
6.1	Trade & repair services	7.7	12.0	8.1	2.1	4.6	16.2	14.1
6.2	Hotels & restaurants	1.3	0.9	-1.4	3.7	5.8	8.6	7.7
7.	Transport, storage, communication	8.4	8.2	12.2	**17.2**	5.1	9.4	7.6
7.1	Railways	8.7	-2.3	8.2	**28.6**	-14.5	8.0	6.9
7.2	Road transport	9.1	7.5	11.8	15.4	8.2	9.1	7.3
7.3	Water transport	-11.0	-18.2	-3.0	-11.1	-5.8	12.0	4.3
7.4	Air transport	71.6	-23.3	70.5	**88.9**	-0.5	12.2	8.9
7.5	Services incidental to transport	-20.2	3.4	20.1	3.5	6.2	4.7	14.4
7.6	Storage	5.6	2.6	5.0	0.7	-3.3	7.5	5.9
7.7	Communication & broadcasting	5.8	16.4	11.5	**15.7**	2.6	10.6	8.1
8.	Financial services	10.1	9.8	14.2	13.8	7.0	6.6	6.8
9.	Real estate, ownership of dwelling & professional services	14.0	13.3	9.2	**16.6**	9.7	13.4	12.9
10.	Public administration	11.9	7.8	5.1	3.4	1.2	10.4	21.4
11.	Other services	9.0	6.9	9.3	7.5	9.6	10.7	14.4
	Tertiary	11.0	11.0	9.3	12.4	7.8	12.2	12.3
12.	**TOTAL GSVA at basic prices**	6.0	9.7	6.5	10.5	6.9	10.3	9.4
13.	Taxes on Products	6.2	7.9	5.6	12.0	9.5	11.2	10.8
14.	Subsidies on products	1.6	8.1	13.6	-6.4	-8.8	11.5	9.1
15.	**Gross State Domestic Product**	6.1	9.6	6.2	11.1	7.6	10.4	9.6

Source: Ministry of Statistic and Programme Implementation (MOSPI)

Table A2: Fiscal Profile of Karnataka: Trends in Revenue, Expenditure and Outcome as Percentage of Nominal GSDP

Revenue Receipts as % of Nominal GSDP								
	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019RE	2019-2020BE
Own Revenue Receipts	**8.34**	**8.30**	**8.16**	**8.19**	**7.74**	**7.34**	**6.93**	**6.70**	**6.91**
Own Tax Revenue	7.67	7.73	7.67	7.68	7.23	6.86	6.45	6.22	6.41
Own Non-tax Revenue	0.67	0.57	0.49	0.51	0.51	0.48	0.48	0.47	0.51
Central Transfers	**3.18**	**2.94**	**2.80**	**3.20**	**3.63**	**3.68**	**3.95**	**4.11**	**4.54**
Tax Devolution	1.83	1.82	1.69	1.60	2.29	2.38	2.35	2.36	2.51
Grant-in-aid	1.35	1.12	1.11	1.60	1.33	1.30	1.60	1.75	2.03
Total Revenue receipts	**11.52**	**11.24**	**10.96**	**11.40**	**11.37**	**11.02**	**10.89**	**10.81**	**11.45**
Own Tax Revenue-Minor Heads as % of Nominal GSDP								
Taxes on Income	0.10	0.10	0.10	0.10	0.08	0.07	0.07	0.06	0.06
Taxes on Property and Capital Transactions	0.80	0.78	0.78	0.79	0.80	0.66	0.68	0.70	0.76
Taxes on Commodities and Services	6.77	6.85	6.78	6.79	6.34	6.12	5.70	5.46	5.59
State Excise	1.61	1.59	1.57	1.51	1.47	1.36	1.33	1.29	1.32
Sales Tax	4.13	4.09	4.13	4.19	3.87	3.81	1.86	0.88	0.95
Other indirect taxes and duties	1.03	1.17	1.08	1.09	1.01	0.95	0.72	0.58	0.63
Expenditure Trends as % of GSDP								
Revenue Expenditure	10.74	10.97	10.92	11.34	11.20	10.91	10.55	10.79	11.43
Capital Expenditure	2.56	2.23	2.08	2.15	1.98	2.33	2.27	2.34	2.52
Total Expenditure	13.30	13.20	13.00	13.48	13.18	13.24	12.82	13.13	13.96
Expenditure on Major & Minor Heads as % of Nominal GSDP								
Social Services	**4.60**	**4.79**	**4.37**	**4.76**	**4.94**	**5.08**	**4.99**	**5.12**	**5.27**
Education, Sports, Art and Culture	2.07	2.15	2.03	2.01	**1.86**	**1.83**	**1.71**	**1.87**	**1.76**
Medical and Public Health	0.55	0.57	0.56	0.64	0.56	0.60	0.62	**0.70**	0.61
Water Supply, Sanitation, Housing and Urban Development	0.58	0.59	0.47	0.61	0.86	**1.13**	**1.13**	**0.87**	**0.88**
Information & Broadcasting	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.02	0.01
Welfare of Scheduled Caste, Scheduled Tribes & Backward Classes	0.53	0.57	0.57	0.70	0.72	0.78	0.88	0.82	0.70
Social Welfare and Nutrition	**0.06**	0.05	0.05	0.05	0.06	0.05	0.06	**0.05**	**0.05**
Others	0.76	0.80	0.66	0.72	0.85	0.89	0.68	1.25	1.24
Labour and Employment	0.04	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02
Economic Services	**5.17**	**4.84**	**4.90**	**4.90**	**4.62**	**5.01**	**4.73**	**4.67**	**5.02**
Agricultural & Allied Services	0.94	1.10	1.57	1.18	1.08	1.08	1.12	1.31	1.40
Rural Development Programmes	0.35	0.37	0.29	0.55	0.50	0.48	0.41	0.50	0.49
Special Areas Programmes	0.07	0.06	0.09	0.10	0.14	0.12	0.11	0.11	0.13
Irrigation & Flood Control	1.04	0.84	0.87	0.95	0.79	0.88	0.93	1.02	0.99

Energy	1.06	1.18	0.77	0.77	0.88	0.87	0.78	0.76	0.83
Industries and Minerals	0.18	0.12	0.13	0.14	0.17	0.14	0.15	0.17	0.15
Transport	0.94	0.96	0.96	0.92	0.86	**1.08**	0.94	0.93	0.79
Telecommunication Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Science & Technology	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
General Economic Services	0.58	0.19	0.20	0.28	0.19	0.58	0.42	0.28	0.22
General Services	**3.53**	**3.56**	**3.73**	**3.82**	**3.62**	**3.14**	**3.11**	**3.34**	**3.67**
Interest Payments	1.00	0.98	0.96	1.03	1.03	1.00	1.03	1.02	1.20
Outcome as Percentage of Nominal GSDP									
Revenue Deficit	**0.77**	**0.27**	**0.04**	**0.06**	**0.17**	**0.11**	**0.33**	**0.01**	**0.02**
Fiscal Deficit	-2.03	-2.09	-2.09	-2.14	-1.83	-2.37	-2.30	-2.62	-2.65
Outstanding Liabilities	**17.00**	**16.79**	**16.57**	**17.35**	**16.80**	**17.46**	**17.26**	**17.57**	**19.44**

Source: Ministry of Statistic and Programme Implementation (MOSPI) and National Institute of Public Finance and Policy (NIPFP)

A 3: Composition of Expenditure as % of Total Expenditure and of Major Heads

Expenditure Components as % of Total Expenditure								
	2011-2012	**2012-2013**	**2013-2014**	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019RE**	**2019-2020BE**
Revenue Expenditure	80.77	83.13	84.03	84.08	84.96	82.42	82.29	82.18	81.92
Capital Expenditure	19.23	16.87	15.97	15.92	15.04	17.58	17.71	17.82	18.08
Total Expenditure	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Expenditure on Major Heads as % of Total Expenditure									
Social Services	34.57	36.32	33.61	35.34	37.48	38.39	38.89	39.02	37.74
Economic Services	38.87	36.66	37.67	36.35	35.03	37.86	36.89	35.54	35.95
General Services	26.56	27.01	28.71	28.32	27.49	23.75	24.23	25.44	26.32
Interest Payments	7.52	7.45	7.38	7.63	7.80	7.52	8.04	7.74	8.60
Expenditure on Social Services - Minor Heads as % of Total Expenditure									
Education, Sports, Art and Culture	15.58	16.33	15.60	14.91	14.12	13.24	12.97	13.03	12.60
Medical and Public Health	4.11	4.28	4.27	4.75	4.23	4.30	4.69	4.89	4.37
Water, Sanitation, Housing & Urb Dvlpt	4.33	4.49	3.63	4.55	6.54	8.15	8.57	6.04	6.32
Information & Broadcasting	0.09	0.08	0.07	0.07	0.07	0.10	0.22	0.11	0.07
Welfare of SC, ST & OBC	3.99	4.31	4.35	5.16	5.50	5.64	6.66	5.72	5.01
Social Welfare and Nutrition	0.43	0.36	0.38	0.36	0.47	0.39	0.42	0.38	0.33
Others	5.69	6.06	5.10	5.36	6.42	6.44	5.12	8.74	8.92
Labour and Employment	0.32	0.28	0.25	0.21	0.19	0.16	0.15	0.13	0.12
Expenditure on Economic Services - Minor Heads as % of Total Expenditure									
Agricultural & Allied Services	7.07	8.31	12.11	8.79	8.23	7.79	8.52	9.12	10.06
Rural Development Programmes	2.61	2.83	2.21	4.06	3.80	3.50	3.07	3.46	3.54

Special Areas Programmes	0.54	0.42	0.72	0.77	1.06	0.84	0.82	0.80	0.95
Irrigation & Flood Control	7.82	6.39	6.70	7.07	5.96	6.39	7.07	7.15	7.12
Energy	7.95	8.97	5.94	5.68	6.69	6.31	5.91	5.31	5.92
Industries & Minerals	1.39	0.91	1.00	1.02	1.31	1.04	1.15	1.22	1.11
Transport	7.10	7.31	7.40	6.80	6.50	7.79	7.13	6.50	5.63
Telecommunication	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Science & Technology	0.05	0.07	0.06	0.07	0.06	0.05	0.06	0.05	0.03
General Economic Services	4.35	1.46	1.54	2.09	1.42	4.16	3.16	1.95	1.59
Expenditure on Social Services - Minor Heads as % of Total SS									
Education, Sports, Art and Culture	45.11	45.11	46.35	42.15	37.60	34.47	33.41	33.38	33.39
Medical and Public Health	11.91	11.83	12.69	13.41	11.27	11.19	12.08	12.52	11.58
Water, Sanitation, Housing Urban Dvlpt	12.53	12.42	10.80	12.87	17.43	21.22	22.08	15.47	16.75
Information & Broadcasting	0.25	0.23	0.22	0.19	0.18	0.25	0.58	0.29	0.19
Welfare of SC, ST & OBC	11.56	11.90	12.93	14.60	14.65	14.67	17.17	14.66	13.28
Social Welfare and Nutrition	1.24	0.99	1.12	1.03	1.26	1.02	1.09	0.98	0.87
Others	16.46	16.74	15.16	15.15	17.09	16.76	13.20	22.38	23.63
Labour and Employment	0.94	0.79	0.73	0.60	0.51	0.43	0.39	0.33	0.31
Total SS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Expenditure on Economic Services - Minor Heads as % of Total ES									
Agricultural & Allied Services	18.19	22.67	32.14	24.18	23.48	20.56	23.09	25.67	28.00
Rural Development Programmes	6.72	7.71	5.85	11.17	10.84	9.23	8.33	9.74	9.83
Special Areas Programmes	1.38	1.14	1.92	2.12	3.02	2.22	2.23	2.24	2.64
Irrigation & Flood Control	20.11	17.43	17.80	19.45	17.02	16.87	19.16	20.11	19.80
Energy	20.45	24.46	15.76	15.62	19.11	16.66	16.02	14.93	16.47
Industries & Minerals	3.57	2.49	2.65	2.81	3.75	2.75	3.11	3.43	3.09
Transport	18.27	19.93	19.65	18.70	18.55	20.57	19.33	18.28	15.66
Telecommunication	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Science & Technology	0.13	0.18	0.15	0.18	0.18	0.13	0.15	0.13	0.09
General Economic Services	11.18	3.99	4.08	5.76	4.05	10.99	8.57	5.47	4.42
Total ES	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Ministry of Statistic and Programme Implementation (MOSPI) and National Institute of Public Finance and Policy (NIPFP)

Table A 4: Gross State Value Added by economic activity at constant (2011-12) prices as Percentage of GSDP

S.No.	Item	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
1.	Agriculture, forestry and fishing	12.47	11.15	10.91	10.71	8.69	8.34	8.62	7.49
1.1	Crops	8.81	7.65	7.66	7.55	5.81	5.60	5.97	4.94
1.2	Livestock	2.23	2.19	2.06	2.03	1.89	1.83	1.78	1.75
1.3	Forestry and logging	0.98	0.90	0.80	0.72	0.64	0.59	0.53	0.47
1.4	Fishing and aquaculture	0.45	0.41	0.39	0.42	0.36	0.31	0.35	0.33
2.	Mining and quarrying	0.74	0.61	0.79	0.99	1.09	1.23	0.79	0.73
	Primary	13.21	11.76	11.71	11.70	9.78	9.56	9.42	8.22
3.	Manufacturing	16.03	15.98	15.32	14.35	15.64	16.15	15.63	15.24
4.	Electricity, gas, water	1.79	1.65	1.59	1.65	1.65	1.32	1.27	1.30
5.	Construction	8.31	7.42	7.64	7.22	6.67	6.06	5.77	5.73
	Secondary	26.12	25.05	24.54	23.21	23.96	23.52	22.67	22.27
6.	Trade, repair, hotels and restaurants	9.97	10.02	10.07	10.10	9.30	9.06	9.44	9.75
6.1	Trade & repair services	8.18	8.31	8.49	8.64	7.94	7.71	8.12	8.45
6.2	Hotels & restaurants	1.79	1.71	1.58	1.46	1.37	1.34	1.32	1.30
7.	Transport, storage, communication & broadcasting	5.53	5.65	5.58	5.89	6.22	6.07	6.02	5.91
7.1	Railways	0.33	0.34	0.30	0.31	0.36	0.29	0.28	0.27
7.2	Road transport	3.62	3.73	3.65	3.85	3.99	4.02	3.97	3.88
7.3	Water transport	0.04	0.04	0.03	0.03	0.02	0.02	0.02	0.02
7.4	Air transport	0.06	0.10	0.07	0.11	0.19	0.18	0.18	0.18
7.5	Services incidental to transport	0.08	0.06	0.06	0.06	0.06	0.06	0.05	0.06
7.6	Storage	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.03
7.7	Communication & broadcasting	1.34	1.34	1.42	1.49	1.56	1.48	1.49	1.47
8.	Financial services	4.75	4.93	4.94	5.31	5.44	5.41	5.22	5.09
9.	Real estate, ownership of dwelling & professional services	23.71	25.48	26.36	27.10	28.45	29.01	29.79	30.69
10.	Public administration	2.46	2.59	2.55	2.52	2.35	2.21	2.21	2.45
11.	Other services	5.37	5.52	5.39	5.54	5.36	5.46	5.48	5.72
	Tertiary	51.79	54.18	54.88	56.47	57.12	57.21	58.15	59.60
12.	**TOTAL GSVA at basic prices**	91.12	90.99	91.13	91.38	90.86	90.30	90.23	90.09
13.	Taxes on Products	11.58	11.60	11.42	11.35	11.44	11.65	11.74	11.87
14.	Subsidies on products	2.71	2.59	2.55	2.73	2.30	1.95	1.97	1.96
15.	**Gross State Domestic Product**	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Ministry of Statistic and Programme Implementation (MOSPI)

**Table A 5: Gross State Value Added by economic activity at constant (2011-12)
prices – % Distribution by each sector**

S.No.	Item	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
1.	Agriculture, forestry and fishing	94.38	94.82	93.21	91.58	88.87	87.17	91.58	91.14
1.1	Crops	66.70	65.06	65.45	64.55	59.35	58.58	63.34	60.06
1.2	Livestock	16.86	18.62	17.60	17.33	19.34	19.13	18.91	21.27
1.3	Forestry and logging	7.41	7.62	6.80	6.15	6.55	6.17	5.63	5.76
1.4	Fishing and aquaculture	3.40	3.52	3.37	3.55	3.63	3.29	3.70	4.05
2.	Mining and quarrying	5.62	5.18	6.79	8.42	11.13	12.83	8.42	8.86
	Primary	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
3.	Manufacturing	61.36	63.81	62.41	61.80	65.27	68.64	68.96	68.43
4.	Electricity, gas, water	6.84	6.57	6.46	7.12	6.87	5.60	5.59	5.84
5.	Construction	31.80	29.63	31.13	31.08	27.86	25.75	25.45	25.73
	Secondary	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
6.	Trade, repair, hotels and restaurants	19.26	18.49	18.35	17.89	16.28	15.83	16.23	16.36
6.1	Trade & repair services	15.79	15.33	15.47	15.30	13.89	13.48	13.96	14.18
6.2	Hotels & restaurants	3.46	3.16	2.87	2.59	2.39	2.35	2.27	2.18
7.	Transport, storage, communication & broadcasting	10.68	10.42	10.16	10.43	10.88	10.61	10.35	9.91
7.1	Railways	0.64	0.63	0.56	0.55	0.63	0.50	0.48	0.46
7.2	Road transport	7.00	6.88	6.66	6.81	6.99	7.02	6.82	6.52
7.3	Water transport	0.09	0.07	0.05	0.04	0.04	0.03	0.03	0.03
7.4	Air transport	0.12	0.18	0.13	0.20	0.33	0.31	0.31	0.30
7.5	Services incidental to transport	0.15	0.11	0.10	0.11	0.10	0.10	0.09	0.10
7.6	Storage	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.05
7.7	Communication broadcasting	2.59	2.47	2.59	2.64	2.72	2.59	2.55	2.46
8.	Financial services	9.17	9.10	9.01	9.41	9.53	9.45	8.98	8.54
9.	Real estate, ownership of dwelling & professional services	45.77	47.03	48.02	47.99	49.81	50.71	51.22	51.49
10.	Public administration	4.74	4.78	4.65	4.47	4.11	3.86	3.80	4.11
11.	Other services	10.37	10.18	9.82	9.81	9.38	9.54	9.42	9.59
	Tertiary	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Ministry of Statistic and Programme Implementation (MOSPI)

Table A 6: Gross State Value Added by economic activity at constant (2011-12) prices - % Distribution on Total GSVA

S.No	Item	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
1.	Agriculture, forestry and fishing	13.68	12.25	11.97	11.72	9.57	9.23	9.56	8.31
1.1	Crops	9.67	8.41	8.41	8.26	6.39	6.20	6.61	5.48
1.2	Livestock	2.44	2.41	2.26	2.22	2.08	2.03	1.97	1.94
1.3	Forestry and logging	1.07	0.99	0.87	0.79	0.70	0.65	0.59	0.53
1.4	Fishing and aquaculture	0.49	0.45	0.43	0.45	0.39	0.35	0.39	0.37
2.	Mining and quarrying	0.82	0.67	0.87	1.08	1.20	1.36	0.88	0.81
	Primary	14.50	12.92	12.85	12.80	10.77	10.59	10.44	9.12
3.	Manufacturing	17.59	17.57	16.81	15.70	17.21	17.88	17.32	16.92
4.	Electricity, gas, water	1.96	1.81	1.74	1.81	1.81	1.46	1.40	1.44
5.	Construction	9.11	8.16	8.38	7.90	7.35	6.71	6.39	6.36
	Secondary	28.67	27.53	26.93	25.40	26.37	26.05	25.12	24.72
6.	Trade, repair, hotels and restaurants	10.95	11.01	11.05	11.05	10.24	10.03	10.46	10.82
6.1	Trade & repair services	8.98	9.13	9.32	9.45	8.73	8.54	9.00	9.38
6.2	Hotels & restaurants	1.97	1.88	1.73	1.60	1.50	1.49	1.46	1.44
7.	Transport, storage, communication & broadcasting	6.07	6.21	6.12	6.45	6.84	6.72	6.67	6.56
7.1	Railways	0.37	0.38	0.33	0.34	0.40	0.32	0.31	0.30
7.2	Road transport	3.98	4.09	4.01	4.21	4.40	4.45	4.40	4.31
7.3	Water transport	0.05	0.04	0.03	0.03	0.02	0.02	0.02	0.02
7.4	Air transport	0.07	0.11	0.08	0.12	0.21	0.20	0.20	0.20
7.5	Services incidental to transport	0.09	0.06	0.06	0.07	0.06	0.06	0.06	0.06
7.6	Storage	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04
7.7	Communication & broadcasting	1.47	1.47	1.56	1.63	1.71	1.64	1.65	1.63
8.	Financial services	5.21	5.42	5.42	5.81	5.99	5.99	5.79	5.65
9.	Real estate, ownership of dwelling & professional services	26.02	28.00	28.92	29.66	31.32	32.13	33.01	34.07
10.	Public administration	2.70	2.85	2.80	2.76	2.58	2.45	2.45	2.72
11.	Other services	5.90	6.06	5.91	6.06	5.90	6.05	6.07	6.35
	Tertiary	56.84	59.55	60.22	61.80	62.87	63.36	64.44	66.16
12.	**TOTAL GSVA at basic prices**	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Ministry of Statistic and Programme Implementation (MOSPI)

Table A 7: Regression on Tax Buoyancy

Dependent Variables	Independent Variable- GDSP							
	Intercept	Coefficients	t Statistic	P-value	R Square	Adjusted R Square	Standard Error	Observation
RR	-1.642	0.970	40.869	0.000	0.996	0.995	0.023	9
ORR	1.916	0.756	25.577	0.000	0.989	0.988	0.029	9
Tax Rev	-0.664	0.907	39.705	0.000	0.996	0.995	0.022	9
ONTR	-0.542	0.744	9.691	0.000	0.931	0.921	0.075	9
Own Tax Revenue	1.815	0.758	21.645	0.000	0.985	0.983	0.034	9
Income Tax	4.421	0.375	4.883	0.002	0.773	0.741	0.075	9
Tax Devolution	-11.412	1.408	12.841	0.000	0.959	0.953	0.107	9
Central Transfers	-11.115	1.421	18.380	0.000	0.980	0.977	0.075	9
Professional Tax	3.825	0.406	5.552	0.001	0.815	0.788	0.071	9
Agricultural Tax	38.674	-1.724	-1.286	0.255	0.249	0.098	0.952	7
Property Tax	-2.305	0.860	13.839	0.000	0.965	0.960	0.061	9
Land Tax	6.557	0.184	1.357	0.217	0.208	0.095	0.132	9
Stamp Duty	-2.723	0.881	13.675	0.000	0.964	0.959	0.063	9
Commodity Tax	1.833	0.750	20.611	0.000	0.984	0.981	0.035	9
GST*	-54.720	3.709	6.223	0.101	0.975	0.950	0.072	3
State Excise	0.398	0.749	36.145	0.000	0.995	0.994	0.020	9
Sale Tax	25.065	-0.555	-1.334	0.224	0.203	0.089	0.406	9
Vehicle Tax	-2.332	0.837	18.873	0.000	0.981	0.978	0.043	9
Goods & Passengers	10.922	0.079	0.144	0.891	0.004	-0.195	0.389	7
Electricity	-11.880	1.281	8.432	0.000	0.910	0.898	0.148	9
Others	72.073	-3.320	-2.635	0.034	0.498	0.426	1.228	9

Notes: * based on the data from 2017-18 to 2019-20BE

Source: tax data are from NIPFP data and GSDP from MOSPI

Table A 8: Summarised position of Fiscal Liabilities from 2010-11 to 2017-18

	Consolidated Fund	a. Internal Debt	b. Loans and advances from GOI	OBB	Public Account	a. Small savings, Provident Funds	b. Reserve Funds	c. Deposits	Total liabilities
2011-12*	65315	54333	10982	**1903**	37715	14182	12427	11106	1,04,933
% Share	63.39	52.74	10.66	**1.85**	36.61	13.76	12.06	10.78	100
2012-13*	75052	63418	11634	**2506**	41715	15914	12184	13617	1,19,273
% Share	64.28	54.31	9.96	**2.15**	35.72	13.63	10.43	11.66	100
% Growth	15	17	6	**32**	11	12	-2	23	13
2013-14*	88522	76428	12094	**2943**	46796	18021	12318	16457	138261
% Share	64.03	55.28	8.75	**2.13**	33.85	13.03	8.91	11.90	100
% Growth	15	17	6	**17**	11	12	-2	23	18.41
2014-15*	105585	92904	12681	**5727**	52967	20176	12632	20159	164279
% Share	64.27	56.55	7.72	**3.49**	32.24	12.28	7.69	12.27	100
% Growth	19	22	5	**95**	13	12	3	22	18.82
2015-16*	122547	109545	13002	**7699**	53076	22262	10371	20443	183322
% Share	66.85	59.76	7.09	**4.20**	28.95	12.14	5.66	11.15	100
% Growth	16	18	2	**34**	-	10	-18	1	11.59
2016-17*	146283	132489	13794	**10248**	64788	24920	16384	23484	221319
% Share	66.10	59.86	6.23	**4.63**	29.27	11.26	7.40	10.61	100
% Growth	19	21	6	**33**	22	12	58	15	20.73
2017-18*	163136	148581	14555	**13173**	69923	27731	16874	25318	246232
% Share	66.25	60.34	5.91	**5.35**	28.40	11.26	6.85	10.28	100
% Growth	12	12	6	**29**	8	11	3	8	11.26

Note: * Absolute numbers in crores.
Source: CAG Report 2013, 2014, 2016, 2017, 2018, 2019.

Table A 9: Primary deficit and its parameters (Rs in crore)

Period	Fiscal Deficit	Interest Payments*	Primary Deficit	IP towards OBB	Share of IP on OBB in Total IP
2011-12	12,470	6,604	5,866	542	8.21
2012-13	14,507	7,454	7,053	621	8.33
2013-14	17,092	8,027	9,065	190	2.37
2014-15	19,576	9,804	9,772	400	4.08
2015-16	19,169	11,343	7,826	597	5.26
2016-17	28,664	12,850	15,814	817	6.36
2017-18	31,101	14,973	16,128	1,043	6.97

Note: *includes interest payments towards off-budget borrowings (OBB)
Source: CAG Report 2013, 2014, 2016, 2017, 2018, 2019.

Table A 10: Fiscal Liabilities as a share of GSDP and RR – OBB included and excluded

	Fiscal Liabilities (with OBB)/GSDP	Fiscal Liabilities (without OBB)/GSDP	OBB/GSDP	Fiscal Liabilities (with OBB)/RR
2011-12	24.16	17	0.31	150.32
2012-13	17.24	16.79	0.36	152.57
2013-14	16.9	16.57	0.36	154.41
2014-15	17.82	17.35	0.63	157.75
2015-16	17.85	16.8	0.74	154.29
2016-17	19.81	17.46	0.85	166.13
2017-18	18.78	17.26	0.98	167.5

Source: CAG Report 2013, 2014, 2016, 2017, 2018, 2019.

Table A 11: Enrolment in Schools – Class I to XII

District Name	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Bagalkot	750	1204	3883	3592	3144	3655
Bangalore Rural	19536	23209	6036	2826	4072	4742
Bangalore U North	44167	18410	37517	37762	36242	35385
Bangalore U South	421730	322750	401237	310397	312078	321789
Belgaum	1067	3429	4994	5032	4974	3171
Belgaum Chikkodi	NA	532	0	752	732	737
Bellary	337	1027	1567	3908	3672	4180
Bijapur	2365	1864	2088	2933	2136	2973
Chikkaballapura	3692	5137	91	NA	NA	
Chikkamangalore	NA	NA	3461	3749	2588	2630
Chitradurga	1478	1680	2557	1425	1311	2757
Dakshina	56	49	1946	2692	2717	2754
Dharwad	699	624	1899	3388	2885	3122
Gadag	7474	NA	NA	NA	NA	233
Gulbarga	3169	2976	3218	4180	4065	3587
Hassan	NA	NA	NA	NA	648	460
Haveri	NA	523	1561	2344	2684	3215
Kodagu	539	545	572	959	862	979
Kolar	3864	4401	4844	4864	4520	5363
Koppal	10652	6181	1222	2636	2878	2875
Mandya	9856	2747	1099	875	802	653
Mysore	28687	23511	18270	12439	13597	15371
Raichur	1275	4974	427	612	633	708
Ramanagara	1206	967	1721	459	234	961
Shimoga	1815	2239	2295	3475	3631	3970
Udupi	2058	4824	5948	7313	5158	6727

Uttara Kannada	3627	2979	3592	3925	3853	3385
Uttara Kannada	NA	425	1144	1875	1512	1424
Yadagiri	NA	NA	NA	1156	1054	1274
All Districts	570099	437207	513189	425568	422682	439080

Source: District Information System for Education (DISE) website:
http://schoolreportcards.in/SRC-New/Default.aspx

Table A 12: District-wise increase in number of Schools

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Bagalkot	2158	2156	2188	2237	2320	2355
Bangalore Rural	1512	1515	1533	1553	1560	1522
Bangalore U North	2207	2247	2280	2350	2469	2455
Bangalore U South	3098	3212	3303	3308	3309	3388
Belgaum	2355	2358	2364	2374	2391	2441
Belgaum Chikkodi	2993	3023	3058	3080	3112	3149
Bellary	2508	2504	2527	2550	2597	2661
Bidar	2555	2650	2715	2713	2788	2759
Bijapur (Karnataka)	3211	3234	3226	3264	3429	3441
Chamarajanagara	1212	1213	1207	1218	1217	1229
Chikkaballapura	2195	2220	2148	2118	2123	2122
Chikkamangalore	2140	2157	2119	2110	2009	2085
Chitradurga	2497	2511	2475	2489	2472	2498
Dakshina Kannada	2091	2090	2108	2112	2122	2148
Davanagere	2435	2453	2480	2492	2521	2563
Dharwad	1509	1551	1559	1570	1654	1680
Gadag	1176	1118	1172	1182	1209	1249
Gulbarga	3545	3600	3681	3691	3799	3925
Hassan	3436	3442	3324	3329	3314	3337
Haveri	1899	1894	1898	1932	1979	2029
Kodagu	699	705	706	715	707	715
Kolar	2484	2478	2498	2503	2511	2541
Koppal	1529	1577	1530	1558	1609	1649
Mandya	2629	2549	2556	2568	2508	2497
Mysore	3241	3246	3236	3245	3284	3284
Raichur	2346	2356	2343	2367	2431	2487
Ramanagara	1837	1849	1860	1877	1814	1820
Shimoga	2770	2744	2741	2756	2750	2801
Tumkur	3093	3067	3047	3018	2945	2959
Tumkur Madhugiri	1721	1720	1725	1735	1696	1707
Udupi	1271	1272	1256	1256	1246	1285
Uttara Kannada	1300	1305	1301	1298	1271	1318
Uttara Kannada Sirsi	1432	1428	1412	1413	1394	1405
Yadagiri	1399	1422	1452	1508	1514	1572

| All Districts | 74483 | 74866 | 75028 | 75489 | 76074 | 77076 |

Table A13: Percentage figures of all states in India for all anthropometric indicators: Survey Wise

State	NFHS-4				NFHS-3			NFHS-2		
	Stunted	Wasted	Severely Wasted	Under weight	Stunted	Wasted	Under weight	Stunted	Wasted	Under weight
Andaman & Nicobar	23.3	18.9	7.5	21.6	38.4	14.9	29.8	29.8	38.6	9.1
Andhra Pradesh	31.4	17.2	4.5	31.9	37	17	29.7	29.7	26.5	7.9
Arunachal Pradesh	29.4	17.3	8	19.5	41.1	16.7	35.8	35.8	50.2	13.3
Assam	36.4	17	6.2	29.8	50.1	32.6	54.9	54.9	53.7	21
Bihar	48.3	20.8	7	43.9	-	-		-	-	-
Chandigarh	28.7	10.9	3.9	24.5	52.6	24.1	47.8	47.8	-	-
Chhattisgarh	37.6	23.1	8.4	37.7	43.2	17.2	24.9	24.9	36.8	12.5
NCT Delhi	32.3	21.2	5	27	-	-		-	-	-
Dadra Nagar Haveli	41.7	27.6	11.4	38.9	25.9	12.8	21.3	21.3	18.1	13.1
Goa	20.1	21.9	23.8	23.8	49.2	19.7	41.1	41.1	43.6	16.2
Gujarat	31.7	26.4	9.5	39.3	43.3	22.4	38.2	38.2	50	5.-3
Haryana	34	21.2	9	29.4	34.3	19.9	31.1	31.1	41.3	16.9
Himachal Pradesh	26.3	13.7	3.9	21.2	33.1	18.1	24	24	38.8	11.8
Jammu & Kashmir	27.4	12.1	5.6	16.6	47.2	35.8	54.6	54.6		-
Jharkhand	45.3	29	11.1	47.8	42.4	18.9	33.3	33.3	36.6	20
Karnataka	36.2	26.1	10.5	35.2	26.5	15.6	21.2	21.2	21.9	11.1
Kerala	19.7	15.7	6.5	16.1	-	-		-	-	-
Lakshadweep	27	13.8	3.3	23.4	46.5	39.5	57.9	57.9	51	19.8
Madhya Pradesh	42	25.8	9.2	42.8	44	17.2	32.7	32.7	39.9	21.2
Maharashtra	34.4	25.6	9.4	36	29	10.8	19.5	19.5	31.3	8.2
Manipur	28.9	6.8	2.2	13.8	47.7	31.8	42.9	42.9	44.9	13.3
Meghalaya	43.8	15.3	6.5	29	35.1	9.7	14.2	14.2	34.6	10.2
Mizoram	28	6.1	2.3	11.9	34.1	15.8	23.7	23.7	33	10.4
Nagaland	28.6	11.2	4.2	16.8	43.9	25.7	39.5	39.5	44	24.3
Odisha	34.1	20.4	6.4	34.4	34.7	10.2	23.9	23.9	39.2	7.1
Punjab	25.7	15.6	5.6	21.6	-	-		-	-	11.7
Puducherry	23.7	23.6	7.8	22	40.1	22.5	36.8	36.8	52	-
Rajasthan	39.1	23	8.6	36.7	31.8	12.8	17.3	17.3	31.7	4.8

Sikkim	29.6	14.2	5.9	14.2	31.1	22.9	25.9	25.9	29.4	19.9
Tamil Nadu	27.1	19.7	7.9	23.8	34.1	24	35.2	35.2	-	-
Telangana	28.1	18	4.8	28.5	-	-		-	-	-
Tripura	24.3	16.8	6.3	24.1	52.4	19.5	41.6	41.6	55.5	11.1
Uttar Pradesh	46.3	17.9	6	39.5	39.6	18.2	31.7	31.7	-	-
Uttrakhand	33.5	19.5	9	26.6	41.8	19.2	37.6	37.6	41.5	13.6
West Bengal	32.5	20.3	6.5	31.6	44.9	22.9	40.4	40.4	45.5	15.5
All India	31	21	7.5	35.7	-	-		-	-	-

Blank columns signify that no corresponding figure was available

Source: National Family and Health Survey: State Level Fact Sheet (as in Chakraborty et al, (2018)

Table A 14: Percentage figures of all states in India for Infant Mortality Rates (IMR) and Under-Five Mortality Rates (U5MR): Survey Wise

State	NFHS-4		NFHS-3		NFHS-2	
	IMR	**U5MR**	**IMR**	**U5MR**	**IMR**	**U5MR**
Andaman & Nicobar	10	13	-	-	-	-
Andhra Pradesh	35	41	-	-	65.8	85.5
Arunachal Pradesh	23	33	61	88	63.1	98.1
Assam	57	57	66	85	69.5	89.5
Bihar	48	58	62	85	72.9	105.1
Chandigarh	-	-	-	-	-	-
Chhattisgarh	54	64	71	90	-	-
NCT Delhi	35	47	40	47	46.8	55.4
Dadra Nagar Haveli	33	-	15	42	-	-
Goa	13	13	50	20	36.7	46.8
Gujarat	34	43	42	61	62.6	85.1
Haryana	33	41	36	52	56.8	76.8
Himachal Pradesh	34	38	45	42	34.4	42.4
Jammu & Kashmir	32	38	69	51	65	80.1
Jharkhand	44	54	43	93	-	-
Karnataka	28	32	15	55	51.5	69.8
Kerala	6	7	-	16	16.3	18.8
Lakshadweep	19	-	-	-	-	-
Madhya Pradesh	51	65	70	94	86.1	137.6
Maharashtra	24	29	38	47	43.7	58.1
Manipur	22	26	30	42	37	56.1
Meghalaya	30	40	45	70	89	122
Mizoram	40	46	34	53	37	54.7
Nagaland	29	37	38	65	42.1	63.8
Odisha	40	49	65	91	81	104.4
Punjab	29	33	42	52	57.1	72.1

Puducherry	16	16	-	-	-	-
Rajasthan	41	51	65	85	80.4	114.9
Sikkim	30	32	34	40	43.9	71
Tamil Nadu	20	27	30	36	48.2	63.3
Telangana	30	34	-	-	-	-
Tripura	27	33	51	59	-	-
Uttar Pradesh	64	78	73	96	86.7	122.5
Uttrakhand	40	47	42	57	-	-
West Bengal	28	32	48	60	48.7	67.6
All India	41	50	57	74	67.6	94.9

Blank columns signify that no corresponding figure was available

Source: National Family and Health Survey : State Level Fact Sheet (as in Chakraborty et al, (2018)

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