



AN ANALYSIS OF PRODUCTIVITY AND EFFICIENCY OF TAX SYSTEM IN THE STATE OF JAMMU AND KASHMIR

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ABSTRACT

In recent years, the state of Jammu and Kashmir has been experiencing not only serious fiscal imbalances in terms of its resource mobilization capacity to meet the expenditure needs to carry out its various developmental activities but also has developed a dependency syndrome which remains a chronic problem for the state where grants and assistances from center contribute at least 69% to total revenue receipts of the state. This disturbing trend raises serious doubt about the efficacy of the state's tax system in mobilizing reasonable amount of resources from the tax revenue to carry out its own developmental activities. It is interesting to note that the state's total tax revenue and own Tax revenue contributes not more than 15.3 percent, and 9.4 percent of state income respectively while as the total Expenditure constitutes as high as 59 percent of state income. Most probably, the low level of fiscal activities remains a logical offshoot of a low level of economic activity, which in the process has resulted in a low level of tax base for various taxes. It is worth mentioning here that the state economy has been infected by the insurgency problems and political turmoil from time to time, which to certain extent might have affected the fiscal health of the state in terms of erosion of the tax base and the resultant increase in public expenditure for unproductive activities. As a result the repercussion from all these forces, various leakages, not only in tax generating capacity but also in narrowing down Tax base of the various taxes. Therefore an attempt is made in this paper to find out the relative efficiency and productivity of the state's tax system for the state of Jammu and Kashmir. The two aspects of the state finances have been examined by taking 30 years time series data and by employing regression analysis along with VAR (Vector Auto Regressive) approach. The study reveals that both the total tax revenue and state's own tax revenue have increased in absolute terms over the years but its growth rate lags behind the growth rate of state income. Further the study reveals the existence of a very low tax productivity of the state taxes. The study exhibits the low productivity of the state's tax system. This might have been due to narrow tax base, tax exemptions and tax incentives. It is found that low tax base is accompanied by low tax rate that has resulted in low tax elasticity. Surprisingly, the low buoyancy coefficient of the various taxes reveals the existence of leakages in the income-expenditure flow in the state.

KEY WORDS: Tax revenue, Growth, Buoyancy, Efficiency, Elasticity

JEL Classification: E62, E63, H2, H210

INTRODUCTION

In recent years, the state of Jammu and Kashmir has been facing serious resource crunch which has hampered its economic growth. No doubt, a good tax system and managed public finance provide the state a good opportunity to focus on developmental activities and to build physical infrastructure, which in return, provide growth in investment and economic potential of the state. The state of Jammu and Kashmir with its wide and diversified geographic, agro-climate and topographic features poses peculiar and unique problems of development. The state is one of the ten special category states of India sanctified with the rich and the vast natural resources having large potential for economic growth and development. But in spite of its rich and potent natural resource base, the state has not been able to generate adequate revenue from within its own sources and has been facing serious financial problems. The development process in the state has largely suffered due to the inadequacy of resources and an exponential increase in its public expenditure. The interplay between these two forces has not only resulted in a huge fiscal deficit in recent years but also has hard pressed the state government in servicing the debt burden of the state. As a result, the available resources, otherwise meant for investment in various social and infrastructure projects gets diverted to the servicing of the accumulated public debt of the state. The inability of the state government to control its explosive public expenditure growth on the one hand and incapacity of the state to generate adequate resources of its own on the other, remain a starting point for any systematic analysis of the efficacy and productivity of the state's tax system.

Over the years with the expansion of the government activities, the magnitude of plan expenditure of the state government has increased tremendously which in turn has given rise to the need for a rapid increase in revenue. It is expected that the sources of revenue should grow automatically at the required rate, i.e. the rate of growth of public expenditure. But the experience of the state of Jammu and Kashmir negates the above proposition. As a result, this has created a widening gap between the state's expenditure responsibilities on the one hand and available resources on the other, thereby giving rise to the problem of attaining an appropriate degree of financial self-reliance on the part of the state government. The total expenditure of the State on an average has increased 239.9 percent between 1993-94 to 2003-04 and 348.9 percent between 2003-04 to 2013-14, with an average annual growth rate of 13.1 percent and 15.1 percent

respectively over the years. The share of capital expenditure in the aggregate expenditure of the state has increased from 169.2 percent during 1993-94 to 2003-04 to 458.6 percent during 2003-04 to 2013-14 with an average annual growth rate of 13.9 percent and 18.2 percent respectively during the two time periods. On the other hand, the revenue expenditure has increased from 272.9 percent during 1993-94 to 2003-04 to 311.2 percent during 2003-04 to 2013-14, with an average annual growth rate of 13 percent and 14.2 percent respectively, during the same period. It is interesting to note that the rate of growth of capital expenditure is greater than the rate of growth of revenue expenditure in the state. The total expenditure as a ratio of NSDP which was 47.1 percent in the year 1993-94 increased to 52 percent in the year 2004-05, and further it jumped to 59.3 percent in 2013-14.

The performance of the state on the resource mobilization front provides rather a poor and dismal picture. The average annual rate of growth of total revenue of the state which was 11.3 percent during the year 1993-94 to 2003-04 increased to 13.7 percent during the period 2003-04 to 2013-14. The average annual growth rate of the tax revenue of the state which was at 9.4 percent during the year 1993-94 to 2003-04 increased to 19 percent during the year 2003-04 to 2013-14. The average annual rate of growth of state's own tax revenue increased from 17.4 percent during the years 1994 - 2004 to 19.2 percent between 2004 -2014. Along with the increase in the state's tax revenue, the contribution of state's own tax revenue to total revenue receipts which was 10.08 percent in the year 1993-94 rose to 13.8 percent in 2003-04 and further, it has increased to 19.7 percent in the year 2013-14. The State's share in Central taxes and duties to total revenue of the state which was 22.8 percent in the year 1993-94 did decline to 9.0 percent in the year 2003-04, and further picked up to 15.3 percent in year 2013-14. It is worth mentioning here that the central grants and assistances constitute 54.2 percent of the total revenue of the state in the year 2013-14 and it has shown a declining trend from the year 2003-04, where it stood at 70.2 percent. The shared taxes and duties along with grants and assistances as a percentage of total revenue of the state has shown a declining trend from the year 1993-94 where it stood at 83.9 per cent, it has decreased to 79.2 per cent in 2003-04, and further decreases to 69.51 percent in year 2013-14. It implies that the state's own tax revenue as a source of revenue to the state has increased over a period of time, but its rate of growth does not commensurate the rate of growth of state domestic product and the rate of growth of total tax revenue of the state. As a result, the very

disturbing trend has resulted in a huge fiscal deficit in recent years where the state government has failed miserably to bridge the increasing gap between its public expenditure growth and the tax revenue. The fiscal deficit of the state which was at 4.1 percent in the year 1990-91 increased to 6.4 percent in the year 2004-05, and further went up to 7.36 percent in the year 2013-14. This huge fiscal deficit surprisingly surpasses the fiscal deficits of the similarly situated larger states that enjoy special category status like Tripura (7.2 percent), Arunachal Pradesh (1.9 percent), Uttarakhand (3.3 percent) and Nagaland (3.5 percent).

It is evident from the forgoing discussions that the tax generating capacity of the state of Jammu and Kashmir does not keep pace with its increased public expenditure programs for achieving a desirable rate of economic development in the state and instead has created a mismatch between the revenue needs and expenditure capabilities of the state. Thus, it becomes imperative to analyze the efficiency and productivity of existing tax system of the state to find out where it has gone wrong in mobilizing the adequate resources to meet its increasing pressure of public expenditure. There are six available indicators which have been largely used by many researchers to evaluate the efficiency and productivity of a tax system, they are: Exponential growth rate, CAGR (Compound annual growth rate), average and marginal tax rates, tax elasticity and tax buoyancy and, tax-GSDP ratio. Among these six indicators, Average and marginal tax rate do not tell us about the efficiency of a particular tax system, as it simply implies the incremental amount of tax revenue that will be taken out from incremental income. Therefore an attempt has been made in this paper to apply all other indicators to evaluate the productivity and efficiency of tax system in the state of Jammu and Kashmir over last 30 years, from 1984-85 to 2013-14. It may be mentioned here that during this time period, the state economy has passed through phases of both upswings and downswings owing to wide fluctuation in its agricultural sector and industry sector on the one hand, and social tensions and conflict on the other hand. During this period, the tax and expenditure policies of the state have also undergone substantial changes. Further, it may be mentioned that during this particular period, the state has witnessed a major political unrest which is believed to be responsible for the growing militancy and deteriorating economic and financial efficiency of the state. Also in the same period (i.e 1990), the state of Jammu and Kashmir was brought under the status of special category states and started receiving a

preferential treatment in terms of tax sharing arrangements and resource devolution from the centre which provide extra support to public expenditure activities. Further, we thought it imperative to analyze the impact of fiscal indicators on the efficiency of tax system of the state in order to ascertain the extent to which the tax system withstands the test of time in yielding a reasonable amount of revenue to the changes in fiscal indicators. Accordingly, Vector Auto Regressive (VAR) model has been used to identify the impact of fiscal indicators on the tax efficiency of the state.

It is worth mentioning here that efficiency of the tax system is judged by the built-in-flexibility measures of a tax system that it possesses. The extent to which the tax system of the state of Jammu and Kashmir adheres to built -in- flexibility measures remains an open question. Therefore, an attempt is made to measure the efficiency of the tax system of the state by employing an analysis of tax buoyancy and tax elasticity, which we think will present a clear picture of tax potential and tax efficiency of the state. Tax-GSDP ratio will tell us how far the tax structure of the state is productive and responsive to income of the state. Similarly the exponential growth rates and CAGR will help us to understand the average annual growth of tax system over the last thirty years.

Taking the clue from the problem raised in the forgone paragraphs, the present study intends to explore the following specific objectives (i) to find out the trend of growth and productivity of tax system of the state. (II) to measure the efficiency of tax system in the state of Jammu and Kashmir and (iii) to analyze the impact of fiscal indicators on the Efficiency of state tax system.

SOURCES OF DATA

The study is primarily based on the time series data using the time period from 1984-85 to 2013-14. The major sources of data for the study are the annual budget papers of the Jammu and Kashmir state. We also use the budgetary data published from time to time in the Reserve Bank of India Bulletin and the Reserve Bank of India state annual Reports on Currency and Finance. Further, certain relevant data have been collected from various issues of Economic Surveys published by Government of Jammu and Kashmir and Government of India for the entire period of our study.

METHODOLOGY

The approach of the study is to analyze the productivity and efficiency of tax system of Jammu and Kashmir, which will be analyzed by following the causal relationship between different variables (Cooper and Schindler 2006). Hence it can be attained by understanding

the relationships between various taxes levied and fiscal variables as well to find out the overall productivity and efficiency of tax system in the state of Jammu and Kashmir. With a view to provide an empirical content to estimate the effectiveness of tax system of state with some primary objectives, an attempt has been made in the present exercise by, using modern econometric techniques and the available up to date data from 1984-85 to 2013-14. The time period has been chosen because during this period the state economy and state's financial sector has gone through different changes. The tax system has observed wide upswings and downswings during this period. The econometric models that have been used to estimate the growth and trend of tax revenue in the state, and also exponential growth rate and annual growth rate have been used, while in order to analyze the productivity of tax system, exponential growth rate, compound annual growth rate and tax-NSDP ratio have been used. Similarly

to analyze the efficiency of tax system, tax buoyancy and tax elasticity have been used. In addition to estimating the impact of fiscal factors on tax efficiency, VAR model has been used. The paper follows the approach of Ndedzu et. al (2013), Muriithi and Moyi (2003), Osoro (1993), Ariyo (1997) and Omondi (2014) to identify our objectives. More specifically the present paper has been divided in to two sections.

Section I will analyze the growth and productivity of tax system in the state of Jammu and Kashmir where annual growth rate, exponential growth rate, Compound Annual growth rate has been used to find out the average annual and periodical growth rate of tax revenue over the years. Also Tax-NSDP ratio/Tax capacity was used to analyze the share of tax revenue in NSDP of state (Okech and Mburu 2011, Prest, 1979 Kieleko 2006). The models used to analyze our first objectives are shown below.

i) Exponential growth rate is computed by following model

$$y_t = ae^{rt}$$

Where, Y = Tax revenue or any other fiscal indicator, r = the growth rate, t = time factor and ' a ' = constant term.

ii) The CAGR is computed by following model:

$$CAGR (t_0 - t_n) = (V_{t_n}/V_{t_0})^{1/(t_n - t_0)} - 1$$

Where V_{t_0} = start value, V_{t_n} = End Value

t_0 = start year and t_n = end year

iii) Tax-NSDP ratio is computed by following model

$$\text{Tax - NSDP ratio}_t = \frac{\text{Tax revenue} \setminus \text{own tax revenue}_t}{NSDP_t} * 100$$

Where, NSDP is Net state domestic product at current prices, t = is time/ year

Similarly section II will analyze our last two objectives, tax system efficiency and impact of fiscal factors on tax efficiency by looking at the different coefficients of tax revenue buoyancy and elasticity and also coefficients of different taxes levied in the state. Time series Regression approach has been used for the empirical measurement of tax buoyancy (Ariyo 1997, Moyi and Ronge 2006). Vector Autoregressive model (VAR) has been used to find out the effect of fiscal variables on the tax inefficiency/efficiency of the state (Capet, 2004, Blanchard and Perotti, 2002 and perotti, 2002). In order to get suitable results many preliminary tests have been done from the

variables otherwise the regression result will be spurious. Augmented-Dicky Fuller (ADF) and Phillips-Parron (PP) tests have been used for checking the unit roots test of the variables. Breusch-Godfrey test and White heteroskedasticity test or ARCH test (Gujarati and Porter, 2008) was used to check the efficiency of the model with normality test. Johansen Co integration test was used to establish the long run relationship between the relevant variables and to generate the error correction term for the aggregate and individual tax functions.

Ordinary Least Square (OLS) was applied to estimate the tax buoyancy and tax capacity of different taxes; the equation used for the analysis is as under by following the approach of Muriithi and Moyi (2003), Osoro (1993) and Omondi (2014).

$$tr_t = \alpha_1 + \beta_1 * nsdp_t + \mu_t$$

Where tr_t = tax revenue (particular taxes as well) at time t, $\hat{\alpha}$ =intercept; $\hat{\alpha}$ = buoyancy coefficient of respective tax; $nsdp_t$ = NSDP at time t; and μ_t = error term.

Similarly the tax inefficiency/efficiency has also been analyzed by estimating the impact of different fiscal variables like Total outstanding as ratio of NSDP, total

expenditure as ratio of NSDP, total grants as ratio of total revenue, Total debt as ratio of NSDP and dummy of fiscal responsibility and budget management policy implication on tax revenue. As stated above, VAR model (Perotti, 2002) has been applied to estimate the relationship among the variables. The model will be

$$D \ln tr_t = \sum_{i=0}^{T_1} \beta_1 D \text{outstanding}_{t-i} + \sum_{i=0}^{T_2} \beta_2 D \text{total exp}_{t-i} + \sum_{i=0}^{T_3} \beta_3 D \text{Grants}_{t-i} + \sum_{i=0}^{T_4} \beta_4 D \text{FRBM}_{t-i} + \sum_{i=0}^{T_5} \beta_5 D \text{debt}_{t-i} + \prod ECT_{t-1} + \epsilon_{1t} \quad (1)$$

Where D is the difference level of the variable and ln is the natural log. ECT is the Error coefficient term of the long term relationship of the variables and $\prod t$ is the Error coefficients of the equation which capture the adjustment of independent variables in the long run. Also $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and β_6 are the short run coefficients of the respective variables of VAR model. The hypothesis of the equation is tested on probability value of t-statistics at 5% and 10 % level of significance.

RESULTS AND DISCUSSION

Section I

Tax revenue structure of Jammu and Kashmir:-

The overall growth of total revenue receipts and its major components like tax revenue, non tax revenue, own tax revenue and share of central taxes and duties can be summed up with showing the results of exponential

growth rate and compound annual growth rate over the period. Compound annual growth rate (CAGR) is a specific term for the geometric progression ratio that provides a constant rate of return over the time period while as exponential growth is simple constant average growth over whole time period. The exponential growth rate and Compound annual growth rate is shown in **table 1.1a** and **1.1b**.

Table 1.1a: Exponential growth rate of total revenue receipts and its major components in Jammu and Kashmir during 1984-85 to 2013-14

variable	Growth Ratio	R ²
Total revenue	483.0?? ^{0.143??}	0.98
Tax revenue	180.52?? ^{0.132??}	0.97
Non-tax revenue	299.68?? ^{0.149??}	0.98
Own tax revenue	55.40?? ^{0.153??}	0.98
share of central taxes and duties	127.19?? ^{0.11??}	0.88

Sources: Calculated by us

It is obvious from the table 1.1a that the exponential growth rate of total revenue receipts of the state remains around 14.3 percent during our period of study. Further it is shown that value of R2 which states that 98 percent variation in total revenue receipts is explained by time period under consideration and remained 2 percent variation is unexplained by time factor. Similarly the growth rate of tax revenue and non tax revenue remain 13.2 percent and 14.9 percent respectively during last thirty years. The value of R2 of both the equations suggest that 97 percent and 98 percent variation in tax revenue and non tax revenue is explained by time

factor and remained is not explained by time factor. The exponential growth rate of state's own tax revenue and share of central taxes and duties over last thirty years has remained under 15.3 percent and 11percent respectively and R2 suggest that 98 percent variation in own tax revenue and 88 percent variation is explained by time factor and remained is unexplained by time. It is evident to mention here that, although, there is a continuous increase in the absolute levels of total revenue receipts, tax revenue, non tax revenue, own tax revenue and share of central taxes annually during the period of our study, but the rates at which these variables were increasing

annual show a considerably inconsistency over the years which results that the total revenue receipts of the state lagged behind the mounting pleasure of public expenditure.

As we understand that over last thirty years the exponential growth rate of total revenue and its major components vary considerably, it is now obvious to estimate

the compound annual growth rate between the different period so that we can analyze productivity of tax system in the state and also analyze were the tax system change its course of growth. The study period has been divided into three time periods according the political and economic changes happen in the state over last thirty years. Table 1.1b present the result of CARG over last thirty years.

Table 1.1b: Compound Annual Growth rate (CAGR)

Period	1984-85 to 1993-94	1993-94 to 2003-04	2003-04 to 2013-14
Total revenue	15.9	12.9	13.4
Tax Revenue	17.2	9.4	17
Own tax revenue	9.9	16	17.3
Non-tax revenue	15.7	10.3	13.3
Center Tax and duties	23.9	4.4	16.6
Growth over the periods (%)			
Tot Revenue	408.1	181	247.7
Tax Revenue	478.3	143.25	365.5
Own tax Revenue	184	372.7	378.6
Non tax revenue	379.5	194.8	209.5
Center Tax & duties	962.4	44.9	347.1

Sources: Calculated by us

The results shows that in the period of 1984-85 to 1993-94 the average annual growth rate of total revenue was 15.9 percent with 17.2 and 15.7 percent growth in tax revenue and non tax revenue respectively. The total revenue in this period has increased more than four times which is a phenomenal growth while as tax revenue has also increased 478 percent over this period which is also more than four times and non tax revenue has increased 379 percent i.e more than 3 times. The state's own tax revenue and central share of taxes were increasing at an annual average growth rate of 9.9 percent and 23.9 percent in same period which indicates a progressive growth in tax system in this period. The states own tax revenue has increased 181 percent while as the central share of taxes and duties has increased more than nine times i.e 962.4 percent during 1984-85 to 1993-94. In this period the growth of tax revenue was higher than non tax revenue which means that tax revenue in the state was increasing and tax structure of the stet was progressive it might be due to the stable conditions in the state and growing economic nature. In second period which is considered as period of political and financial unrest in the state, the growth rate of total revenue as well as tax revenue decreases in this decade while as the non tax revenue has also decreased. The growth rate of total revenue and tax revenue was 12.9 percent and 9.4 percent respectively while the non tax revenue was growing at 10.3 percent annually. Between this period i.e 1993-94 to 2003-04 the total revenue of the state has increased 181 percent while as tax revenue has increased 143 percent and non tax revenue has increased 194 percent which is lower than last period. Similarly the own tax revenue and central

share of taxes has increased 372.7 percent and 44.9 percent respectively during the same period 1993-94 to 2003-04 with an average annual growth rate of 16 percent and 4.4 percent. The own tax revenue of the state is only component which has shown increasing trend in period might be because of increase in tax rates and tax base and the overall slow progress of tax system in this period might be due to uprising and heavy disturbance in economy. In third period from 2003-04 to 2013-14 which is considered as stability and progress period of the state total revenue is growing at an average rate of 13.4 percent while as tax revenue is growing at rate of 17.0 percent annually. The growth in this decade is higher than growth in past decade which clearly indicates that total revenue as well as tax revenue in the state is growing at a reasonable rate. As non tax revenue is concerned it has also shown an upward trend in this current decade. The non tax revenue is growing at the rate of 13.3 percent annually which is higher than past decade of 10.3 percent. The total revenue has increased 247 percent during 2003-04 to 2013-14 and tax revenue has increased 365 percent which clearly shows an upward trend in increase of total revenue receipts and tax revenue in the state than last 20 years. Similarly the non tax revenue has increased 209 percent in same period. The state's own tax revenue and share of central taxes has also increased 378.6 percent and 347.1 percent respectively during 2003-04 to 2013-14 with an average annual growth rate of 17.3 percent and 16.6 percent respectively. It shows an increasing trend in growth of state tax system as state's own tax revenue and share of central taxes and duties have increased tremendously during last decade. All the improvements

in the total revenue, tax revenue, own tax revenue, share of central taxes and non tax revenue in the state over last 10 years is due to growth of Economy, growth in NSDP and per capita income of the people, growth in major economic sectors like industrial sector (especially in Jammu region), tourism in (Kashmir region), services sector of the state, increase in tax base and tax rates and most importantly due to improving conditions in the state which help to build an feasible economic base in the state.

Over last one and half decade the state government use every possible effort to encourage revenue especially tax revenue by means of engaging in developmental projects and focus on tax base and tax structure which results that tax base in the state has increased though the growth is still low. In the tax system of Jammu and

Kashmir some taxes are more dominant while other are comparatively sharing a little amount while some are sources have zero or vanished from the list. In the tax system of the state the prominent taxes collected by the state are sales tax, state excise duty, toll tax, tax on vehicles, tax on goods and passengers, electricity duty, stamp and registration tax, land revenue, urban immovable property tax, entertainment tax and other taxes and duties. On other hand the share of taxes which state get from the central share of taxes and duties are dominantly of income tax and union excise duty. Though the state of Jammu and Kashmir has attained a positive and upward trend in growth of taxes but in same time the rate of growth of these taxes is slow and the pattern of growth is also fluctuating. The growth of major taxes of the state is shown in **table 1.2a** followed by compound annual growth rate in **table 1.2b**.

Table 1.2a: Growth of major taxes in the state of Jammu and Kashmir during 1984-85 to 2013-14

year	IT	UED	ST	SED	TOV	TGP	ED	LR	SRD
1984-85		-	-	-	-	-	-	-	-
1985-86	11.52	231.09	13.28	12.11	11.11	15.4	1.1	12.64	10.7
1986-87	61.09	21.77	27.71	22.35	10	-2.16	0.47	1346.94	10.57
1987-88	19.4	13.19	10.32	5.91	2.55	57.41	0.3	-71.16	-73.77
1988-89	7.08	19.07	4.15	15.29	29.26	15.24	1.14	-74.08	398.96
1989-90	16.77	12.02	5.16	4.46	-27.43	-8.09	-1.76	3.77	-30.69
1990-91	6.03	41.13	-8.28	15.04	-14.74	4.94	1.25	-40.91	-9.34
1991-92	24.2	16.31	33.68	22.38	57.21	5.38	0	36.92	32.56
1992-93	17.77	20.21	23.18	26.6	26.8	33.58	0.5	-28.09	10.53
1993-94	31.11	-0.06	13.02	5.2	-13.35	8.86	0.75	-1.56	16.33
1994-95	8.32	12.34	5.15	17.92	1.8	5.58	-0.01	-66.67	5.07
1995-96	83.9	4.66	17.64	26.03	21.06	5.72	-0.24	100	7.79
1996-97	26.34	28.12	14.24	-20.11	15.63	5.74	1.7	92.86	5.85
1997-98	18.87	42.06	26.12	29.73	21.62	25.77	1.3	80.25	43.58
1998-99	18.26	17.17	12.9	12.5	21.11	7.25	5.1	-38.36	34.09
1999-00	-0.2	0	48.57	42.31	28.44	69.54	11.9	63.33	19
2000-01	9.62	-58.9	23.85	13.91	11.9	14.22	-7	-21.77	54.36
2001-02	27.77	-2.2	24.22	1.94	10.81	5.19	27.7	100.87	6.21
2002-03	20.14	-16.37	17.5	16.53	21.47	9.17	-0.7	12.12	0.39
2003-04	1.83	28.88	24.15	0.5	25.2	6.46	35.31	-32.82	32.95
2004-05	34.92	12.57	33.68	-1.92	3.46	11.41	23.64	39.66	22.61
2005-06	36.85	-0.79	40	-7.32	12.11	7.42	-33.95	-39.09	14.68
2006-07	17.2	39.8	10.9	13.16	38.25	6.41	24.56	20.27	25.61
2007-08	28.3	-4.8	22.21	10.7	8.76	9.04	58.22	264.61	23.23
2008-09	32.48	13.45	25.17	5.04	12.45	3.85	-2.13	-18.8	-10.16
2009-10	-0.98	-19.4	14.98	8	19.37	6.23	45.24	9.87	7.63
2010-11	55.49	53.66	20.78	13.7	22.01	13.5	18.11	-9.84	12.1
2011-12	23.41	33.02	32.91	24.76	13.62	22.59	48	378.93	83.24
2012-13	19.08	-3.57	23.37	7.83	8.17	8.06	161.36	42.4	103.01
2013-14	8.77	11.89	13.76	2.42	8.63	8.77	26.64	14.04	18.26

Sources: calculated by author

From table we find the fluctuation and lots of ups and downs in the growth rate in all most all the major taxes in the state and some of the taxes are going to vanish over the period. Table shows that the income tax, union excise duty, sales tax and states excise duty are the most important and large contributors to tax revenue of the states over the years. The state has become more

dependent on these taxes. The rate of growth of these taxes has remained very low in different periods and as yearly as well as we can see from table, showing the compound annual growth rate of different taxes over different periods and annually as well. Income tax has attain a growth rate of 445 percent i.e it has increased more than 4 times during 1984-85 to 1993-94 while as 458

percent almost same in period between 1994-95 to 2003-04. The income tax has attained highest rate of growth during 2004-05 to 2013-14 more than 5 times which reveals the potential of state to increase its income tax with growth of economy. If we take look on the CAGR income tax was growing at the rate of 18.40 percent per annum between 1984-85 to 1993-94 and 19.20 percent per annum between 1994-95 to 2003-04 while as 20.90 percent per annum in last 10 years. Thus it shows that the state can increase its revenue resource from taxes if the conditions are suitable and there is normalcy in the state. Similarly union excise duty has increased 11 times between 1984-85 to 1993-94 but in period 1994-95 to 2003-04 the union excise duty has decreased sharply and in this period has grown in -3.30 percent while as in period 2004-05 to 2013-14 the union excise duty has increased 166 percent. The union excise duty was growing 28.20 percent, -3.32 percent and 10.20 percent per annum between the periods of 1984-85 to 1993-94, 1994-95 to 2003-04 and 2004-05 to 2013-14 respectively. The negative trend of union excise duty during 1994-95 to 2003-04 is because of increasing insurgency of state which reduce the production of certain goods in the state especially in Kashmir division and change in the tax rates.

As far as the revenue from own taxes of the state is concerned sales tax has increased very much over the period. The sales taxes has increased 198 percent between 1984-85 to 1993-94 and 538 percent, i.e more than 5 times between 1994-95 to 2003-04 and have reduced during the period 2004-05 to 2013-14 i.e 515 percent. The sales tax was growing at the rate of 11.50 percent per annum in first period while as 230.36 percent per annum in second period and 20.10 percent per annum in period 2004-05 to 2013-14. Thus the sales tax has shown upward trend in growth over the periods. The reason for the positive growth in sales tax of the state might be increasing trend in consumption of goods and services which come in state from outside because of insurgency and inability of state to produce those goods in own region. Similarly the states own excise duty has shown a decreasing trend over the years. The states excises duty has increased to 228 percent, i.e more than 2 times in between 1984-85 to 1993-94 but reduced to 184 percent in between 1994-95 to 2003-04 and further reduce to 106 percent in between 2004-05 to 2013-14. The annual growth rate of states excise duty in these different periods was very low it was 11.50 percent, 20.36 percent and 20.10 percent per annum in between 1984-85 to 1993-94, 1994-95 to 2003-04 and 2004-05 to 2013-14 respectively. The reason for the slow and deteriorating growth in states excises duty must be because

of low consumption of liquor in the state due to prohibition under Islam, also due to the lacks the proper training and necessary equipments to the existing staff to restrict the illegal activities connected with liquor business.

Tax on vehicles has increased just 73 percent from 1984-85 to 1993-94 and has increased 399 percent, i.e more than 3 times between 1994-95 to 2003-04. In last ten years the tax on vehicles has increased 268 percent from 2004-05 to 2013-04. Thus it shows an increasing trend in growth of taxes on vehicles. The tax on vehicles was annually growing at the rate of 5.60 percent per annum in first ten years of study period which increased to 14.40 percent per annum between 1994-95 to 2003-04. In last ten years from 2004-05 to 2013-04 the tax on vehicles is growing at the rate of 14.30 percent per annum. The constant and positive trend in growth in tax on vehicles over the years might be because of more involvement of private transport in the state for source of earning and also the increasing trend of having vehicles through easy availability of loans. The tax on goods and passengers has been briskly increase in states own tax revenue. Looking at its rate of growth the particular tax has increased 202 percent more than 2 times from 1984-85 to 1993-94. In period 1994-95 to 2003-04 the tax on goods and passengers has register a growth of 256 percent more than last period which shows an increasing trend but in last period from 2004-05 to 2013-14 the tax on goods and passengers has just increased 124 percent. Overall the tax on goods and passengers was growing at the rate of 11.7 percent per annum between period 1984-85 to 1993-94 which increased to 13.50 percent in next period 1994-95 to 2003-04, while as has reduced much in last ten years, between 2004-05 to 2013-14 the tax of goods and passengers is increasing at the rate of 8.4 percent per annum which isles than last two decades growth rate. The tax on goods and passengers has been showing a declining trend over last ten years. The reason for the decline in recent years and growth in early years are due to absence of proper regulation and monitoring system of passenger which results large number of vehicles pass without proper authorization. The other cause might be the rates which are prevailing in the state are very low and disproportionate to the type of the vehicles.

Another important tax which has increased over the years is electricity duty. As we are familiar with that the state has large potential to generate hydro electricity, thus over the years the revenue collected in the form of electricity duty has increased very much over the years.

Table 1.2b: Compound Annual Growth rate over different periods

periods	IT	UED	ST	SED	TOV	TGP	ELD	LR	SRD	UIPT	
1984-85 to 1993-94	18.40	28.20	11.50	13.10	5.60	11.70	13.30	-3.10	5.50	2.20	
1994-95 to 2003-04	19.20	-0.32	20.36	11.00	14.40	13.50	31.30	23.50	19.00	-7.30	
2004-05 to 2013-14	20.90	10.20	20.10	7.50	14.30	8.40	15.70	32.50	23.80	-1.00	
1984-85 to 2013-14	21.20	13.10	15.50	11.10	12.40	11.80	20.90	13.00	16.80	-1.00	
			Growth between the periods								
1984-85 to 1993-94	445.38	1100.19	198.35	228.05	73.11	202.77	250.00	-27.59	71.57	25.00	
1994-95 to 2003-04	458.51	-3.30	538.05	184.37	399.37	256.97	1432.63	728.57	471.99	-53.33	
2004-05 to 2013-14	570.99	166.27	515.26	106.34	268.56	124.86	332.90	1570.78	746.40	0	
1984-85 to 2013-14	29771.20	3808.44	16363.12	2126.32	3255.56	2758.73	29900.00	4566.67	10600.33	0	

Sources: calculated by us

From **table 1.2b** we found that the electricity duty has increased 250 percent from 1984-85 to 1993-94 and in the period between 1994-95 to 2003-04 the electricity duty has increased more than 14 times which shows a great increase of revenue by electricity duty. The reason of such an increasing growth over the period must be heavy import of electricity from other states because state was not able to run or to build its own hydro projects so most of the electricity was coming from other states so the duty on electricity was high in this period. In last ten years from 2004-05 to 2013-14 the electricity duty has increased 332 percent more than 3 times less than last decade which clearly shows an increasing trend of growth of electricity duty. If we talk about the rate of growth of electricity duty over the years we found that electricity duty was growing at the rate of 13.3 percent per annum between 1984-85 to 1993-94 and 31.3 percent per annum between 1994-95 to 2003-04. In last ten years the electricity is growing at the rate of 15.7 percent per annum which shows a positive growth of this sector. The main reason of this uneven growth over different periods is due to the domestic supply of electricity, when state was not able to provide domestic produced electricity to the people it import from other states so the duty on electricity was high but from last 10-15 years the electricity duty has come down but the consumption of electricity has increased by way of industries (particularly in Jammu region) or households. Land revenue collection of the state is showing an upward and highest growth trend. The land revenue was increasing at the rate of -27 percent in period 1984-85 to 1993-94 which means an deteriorating trend in this period but in period between 1994-95 to 2003-04 the land revenue increase to 728 percent more than 7 times in next ten years a and has register a growth of 15 times in last ten years period from 2004-05 to 2013-14. Thus it shows a positive growth of land revenue in the state. The average annual rate of growth of land revenue is 13 percent over the study period which is a positive sign. The land revenue in the state has increased due to the increasing agricultural and agricultural related activities in the state. But in the insurgency period the land revenue evasion was common

in the state and also due to improper staff and management the land revenue collection remains very low.

Tax on stamps and registration is a device to collect any tax. Stamp duties are classified as Judicial and Non-Judicial stamps. Judicial stamps consist of Court fees levied. It is the fee payable by persons who have some business in law courts and public offices. While as registration fee is charged for legal documentation like sale deeds and other registration under law. **Table 1.2a and 1.2b** shows an increase of 71 percent growth in stamps and registration duty between the period 1984-85 to 1993-94. In the period 1994-95 to 2003-04 the stamp and registration duty has register a growth of 471 percent which means more than 4 times and further 746 percent growth in period 2004-05 to 2013-14. The average annual rate of growth of stamps and registration duty was 5.5 percent in between 1984-85 to 1993-94 which reached to 19 percent per annum between 1994-95 to 2003-04 and further increase to 23.8 percent between 2004-05 to 2013-14. Both the tables show a positive and increasing trend of growth. As far as other taxes levied in state are concerned like entertainment tax, tax on urban immovable property tax and other taxes they are not only decreasing but also depleting from the taxation list of the state, which is a great source of concern. The entertainment tax got affected by the wave of militancy in the state and almost all the cinemas are either shutdown or are under the military, only few cinemas in Jammu division are generating revenue for the government. Similarly the tax on immovable property from urban areas has also gone to depletion because of less business and mostly hit by bands and turmoil's.

Thus in nutshell we can conclude from the above discussion that the state has a low tax base were a few taxes are contributing to the tax revenue of the state while rest of the taxes have either slow rate of growth or declining towards negative growth. From the analysis it reveals that from the own tax revenue of the state only three taxes namely sales tax, states excise duty, electricity duty and tax on goods and passengers contribute at least

90 percent while as rest of taxes contribute only last than 10 percent. It shows a small and stagnant tax base of the state. Also tax evasion is a common feature in taxation of the state, the reason of slow and stagnant growth of major taxes in the state is the tax evasion from the people and also due to the inefficiency of state governments to encourage tax collection measures. The underdevelopment of the state and the poor infrastructure of industries and other social aspects also reduce the growth of tax revenue in the state. The poor industrial infrastructure in the state (particularly in Kashmir division) leads to great loss of revenue due to subsidies and tax holidays provided to them in order to promote industrial base. The uncertainty in the political and social conditions in the state is directly or indirectly responsible for slow growth of tax revenue in the state especially the state's own tax revenue. Therefore, though the state has increasing trend of tax revenue, but the rate of growth is very low also the tax base of the state is very small and deteriorating were only few taxes are

contributing in total tax revenue of the state while as rest of taxes are either stagnant or negative. Thus it can be concluded from above discussion that the state's tax system is very less productive and not growing sufficiently so that it can brick the pace of development of the state.

Tax Capacity/ Tax-NSDP ratio:-

Tax capacity of a state can be analyzed by measuring the ratio of total tax revenue and own tax revenue to NSDP/GSDP of the state. Also it can be measured in terms of per capita tax revenue with per capita income of the state. Here we will first measure tax capacity by tax-income ratio and after by regression approach. If the ratio of per capita own tax revenue to per capita NSDP is increasing it suggest higher will be the potential of tax revenue collection with increase in income of the state. The tax capacity will enable us to see the potential of the state revenue to grow with increase in income of the state both in terms of per capita income and total income of the state. The **table 1.3** presents the classified picture of per capita total tax and own tax revenue and per capita Net State domestic Product.

Table 1.3: Per capita Tax- NSDP ratio of Jammu and Kashmir over last thirty years

Year	PTR	POTR	PNSDP(Current prices)	PTR as % of PNSDP	POTR as % of PNSDP
1984-85	194	121	2669.00	7.27	4.53
1985-86	357	154	2874.00	12.42	5.36
1986-87	419	172	3099.00	13.52	5.55
1987-88	450	175	2954.00	15.23	5.92
1988-89	506	191	3517.00	14.39	5.43
1989-90	525	177	3618.00	14.51	4.89
1990-91	640	214	3816.00	16.77	5.61
1991-92	739	210	4157.00	17.78	5.05
1992-93	878	259	4457.00	19.70	5.81
1993-94	872	267	5400.00	16.15	4.94
1994-95	936	281	6915.00	13.54	4.06
1995-96	1035	318	7783.00	13.30	4.09
1996-97	1226	319	8667.00	14.15	3.68
1997-98	1610	394	9491.00	16.96	4.15
1998-99	1820	433	11591.00	15.70	3.74
1999-00	1999	640	12373.00	16.16	5.17
2000-01	1409	732	14268.00	9.88	5.13
2001-02	1541	833	15019.00	10.26	5.55
2002-03	1620	939	16739.00	9.68	5.61
2003-04	1873	1091	17991.00	10.41	6.06
2004-05	2242	1306	21734.00	10.32	6.01
2005-06	2623	1553	23240.00	11.29	6.68
2006-07	3073	1724	25059.00	12.26	6.88
2007-08	3533	2055	27448.00	12.87	7.49
2008-09	4182	2373	30212.00	13.84	7.85
2009-10	4306	2672	33650.00	12.80	7.94
2010-11	5621	3125	40089.00	14.02	7.80
2011-12	7184	4058	46734.00	15.37	8.68
2012-13	8417	4999	52250.00	16.11	9.57
2013-14	9247	5539	58593.00	15.78	9.45

Sources: calculated by us

The table 1.3 presents an increasing trend in per capita tax revenue of the state. The per capita tax-income ratio of the state has increased with respect to per capita tax revenue and own tax revenue respectively. As we can see from the table that the tax-income ratio of the state has gone through different stages it was 7.28 percent in 1984-85 increased to 19.7 in 1992-93 and decreased to 9.28 in 2000-01 and further increase to 15.7 percent in 2013-14. It shows that the state has huge potential to generate its revenue from taxes with increase in income of the state but in favorable conditions. Over the years the composition of tax revenue to NSDP is increasing which means that huge amount of revenue to the state treasury is coming through taxes. If we analyze the per capita tax revenue of the state it has increased from Rs 194 in 1984-85 to Rs 1056 in 1995-96 and further increase to Rs 2242 in 2004-05. The per capita tax revenue of the state from last 10 years has increased very much and reached to Rs 7184, Rs 8417 and Rs 9247 in 201-12, 2012-13, and 2013-14 respectively. Similarly the per capita own tax revenue of the state has also increased. The increase in per capita tax revenue of the state is due to

increase of income of the people especially in last 10-15 years which enable the government to push forward the tax efforts measures.

Performance of tax system for state level government is usually assessed by the ratio of actual performance to measure the taxable capacity such as Tax-GSDP/NSDP ratio as we did above but being a simple procedure to see the performance or tax capacity there is large criticism for this method due to various reasons like different tax structure of different taxes, distinct tax base etc. Regression approach is used find the actual growth of total tax and own tax revenue with increase in income of the state, where both per capita tax revenue and total tax revenue will be analyzed with respect to per capita NSDP and NSDP of the state. The stationarity of variables under scrutiny is necessary; otherwise the results of regression equation would be spurious. In table 1.4 the result of Augmented Dickey fuller and Phillips person unit root test of all the variables used to analyze tax capacity, tax inefficiency and buoyancy of Jammu And Kashmir State is given.

Table 1.4: Results of Augmented Dickey-Fuller and Phillips-Perron Unit root test (ADF) period 1984-85 to 2013-14

Variable	Definition of Variable	ADF/PP Statistic	1% Critical	5% Critical	Order of difference	P Value*
LTTR	Total tax revenue	-6.479487	-3.699871	-2.976263	2 nd difference	0.0000
LOTR	Own tax revenue	-5.447314	-4.374307	-3.603202	1 nd difference	0.0009
LPOTR	Per capita own tax revenue	-4.619421	-2.656915	-1.954414	1 nd difference	0.0001
LPTR	Per capita tax revenue	-1.982713	-2.650145	-1.953381	1 nd difference	0.0470
PNSDP	Per capita net state domestic product	-7.518322	-2.653401	-1.953858	1 st difference	0.0000
NSDP	Net state domestic product	-7.439615	-3.699871	-2.976263	1 st difference	0.0000
DEBT	Total debt liabilities	-7.089309	-3.699871	-2.976263	1 st difference	0.0000
Grants	Grants to state	-4.996685	-3.689194	-2.971853	2 st difference	0.0004
TEXP	Total expenditure	-7.727651	-3.689194	-2.971853	2 nd difference	0.0000
TOUT	Total outstanding	-5.692557	-3.689194	-2.971853	2 st difference	0.0001
ELCD	Electricity duty	-3.605945	-2.650145	-1.953381	1 st difference	0.0008
INTAX	Income tax	-4.521615	-4.323979	-3.580623	1 nd difference	0.0063
UNEX	Union excise duty	-4.503775	-2.650145	-1.953381	1 st difference	0.0001
SALTAX	Sales tax	-4.553305	-2.653401	-1.953858	1 nd difference	0.0001
STEX	State excise duty	-2.721463	-2.650145	-1.953381	1 st difference	0.0084
TOV	Tax on Vehicles	7.425408	-2.656915	-1.954414	1 st difference	0.0000
TOGP	Tax on Goods and Passengers	-4.426914	-4.323979	-3.580623	1 st difference	0.0079
LR	Land revenue	-19.26782	-4.339330	-3.587527	1 nd difference	0.0000
SRD	Stamp and registration duty	-5.317117	-3.752946	-2.998064	1 st difference	0.0003
Indtax	Indirect tax	-6.486884	-2.653401	-1.953858	1 st difference	0.0000
Dirtax	Direct tax	-4.520182	-4.323979	-3.580623	1 st difference	0.0064

*MacKinnon (1996) one-sided p-values.

The table shows that all the variables had unit root on level or in other words they are non stationary in level but stationary in first difference by either with trend or de-trending. We can see that the ADF/PP statistics is greater than the critical value at 1 percent and 5 percent level of significance thus it suggest that they are stationary at the particular level of difference. Thus the regression will be run according the stationarity level of the variable. Since the main purpose of the section is to analyze the buoyancy so in analyzing tax capacity the regression will be run on actual values after stationarity and for tax buoyancy the regression will be in log form. The four equations estimated are as under:

$$TTR = \alpha_1 + \beta_1 * NSDP..... (1)$$

$$OTR = \alpha_2 + \beta_2 * NSDP..... (2)$$

$$POTR = \alpha_3 + \beta_3 * PNSDP..... (3)$$

$$PTR = \alpha_4 + \beta_4 * PNSDP.....(4)$$

The estimated results of the tax capacity equation is shown in **table 1.5**, where we try to find how far the tax revenue of the state both, own tax revenue and total tax revenue, increase with the increase in income of the state. It will enable us to know the taxable capacity of the state how much state can contribute its revenue by way of taxes with increase of state income in term of both NSDP and PER capita NSDP.

Table 1.5: Estimated Tax Capacity of major taxes in Jammu and Kashmir (1984-85 to 2013-14)

Equations Applied	coefficient	Adj R ²	St.dev	Probability	t- Statistics
1 TTR c NSDP	0.117558*	0.984879	0.002705	0.0000	43.46044
2 OTR c NSDP	0.184736*	0.952343	0.007674	0.0000	24.07308
3 POTR c PNSDP	0.067607*	0.534032	0.011606	0.0000	5.825046
4 PTR c PNSDP	0.112135*	0.475077	0.02155	0.0000	5.201465

Note. * Denotes significance interval at 5%. TTR= Total tax revenue OTR = own tax revenue, POTR = per capita own tax revenue, PTR = per capita own tax revenue, NSDP = Net State Domestic product (current price), PNSDP (per capita net state domestic product), c= function

The estimated result's of above four equations of total tax revenue and own tax revenue which were regressed with NSDP and Per capita NSDP respectively for the period 1984-85 to 2013-14 are mostly statistically significant. The total tax revenue shows a small relation with growth of NSDP of the state. The coefficient of all the regression equations is less than 1 which shows the inability of NSDP or per capita NSDP to improve the Tax capacity of the state. The regression equation shows that with increase of 1 percent in NSDP of the state the total tax revenue of the state increases by less than 1 percent 0.11 percent which is a very serious issue. It might be because of lot of the facts that revenue comes from center in terms of grants, aids, allocation, scheme's etc which become more responsible for income growth of people irrespective of NSDP of the state. The above equation also shows that the NSDP of the state has less impact on the growth of total tax revenue of the state because the state is more dependent on financial resources comes from outside and internal resources are very much less to enhance the pace of growth of economy. Similarly the states own tax revenue increase .018 percent with increase of 1 percent increases in NSDP. The reason might be slow or inability of state in internal resources mobilization which reduces the growth of income of people over the years in the state. In the table the per capita own tax revenue also shows same signs that the per capita income of the state grows by 0.06 percent with 1 percent growth in per capita NSDP of the state. Similarly the per capita tax revenue of the state also

shows less relationship with per capita NSDP of the state. It shows that 0.11 percent increase of per capita total tax revenue of the state with increase of 1 percent in per capita NSDP. The R² of equation 1 and equation 2 is 98 percent and 95 percent respectively, which shows that over the years the change in total tax revenue and own tax revenue is caused by NSDP but the coefficient of the equations proves that change is very much less. The R² of other two equations is very less 53 and 47 percent which is very low for an equation. Thus we have found that the tax capacity of the state in terms of state income or NSDP is very low. The growth of state income has very low impact on the growth of tax revenue over the years. The reason is obvious that the dependency of state in terms of revenue is on central funds which constitute at least 69 per cent of states total income /NSDP over last 30 years, which reduces the ability of state to grow on its own sources of revenue and strengthen the tax base of the state. Thus it suggests that the NSDP or state income is very much less responsible for growth of overall tax revenue of the state.

In order to verify the validity of the model and about serial correlation and heteroskedasticity following two diagnostic tests were performed. They include Breusch-Godfrey Serial Correlation (LM) for auto correlation test and white heteroskedasticity test to detect heteroskedasticity. The results of the tests are shown in **table 1.6**.

Table 1.6: Breusch-Godfrey Serial Correlation (LM) and White Heteroskedasticity(WH)Test for Tax Capacity

Equations	Serial correlation test (LM)		Heteroskedasticity test(WH)	
	Obs*R-sq	Prob.	Obs*R-sq	Prob.
TTR c NSDP	4.5783	0.101	5.522	0.0632
OTR c NSDP	13.588	0.112	2.479	0.2893
POTR c PNSDP	3.8712	0.144	5.654	0.0591
PTR c NSDP	0.8868	0.641	2.132	0.3441

TTR= Total tax revenue OTR = own tax revenue, POTR = per capita own tax revenue, PTR = per capita own tax revenue, NSDP = Net

State Domestic product (current price), PNSDP(per capita net state domestic product), c= function and probability at 5% level

The summary of the table 1.6 indicates two labels observed R square and probability. The LM test is used to identify serial correlation. The hypothesis is that there is no serial correlation and heteroskedasticity in the model which may prove our model wrong. In Breusch-Godfrey Serial Correlation and White Heteroskedasticity test if the probability value is more than 5 percent it suggests that we cannot reject null hypothesis. In the above table all the probability values are more than 5 percent level of significance for both Breusch-Godfrey Serial Correlation and White heteroskedasticity test. Thus we conclude that in all the equations regressed there is absence of serial correlation and there is no heteroskedasticity in the series. Thus it shows that all the series are normally distributed and the model is nicely fitted.

**Section II
Tax Efficiency:-**

As we understand from all above discussion that the state is going through a series of financial ups and downs where the tax revenue is not growing as per the needs of the state which results on dependency in terms of expenditure on different social and economic aspects of the state which in turn reduce the tax capacity of the state. The state has defective tax system with small tax base, slow growth of taxes, small taxes, contribution of few

taxes in total tax revenue, deteriorating trend of many taxes and mostly some of the taxes are going to exhaust. Thus apart from the economic factors which reduce the tax efficacy of the state there are many fiscal factors which are responsible for tax inefficiency of the state. Over the years the prevailing conditions in the state have blocked all the revenue opportunities, which results in heavy dependency in terms of financing the social developmental projects. Thus after analyzing the tax revenue of the state, we observe some sort of technical inefficiency which also hammers the growth of tax revenue of the state. Those inefficiencies we assume are from fiscal approach of the state. We believe that grants from central government as ratio of total revenue, total expenditure as ratio of NSDP, total outstanding as ratio of NSDP, debt repayment as ratio of NSDP and the influence of fiscal policy change like FRBM has serious impact on the tax inefficiency. These fiscal variables, we assume that have tendency to either improve or reduce the tax inefficiency of the state.

The VAR model is used to analyze the effect of fiscal variables of tax inefficiency of the state over the years where total tax revenue of the state has been taken as dependent variable and ratio of above all mentioned fiscal variables as independent variables. The VAR equation analysed is shown below.

DDTOTREV =

$$C(1) * DDTOTREV(-1) + C(2) * DDTOTREV(-2) + C(3) * DDOUTSTAND(-1) + C(4) * DDOUTSTAND(-2) + C(5) * DDEXP(-1) + C(6) * DDEXP(-2) + C(7) * DDGRANTS(-1) + C(8) * DDGRANTS(-2) + C(9) * DDEBT(-1) + C(10) * DDEBT(-2) + C(11) * FRBM(-1) + C(12) * FRBM(-2) + C(13)$$

Where C(1), C(2), C(3), C(4), C(5), C(6), C(7), C(8), C(9), C(10), C(11), C(12), and C(13) are coefficients of the variables and

TOTREV= Ratio of Total Tax revenue to NSDP

OUTSTAND= Ratio of Total outstanding of the state to NSDP

EXP= Ratio of Total expenditure to NSDP

GRANTS= Ratio of Grants from the center to NSDP

DEBT= ratio of Debt repayment to NSDP

FRMB= implementation of Fiscal Responsibility and budget management act

DD= level of difference



The regression is done after gone through unit root test of the variables in order to check the level of stationarity. **Table 1.4** provides the results of Augmented Dickey-Fuller test. All the variables were found non stationary at level one. The variables were thus transformed at the respective level of stationarity. The table shows that the variables are stationary at first difference and second difference which mean variables are having I(1) and I(2) order of stationarity.

In order to know whether the variables has long run relationship or not, Johansen Co integration test was carried out. Testing for co-integration requires that the residuals for a given regression are integrated of order zero [I(0)] or stationary. If they are stationary [I(0)], although the variables are individually I(1) or have stochastic trends, their linear combination cancels out the stochastic trends in these variables and as a result, such a regression would be meaningful and not spurious. The results of Johansen Co integration Test is shown in **table 1.7 (Annexure)** for tax inefficiency equations

Table 1.7: Johansen Co-integration Test tax inefficiency

Unrestricted Cointegration Rank Test									
Hypothesized		Trace	5 Percent	1 Percent	Hypothesized		Max-Eigen	5 Percent	1 Percent
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Critical Value	No. of CE(s)	Eigenvalue	Statistic	Critical Value	Critical Value
None **	0.843043	138.4515	68.52	76.07	None **	0.843043	51.84986	33.46	38.77
At most 1 **	0.787524	86.60168	47.21	54.46	At most 1 **	0.787524	43.36995	27.07	32.24
At most 2 **	0.710632	43.23172	29.68	35.65	At most 2 **	0.710632	34.72157	20.97	25.52
At most 3 **	0.193553	28.51014	15.41	20.04	At most 3 **	0.193553	26.02327	14.07	18.63
At most 4 **	0.084987	9.4868	3.76	6.65	At most 4 **	0.084987	9.48687	3.76	6.65

** (denotes) rejection of Null hypothesis at 5% and 1% level of significance

The Johansen Co-integration Test for tax inefficiency or tax-NSDP ratio shows that the variable does not have long run relationship. At first we check our hypothesis that there is no co integration equation between the variables via trace statistic. The results of trace statistics in above table, accept the null hypothesis as the trace statistic (138.8) is greater than critical value (68.5 and 76.0) at 5 percent and 1 percent level of level of significance. Similarly At most 1,2,3 and 4 Hypothesized that there are at most 1,2, 3,4 co-integrated equations from the variable, but as we look upon trace statistic, it his higher than 5 percent and 1 percent level of significance. Thus we cannot reject our null hypothesis and conclude that the variables

have no co-integration or does not have long run relationship. Similarly the hypothesis is tested by Max-Eigen statistics which also show that there is no co-integrated equation among the variables and the variables have no long run relationship as the hypothesis of Max-Eigen statistics cannot be rejected at any level of significance. Thus the variables like tax-NSDP ratio, ratio of outstanding to NSDP, ratio of Grants to total revenue, Ratio of debt repayment to NSDP, ratio of total expenditure to NSDP and FRBM do not have long run relationship. Thus we cannot use VECM model, so we use VAR model to find out the short run relationship among the variables. The results of Vector Auto Regressive model (VAR) are shown in **table 1.8**.

Table 1.8: Estimate results of VAR model of Tax inefficacy in Jammu and Kashmir

DDTOTREV = C(1)*DDTOTREV(-1) + C(2)*DDTOTREV(-2) + C(3)*DDOUTSTAND(-1) + C(4)*DDOUTSTAND(-2) + C(5)*DDEXP(-1) + C(6)*DDEXP(-2) + C(7)*DDGRANTS(-1) + C(8)*DDGRANTS(-2) + C(9)*DDEBT(-1) + C(10)*DDEBT(-2) + C(11)*FRBM(-1) + C(12)*FRBM(-2) + ECT			
Dependent Variable: DDTOTREV			
Sample(adjusted): 1988 2013			
variables	Coefficient	t-Statistic	Prob.*
DDTOTREV(-1)	1.089874	2.367778	0.0341
DDTOTREV(-2)	2.000233	3.207711	0.0069
DDOUTSTAND(-1)	-0.18618	-1.65148	0.1226
DDOUTSTAND(-2)	-0.31468	-2.22183	0.0447
DDGRANTS(-1)	0.85563	3.599515	0.0032
DDGRANTS(-2)	0.939626	3.873684	0.0019
DDEXP(-1)	-0.48656	-2.18486	0.0478
DDEXP(-2)	-0.42242	-2.2182	0.045
DDEBT(-1)	0.220583	0.317761	0.7557
DDEBT(-2)	-1.15763	-2.40193	0.032
FRBM(-1)	-435.709	-0.96946	0.35
FRBM(-2)	408.9574	0.849892	0.4108
ECT	78.5445	0.864528	0.403
R-squared	0.795685	Adjusted R-squared	0.607086
Log likelihood	-171.38	Durbin-Watson stat	2.081323
Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.031406	Prob*	0.969169
Obs*R-squared	0.147621	Prob*	0.928848
ARCH Test:			
F-statistic	0.002195	Prob*	0.96304
Obs*R-squared	0.002385	Prob*	0.961048
Normality test			
Jarque-Bera	0.740341		
Prob*	0.690647		

Sources: calculated by us, * At 5% level of significance

The results of VAR model suggests that the variables have short run relationship at the set of two period lag which were optimal lags according to the value of the Akaike Information Criteria (AIC). The results show that total outstanding, debt repayment, total expenditure as ratio of NSDP and FRBM has negative association with tax inefficiency/ tax revenue as ratio of NSDP, while as grants have positive short run relationship. If we deeply analyze the results we can interpret it as, the total outstanding, total expenditure, debt repayment as the ratio of NSDP are significant variables to produce the change in tax-NSDP ratio of the state. The P Value of all the variables is significant at 5% level of significance either lag 1 or lag 2, or at both time lags. The ratio of grants as ratio of total revenue is positive but insignificant variable to tax inefficiency, as the p value is higher than 5 % level of significance. It can be interpreted as with increase in the total outstanding of the state, the tax NSDP ratio will decrease and vice versa or 1% decrease in ratio of outstanding to NSDP will increase the tax- NSDP ratio as 0.18% at lag 1 and 0.31% at lag 2. Similarly expenditure as

ratio of NSDP has also negative short run relationship with tax inefficiency in both time lags. It shows the expenditure has immediate effect on tax revenue collection and 1% decrease in expenditure NSDP ratio will increase the tax-NSDP ratio 0.48%. Similarly the debt repayment is insignificant at lag 1, but significant at lag 2 which means that debt repayment has impact on tax-NSDP ratio on next financial year and not in the same year, while as FRBM shows negative impact on tax-NSDP ratio on lag 1 and positive but insignificant impact on tax-NSDP ratio on lag 2. It means that FRBM policy has positive impact on tax-NSDP ratio. The grants from center as ratio of total revenue show positive and significant impact on tax-NSDP. As the table suggests, 1% increase in ratio of grants to total revenue the tax-NSDP ratio increase 0.85% at lag 1 and by 0.95% at lag 2. The VAR model proves that the fiscal position of state has impact on the tax revenue position. The R-squared (0.795685) shows that the respective variables explain 79% change in the tax-NSDP ratio of the state. The Durbin-Watson statistics which is 2.08 shows the absence of autocorrelation in the model

In order to find out the reliability of the model, certain tests were applied. Breusch-Godfrey Serial Correlation LM test was used to analyze the serial correlation in the model. The hypothesis tested was that the model has no serial correlation. The results of the test (Table 1.8) accept the null hypothesis as the observed R^2 and its respected P value is greater than 5% level of significance. So there is no problem of serial correlation in the model, auto regressive conditional heterokedasticity test (ARCH Test) is used to asses that the significance of the model. The results show that as the respective P value of the observed R^2 is greater than 5% level of significance, so there is no Auto regression in the model which was our null hypothesis and our model is significant. Normality test was carried out to know whether the date was under the normal distribution or not. Jarque-Bera test shows that the residuals of the model are normally distributed as the respected p value of Jarque-Bera test is more than 5% level of significance. So we accept our null hypothesis that the residuals are normally distributed.

Tax buoyancy and Tax elasticity of the Jammu and Kashmir state

National income/states GSDP is a desirable characteristic of the tax system. The state has to ensure that the more share of national income should flow into the public treasury by way of taxes if the government has dependent on tax revenue to finance a large share of its

public expenditure. Thus the state has to increase the incremental tax ratio which is relevant to compute the tax buoyancy/elasticity. Tax revenue may change through the change in gross states domestic product or by imposition of new taxes, change of tax rate; change in tax basses, tax amnesties, or by other legal administrative measures. Tax revenue changed by all above causes is known as discretionary changes which can be done by changing public fiscal policies. Thus when there is change in tax yield due to change in GSDP, by removing discretionary changes it estimates the elasticity of tax revenue. In this paper we cannot estimate the elasticity of tax revenue of Jammu and Kashmir through discretionary changes, because of non availability of data regarding discretionary changes over the years. Thus we will estimate the time point elasticity which will show the elasticity of tax revenue in a particular year. Similarly when there is change in tax yield resulted by change in GSDP with the addition of discretionary attributes it estimates the buoyancy of tax revenue. Thus buoyancy is the percentage change in tax yield by percentage change in actual GSDP of the state. Movement of tax revenue in a particular year along with the change in state income can be predicted as Time point elasticity. It shows the flexibility of tax revenue over the change on NSDP of that particular year. The time point elasticity of tax revenue with NSDP over last 30 years in the state of Jammu and Kashmir is shown in table 1.9.

Table 1.9: Time point Elasticity of Tax Revenue of Jammu and Kashmir

Year	Total Tax revenue Elasticity	Own tax Revenue Elasticity
1984-85	--	--
1985-86	8.53	2.98
1986-87	1.92	1.35
1987-88	-4.47	-1.98
1988-89	0.70	0.53
1989-90	1.15	-0.82
1990-91	3.08	2.90
1991-92	1.56	0.07
1992-93	2.24	2.66
1993-94	0.08	0.16
1994-95	1.19	0.93
1995-96	0.87	1.04
1996-97	1.57	0.12
1997-98	2.75	2.11
1998-99	0.64	0.52
1999-00	1.27	5.36
2000-01	-1.58	0.98
2001-02	1.54	2.12
2002-03	0.49	1.10
2003-04	1.90	1.97
2004-05	0.95	0.95
2005-06	2.20	2.43
2006-07	2.01	1.34
2007-08	1.50	1.88
2008-09	1.72	1.47
2009-10	0.34	1.10
2010-11	1.56	0.89
2011-12	1.63	1.75
2012-13	1.41	1.88
2013-14	0.83	0.90

Sources: Calculated by us

The results shows declining trend in elasticity of total tax and own tax revenue of the state. The total tax revenue elasticity has come down from 8.53 units to 1.19 units and further to 1.27 units in period 1984-85, 1994-95 and 199-00 respectively. Over last ten years the tax elasticity has come down to 1.54 units, 0.95 units, 0.34 units' and 0.83 units in 2001-02, 2004-05, 2009-10 and 2013-14 respectively. It shows that the tax revenue of the state is less elastic in nature with change in state income. It has been seen from the table that in some years like 1987-88 and 2000-01, the tax elasticity was negative which suggests the heavy decline in tax revenue in these years. Similarly the elasticity of state's own tax revenue has mostly remained below one, which also shows less elasticity of own tax revenue with respect to states income. It is clear from the table that the tax revenue of the state is very much less responsive to income of the state; it is due to the slow growth of sources of tax revenue and poor tax base of the state which do not come along with growth of state income. The low tax elasticity of the state is also low due to the poor infrastructure and slow sectoral growth which become hindrance to impose taxes on different aspects of these sectors, which results in the tax

base of the state to be very small and few taxes are vanishing from the taxation structure of the state. Looking at past, before the uprising of militancy in the state, the tax elasticity was very high. It was soon after the disturbance and conflicts in the state that the tax elasticity reduces due to slow growth of tax revenue. So in a nutshell, we can say that the tax revenue of the state has potential to grow higher along with change in state income in a particular condition, but currently the tax revenue or tax system of the state is less responsive with growth of state income.

Now as far as tax buoyancy is concerned, it compares the real growth in tax revenue with the growth in national income or GSDP of state. Buoyancy measures the overall efforts of government to increase tax revenue, while as elasticity implies the revenue potential of the tax system of the state. Tax buoyancy will be a measure, to identify the movement of tax revenue of the state in terms of income of the state with the help of regression approach.

Buoyancy estimation of total revenue, total tax revenue, own tax revenue and some of the major taxes covering the period 1984-85 to 2013-14 in the state of Jammu and Kashmir is shown in **table 1.10**.

Table 1.10: Estimated result of Tax buoyancy of major taxes of Jammu and Kashmir from 1984-85 to 2013-14

Major Taxes	buoyancy coefficient	t- statistic	R ²	DW	Prob.
Income tax	0.43	2.94	0.95	2.29	0.0068
Union excise duty	0.015	8.81	0.62	2.53	0.0270
Sales tax	0.66	3.480	0.96	2.17	0.0018
State excise duty	0.006	3.69	0.94	2.36	0.0010
Tax on Goods and passengers	0.007	4.51	0.97	2.34	0.0001
Tax on Vehicles	0.002	4.18	0.98	2.60	0.0003
Land revenue	0.0004	7.07	0.64	2.61	0.1800
Stamp and registration duty	0.003	11.32	0.82	1.51	0.5836
Electricity duty	0.0060	2.36	0.94	1.92	0.0260
Total tax rev	0.11	3.46	0.98	1.20	0.0022
Own Tax revenue	0.18	4.07	0.95	2.58	0.0013
Total revenue	0.47	29.36	0.89	2.68	0.0000
Direct taxes	0.46	1.77	0.72	1.98	0.0872
Indirect taxes	0.14	0.300	0.30	2.53	0.7658

All buoyancy coefficients are significant at 5 percent, DW= Durbin-Watson stat

The time series analysis of the tax buoyancy of Jammu and Kashmir in **table 1.10** reveals that the tax system of the state between 1984-85 to 2013-14 has been inelastic. Tax structure of state is not responsive with change in income as all the buoyancy coefficients are less than unity. The table shows that the buoyancy of income tax is significant but the buoyancy coefficient is just 0.043,

which implies that with the 1 percent change in state income/NSDP the income tax increases by just 0.43 percent with R² as 95%. The slow response of income tax with change in state income might be due to income tax exemption in the state over the period of insurgency, and only few taxes are under income tax basket and rest of taxes are either exempted or evicted by people.

Similarly the buoyancy of union excise duty, sales tax, states excise duty, tax on goods and passengers, tax on vehicles, land revenue and stamp and registration duty is 0.0158 percent, 0.066 percent, 0.006 percent, 0.007 percent, 0.002 percent, 0.0040 percent, 0.003 percent respectively, all these taxes are significant at 5 percent level of significance with a good R^2 . But the magnitude of buoyancy coefficient of all major taxes is presenting a dark picture of tax system in the state. The sales tax which is highest contributor to state own tax revenue increases 0.066 percent with increase of 1 percent in state income with R^2 of 96 percent. It illustrates the low growth of sales tax in the study period. It might be due to the low investment environment in the state in last 30 years especially up to 2004-05, which hampers the industrial base of the state and in order to establish industrial base and investment environment; the state provides many tax exemption and holidays.

In terms of total tax revenue of the state which still occupy only 29 percent of total revenue of the state, has buoyancy coefficient of 0.11 percent which implies that 1 percent increase in state income will lead to 0.11 percent increase of total tax revenue of the state. The R^2 of total tax revenue is 98 percent which implies that the variation in total tax revenue with state income. It can be observed from the results that the state's total income tax has less scope of growth with state income. The state own tax revenue also presents the same picture, though the results are significant but the tax buoyancy coefficient is 0.18 percent which implies that 1 percent growth in state income will lead to 0.18 percent growth in own tax revenue of the state. If we talk about the total revenue of the state, it is also less responsive with change in state income. The table shows that total revenue of the state increases only by 0.47 percent with 1 percent change in NSDP or state income. The less buoyancy and elasticity of state's tax revenue in terms of income shows that the tax system is not progressive in nature because the progressive tax system always has higher buoyancy level. The low buoyancy of taxes in Jammu and Kashmir can be widely explained through various factors like large scale of tax exemption in the state in order to develop the states infrastructure and economy. Also due to heavy tax incentives and tax holidays given to industrial units in order to encourage business habit in the state as the industrial sector in the state is not performing well. The slow growth of agricultural sector over the years and exception of agricultural related taxes also lead to heavy burden on growth of taxes with respect to income. Most important is a larger portion of the economy is not taxable due to various social factors and due prevailing conditions

CONCLUSION

The tax system or the tax structure of the state is very disturbing and poor. The tax revenue is only contributing 32 percent to total revenue of the state. The rate of growth of taxes is also very low to contribute the growing demand of increasing expenditure. Though the state's tax- income ratio is positive at 15 percent, but at the same time the small tax base, low growth of taxes, deteriorating taxes, small tax rates, underdeveloped economic nature, large tax exemptions, greater subsidies, small taxable commodities, weak production units in the state etc are features as well as cause of poor tax structure of the state. The exemption of various taxes from tax system of the state like corporate tax, service tax, wealth tax, profession tax etc over a long period has also made tax structure very poor and inefficient. The elasticity and buoyancy of taxes has remained below one which clearly shows that the tax revenue of the state is less responsive to change in state income. The less buoyancy and elasticity of state's tax revenue in terms of income shows that the tax system is not progressive in nature because the progressive tax system always has higher buoyancy level. The tax revenue in the state is not able to contribute the growing expenditure burden in the state. Over the years, taxes like entertainment tax, land revenue, stamp and registration duty tax on urban immovable property are not only deteriorating but also going to disappear from the tax structure of the state. The tax share from centre constitute 60 percent of total tax revenue of the state and rest by own tax revenue. The poor performance of the tax revenue structure of Jammu And Kashmir State is also due to different fiscal policy instruments. Increase in ratio of total outstanding, total expenditure and total debt to NSDP of the state reduce the tax inefficiency or in other word reduce tax-NSDP ratio while as increase in Grants and use of policy measures like FRBM has produced tax efficiency in the state over last thirty years. The overall reason for weak tax structure of the state is due to long period of insurgency which made government machinery disable to mobilize the revenue in the state. Thus given the present level of the state's social and economic infrastructure, and the limited tax revenue and high growth requirements, it is a difficult task for the state government to generate enough revenue to meet all its requirements. Thus state needs to improve its tax revenue structure by broad-basing the taxation policy structure and promotion of investment both domestic and foreign which would enhance the financial strength of the state.

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