ELASTICITY OF STATE TAXES IN INDIA

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ABSTRACT

In this paper, we concentrated on elasticity of state taxes in India during the period of 1981-2012. Tax revenue of the states is more elastic as compared to NSDP and state's own tax revenue is also elastic as compared to NSDP. But own tax revenue is less elastic in term of NSDP as compared to elasticity of tax revenue in most of the states. We have used double log model to estimate elasticity of state taxes in India.

Key word: *NSDP, Taxation, Elasticity.*

Introduction

Taxation is an important tool to enhance the economic development and to finance the expenditure responsibilities of a government. There is a need for making the various taxes income elastic. The most ancient purpose of taxation has been to raise revenue for the purpose of maintaining the government and it still continue to be the most important objective of any tax design and tax reform in developed and developing counties. The classical approach believed to designing a tax structure for the purpose of raising revenue for meeting the requirement of the government. In Keynesian approach, it suggested that the yield form any new tax or change in the existing tax should not only be raising the revenue to meet requirements but also to meet the demands of welfare state. The modern approach used built in elasticity approach to raising the revenue objective of taxation. Elasticity of taxation is important indicator for measuring the performance of states.

The responsiveness of the tax revenue to change in national income without any change in all factors which influence tax revenue is termed as "elasticity".

The elasticity coefficient gives the percentage automatic change in the yield of the tax in response to one percent change in national income (sahota, 1961). Thus an elastic tax system is also useful for the purpose of ensuring stability of the economy. Estimation of elasticity of tax helps to know the extent to which it can bring in additional revenue automatically (Krishna rao,1987). In the above context, it may be noticed that during the period of the study 1981-2012, the Net State Domestic Product enhanced from Rs. 76858300 lakhs to RS. 4619696 lakhs at constant prices, thus showing an upward movement during the study period. During the same period the tax revenue collections increased from Rs. 1040509 lakhs to Rs. 81298724 lakhs. The ratio of tax revenue to net state domestic product was 1.35 in 1981-82 and it was 17.5 in 2011-12.

In the above context, it is worthwhile to mention some of the earlier studies which will be useful to identify the gaps and future course of the study. Studies related to elasticity of taxes attempted at global level are by Groves and Kahn (1952), Prest (1962), Mansfeild (1972), Trinidad and Perio (1979), Fox and Campbell (1984), Gilliani (1986) , Dye and McGuire (1991), slemrod (1998), Bruce, Fox, and

Tuttle (2006), Yousuf and Huq (2013), Omandi and Wawire, Manyasa and Thuku(2014), Bonga and Strien (2015). In addition of these, studies pertaining of the elasticity of the tax in context of Indian state by rao(1991). He explained the elasticity of taxes as an indicator of performance of states. Bonga and Strien (2015) explained that tax elasticity estimates a dynamic tool of tax performance. The study has applied traditional regression approach and the Dummy Variable Approach to calculate tax buoyancy for Zimbabwe. Acharya (2011) estimated tax elasticity of India for the period 1991-2010. Tax elasticity is computed for income, turnover, excise, import and total taxes for the post-reform period. The elasticity coefficients reveal a low responsiveness of taxes to income growth and the value being less than unity in most of the cases. Gupta (2009) analyzed to responsiveness of personal income tax with reference to GDP. Mishra (2005) explained elasticity of sale tax for Jharkhand. Elasticity of sales tax with reference t o gross state domestic product (GSDP) of Jharkhand by using the regression approach . Dhesi and Guman (1984) measured and compared the responsiveness of the taxes which levied by Haryana and Punjab. Chelliah (1977) estimated the elasticity of indirect taxes of state government and also analyzed the trend and composition of major taxes which levied by state government. Jain (1969) explained to measure the elasticity of direct tax of India. Tax structure was highly elastic with respect to nation income.

In this paper, we have tried to focus performance and elasticity of Indian state's tax revenue since 1981 to 2012. And also focus on the important issues that any significant impact of revenue which comes from taxation after adopting the liberalization policies. The present paper has been divided into five section including introduction. The second section is a brief discourse on objective and hypothesis. The third section deals with trend and composition of tax revenue in Indian states during 1981-2012. Modeling on tax revenue describe in fourth section. Last section shows summary and conclusion.

Objective

In the paper, we focused on this objective as follows:
- To examine the elasticity of tax revenue among the states as comparative analysis

Hypothesis

In order to accomplish the following objective, the present work proposes to test following hypothesis:
- That elasticity of tax revenue has shown sharp deterioration among states during the period under study after economic reform.
- That elasticity of tax revenue has shown elastic as compared to NSDP during the period under study after economic reform.

Methodology

The study is basically based on secondary data sources. The scope of the study limited to tax revenue across the states during from 1981-2012. The data are collected from Handbook of Statistics of Indian Economy, State Finance of RBI, State Budget Documents, Indian Public Finance Statistic, State Finance Commission Reports and other sources. Simple statistical tools have been used to analyses the data collected for the study like percentages, average and range. The main econometrics tools those we apply in this analysis is that double log linear regression model for elasticity of state's tax revenue. Gross tax revenue are regressed on NSDP at factor cost to estimate the elasticity coefficient. The tax data have used in the study relate to 20 states, as some states like Sikkim, Meghalaya, Arunachal Pradesh, Goa and some other states have not found consistent data during the period 1981-2012.

Trends and change in the composition in state taxes

Revenue of state can be broadly combination of tax and nontax revenue. Tax revenue are classified into own tax revenue and share in central taxes. The power of taxation is specified in the state list in the seventh schedule. Under these provisions, the states can collect revenue on land and buildings, agriculture land and income, mineral rights, alcohol and narcotics substance but not tobacco, entry of goods into a local area for consumption or sale, electricity consumption, stamp and registration fee on document. But the major tax sources for India' states are sale tax, stamp duties and registration fees, state excises on alcohol and motor vehicles, goods and passenger taxes.

The tax structure of the States has undergone perceptible changes over time, in terms of both the absolute and relative contributions of taxes. Revenue from taxes has increased in absolute term from Rs. 1040509 lakhs in 1981-82 to Rs. 4458609 Lakhs in 1991-92, Rs. 16431404 Lakhs in 2001-02 and Rs.81298724 Lakhs in 2012. The share of own taxes as a percent of total tax revenue has sharply increased from 63.1 percent in 1981-82 to 70.1 percent in 2011-12. It has shown marginal improvement in own tax revenue during the whole period. The relative share of land revenue has declined with 1.3 percent in 1981-82 to 0.87 percent in 2011-12 as a percent of tax revenue. In absolute term, stamp and registration fee has increased from Rs 42514 lakhs in 1981-82 toRs. 6437948 lakhs in 2011-12.

Among the State indirect taxes, a certain structural transformation of the relative role of different constituents is evident from the statistical data. Sales taxes of course remain the most significant source of indirect tax revenue for the States. Over the period under study, the relative importance of these taxes in terms of percentage contribution to tax revenue has changed. Their contribution improved from 37.3 per cent of total tax revenue of

all States in 1981-82 to 42.5 per cent in 2001-02, but then declined significantly to 34.2 percent in 2011-12. The contribution of State excises to State tax revenues is also quite significant, at about one sixth of their total indirect tax revenue. Over time, however, there has been some improvement in its relative contribution from 7.9 per cent to 8.3 per cent (during 1981-82 to 2011-12). A similar improvement in the relative share is also discernible in the case of tax on property. Its relative contribution has increased from 5.5 percent to 8.9 percent during 1981-82 to 2011-12.

The changes in the relative shares of the different indirect taxes have been the result of their differing rates of automatic growth and of the directions of additional resources mobilizations by the States. These factors can be analyzed through the measurement of the elasticity of the major indirect taxes.

Empirical analysis

This chapter deals with the issue of econometrics modeling of elasticity of states' tax revenue of India. In this purpose double log regression model is suitable econometrics technique for elasticity. This methodology was used by Mansfield which followed in this paper.

The measurement of tax-to-income elasticity has been the subject to considerable study. The general problem has been encountered: what should be the form of the equation used to estimate the tax-income relationship? Turning to the problem, it is found that in the least squares regression

$$LOG(TAX) = \alpha + \beta LOG(NSDP) + \mu$$

The regression coefficient (β) gives the percentage change in tax receipts (T) that accompanies a 1 per cent change in income, i.e., it is the coefficient of income elasticity. This form of the equation relating taxes and income is used here to obtain a measurement of elasticity. Such a form implies that the relation between revenue receipts and income is approximated by the function:

$$T = \alpha Y^{\beta}$$

From which the double log function is derived. It contains an important assumption that the income elasticity is constant over the range of income considered. This constancy requires that the proportionate response of the tax to an income change of 1 per cent will be the same, regardless of the level of income. (One indication whether the function is well specified is the level of the statistic R^2, which measures the goodness of fit of the functional relationship being measured.).

Result

Elasticity of tax revenue

This part of the work provides the idea about the elasticity of tax revenue of Indian states. The table's given below provide the idea about the elasticity of over all tax revenue and some major taxes .

The overall (1981-2011) elasticity of tax revenue is given bellows -:

Table 1.1 Elasticity of tax revenue for individual states (1981-2012)

$$LOG(TAX) = \alpha + \beta LOG(NSDP) + \mu$$

Sl. No	States	A	B	R	P value
1	Andhra Pradesh	-9.86 (-29.40)*	2.21 (46.88)*	.98	0.00
2	Assam	-13.28 (-2.93)*	2.72 (3.95)*	.34	0.00
3	Bihar	-12.57 (-11.73)*	2.68 (16.79)*	.90	0.00
4	Gujarat	-7.78 (-20.07)*	1.92 (34.76)*	.97	0.00
5	Haryana	-9.11 (-27.26)*	2.16 (43.39)*	.98	0.00
6	Himachal Pradesh	-8.85 (-13.08)*	2.24 (20.16)*	.93	0.00
7	Jammu& Kashmir	-16.27 (-14.39)*	3.40 (18.73)*	.92	0.00
8	Karnataka	-11.24 (-15.10)*	2.43 (22.83)*	.94	0.00
9	Kerala	-10.05 (-19.10)*	2.29 (29.70)*	.96	0.00
10	Madhya Pradesh	-12.26 (-26.03)	2.62 (38.15)	.98	0.00
11	Maharashtra	-8.37 (-32.74)	1.96 (56.45)*	.99	0.00
12	Manipur	-11.53 (-10.19)*	2.87 (13.91)*	.86	0.00
13	Nagaland	-5.04	1.68	.70	0.00

		(-4.53)*	(8.32)*		
14	**Orissa**	-15.50 (-17.53)*	3.13 (23.63)*	.95	0.00
15	**Punjab**	-12.03 (-40.83)*	2.57 (59.36)*	.99	0.00
16	**Rajasthan**	-10.67 (-26.38)*	2.37 (40.21)*	.98	0.00
17	**Tamil Nadu**	-9.53 (-27.21)*	2.17 (44.04)*	.98	0.00
18	**Tripura**	-6.27 (-7.76)	1.89 (13.18)	.85	0..00
19	**Uttar Pradesh**	-17.30 (-42.39)*	3.22 (57.11)*	.99	0.00
20	**West Bengal**	-9.00 (-27.73)*	2.08 (45.44)*	.98	0.00

*significant at the 1% level **significant at the 5% level ***significant at the 10% level
#Own Calculation

In the above table, the regression results of tax revenue shows the overall elasticity for the period 1980-2011. And the elasticity coefficient is statistically significant at 1% level of significance.

Table 1 .2 Elasticity of own tax revenue for individual states (1981-2012)

$$LOG(TAX) = \alpha + \beta LOG(NSDP) + \mu$$

Sl. No	States	A	β	R	P value
1	**Andhra Pradesh**	-10.20 (-29.53)*	2.24 (46.18)*	.98	0.00
2	**Assam**	-22.32 (-30.25)*	4.14 (36.89)*	.97	0.00
3	**Bihar**	-11.06 (-10.36)*	2.42 (15.28)*	.88	0.00
4	**Gujarat**	-7.73 (-12.11)*	1.90 (21.02)*	.93	0.00
5	**Haryana**	-9.34 (-27.42)*	2.18 (43.13)*	.98	0.00
6	**Himachal Pradesh**	-10.60 (-33.82)*	2.48 (48.42)*	.99	0.00
7	**Jammu& Kashmir**	-18.28 (-33.24)*	3.67 (41.60)*	.98	0.00
8	**Karnataka**	-10.93 (-37.23)*	2.38 (56.64)*	.99	0.00
9	**Kerala**	-10.57	2.35	.96	0.00

Sl. No	States	A	β	R²	P value
		(-19.95)*	(30.31)*		
10	Madhya Pradesh	-12.28 (-26.83)*	2.59 (38.87)*	.98	0.00
11	Maharashtra	-8.78 (-31.23)*	2.00 (52.63)*	.98	0.00
12	Manipur	-13.02 (-26.60)*	3.00 (33.67)*	.97	0.00
13	Nagaland	-6.07 (-20.21)*	1.74 (31.89)*	.97	0.00
14	Orissa	-16.15 (-20.39)*	3.18 (26.84)*	.96	0.00
15	Punjab	-12.19 (-38.98)*	2.59 (56.30)*	.99	0.00
16	Rajasthan	-10.92 (-27.85)*	2.38 (41.70)*	.98	0.00
17	Tamil Nadu	-9.96 (-26.93)*	2.21 (42.65)*	.98	0.00
18	Tripura	-9.34 (-35.96)*	2.32 (50.52)*	.98	0.00
19	Uttar Pradesh	-16.91 (-42.36)*	3.13 (56.79)	.99	0.00
20	West Bengal	-9.07 (-18.09)*	2.07 (29.18)*	.96	0.00

*significant at the 1% level **significant at the 5% level ***significant at the 10% level
#Own Calculation

In the above table, the regression results of own tax revenue shows the overall elasticity for the period 1981-2012. And the elasticity coefficient is statistically significant at 1% level of significance.

Table 1.3 Elasticity of land revenue for individual states (1981-2012)

$$LOG(TAX) = \alpha + \beta LOG(NSDP) + \mu$$

Sl. No	States	A	β	R²	P value
1	Andhra Pradesh	-4.01 (-3.75)*	1.08 (7.23)	0.63	0.00
2	Assam	-22.00 (-9.97)*	3.87 (11.53)*	.81	.16
3	Bihar	-8.47 (-10.20)*	1.78 (14.44)*	.87	0.00
4	Gujarat	-12.37 (-22.13)*	2.31 (29.15)*	.96	0.00
5	Haryana	-4.98 (-3.06)*	1.12 (4.65)*	.41	0.00

6	Himachal Pradesh	-8.27 (-4.95)*	1.72 (6.29)*	.56	0.00
7	Jammu& Kashmir	-10.96 (-4.19)*	2.12 (5.04)*	.45	0.00
8	Karnataka	-9.93 (-19.96)*	1.92 (27.05)*	.96	0.00
9	Kerala	-7.98 (-10.75)*	1.64 (15.15)*	.88	0.00
10	Madhya Pradesh	-10.18 (-9.70)*	2.01 (13.12)*	.85	0.00
11	Maharashtra	-9.92 (-19.75)*	1.90 (27.91)*	.96	0.00
12	Manipur	-3.10 (-4.32)*	.87 (6.69)*	.59	0.00
13	Nagaland	-6.96 (-14.50)*	1.48 (16.96)*	.90	0.00
14	Orissa	-15.50 (-12.12)*	2.87 (15.01)*	.88	0.00
15	Punjab	-7.51 (-7.56)*	1.51 (10.33)	.78	0.00
16	Rajasthan	-5.56 (-8.82)*	1.34 (14.61)*	.87	0.00
17	Tamil Nadu	-7.38 (-6.24)*	1.52 (9.20)*	.73	0.00
18	Tripura	-7.27 (-8.78)*	1.64 (11.24)*	.80	0.00
19	Uttar Pradesh	-13.35 (-10.41)*	2.38 (13.45)*	.85	0.00
20	West Bengal	-12.14 (-6.02)*	2.34 (8.22)*	.69	0.00

*significant at the 1% level **significant at the 5% level ***significant at the 10% level
#Own Calculation

In the above table, the regression results of land revenue shows the overall elasticity for the period 1981-2012. And the elasticity coefficient is statistically significant at 1% level of significance.

Table 1 .4 Elasticity of stamp and registration fee for individual states (1981-2012)

$$LOG(TAX) = \alpha + \beta LOG(NSDP) + \mu$$

Sl. No	States	A	B	R^2	P value
1	Andhra Pradesh	-14.02 (-37.04)*	2.61 (49.12)*	0.98	0.00
2	Assam	-21.92 (-25.67)*	3.84 (29.67)*	0.96	0.00
3	Bihar	-15.41 (-9.92)*	2.92 (12.65)*	0.84	0.00
4	Gujarat	-12.19 (-26.95)*	2.37 (35.95)*	0.97	0.00
5	Haryana	-12.37 (-27.12)*	2.48 (36.66)*	0.97	0.00
6	Himachal Pradesh	-10.47 (-12.32)*	2.23 (16.07)*	0.89	0.00
7	Jammu& Kashmir	-17.46 (-20.08)*	3.29 (23.57)*	.94	0.00
8	Karnataka	-15.17 (-27.82)*	2.83 (36.23)*	0.97	0.00
9	Kerala	-13.28 (-22.42)*	2.59 (29.88)*	.96	0.00
10	Madhya Pradesh	-17.39 (-33.88)*	3.17 (42.47)*	0.98	0.00
11	Maharashtra	-12.20 (-7.76)*	2.31 (10.86)*	0.79	0.00
12	Manipur	-9.6 (-22.60)*	2.12 (27.60)*	0.96	0.00
13	Nagaland	-7.99 (-5.16)*	1.74 (6.21)*	0.56	0.00
14	Orissa	-15.82 (-21.41)*	2.94 (26.59)*	0.95	0.00
15	Punjab	-16.31 (-23.06)*	3.05 (29.31)*	0.96	0.00
16	Rajasthan	-15.20 (-28.25)*	2.84 (36.23)*	0.97	0.00
17	Tamil Nadu	-13.00 (-34.85)*	2.49 (47.50)*	0.98	0.00
18	Tripura	-7.38 (-33.26)	1.76 (44.95)*	0.98	0.00
19	Uttar Pradesh	-19.88 (-33.48)	3.42 (41.70)	0.98	0.00
20	West Bengal	-13.15 (-35.12)*	2.48 (47.01)*	0.98	0.00

*significant at the 1% level **significant at the 5% level ***significant at the 10% level

#Own Calculation

In the above table, the regression results of stamp and registration fee shows the overall elasticity for the period 1981-2012. And the elasticity coefficient is statistically significant at 1% level of significance.

Table 1 .5 Elasticity of states excise for individual states (1980-2011)

$$LOG(TAX) = \alpha + \beta LOG(NSDP) + \mu$$

Sl. No	States	A	B	R	P value
1	Andhra Pradesh	-7.98 (-5.05)*	1.82 (8.19)*	.69	0.00
2	Assam	-27.54 (-15.54)*	4.73 (17.56)*	.91	.041
3	Bihar	-14.73 (-12.48)*	2.82 (16.07)*	.89	0.00
4	Gujarat	-6.84 (-10.70)*	1.44 (15.86)*	.90	0.00
5	Haryana	-8.00 (-6.75)*	1.87 (10.62)*	.79	0.00
6	Himachal Pradesh	-9.09 (-18.32)*	2.14 (26.41)*	.95	0.00
7	Jammu& Kashmir	-13.52 (-11.33)*	2.80 (14.63)*	.87	0.00
8	Karnataka	-11.27 (-26.75)*	2.32 (38.46)*	.98	0.00
9	Kerala	-9.47 (-12.64)*	2.05 (18.74)*	.92	0.00
10	Madhya Pradesh	-12.56 (-16.35)*	2.51 (22.49)*	.94	0.00
11	Maharashtra	-9.66 (-21.99)*	1.98 (33.34)*	.97	0.00
12	Manipur	-5.97 (-5.41)*	1.49 (7.42)*	.64	0.00
13	Nagaland	1.58 (1.97)*	.12 (.88)*	.02	.38
14	Orissa	-18.26 (-22.76)*	3.33 (27.76)*	.96	0.00
15	Punjab	-9.67 (-13.00)*	2.13 (19.50)*	.92	0.00
16	Rajasthan	-12.98 (-14.69)*	2.57 (19.99)*	.93	0.00
17	Tamil Nadu	-12.93 (-12.63)*	2.51 (17.45)*	.91	0.00
18	Tripura	-11.15	2.48	.92	0.00

Sl. No	States	A	β	R	P value
		(-14.96)*	(18.84)*		
19	Uttar Pradesh	-18.05 (-20.39)*	3.18 (26.05)*	.95	0.00
20	West Bengal	-9.70 (-30.85)*	2.00 (45.02)*	.98	0.00

*significant at the 1% level **significant at the 5% level ***significant at the 10% level
#Own Calculation

In the above table, the regression results of tax revenue from state excise shows the overall elasticity for the period 1981-2012. And the elasticity coefficient is statistically significant at 1% level of significance.

Table 1 .6 Elasticity of sale tax for individual states (1980-2011)

$$LOG(TAX) = \alpha + \beta LOG(NSDP) + \mu$$

Sl. No	States	A	β	R	P value
1	Andhra Pradesh	-11.82 (-26.99)	2.24 (39.53)	.98	0.00
2	Assam	-24.84 (-29.53)*	4.50 (35.10)*	.97	0.00
3	Bihar	-9.35 (-7.46)	2.14 (11.46)	.81	0.00
4	Gujarat	-8.74 (-17.26)	2.02 (28.10)	.96	0.00
5	Haryana	-11.41 (-30.50)	2.45 (44.01)	.98	0.00
6	Himachal Pradesh	-12.05 (-49.53)	2.66 (66.61)	.99	0.00
7	Jammu& Kashmir	-21.98 (-36.77)	4.21 (43.79)	.98	0.00
8	Karnataka	-11.03 (-27.84)	2.35 (41.47)	.98	0.00
9	Kerala	-11.65 (-18.99)	2.48 (27.61)	.96	0.00
10	Madhya Pradesh	-12.40 (-30.77)	2.56 (43.59)	.98	0.00
11	Maharashtra	-8.56 (-28.49)	1.99 (47.71)	.98	0.00
12	Manipur	-16.57 (-16.24)	3.59 (19.32)	.92	0.00
13	Nagaland	-7.09 (-23.67)	1.89 (34.62)	.97	0.00
14	Orissa	-16.89	3.26	.95	0.00

		(-18.34)	(23.59)		
15	Punjab	-13.92 (-40.26)	2.80 (54.95)	.99	0.00
16	Rajasthan	-11.15 (-26.66)	2.37 (38.95)	.98	0.00
17	Tamil Nadu	-10.14 (-23.65)	2.21 (36.70)	.97	0.00
18	Tripura	-9.95 (-22.90)	2.31 (31.04)	.97	0.00
19	Uttar Pradesh	-18.00 (-45.48)	3.24 (59.31)	.99	0.00
20	West Bengal	-8.89 (-24.64)	2.01 (39.41)	.98	0.00

*significant at the 1% level **significant at the 5% level ***significant at the 10% level
#Own Calculation

In the above table, the regression results of sale tax shows the overall elasticity for the period 1981-2012. And the elasticity coefficient is statistically significant at 1% level of significance.

Table 1.7 Elasticity of tax on vehicle for individual states (1980-2011)

$$LOG(TAX) = \alpha + \beta LOG(NSDP) + \mu$$

Sl. No	States	A	B	R	P value
1	Andhra Pradesh	-9.95 (-20.83)*	2.05 (30.50)*	.96	0.00
2	Assam	-24.20 (-18.51)*	4.22 (21.22)*	.93	0.35
3	Bihar	-10.36 (-6.43)*	2.14 (2.14)*	.72	0.00
4	Gujarat	-12.55 (-11.30)	2.41 (15.25)	.88	0.00
5	Haryana	-9.19 (-19.25)*	1.93 (27.17)*	.96	0.00
6	Himachal Pradesh	-13.94 (-22.38)*	2.81 (27.61)*	.96	0.00
7	Jammu& Kashmir	-15.91 (-29.06)*	3.06 (34.84)*	.97	0.00
8	Karnataka	-9.94 (-26.97)*	2.07 (39.33)*	.98	0.00
9	Kerala	-12.03 (-19.20)*	2.39 (26.05)*	.95	0.00
10	Madhya Pradesh	-13.54 (-17.51)*	2.60 (23.09)*	.94	0.00

11	Maharashtra	-10.41 (-29.18)*	2.04 (42.21)*	.98	0.00
12	Manipur	-7.73 (-10.84)*	1.81 (13.96)*	.86	0.00
13	Nagaland	-8.25 (-27.63)*	1.94 (35.86)*	.97	0.00
14	Orissa	-16.10 (-15.21)*	3.01 (19.01)*	.92	0.00
15	Punjab	-16.27 (-14.69)*	2.99 (18.38)*	.91	0.00
16	Rajasthan	-11.81 (-18.12)*	2.36 (24.87)*	.95	0.00
17	Tamil Nadu	-8.78 (-33.34)*	1.88 (50.85)*	.98	0.00
18	Tripura	-10.08 (-25.03)*	2.21 (31.5)*	.96	0.00
19	Uttar Pradesh	-20.26 (-20.96)*	3.39 (25.42)*	.95	0.00
20	West Bengal	-11.90 (-30.78)*	2.26 (41.47)*	.98	0.00

*significant at the 1% level **significant at the 5% level ***significant at the 10% level
#Own Calculation

In the above table, the regression results of tax on vehicle shows the overall elasticity for the period 1981-2012. And the elasticity coefficient is statistically significant at 1% level of significance.

Table 1.8 Elasticity of tax on property for individual states (1980-2011)

$$LOG(TAX) = \alpha + \beta LOG(NSDP) + \mu$$

Sl. No	States	A	B	R	P value
1	Andhra Pradesh	-1.75 (-2.84)*	1.17 (10.35)*	.78	0.00
2	Assam	-24.70 (-28.34)*	4.45 (33.57)*	.94	0.00
3	Bihar	-0.22 (-1.43)	0.84 (29.32)*	.96	0.00
4	Gujarat	-0.63 (-2.97)*	1.08 (24.28)*	.95	0.00
5	Haryana	-1.01 (-4.42)*	1.08 (23.53)*	.95	0.00
6	Himachal Pradesh	-2.16 (-7.65)	0.93 (19.19)	.92	0.00
7	Jammu& Kashmir	-1.60	0.84	.82	0.00

		(-3.94)	(11.63)		
8	**Karnataka**	-3.25 (-15.85)*	1.37 (38.36)*	.98	0.00
9	**Kerala**	-2.39 (-14.47)*	1.12 (41.41)*	.98	0.00
10	**Madhya Pradesh**	0.54 (2.02)***	.92 (14.7)*	.88	0.00
11	**Maharashtra**	0.15 (0.26)	1.14 (8.59)*	.71	0.00
12	**Manipur**	-0.78 (-6.45)*	0.55 (-6.45)*	.95	0.00
13	**Nagaland**	-3.56 (-4.79)*	0.97 (7.19)*	.64	0.00
14	**Orissa**	-0.97 (-4.58)*	.89 (23.68)*	.95	0.00
15	**Punjab**	-1.84 (-7.74)*	1.05 (26.28)*	.95	0.00
16	**Rajasthan**	.13 (0.53)**	0.97 (16.58)*	.90	0.00
17	**Tamil Nadu**	-1.87 (-19.02)*	1.09 (-19.02)*	.99	0.00
18	**Tripura**	-3.13 (-17.14)*	1.01 (31.85)*	.97	0.00
19	**Uttar Pradesh**	-2.33 (-24.43)*	1.04 (75.91)*	.99	0.00
20	**West Bengal**	-10.73 (-10.52)*	2.18 (15.18)	.88	0.00

*significant at the 1% level **significant at the 5% level ***significant at the 10% level
#Own Calculation

In the above table, the regression results of tax revenue from property shows the overall elasticity for the period 1981-2012. And the elasticity coefficient is statistically significant at 1% level of significance.

Summary and Conclusion

Elasticity of taxes could be taken as indicators of overall performance of tax structure of the state. Elasticity shows the response of tax revenue to the automatic change in state income. During the period 1981-2012, the elasticity coefficients of individual state's taxes are given in table 1 to 8.

- In table 1 shows that the range of variation in the elasticity of taxes is quite wide among the 20 states for which estimate have been computed. Tax revenue is the most elastic in Uttar Pradesh with elasticity coefficient being (3.2) while the elasticity of this tax is lowest in Nagaland at (1.6).

- In case of own tax elasticity, the range of variation is between (1.7) for Nagaland, (1.9) for Gujarat and (4.1) for Assam during the period 1981-2012 in table 2.

- During the whole period (1981-2012) the range of variation in the elasticity of land

revenue is between (3.87) for Assam, Orissa (2.9) and (0.87) for Manipur. The elasticity of land revenue is inelastic in Manipur in table 3.

- In the case of stamp and registration fee, the elasticity is high in Uttar Pradesh with (3.4) among 20 states and (3.1) for Madhya Pradesh while this elasticity is lowest in Nagaland at (1.7) in table 4.

- In table 5, the elasticity of state excise is highest in Assam (4.7),Orissa(3.3), Uttar Pradesh (3.1) while it is lowest in Nagaland (0.12) and Gujarat(1.4). The elasticity of state excise is inelastic in Nagaland.

- Table 6 shows that a comparative examination of the elasticity coefficient indicates that highly elastic sale tax system are also highly elastic with respect to income. In the case of Assam the elasticity is highest (4.5) among the 20 states, then Uttar Pradesh (3.2), Jammu &Kashmir (3.3). And in the case of Maharashtra it is slightly lowest (1.9).

- In the case of tax on vehicle, the range of variation is between (4.2) for Assam, Uttar Pradesh (3.3) and (1.8) for Tamil Nadu during the whole period (1981-2012).

- In table 8 describes that the elasticity of tax on property is high in Assam (4.4) and this elasticity is lowest in Manipur (0.55), Bihar (0.84) in the whole period (1981-2012). The elasticity of tax on property is inelastic for Manipur and Bihar.

 Thus we can say that the elasticity of tax revenue is elastic in term of NSDP during the whole period but in the case of own tax revenue is less elastic as comparison to the elasticity of tax revenue.

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