


[Click to Print](#)
[Click to Close](#)

## India's Tax to GDP ratio heading toward 23% by 2030

**JUNE 07, 2023**

**By Pratap Singh, Principal CIT**



**AS** per the IMF, *Taxes are unrequited payments to the Government*. Further, taxes are not in proportion to services received by individual payees from State. In fact, taxes are transfer of funds from private (taxpayers) to the government to provide public goods which otherwise could not be supplied by private sector efficiently. In India, the power to levy, collect and administer taxes is divided among the three tiers of the Government, namely Central Government or federal Government, State Governments and Local Bodies and Panchayat. The Central Government collects Income Tax, Central Excise, Customs Duty and Service Tax etc. The State Governments, on the other hand, administer Sales Tax/Value Added Tax, Excise on Liquor, land revenue, stamp duty on registrations and motor vehicle tax/road tax, taxes on agricultural income etc.; and the local bodies, like municipal corporations, etc., collecting octroi, property tax, fair tax etc. The taxes may also be classified as direct taxes (Income Tax) or indirect taxes (customs, central excise, state VAT etc.) depending upon whether they are collected directly from the person or indirectly through vendors though borne by respective consumers. The broad division of taxation powers has been provided under Article 246 of the Constitution, more particularly under 7th Schedule of constitution, which contains three lists; namely union list, state list and concurrent list delineating areas coming under jurisdiction of respective Governments. Of course, the residual taxation powers lies with the Centre. As per the constitutional scheme, jurisdiction on mobile taxes, like income-taxes, customs, and service tax, etc., was assigned to the Central Government, while less mobile taxes have been given to the state governments.

Now let us analyze the trends of collections of direct taxes and indirect taxes of Centre and their relative share in overall central revenue. The figures of direct and indirect taxes of Centre are taken from CBDT statistics, Ministry of Finance publications and Principal Controller of accounts data and are analyzed in Table 1 from 1980-81 onwards.

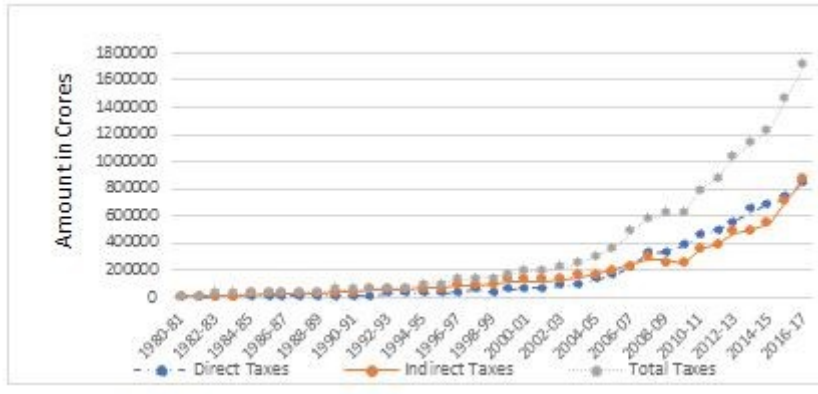
**Table 1: Revenue of Union Government**

(Rs. In crores)

Financial Year	Direct Taxes	Indirect Taxes	Total Taxes	Direct Tax as % of total tax	Indirect tax as % of total tax
1980-81	2817	9909	12726	22.17	77.83
1985-86	5423	17997	23420	19.3	80.70
1990-91	10606	45158	55764	19.02	80.98
1995-96	32090	75944	108034	29.70	70.30
2000-01	68,305	119,814	188,119	36.31	63.69
2005-06	165,216	199,348	364,564	45.32	54.68
2010-11	446,935	345,127	792,062	56.43	43.57
2015-16	741945	711885	1454180	51.03	48.97
2016-17	849818	861515	1711333	49.66	50.34

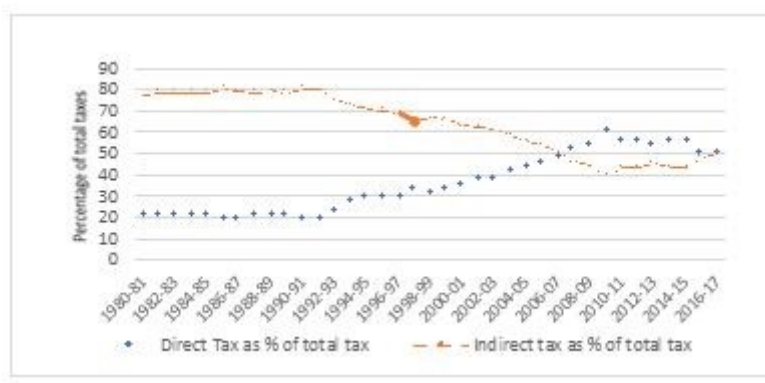
Source: CBDT Budget statistics, 2018

**Figure 1: Trends of Central Taxes**



Source: CBDT Budget statistics, 2018, constructed by author from Table 3

**Figure 2 : Composition of direct and indirect taxes**



Source: CBDT Budget statistics, 2018, constructed by author from Table 1

From comparison of direct tax collection vis-a-vis indirect tax collection as shown in Table 1 and figure 1 & 2, it may be noticed that though the nominal value of direct taxes have increased from 1981-82 onwards but their ratio remained stagnant at about 20% till 1991-92. However thereafter it has grown significantly not only in absolute terms but more importantly as ratio of total taxes. From about one fifth of central taxes (about 20% of total) up to 1991, direct taxes ratio gradually and steadily increased to 40% in the year 2003-04, and to 52.70% in the year 2007-08, when it crossed the half way mark. Within a span of two years, it improved further to a peak position of 60.64% in the year 2009-10. However thereafter it came down slightly and has been in the range of 54% to 56% till 2015-16 but in the year 2016-17, once again indirect taxes beaten direct taxes by a narrow margin of 50.34% to 49.66%, on account of higher revenue from central excise as levies on petroleum products were increased. However in the very next year, the direct taxes once again outperformed indirect taxes. The year 2007-08, has been the watershed in the history of direct tax collections, when it surpassed indirect tax collection. Later it attained the peak in the year 2009-10, when it stood at little over 60% of the central taxes. Of course, the worst year in terms of revenue generation has been 1998-99, in which the tax collection had shown a negative growth of 3.50% and negative tax buoyancy which is on account of one-time tax receipt of Rs. 10,000 cr under VDIS 1997 scheme in the year 1997-98.

It is widely accepted that the increase in the direct tax revenue has more to do with the rapid growth of the organized sector, expansion in the interaction of the financial sector with the rest of the economy and administrative measures taken by tax administration in extending the coverage of TDS (tax deduction at source) than with improved compliance arising from the reduction in marginal rates of tax. The extension of permanent account numbers (PAN) to cover a larger number of potential taxpayers and the expansion of the tax information system (TIN) are expected to advance this cause further, by generating an extensive and reliable database. Third party information, AIR (Annual Information Returns) and 360 degree profiling of tax payers has helped a lot in checking the tax evasion.

It is widely believed that the increase in ratio of direct taxes happened because of improvement in tax compliance after rationalization of tax rates to a reasonable level of 10%, 20% and 30% from 1997-98 onwards, induction of technology and automation and better enforcement. E-payment of taxes, e-filing of returns and computerization of departmental functions also facilitated this process. It may also be mentioned that 2003 to 2008 has been the best period for Indian economy in terms

of growth and investment, which is reflected in direct tax collection also, but in the same period there has been significant fall in the contribution of indirect taxes as growth largely came from services sector and manufacturing did not show any improvement.

## 2: Trends in direct tax collection :

Direct taxes can broadly be classified into corporate tax and personal income tax, as security transaction tax is still a small in coverage and collections (contributes about 1% of the total revenue) and other direct taxes like wealth tax, BCCT, interest tax and Fringe benefit tax etc. stand abolished. Though it is noticed that the direct taxes collection in India has been steadily increasing on decent pace in last 30 years, yet it is important to see as to how its components are faring over a period of time. From the Table -2 it can be seen that up to 1991-92 the quantum of corporate income tax collection used to be equal or lesser than Personal Income tax collection but thereafter it gradually took over personal income tax collection and from 2002-03, it outpaced personal income tax collections by a huge margin . In the year 2010-11, it was almost double of personal income tax collection. There are few important trends points which could be noticed from the above Table 2 and Figure 3. It is seen that F.Y. 2002-03 to 2007-08 has been the best years for the Indian economy, in terms of GDP growth and overall economic well-being, which is reflected in tax collection figures as also in tax buoyancy. As is clear from the above Table -2, the growth in taxes during this period was ranging from 20% to 40%, which was largely because of tremendous performance by corporate taxes in this period. The tax buoyancy also reached a peak figure of 2.42 (2006-07) during this phase. However post 2007-08, the pace of growth in taxes lost steam because of slow down in global economy. Even the tax buoyancy declined significantly during this period and has been close to one or below one, which is not a very healthy sign for a growing economy, like India.

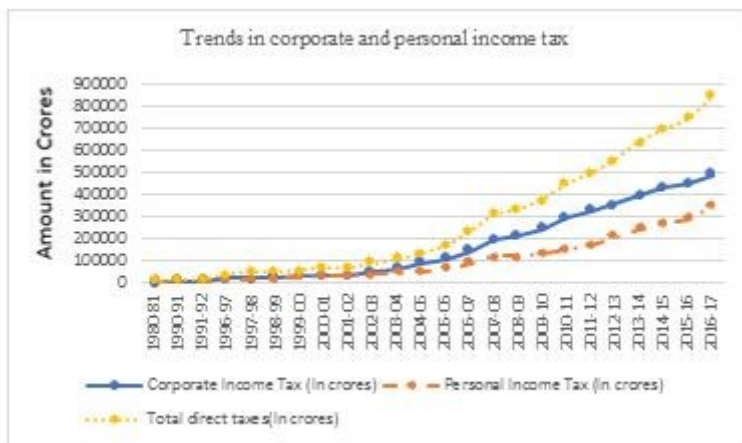
**Table -2: Direct Tax Collection al Cn**

( Rs. In crores )

F.Y.	Corporate Income Tax (In crores)	Personal Income Tax (In crores)	Other Direct Taxes (Cr.)	Total direct taxes (In crores)	Growth in corporate taxes	Growth in personal income tax	Growth in total tax collection% age	Buoyancy Growth in taxes/growth in GDP
80-81	1337	1440	-	2817	23.25	18.22	22.12	1.13
90-91	5335	5371	-	10606	9.60	8.35	8.9	1.08
95-96	18567	18234	2094	38895	19.25	17.23	18.20	1.05
00-01	35696	31764	845	68305	16.30	23.81	17.85	2.32
05-06	101277	63689	250	165216	22.50	29.64	24.44	1.76
06-07	144318	85623	240	230181	42.50	34.44	39.32	2.42
07-08	193561	120429	340	314330	34.12	40.65	35.64	2.21
08-09	213395	120034	389	333818	10.25	(-)3.33	6.92	0.54
09-10	244725	132833	505	378063	14.68	10.66	13.25	0.90
10-11	298688	147560	687	446935	22.05	11.08	18.22	0.97
15-16	453228	287637	1079	741945	5.74	7.9	6.60	0.86
16-17	484924	349270	15624	849818	6.99	21.42	14.53	2.04

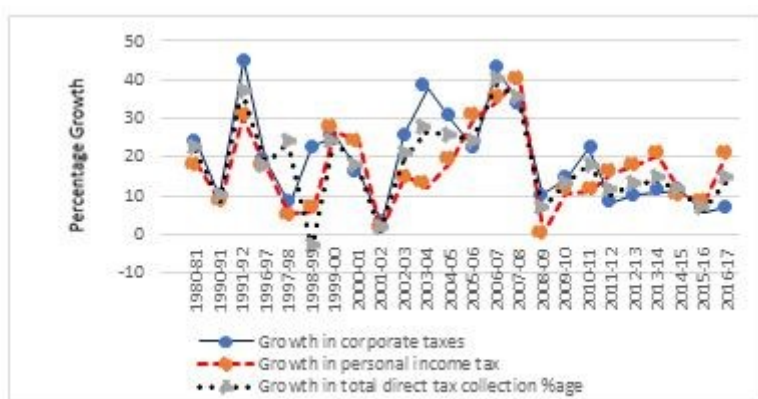
Source: CBDT Budget statistics, 2018, Ministry of Finance statistics 2017, Income Tax Department, Admin Hand Book, 2018

**Figure. 3: Trends in corporate and personal income tax in India**



Source: constructed from Table 2

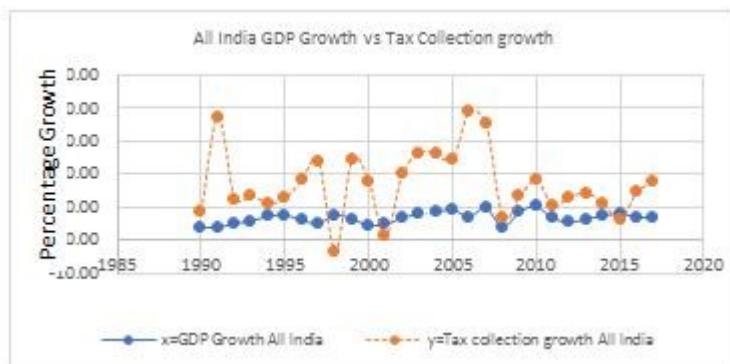
**Figure. : 4 : Growth in direct taxes**



Source: compiled from Table 2

However, from the analysis of trends of growth in tax collection as reflected in the Figure -5 and Table 2, there appears to be no direct and immediate co-relation with the GDP growth. It has been seen that in some of the years, though the GDP growth has decelerated but the growth in tax collection has increased. This gives only one indication that there may be significant tax evasion and parallel economy and an indication that even in the years when GDP growth is small, the growth in tax collection could be higher if proper enforcement and supervision is done by the tax administration, as is reflected in Figure 5.

**Figure 5: All India GDP Growth vs Tax Collection Growth**



Source : constructed by author from Table 3.2

**3: Analysis of Tax-GDP Ratios:-**

Tax GDP ratio is an important indicator used globally to measure the effectiveness of a tax administration and is defined as the tax collected as percentage of GDP. The analysis of tax GDP ratio figures from 1980 onwards shows that despite systematic reforms, the revenue productivity of the tax system has not shown any appreciable increase. Following economic crisis of 1991, the

customs tariffs and excise duties were considerably reduced, resulting into stagnation in revenues and reduction in tax-GDP ratio. This was followed by a decline in the tax ratio, in the period 1985-86 to 1996-97. In fact, the tax-GDP ratio declined from 15.8 per cent in 1991-92 to its lowest level of 13.4 percent in 1997-98 and fluctuated around 14 percent until 2001-02, as is clear from Table-3.3. It has been so because most of the growth during this period came from services sector (about 75%), while the growth of industry and manufacturing has been stagnant and therefore excise duties did not show any improvements. However thereafter ratio improved to 16% in the year 2005-06 and finally to 17.45% in the year 2007-08, on account of expansion in economy and good GDP growth. However there after it came down to 15.45% in the year 2009-10 on account of economic slowdown but rebound to 17.87% in 2013-14 as is clear from Table: 3. The improvement in tax-GDP ratio during the period 2002-03 onwards has been primarily on account of improvement in tax-GDP ratio of the direct taxes and some improvement in the ratio of State taxes.

Interestingly, the trends in tax ratios of direct and indirect taxes follow different paths, as is seen from Figure- 6. The tax ratio for direct taxes remained virtually stagnant throughout the forty-year period from 1950 to 1990 at a little over 2 percent of GDP. Thereafter, coinciding with the reforms marked by significant reduction in the tax rates and simplification of the tax structure, direct taxes increased sharply to over 4 percent of GDP in 2003-04, to 4.5% in 2004-05, to 5.39% in 2006-07 and to 6.26% in 2007-08. Thereafter, tax-GDP ratio has come down slightly and has been in the range of 5.4 to 5.6% of GDP, until 2014-15 but improved to 5.8% in 2016-17. In contrast, much of the increase in the tax ratio during the first forty years of planned development in India came from indirect taxes, which more than tripled, from 4 percent of GDP in 1950-51 to 13.5 percent in 1991-92. Since then, however, ratio of indirect taxes has fallen back to around 11 percent of GDP. The decline in the total tax ratio observed since 1987-88 has occurred mainly at the central level, especially in indirect taxes, which came down significantly in proportionate terms, because of reduction in tariff rate and since Centre accounts for about 60 percent of the total revenue, it affected overall tax-GDP ratio.

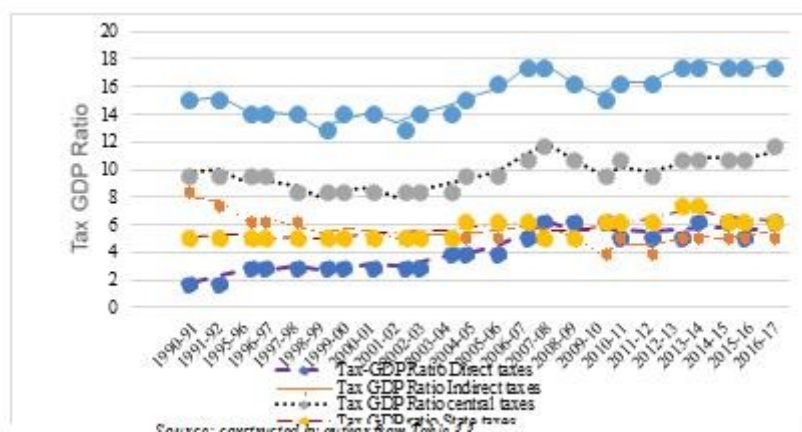
The analysis of the trends in central tax revenue shows that the sharpest decline in the tax-GDP ratio was in indirect taxes—both customs duties and central excise duties. The former declined by about half, from 3.6 percent in 1991-92 to 1.8 percent in 2004-05. Revenues from excise duties fell by one percentage point, from 4.3 percent to 3.3 percent during the period. One explanation for the declining trend in excise duties throughout the 1980s is that the rate structure assumed was not revenue neutral when the input tax credit was allowed. Continued exemption of the small business sector, expansion of its definition to include businesses with annual turnover of Rs. 1 crore, and widespread use of area-based exemptions are other important reasons for the decline in excise duty revenues. Further, since 1997-98 more than 75 percent of the increase in the GDP is attributable to the growth of the service sector and the manufacturing sector has been relatively stagnant, implying an automatic reduction in the ratio of excise taxes on the manufacturing base as a percentage of total GDP. The figures of Tax-GDP ratio from 1980-81 onwards are tabulated in Table 3.

**Table 3 – Tax-GDP Ratio of Different Taxes In India**

Financial Year	Net Collection of Direct Taxes (in crores)	GDP Current Market Price (in crores)	GDP Growth, percentage	Tax-GDP Ratio Direct taxes	Tax GDP Ratio Indirect taxes	Tax GDP Ratio central taxes	Tax GDP ratio State taxes	Total tax GDP Centre and states
1980-81	2817	401128	5.90	2.35	6.46	8.81	4.55	13.36
1985-86	5423	521150	5.80	1.94	7.96	9.90	5.04	14.94
1990-91	10606	692871	5.60	1.88	7.94	9.82	5.14	14.96
1995-96	32090	899563	9.30	2.74	6.33	9.07	5.22	14.29
2000-01	68,305	2102376	7.70	3.15	5.55	8.70	5.38	14.08
2005-06	165,216	3693369	13.92	4.47	5.52	9.91	6.00	15.91
2010-11	446,935	7674148	18.84	5.63	4.55	10.17	6.14	16.31
2015-16	741945	13675331	11.35	5.60	5.20	10.80	6.50	17.30
2016-17	849818	152510281	11.50	5.79	5.51	11.30	6.30	17.60

Source : compiled from CBDT statistics 2017, Ministry of Finance statistics 2018, and Income Tax Handbook 2018 .

**Figure 6: Tax-GDP Ratio in India**



Source: constructed by author from Table 3.3

From the discussion in foregoing paragraphs, the following conclusions can be drawn:

- Tax GDP ratio of direct taxes was in the neighbourhood of 2 percent for almost forty years from 1950 to 1990 until large scale reforms were carried out.
- It changed upwards after 1990 reforms to 6.26 percent by 2007-08, while ratio of indirect taxes came down significantly while that of state taxes remained more or less same. Therefore overall tax-GDP ratio did not reflect any significant increase.
- Direct taxes ratio showed a slow down there after and hovered around 5.5 percent until 2017, while that of indirect taxes marginally increased.
- Increase in ratio of direct taxes is on account of induction of technology and better TDS coverage as also on account of improved corporate tax performance.

As per a study carried out by Rao (2017), the revenue productivity of the Indian tax system has not only been low but has not shown any perceptible increase over the years, despite increases in the per capita incomes. In fact, it has shown a decline in the 1990s from 15.3 per cent in 1991-92 to 14 per cent in 2001-02. Thereafter, it steadily increased to 17.5 per cent in 2007-08, but declined to 15.5 per cent in 2009-10 and hovered around 16.5 per cent thereafter. He further observed that the tax GDP ratio of India presently (2017-18) should have been about 19% and 22.84% in the year 2030-31, considering nominal growth of 7% and inflation at 5% and dollar exchange rate of 67. Future projections of tax GDP ratio were worked out as under.

**Table 4: Predicted Tax-GDP ratio for India**

Year	Predicted Tax GDP ratio
2016-17	18.91
2017-18	19.19
2018-19	19.47
2019-20	19.75
2020-21	20.03
2021-22	20.31
2022-23	20.59
2023-24	20.87
2024-25	21.15
2025-26	21.43
2026-27	21.71

2027-28	21.99
2028-29	22.27
2029-30	22.55
2030-31	22.84

Source: Rao (2017)

#### 4. Phases of Direct Taxes Collection:

The analysis of the tax GDP data indicates four distinct phases of tax GDP ratio; first from 1950 to 1990, second from 1991-2002, third from 2003 to 2008 and fourth from 2008 till date, denoting different growth periods and tax policy interventions. In the first phase (1950-90) direct tax GDP ratio has been stagnant at about 2% and major contribution during this phase came from indirect taxes like customs and central excise. This pre reform phase also shows high tax rates, rampant evasion, low manufacturing activity and very low corporate income tax. Interestingly the ratio of state taxes also has been static during this period at about 5%. The second phase (1991-2002) denotes significant tax reforms undertaken after Chelliah committee report which includes reduction in tax rates, consolidation of tax slabs and better coverage under TDS mechanism. During this phase, the ratio of direct taxes ratio steadily increased from 2% to 4%. However, during this phase ratio of indirect taxes significantly declined because of reduction in tariffs while state taxes ratio remained stagnant at about 5%. Third phase (2002-2008) has been the best and the most bullish phase in tax collection where within a span of 6 years tax GDP ratio increased from 4% to 6.26%, because of phenomenal increase in corporate taxes signifying robust manufacturing activity. The last phase from 2008 onwards denotes declining contribution of direct taxes in overall taxes indicating deceleration in economic growth as also in industrial activity and tax GDP ratio also coming down to 5.4% in 2011-12. Presently the ratio is hovering around 5.8%, indicating need of further reforms in tax laws as also in tax administration. The four phases of tax-GDP ratio are presented in Table 3.5.

**Table 5: Phases of Tax Collection in India**

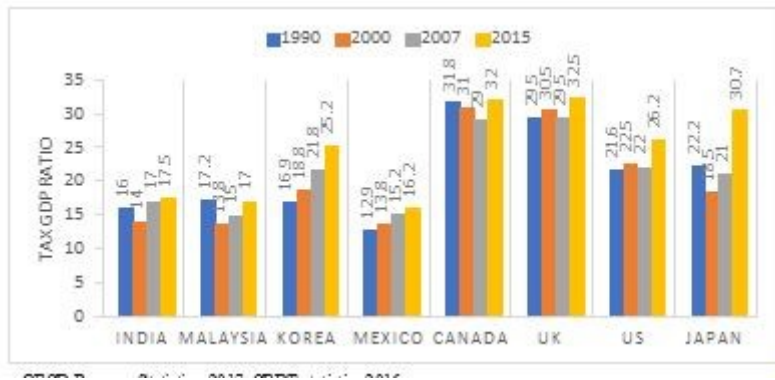
Phases	Period	Tax-GDP ratio of direct taxes	Remark
Phase-1	1950-1990	Less than 2%	1950 to 1990 phase shows that the direct taxes GDP ratio has been stagnant at about 2% and major contribution during this phase came from indirect taxes like customs and central excise.
Phase-2	1991-2002	2% to 4%	Because of tax reforms undertaken in this phase after Dr. Raja Chelliah Committee report, more importantly reduction of tax rates and slabs
Phase-3	2003-2008	4% to 6.26%	This has been the most bullish phase in tax collection where within a span of 6 years tax GDP ratio increased from 4% to 6.26%, because of phenomenal increase in corporate taxes signifying robust manufacturing activity.
Phase-4	2008-till date	6.26% to 5.8%	After 2008 once again the contribution of direct taxes in overall taxes started declining indication deceleration in economic growth as also industrial activity.

Source: compiled from literature on taxation and table 3.3

#### 5: International comparison:

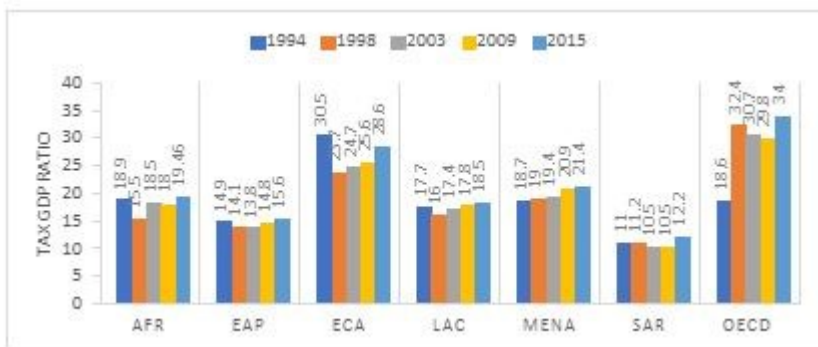
International comparison of tax GDP ratios however indicates that India does not fare so well as compared to OECD countries or BRICS countries or even similarly placed economies. The comparison of tax- GDP ratio of seven important economies of the world in the form of a bar chart is shown in Figure 7. Tax-GDP ratios of different regions of the world are also depicted in Figure 8.

**Figure: 7 Tax –GDP Ratio of different countries**



Source: OECD Revenue Statistics, 2017; CBDT statistics 2016.

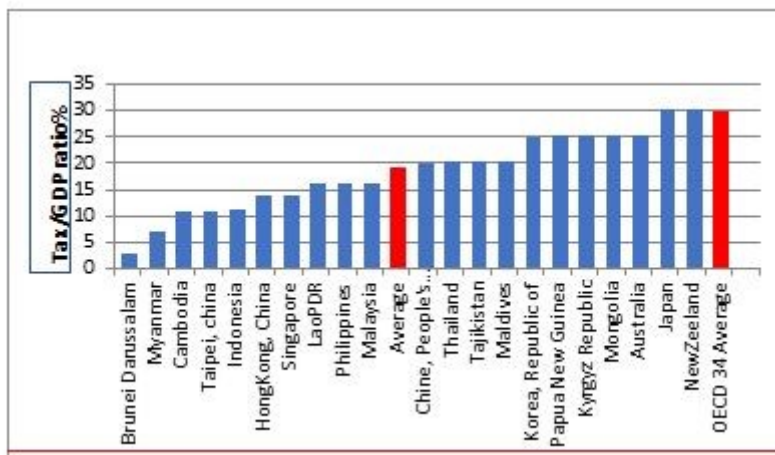
**Figure: 8: Tax –GDP Ratio- Region wise**



Source: The World bank classification and WDI report 2015, OECD report 2017.

SAR- South Asia Region, MENA- middle east and north Africa, LAC- Latin American countries, ECA- Europe and central Asia, EAP- East Asia and Pacific , AFR- Africa

**Figure 3.9– Tax GDP Ratio of OECD and Non OECD Countries for Year 2014 .**



Source: OECD comparative tax administration, 2017 and IMF data

**Table 6 : Comparison with BRICS Countries**

S No.	Country	Tax GDP ratio (year 2017) %age	GDP Size in USD trillion ( 2017)	GDP Growth %age
1	India	17.7	2.80	7.2%
2	China	20.1	11.80	6.5%
3	Brazil	34.4	2.14	0.2%
4	Russia	19.5	1.56	1.1%



5	South Africa	26.9	0.32	1%
---	--------------	------	------	----

Source: OECD comparative tax administration, 2017 and IMF data

The tax GDP ratios in respect of OECD countries and major economies of the world for the year 2014 are shown in the Figure -9, which indicates that OECD countries have much higher average of 34.4%, while global average at 18% is also slightly higher than Indian ratios. The China's ratio at about 19% is marginally better than India. Therefore, it may be concluded that India is still a long way to go in reaching close to OECD and developed countries' tax ratios, thus indicating that there is a lot of scope for improvement. Therefore, further tax reforms in policy as also in tax administration are required and to do that, global best practices needed to be emulated besides bench marking of Indian tax administration.

**Table -7: Composition of Tax Revenues of different countries ( in Percentage )**

Countries	Individual Income Tax	Corporate Tax	Property Tax	Social security contributions	Taxes on goods and services	Payroll Tax	Total
<b>Taxes as percent of Total Tax Revenue</b>							
INDIA	12.4	20.9	0	0	65.9	0	99.2
CANADA	37.4	11.0	9.9	14.4	23.6	1.9	98.2
USA	38.1	10.9	11	23.3	16.6	0	99.9
UK	30.1	9.4	12.6	18.4	29.2	0	99.7
JAPAN	19.5	16.8	8.9	36.4	17.9	0	99.5
MEXICO	27.7		1.7	15.3	52	1.4	98.1
KOREA	16.7	15.1	12.8	20.8	31.3	0	96.7
MALAYSIA	12.2	33.8	NA	0	27.1	0	96

Source : OECD Revenue Statistics (1965-2008) , Indian Public Finance Statistics (2008-09), Govt. of India; and Ministry of Finance, Govt. of Malaysia .

It is also seen that in the developed and OECD countries, major component of overall taxes is income tax which is above 50%, while developing countries like India still depend largely on indirect taxes or consumption taxes. Reasons are not far to seek, because as the per capita income increases and country becomes richer more and more taxes come from direct taxes or more particularly the income taxes. India is still largely dependent on indirect taxes for its tax revenue which contribute about 66% of total taxes. However, as the country will get richer, share of personal income tax is going to increase.

**6: Tax Elasticity Analysis:**

The theoretical arguments indicate that a sound tax system should be elastic and should automatically generate greater tax revenue with the growth in Gross National Income. In order to verify this theoretical premise, an attempt is made in the present paper, to conduct tax elasticity analysis to see as to how elastic the tax collections are vis- a-vis GDP growth. In doing so the Tax is treated as the dependent variable whereas GDP is treated as an independent variable. The relationship was defined as:

$$\ln TAX = \alpha + \beta_1 \ln GDP + u_t$$

Where  $\alpha$  (alpha) is constant, TAX is dependent variable, GDP is independent variable,  $\beta_1$  is factor and regression was run on the data as per Table 3.8.

**Table 3.8: Tax Collection and GDP**

Financial Year	Net Collection of Direct Taxes (Rs. crores)	GDP Current Market Price (Rs. crores)

1980-81	2817	401128
1981-82	2813	418723
1982-83	3365	435268
1983-84	3847	469236
1984-85	4197	492364
1985-86	5423	521150
1986-87	5644	553427
1987-88	7284	587243
1988-89	8825	620314
1989-90	10019	653297
1990-91	10606	692871
1991-92	14584	701863
1992-93	18131	751246
1993-94	20298	800375
1994-95	26966	851367
1995-96	32090	899563
1996-97	36798	970083
1997-98	37113	1016594
1998-99	46,600	1740985
1999-00	57,959	1952035
2000-01	68,305	2102376
2001-02	69,198	2281058
2002-03	83,088	2458084
2003-04	105,088	2754621
2004-05	132,771	3242209
2005-06	165,216	3693369
2006-07	230,181	4294706
2007-08	314,330	4987090
2008-09	333,318	5630063
2009-10	378,063	6457352
2010-11	446,935	7674148
2011-12	493,959	9009722
2012-13	558,658	10113281
2013-14	638,591	11355073
2014-15	6,96,200	12756000
2015-16	741945	13675331
2016-17	849818	152510281

Source: Public Finance Statistics, 2017, CBDT Statistics 2018

On computerized statistical (regression) analysis, the convergence was reached after 5 iterations and the results were worked out as Table 9. The analysis was done through the help of computer software STRATA 13, which uses iterative scheme of analysis, ending into convergence at certain level. This was done to see as to how elastic tax collections are vis a vis GDP growth and by what percent the tax collection growth increases for every percent growth in GDP.

**Table: 9: Estimated Model of Tax Elasticity**

Dependent Variable: TAX				
Sample (adjusted): 1982- 2017				
Included observations: 36 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
TGDP	1.312	0.052	25.394	0.000
C	-6.530	0.534	-12.237	0.000
AR(1)	0.807	0.105	7.661	0.000
R-squared	0.998	Mean dependent var		6.301
Adjusted R-squared	0.998	S.D. dependent var		1.799
S.E. of regression	0.078	Akaike info criterion		-2.176
Sum squared resid	0.203	Schwarz criterion		-2.044
Log likelihood	42.162	Hannan-Quinn criter.		-2.130
F-statistic	9213.833	Durbin-Watson stat		1.863
Prob(F-statistic)	0.000			
Inverted AR Roots	0.81			

Source: Computed by the author from Table -8

From the above results, it can be concluded that the GDP growth is positively influencing growth in tax collection. In other words, increase in every percent in GDP leads to increase of tax revenue to the tune of 1.31 percent. Hence, the tax growth is highly elastic (since it is more than unity) to growth in GDP.

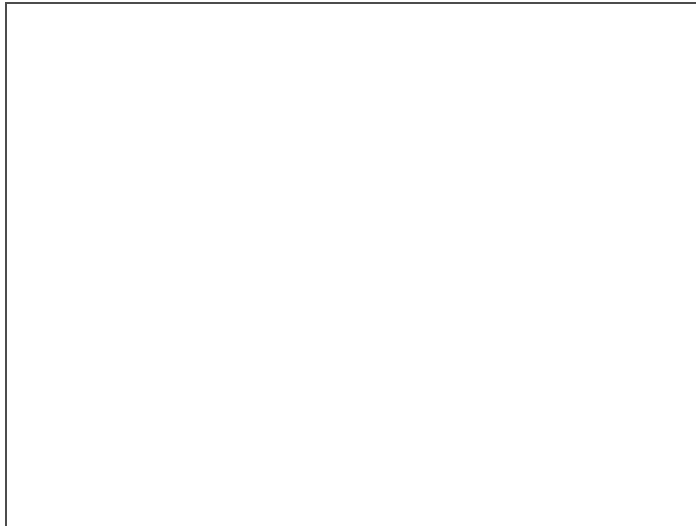
**7. Impact of Economic Reforms on Direct Tax Revenue in India: An Interrupted Time Series Analysis (ITS) of pre and post-tax reforms in India:**

While the preceding analysis has revealed that the tax growth is highly elastic for the time period covered in the study, it should be noted that the country has experienced major tax reforms from the FY 1991-92 onwards. It is therefore important to examine if the tax reforms have made any difference to the tax elasticity in the country. This method uses rather a simple linear regression technique as compared to ARIMA models. It controls secular trends, and accounts for serial correlation of the time series data. The model specification of this technique is as under (Lagarde, 2012) :

$$Y_t = \beta_0 + \beta_1 Time + \beta_2 PolicyIntervention + \beta_3 PostSlope + \varepsilon_t \text{ ---- (1)}$$

Where  $Y_t$  is the dependent variable (Direct Tax Revenue (Rs. in crore) in the present case)) at time  $t$ ,  $Time$  indicate time since starting of the study and captures the structural time trend of dependent variable independently from the policy intervention (pre-reform period),  $PolicyIntervention$  is a dummy variable that is coded as '0' for the observations pertaining to pre-policy period and coded as '1' for the observation fall under policy regime. Finally,  $PostSlope$  variable represent the change in the dependent variable after implementation of a policy and the constant ( $\beta_0$ ) capture the starting level of dependent variable. The above model is estimated using the software STATA 13. The final estimates are obtained through Prais-Winsten regression that uses generalized least square (GLS) method to estimate the coefficients in a linear regression model.

**Figure -10:Prais-Winsten Estimates of segmented regression for Direct Tax Revenue**



Source : Author's estimation using equation (1)

The coefficients of the above model indicate that there was no significant year-on-year change (either positive or negative) in the direct tax revenue before the implementation of economic reforms of 1991. The coefficient *Time* variable ( $\beta_1$ ) that meant to capture the structural time trend prior to reforms is not significant at 5 percent level. In other words, the direct tax revenue in India has not witnessed any significant change in the pre-reforms period. On the contrary, exactly the opposite pattern is observed from the coefficient value of Post Slope variable. The corresponding coefficient ( $\beta_3$ ) is not only significant at 5 percent level but also possess the positive sign. This indicates the direct tax revenue of India has substantially increased after the implementation of economic reforms to the tune of Rs. 31,651 crore an average per year compared to the pre-reforms period.

However, the results also indicate that this increase in direct tax revenue has not been achieved immediately after the implementation of economic reforms, but a few years later. This is reflected by the coefficient that captures the immediate impact of the reforms ( $\beta_2$  Policy Intervention) is not significant at 5 percent level. Hence, it can be safely concluded that the economic reforms of 1991 have certainly positively altered the trend and growth rate of direct tax revenue in India.

**8: Impact of Global Financial Crisis on the Tax Collection: A Structural Break Analysis:**

The analysis of tax collection trends and the tax elasticity has accounted for a substantial improvement, especially for direct taxes after the reforms have been introduced coupled with the buoyant economic growth that the country experienced. However, the slowing down of Indian economic growth experienced on account of the global financial crisis of 2008 did have its impact on the tax collection. This section has attempted a structural break analysis to check if there has been a significant decline in tax collection following the deceleration in the country's economic growth.

Structural break analysis for tax revenue from 1980 to 2017 has been done with a view to see as to when does the break occurs in the trends of taxes. While doing so different years have been kept as year of structural break and a dummy variable has been introduced which has value 0 before that year and 1 after that. The relationship between tax and GDP growth was defined as under:

$$\ln Tax_t = \alpha + \beta_t Time + \gamma_t Dummy\ 07 + \delta_t Dummy\ 07 * Time + \epsilon_t$$

Where,  $\ln TAX = \log(TAX)$  and time is in years,  $\alpha$  is constant  $\beta, \gamma$ , and  $\delta$  are parameters to be estimated. DUMMY07 is a dummy variable (differential intercept) taking the value of 1 for the observations beginning from the year of break and 0 before that year. On computerized analysis, convergence reached after 13 iterations in the year 2007 and the estimated results of the model are presented in Table 10.

**Table:10 Results of Structural Break Analysis-Direct Taxes**

<b>Dependent Variable: TAX</b>
<b>Sample (adjusted): 1982- 2017</b>
<b>Included observations: 36 after adjustments</b>

Variable	Coefficient	Std. Error	t-Statistic	Prob.
<b>CONSTANT</b>	2.969	0.062	47.597	0.000
<b>TIME</b>	0.170	0.004	45.215	0.000
<b>DUMMY07</b>	1.366	0.321	4.255	0.000
<b>TIME*DUMMY07</b>	-0.041	0.011	-3.748	0.001
<b>AR(1)</b>	0.491	0.164	2.988	0.006
<b>R-squared</b>	0.999	Mean dependent var		6.301
<b>Adjusted R-squared</b>	0.999	S.D. dependent var		1.799
<b>S.E. of regression</b>	0.067	Akaike info criterion		-2.437
<b>Sum squared residual</b>	0.140	Schwarz criterion		-2.217
<b>Log likelihood</b>	48.866	Hannan-Quinn criter.		-2.360
<b>F-statistic</b>	6284.439	Durbin-Watson stat		2.035
<b>Prob(F-statistic)</b>	0.000			
<b>Inverted AR Roots</b>	0.49			

Source: Worked out by the author, 2019

The differential intercept DUMMY07 shows how much the average level of tax growth rate has changed since 2007. DUMMY07, which is the differential intercept is positive and significant (at 1.36) showing a statistically significant difference in the tax growth rate of pre and post break point. The slope intercept TIME\* DUMMY07 is also significant but negative. The average difference in growth rate before and after the structural break point is negative and significant. This indicates that the average growth rate, after the structural point is much lesser (lesser by 4%) than the growth rate before, implying that the deceleration in the Indian economic growth has adversely affected the growth in tax collections.

## 9. Conclusions:

The study concludes that though the ratio of direct taxes has improved tremendously from about 20% of central taxes in 1990 to 60% in the year 2007 and even the tax-GDP ratio of direct taxes has improved from about 2% in 1990 to 6.2% in 2007, but still there is perceptible tax evasion and black money in the economy, for which tax administration cannot entirely disown the responsibility. It is also seen that the overall tax GDP ratio of India (including states) at 17.6% is among the lowest in similarly placed economies. Though the tax base is increased to about 7 crores taxpayers which does not look so small, but the problem remains that very few people pay taxes in higher income bracket. It is seen that only 1,80,171 people had shown income exceeding Rs 1 crore, 2,58,214 shown income exceeding Rs. 50 lakhs and 43,34,307 shown income exceeding Rs. 10 lakhs, as per March 2019 statistics, which is still small. Therefore, penetration and coverage of taxes needed to be increased and hard to tax groups like, self-employed, professionals and small and medium businesses have to be effectively taxed by employing risk based strategies, for which certain strategies have been suggested in this study. A watch is also necessary on aggressive tax planning employed by some of the large tax payers and General Anti Avoidance Rules (GAAR) have to be effectively used to take care of such planning. Even agricultural income beyond certain amount like Rs. 10 lacs, may be brought to tax by making suitable constitutional amendments. In this regard, recent measures taken by the Government like Demonetization 2016, Benami Property Act, Foreign Black Money Act and Income Disclosure scheme will help in cleaning up the economy and increasing the tax base as also tax collections.

The Elasticity Analysis of tax and GDP data for the period 1980 to 2017 through regression analysis shows that relationship between two variables is positive and increase in every percent in GDP leads to increase of tax revenue to the tune of 1.31 percent. Hence, the tax growth is highly elastic (since it is more than unity) to growth in GDP. Further impact of economic reforms on direct tax revenue in India was examined from an Interrupted Time Series Analysis (ITS) for pre and post-tax reforms in India, to see whether the tax reforms made any difference to the tax elasticity in the country by using the software STATA 13. It was found that there was no significant year-on-year change (either positive or negative) in the direct tax revenue before the implementation of economic reforms of 1991. On the contrary, exactly the opposite pattern is observed post reform period where in direct tax revenue has substantially increased after the implementation of economic reforms and to the tune of Rs. 31,651 crores on an average per year as compared to the pre-reforms period. However,

the results also indicate this increase in direct tax revenue has not been achieved immediately after the implementation of economic reforms, but actually after a few years. Hence, it can be safely concluded that the economic reforms of 1991 have certainly positively altered the trend and growth rate of direct tax revenue in India. Structural break analysis of taxation data shows that there was statistically significant break in the year 2007. After checking the trend break for several years since 1990-91, the co-efficient of the regression were found to be significant in the year 2007. Analysis indicates that growth rate of direct taxes after 2007 is lesser by about 4.1% as compared to the earlier years, clearly showing deceleration in economic activity as also tax collection, on account of global slowdown.

**[The views expressed are strictly personal.]**

*(DISCLAIMER : The views expressed are strictly of the author and Taxindiaonline.com doesn't necessarily subscribe to the same. Taxindiaonline.com Pvt. Ltd. is not responsible or liable for any loss or damage caused to anyone due to any interpretation, error, omission in the articles being hosted on the site)*

---

 **Click to Print**

**Click to Close**