

Tax performance of 15 Indian states- 1990-91 to 2018-19: Five questions for further research

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State level tax reforms -General backdrop

States in India had General Sales Tax regime in which there was cascading of input taxes and multiplicity of rates. Under this, States were taxing sale of commodities at their first point. Besides, turn over Tax was also levied in some cases. There was cascading of taxes paid on inputs. As regards inter-State sales, the exporting State collected Central Sales Tax. Eventually, Value Added Tax (VAT) with input credit replaced the General Sales Tax levied by the States on purchase and sale of commodities within their jurisdiction¹ since 2005-06. Rates were harmonised through discussions in the Empowered Committee of State Finance Ministers. Though there were minor deviations in rates made by States, by and large rates were harmonised under the VAT regime. VAT was subsumed in the Goods and Services Tax (GST) regime² with effect from July 1, 2017. The taxes subsumed in GST have been about two thirds of the Own Tax Revenue (OTR) of the States. After introduction of GST, harmonised rates are recommended by the GST Council, which is formed as mandated in Article 279A of the Constitution of India. Under GST, the tax on sales taxes on goods and supply of services is collected by the State where the final consumption takes place. Major

¹ Burgess, Howes and Stern (1995) State that multiplicity and dispersion of rates. Indirect taxation in India is typified by a maze of different rates, which are the result of numerous ad hoc modifications to tax legislation. There are currently some 350 specific excise duty rates and forty ad valorem rates, the highest of which is 105 percent (Purohit, 1992b; GOI, 1993a). Most states have at least twelve rates of sales tax ranging from 1 percent to 25 percent (Purohit, 1988, p. 272). This rate differentiation has little economic rationale. It is associated with distributional judgments and views on the kinds of goods that should be encouraged in production and is the outcome more of lobbying than of logic.

² Under the GST regime, rates have been harmonised based on the constitutional mechanism, that is, the GST Council, which is constituted under Article 279A of the Constitution.

taxes still remaining outside the purview of GST are petroleum products and alcoholic liquor for human consumption.³

2. Data sources and methodology

With these major tax policy shifts in background, we analyse the trend in tax effort of 15 major States in India during the 30 year period from 1990-91 to 2018-19⁴. The tax effort is proxied by the ratio of Own Tax Revenue (OTR) to Gross State Domestic Product (GSDP) at current prices.

For the purpose of the study, States have been classified as High, Middle and Low Income States based in their per capita incomes. Maharashtra, Gujarat, Haryana, Goa and Punjab have been classified as High income States, Andhra Pradesh, Telangana, Karnataka, Kerala⁵, Tamil Nadu, Uttarakhand and West Bengal as Middle income States and Bihar, Jharkhand, Chhattisgarh, Madhya Pradesh, Rajasthan, Odisha and Uttar Pradesh as Low income States.

The study has utilised the OTR data from Reserve Bank of India's 'State Finances: A Study of the Budgets' and the GSDP data from National Income Accounts. The GSDP in current prices is of different bases and splicing has not been done.⁶

Question can be raised whether the more appropriate base for consumption taxes like General Sales Tax, VAT and GST is Private Final Consumption Expenditure (PFCE). The limitation in using PFCE from sample surveys of National Sample Survey Organisation (NSSO) is that the data are available from quinquennial surveys⁷ and for the intervening years, there needs to be extrapolation, which can lead to unrealistic estimations. Moreover, PFCE is a component of GSDP.

³ Taxes on petroleum products can be brought into GST, from the date notified by the GST Council.

⁴ Das -Gupta (2012) has found that introduction of VAT had positive impact on Own Tax Revenue of Haryana and Odisha among major States and in 50 per cent of other jurisdictions. The study traces large scale tax evasion and given weakness in VAT administration identified in a performance audit by the Comptroller and Auditor General in 2009. Sen (2015) states that though sub national VAT is more efficiency inducing than a complex sales tax, the contribution of VAT to efficiency of entire indirect system is insignificant.

⁵ Kerala has now moved to be a High Income State. But for most part of the period it was a Middle Income State.

⁶ When the ratio is taken, the inflation effect will cancel out

⁷ The results of the thin rounds for the intervening years can not be used along with that of quinquennial rounds as there will be inconsistencies due to variation in sample size.

3. State-wise trends

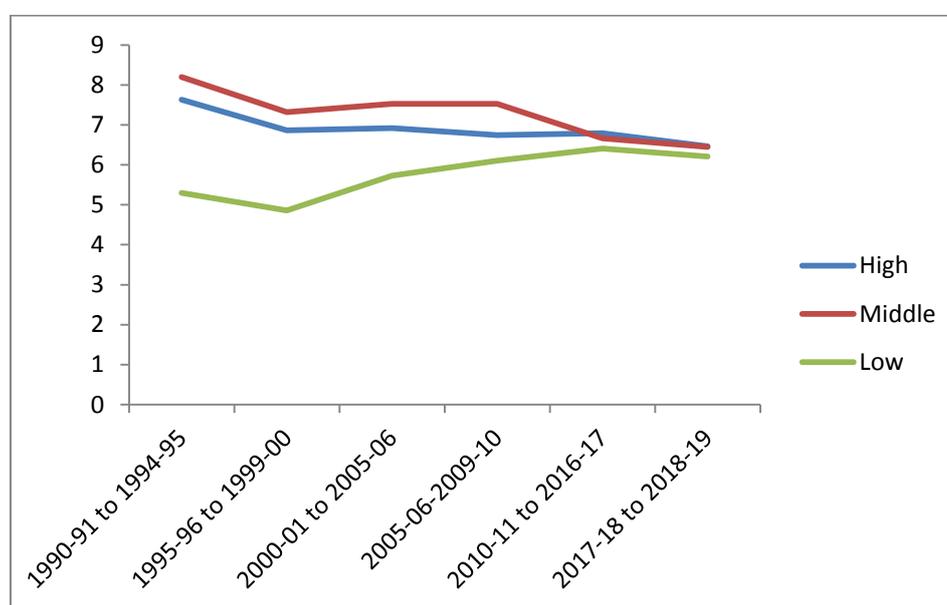
The trend is observed at five year sub-periods. 2017-18 and 2018-19 is treated as a separate sub-period.⁸ In the initial five year period, Middle income States performed better than High and Low Income States. This continued till 2009-10. During the last two sub-periods, High income States performed slightly better than the Middle Income States. The Low income States have shown a consistent increase in the third, fourth and fifth sub-periods and a minor fall in the last sub-period (Table 1).

Table 1. Comparative OTR-GSDP ratios of high, middle and low income states – 1990-91 to 2018-19

States	1990-91 to 1994-95	1995-96 to 1999-2000	2000-01 to 2005-06	2005-06-2009-10	2010-11 to 2016-17	2017-18 to 2018-19
High	7.63	6.86	6.92	6.74	6.79	6.46
Middle	8.2	7.32	7.53	7.53	6.66	6.45
Low	5.3	4.86	5.73	6.1	6.41	6.21
All States Average	7.04	6.35	6.62	6.71	6.6	6.5

Source: Computed from data sources mentioned in the text.

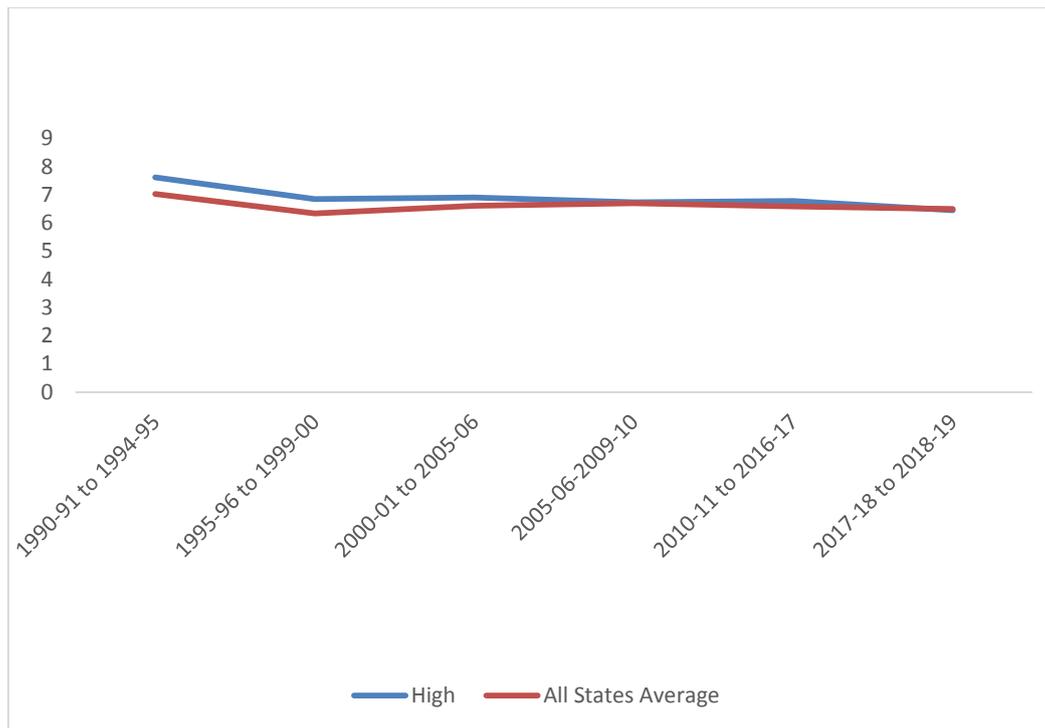
Figure 1. OTR-GSDP ratios of high, middle and low income states



Source: Table 1

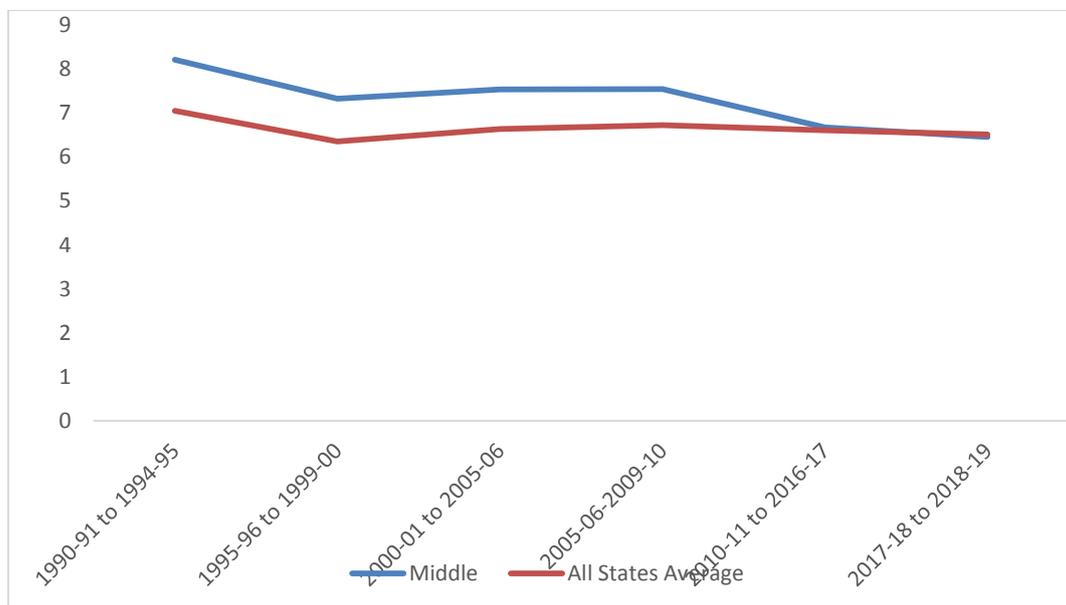
⁸ This is done to maintain uniformity of five years. Else, last period will be seven years. The last two years are after introduction of GST

Figure 2. Movement of OTR-GSDP ratio of High income States and All States Average

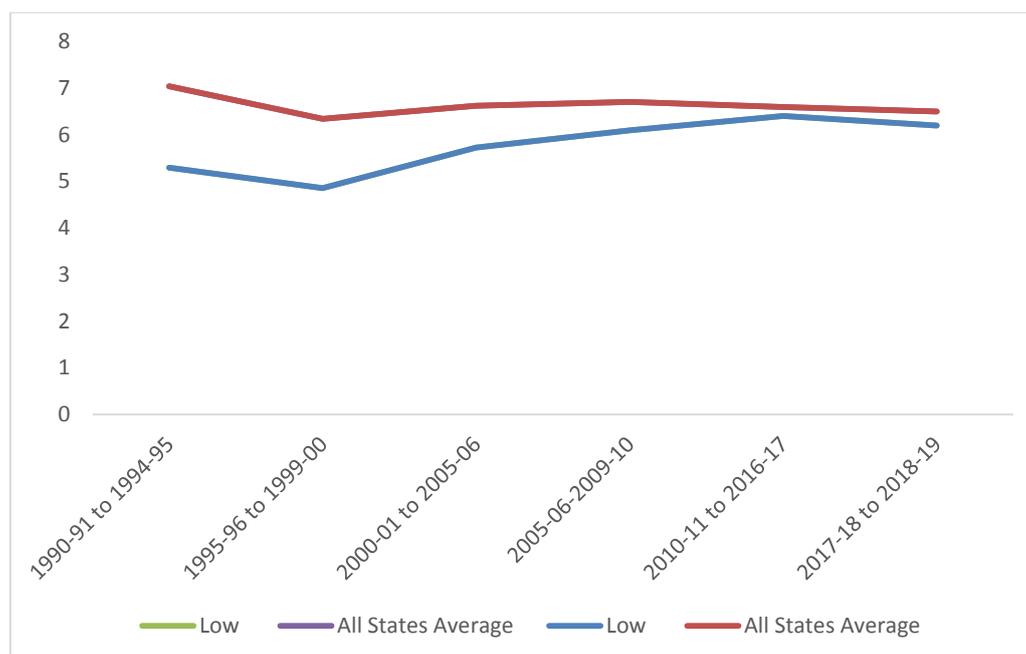


Source : Table 1

Figure 3. Movement of OTR-GSDP ratio of Middle income States and All States Average



Source: Table 1

Figure 4. Movement of OTR-GSDP ratio of Low income States and All States Average

Source: Table 1

The downward slide is marked in the case of Middle income States, whose tax effort was above the all States average till 2009-10. The downward slide had started since 1995-96 and there was a further fall since 2005-06. The upward movement in the case of Low income States had begun since 1995-96 continued till 2016-17. There is a flattening in the last sub-period, 2017-18 and 2018-19. In the case of High income States, the downward slide started since 1995-96 (Figures 2,3, and 4).

Table 2. OTR-GSDP trends across high, middle and low income states – 1990-91 to 2018-19

States	1990-91 to 1994-95	1995-96 to 1999-00	2000-01 to 2005-06	2005-06-2009-10	2010-11 to 2016-17	2017-18 to 2018-19
Mean	7.04	6.35	6.72	6.79	6.62	6.37
Standard Deviation	1.54	1.3	0.92	0.72	0.2	0.14
C.V.	0.22	0.21	0.14	0.11	0.03	0.02

Source: Computed from data mentioned in the text

The dispersion of OTR-GSDP ratios between High, Middle and Low Income States has significantly come down during the period under analysis. The standard deviation has

declined from 1.54 in the first sub-period to 0.14 in the last sub-period and the decline has been consistent, The convergence is more marked since 2010-11. The convergence has happened because of fall in the OTR-GSDP ratio of High and Middle income States and the rise in that of Low income States (Table 1). An analysis of the State-wise trends can throw more light (Table 3).

Table 3. OTR-GSDP ratio across states

States	1990-91 to 1994- 95	1995-96 to 1999-2000	2000-01 to 2005- 06	2005- 06- 2009-10	2010-11 to 2016- 17	2017-18 to 2018- 19
Low Income States						
Bihar	4.46	4.14	4.23	4.42	5.81	6.08
Chhattisgarh			6.05	7.22	7	7.34
Madhya Pradesh	5.74	5.48	6.63	7.3	7.53	6.64
Odisha	4.95	4.35	5.37	5.61	6.17	6.7
Rajasthan	6.1	5.54	6.55	6.64	6.16	6.44
Uttar Pradesh	5.25	4.81	5.93	6.54	7.26	7.75
Middle Income States						
Andhra Pradesh	7.08	6.38	7.47	7.71	7.08	6.7
Karnataka	9.45	8.51	8.99	9.47	7.58	6.65
Tamil Nadu	9.31	8.55	8.82	8.49	7.33	6.55
West Bengal	5.94	4.66	4.37	4.36	5.31	5.8
High Income States						
Gujarat	8.41	7.27	7.07	6.44	6.42	5.45
Haryana	7.71	6.68	7.62	7.36	6.44	6.27
Maharashtra	7.47	6.85	7.6	6.9	6.8	7.3
Punjab	7	6.21	6.71	6.88	6.95	6.37
Kerala*	9.24	8.47	7.99	7.64	7.05	6.66

Source: Computed from data mentioned in the text. Note: * Moved from Middle to High Income

Low income states

For Bihar, Odisha and Uttar Pradesh, there has been consistent rise in OTR-GSDP ratio except in the second sub-period. For Madhya Pradesh, there has been a rise from the second to fifth sub-periods and fall in the last two years. Chattisgarh, which was formed in the third sub period. Has shown improvement in OTR-GSDP ratio except for a minor fall in the fifth sub-period. There is no clear trend observed for Rajasthan.

Middle income states

The OTR-GSDP ratio of Andhra Pradesh declined in the second sub- period and improved markedly during the third sub-period. It showed a mild improvement in the fourth sub-period and declined during the last two sub periods.

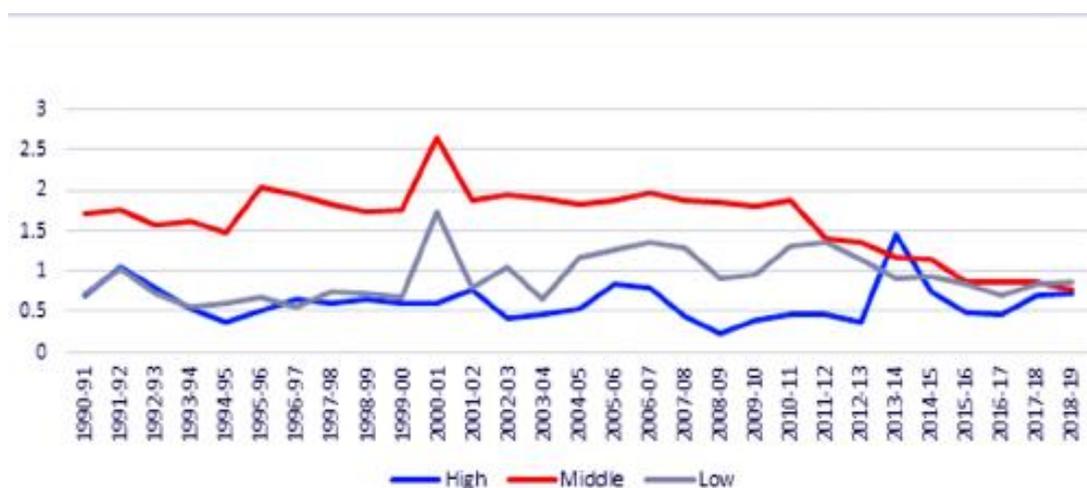
In Karnataka, there is a marked decline in the last two sub-periods. In the prior sub- periods, there was an initial decline and a pick up. There has been a consistent fall except for a marginal rise in the third sub-period in Tamil Nadu. In West Bengal, there has been a consistent fall from the first to the fourth sub-periods and a rise during last two sub periods. Kerala has shown a consistent decline during all the sub-periods.

High income states

There has been a consistent decline of OTR-GSDP ratio during all the sub-periods for Gujarat. In Maharashtra, there is no consistent trend. After a decline in the second sub-period, there has been a rise in the third sub- period and fall in the fourth and fifth sub- periods and a rise in the last sub- period. In Punjab, after a fall in the second sub-period, there has been a rise in the three subsequent sub-periods and a fall in the last two years. Haryana There is consistent decline since the fourth sub-period.

The dispersion within the groups, as measured by the standard deviation have also declined in the recent years. The dispersion has been rather high among Middle Income States, followed by Low Income and High Income States before converging in the last sub-periods (Figure 5).

Figure 5. Trends in dispersion of OTR-GSDP in high, middle and low income states-1990-91 to 2018-19



4. Relationship between per capita income and tax effort

The results of the regression testing the statistical significance of association between per capita income and tax effort proxied by OTR-GSDP ratio, show that the association is positive and statistically significant for Bihar, Odisha and Uttar Pradesh. It is positive but statistically insignificant for Rajasthan and Madhya Pradesh and Andhra Pradesh. It is negative and statistically significant for Gujarat, Karnataka, Kerala, Tamil Nadu and Maharashtra (Table 4).

The statistically significant negative sign is present for certain Middle and high per capita income States. This is counter intuitive⁹. The question is why should richer States put in lesser tax effort¹⁰. The richer States normally get lower tax shares from the Finance Commission. Going by Wagner's law, higher per capita income States will experience more demand for public spending. All these should lead to higher tax effort when per capita income rises. There can be two reasons for this negative and statistically significant relation. One is the fall in tax rates due to harmonisation of rates. This could have resulted in fall in tax effort of States, which had earlier higher tax incidence. Another reason could be the growth being in services sectors, which was outside the purview of State taxation till 2017-18, when GST was introduced. The impact of central grants, especially, the discretionary ones also need a separate analysis.

⁹ The intuitive reasoning for a positive relation between per capita income and tax effort is stated in Lotz and Morss (1967). “ *In addition to aggregate income, the denominator in the tax ratio, other factors affect a country's taxable capacity.8 One of the most important is the level of economic development. Economic development is usually accompanied by a higher rate of literacy, increased monetization, and stricter law enforcement—all of which can be expected to increase taxable capacity. Economic development has many dimensions and cannot be measured precisely either by a single variable or by a simple combination of variables. However, one variable frequently used by economists to give a rough idea of the development stage is per capita income. Hence, one would expect taxable capacity and per capita income to move in the same direction.*”

There is another reason to expect a positive relationship between per capita income and taxable capacity. For two countries with the same total income but with a per capita income of, say, \$50 in the first country and \$1,500 in the second, taxable capacity is greater in the second because a smaller proportion of total income is required for subsistence needs and more “surplus” is available for taxation and other purposes. It follows that, if the two countries raise the same total amount of tax revenue and thus have equal tax ratios, the first country is making the greater tax effort.⁹

¹⁰ Similar results have been obtained in the study by Mukherjee (2017). Nambiar and Rao (1972) state that when per capita income and per capita development expenditure are used as explanatory variables and ratio of tax revenues to incomes is the dependent variable, there was poor fit. The R² in both cases is very insignificant. This contradicts a generally held hypothesis that income and developmental expenditure are among the important determinants of tax performance of governments.

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Cross country analyses, however, reveal that there is positive relation between tax-GDP ratio and per capita GDP. [OECD (2020), Le, Dodson and Bayraktar (2012)]

Table 4. Association between OTR GSDP ratio and per capita income

States	Co-efficient	t-value	DW transformed	Level of Per Capita Income (2019-20)	Statistical Significance
Bihar	1.38	4.43	1.98	44575	Highly. Significant
MP	0.28	0.29	1.84	68757	Not significant
Rajasthan	-0.32	-0.73	2.27	78390	Not Significant
Orissa	1.37	4.21	1.76	78680	Highly significant
Uttar Pradesh	0.92	2.86	2.05	101768	Significant
Punjab	-0.16	-0.27	1.93	118848	Not Significant
Andhra Pr.	0.032	0.07	1.8	132284	Not Significant
Kerala	-1.66	-7.97	1.97	149563	Highly Significant (negative)
Maharashtra	-0.56	-2.12	1.73	152566	Significant (negative)
Tamil Nadu	-1.68	-4.97	1.79	153853	Highly Significant (negative)
Karnataka	-1.97	-3.06	2.04	154861	Significant (negative)
Gujarat	-1.79	-4.32	1.5	165359	Highly Significant (negative)
Haryana	-1.04	-2.06	1.6	176199	Significant (negative)
Goa	-0.96	-1.72	1.73	367226	Weakly Significant (negative)

Source: Computed from data mentioned in the text.

Note: Highly Significant 0 % level, Significant 0 to 5 % level Weakly Significant 5 to 10% level.

7. Questions needing further research

The findings of the study are counter intuitive and raise the following five questions for further research

1. Why did the Middle and High Income States which have high Personal Final Consumption Expenditure witness a decline in OTR-GSDP ratio, when more than two-thirds of OTR is from consumption taxes? Is harmonisation of rates the reason for convergence of tax effort proxied by OTR-GSDP ratio?
2. Is there a shift towards high value consumption in these States which are more evasion prone and difficult to detect?
3. Are there rising impediments to enforcement in these States with more interest groups being formed?
4. Why these States not been able to capitalise the advantages of the VAT/ GST regime ?
5. Are there political economic constraints including the impact of central devolution in tapping more tax from rising per capita incomes?

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