

IMPACT OF GST ON INDIRECT TAX COLLECTION IN INDIA: PRE GST AND POST GST ANALYSIS

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Abstract:

Tax revenue is the major source of income for any country and for that tax reforms are brought. Goods and Services Tax is one of them. This research paper tried to study year wise GST collection and monthly average of GST collection in India and to analyze the contribution of indirect tax in GDP of India. It further compared indirect tax collection by Centre, States and Combined before and after GST.

Keywords: *Indirect Tax, GST, GDP, Centre, States etc.*

Introduction:

To run a country, the government requires revenue. The Goods and Services Tax is an important source of revenue for the Indian government. As per the Budget 2020-21, Goods and Services Tax accounts for around 28% of the total revenue of the Indian government.¹ With a perfect balance between the expectations of taxpayer and the on-going and continuous progress made by the government, the GST tax system can be further simplified and ease of doing business can be achieved. There has been a significant increase in the taxpayer base due to efficient tax administration and use of technology. This has in turn resulted in more people being bought in the ambit and higher GST collection year over year.²

Objectives of the Study:

- 1) To study year wise GST collection and monthly average of GST collection in India.
- 2) To analyze the contribution of indirect tax in GDP of India.
- 3) To compare indirect tax collection by Centre, States and Combined before and after GST.

Hypotheses of the Study:

- 1) There is significant difference in indirect tax collection by Centre before and after GST.
- 2) There is significant difference in indirect tax collection by States before and after GST.
- 3) There is significant difference in indirect tax collection by Centre and States (combined) before and after GST.

4) There is significant difference in indirect tax - GDP ratio before and after GST.

Research Methodology:

This study is based on secondary data which is collected from various reports, journals and websites. This study tried to study the impact of GST on indirect tax collection in India. Paired T Test is used for the purpose of data analysis.

GST Collection in India:

Table 1 shows the month-wise collection of GST in India. As GST is implemented in India from 1 July 2017, the data of GST collection is available from August, 2017. In August, 2017 GST collection was Rs. 95633 crores which increased to Rs. 160122 crores in March, 2023. The monthly collection was least (Rs. 32172 crores) in April, 2020 due to Covid pandemic and was highest (Rs. 167540 crores) in April, 2022.

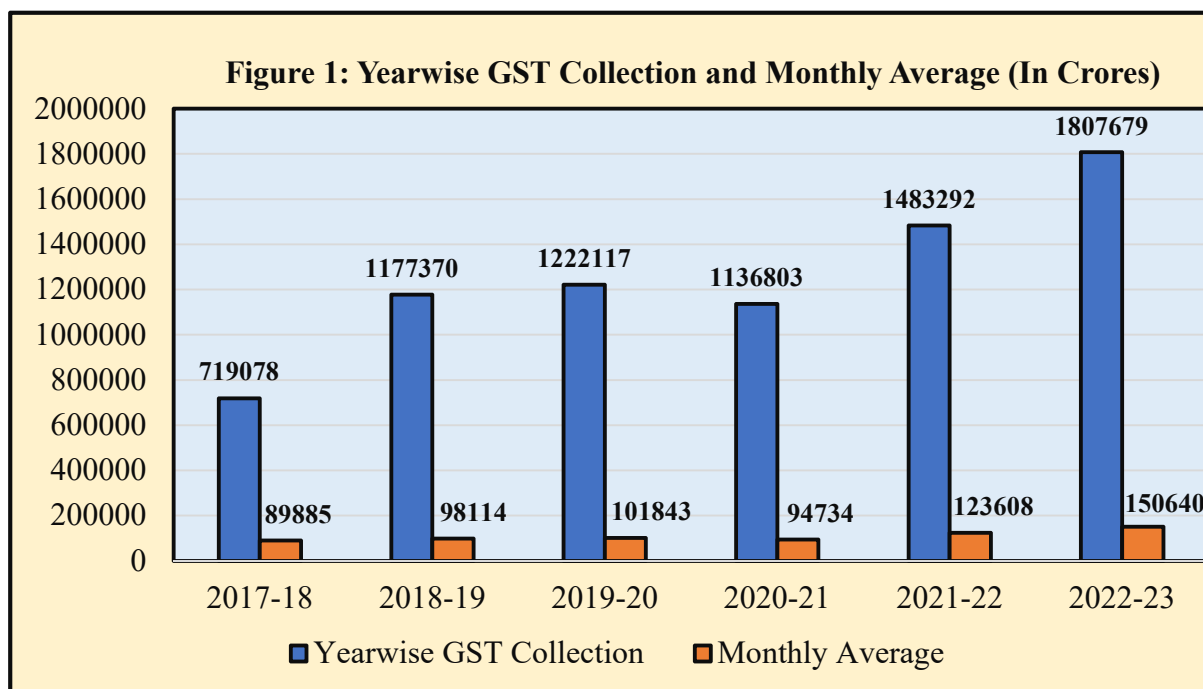
Table 1: GST Collection in India (In Crores)

Month	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
April	-	103459	113865	32172	139708	167540
May	-	94016	100289	62151	97821	140885
June	-	95610	99939	90917	92800	144616
July	-	96483	102083	87422	116393	148995
August	95633	93960	98202	86449	112020	143612
September	94064	94442	91916	95480	117010	147686
October	93333	100710	95379	105155	130127	151718
November	83780	97637	103491	104963	131526	145867
December	84314	94726	103184	115174	129780	149507
January	89825	102503	110818	119875	140986	157554
February	85962	97247	105361	113143	133026	149577
March	92167	106577	97590	123902	142095	160122
Total	719078	1177370	1222117	1136803	1483292	1807679
Monthly Average	89885	98114	101843	94734	123608	150640

Source: Compiled by the Researcher from gstcouncil.gov.in

Figure 1 shows the year-wise GST collection and monthly average of GST collection. In 2017-18 the total collection of GST in India was Rs. 719078 crores which increased to Rs. 1807679 crores in 2022-23 showing 151.39% increase. Year-wise GST collection showed an

increasing trend except the 2020-21. The decrease in total collection of GST in the year 2020-21 was due the Covid pandemic. The monthly average of GST collection was also increased from Rs. 89885 crores in 2017-18 to Rs. 150640 crores in 2022-23 showing 67.59% increase.



Indirect Tax - GDP Ratio:

Table 2 shows indirect tax - GDP ratio. Indirect tax collection was Rs. 871505 crores in 2011-12 which increased to Rs. 2908593 crores in 2022-23, whereas GDP was Rs. 8736329 crores in 2011-12 which increased to Rs. 16006425 crores in 2022-23. Indirect tax - GDP ratio is increased from 9.98% in 2017-18 to 18.17% in 2022-23. There was an increasing trend in indirect tax - GDP ratio except the year 2019-20. This shows that indirect tax has a significant contribution in GDP of India.

Table 2: Indirect Tax - GDP Ratio

Year	Indirect Tax (Centre and States Combined)	GDP (At 2011-12 Prices)	Percentage
2011-12	871505	8736329	9.98%
2012-13	1036732	9213017	11.25%
2013-14	1119772	9801370	11.42%
2014-15	1217289	10527674	11.56%
2015-16	1466981	11369493	12.90%
2016-17	1662518	12308193	13.51%
2017-18	1856945	13144582	14.13%

2018-19	2032864	13992914	14.53%
2019-20	2015379	14534641	13.87%
2020-21	2078585	13687118	15.19%
2021-22	2612399	14925840	17.50%
2022-23	2908593	16006425	18.17%

Source: <https://statisticstimes.com/economy/country/india-gdp.php>

Table 3 shows GST - indirect tax ratio. This ratio is increased from 38.72% in 2017-18 to 62.15% in 2022-23. This ratio shows that GST is the major contributor of indirect tax.

Table 3: GST - Indirect Tax Ratio

Year	GST	Indirect Tax (Centre and States Combined)	Percentage
2017-18	719078	1856945	38.72%
2018-19	1177370	2032864	57.92%
2019-20	1222117	2015379	60.64%
2020-21	1136803	2078585	54.69%
2021-22	1483292	2612399	56.78%
2022-23	1807679	2908593	62.15%

Source: Compiled by the Researcher from gstcouncil.gov.in and Economic Survey 2022-23

A Paired T-Test is conducted to find out the significant difference in indirect tax - GDP ratio before and after GST.

Table 4: Indirect Tax - GDP Ratio Before and After GST

Indirect Tax Collection by Centre & States	Mean	Std. Deviation	Std. Error Mean
Before GST	0.11771017	0.012610539	0.005148231
After GST	0.15563533	0.018286877	0.007465586

Source: Primary Data.

Table 4 shows the mean values, standard deviation and standard error mean of indirect tax - GDP ratio before and after GST. It shows that indirect tax - GDP ratio after GST (M=0.15563533, S.D.=0.018286877) is more than indirect tax - GDP ratio before GST (M=0.11771017, S.D.=0.012610539).

Table 5 indicates the Paired T-Test results for indirect tax - GDP ratio before and after GST. The paired mean difference is -0.0379252 with a 95% confidence interval ranging from -0.0469061 to -0.0289442. The 't' value (-10.86) for indirect tax - GDP ratio before and after

GST is significant at 0.05 level (as $p < 0.05$), so the null hypothesis is rejected and it is concluded that there is significant difference in indirect tax - GDP ratio before and after GST.

Table 5: Paired T-Test Results for Indirect Tax - GDP Ratio Before and After GST

Indirect Tax – GDP	Paired Differences					t	Sig. (2-tailed)
	Mean	Std. Dev.	Std. Error	95% Conf. Interval			
				Lower	Upper		
Before and After GST	-0.0379	0.0086	0.0035	-0.0469	-0.0289	-10.86	0.000

Source: Primary Data

Indirect Tax Collection of Centre in India:

Table 6 shows indirect tax collection of Centre in India. Indirect tax collection of Centre was Rs. 391232 crores in 2011-12 which increased to Rs. 1331420 crores in 2022-23 showing 240.31% increase. There was an increasing trend in indirect tax collection of Centre in India.

Table 6: Indirect Tax Collection of Centre in India

Before GST		After GST	
Year	Indirect Tax Collection	Year	Indirect Tax Collection
2011-12	391232	2017-18	913456
2012-13	474767	2018-19	942050
2013-14	495541	2019-20	958030
2014-15	545680	2020-21	1076407
2015-16	708013	2021-22	1259929
2016-17	866109	2022-23	1331420

Source: RBI's Handbook of Statistics on the Indian Economy, 2022-23

A Paired T-Test is conducted to find out the significant difference in indirect tax collection by Centre before and after GST.

Table 7: Indirect Tax Collection by Centre Before and After GST

Indirect Tax Collection by Centre	Mean	Std. Deviation	Std. Error Mean
Before GST	580223.67	175079.362	71475.850
After GST	1080215.33	177337.464	72397.716

Source: Primary Data

Table 7 shows the mean values, standard deviation and standard error mean of indirect tax collection by centre before and after GST. It shows that indirect tax collection by centre

after GST (M=1080215.33, S.D.=177337.464) is more than indirect tax collection by centre before GST (M=580223.67, S.D.=175079.362).

Table 8: Paired T-Test Results for Indirect Tax Collection by Centre Before and After GST

Indirect Tax Collection by Centre	Paired Differences				t	Sig. (2-tailed)	
	Mean	Std. Dev.	Std. Error	95% Conf. Interval			
				Lower			Upper
Before and After GST	-499991.67	39532.59	16139.11	-541478.58	-458504.76	-30.98	0.000

Source: Primary Data

Table 8 indicates the Paired T-Test results for indirect tax collection by Centre before and after GST. The paired mean difference is -499991.67 with a 95% confidence interval ranging from -541478.58 to -458504.76. The 't' value (-30.98) for indirect tax collection by Centre before and after GST is significant at 0.05 level (as $p < 0.05$), so the null hypothesis is rejected and it is concluded that there is significant difference in indirect tax collection by Centre before and after GST.

Indirect Tax Collection of States in India:

Table 9 shows indirect tax collection of States in India. Indirect tax collection of States was Rs. 480274 crores in 2011-12 which increased to Rs. 1577173 crores in 2022-23 showing 228.39% increase. There was an increasing trend in indirect tax collection of States in India except the years 2019-20 and 2020-21.

Table 9: Indirect Tax Collection of States in India

Before GST		After GST	
Year	Indirect Tax Collection	Year	Indirect Tax Collection
2011-12	480274	2017-18	943488
2012-13	561966	2018-19	1090814
2013-14	624231	2019-20	1057348
2014-15	671609	2020-21	1002177
2015-16	758967	2021-22	1352469
2016-17	796409	2022-23	1577173

Source: RBI's Handbook of Statistics on the Indian Economy, 2022-23

A Paired T-Test is conducted to find out the significant difference in indirect tax collection by States before and after GST.

Table 10: Indirect Tax Collection by States Before and After GST

Indirect Tax Collection by States	Mean	Std. Deviation	Std. Error Mean
Before GST	648909.33	119155.491	48645.026
After GST	1170578.17	243932.746	99585.127

Source: Primary Data

Table 10 shows the mean values, standard deviation and standard error mean of indirect tax collection by States before and after GST. It shows that indirect tax collection by States after GST (M=1170578.17, S.D.=243932.746) is more than indirect tax collection by States before GST (M=648909.33, S.D.=119155.491).

Table 11: Paired T-Test Results for Indirect Tax Collection by States Before and After GST

Indirect Tax Collection by States	Paired Differences					t	Sig. (2-tailed)
	Mean	Std. Dev.	Std. Error	95% Conf. Interval			
				Lower	Upper		
Before and After GST	-521668.83	154996.63	63277.11	-684327.82	-359009.85	-8.24	0.000

Source: Primary Data.

Table 11 indicates the Paired T-Test results for indirect tax collection by States before and after GST. The paired mean difference is -521668.83 with a 95% confidence interval ranging from -684327.82 to -359009.85. The 't' value (-8.24) for indirect tax collection by States before and after GST is significant at 0.05 level (as $p < 0.05$), so the null hypothesis is rejected and it is concluded that there is significant difference in indirect tax collection by States before and after GST.

Indirect Tax Collection of Centre and States (Combined) in India:

Table 12 shows indirect tax collection of Centre and States (Combined) in India.

Table 12: Indirect Tax Collection of Centre and States (Combined) in India

Before GST		After GST	
Year	Indirect Tax Collection	Year	Indirect Tax Collection
2011-12	871505	2017-18	1856945
2012-13	1036732	2018-19	2032864
2013-14	1119772	2019-20	2015379
2014-15	1217289	2020-21	2078585

2015-16	1466981	2021-22	2612399
2016-17	1662518	2022-23	2908593

Source: RBI's Handbook of Statistics on the Indian Economy, 2022-23

Indirect tax collection of Centre and States (Combined) was Rs. 871505 crores in 2011-12 which increased to Rs. 2908593 crores in 2022-23 showing 233.74% increase. There was an increasing trend in indirect tax collection of Centre and States (Combined) in India except the year 2019-20.

A Paired T-Test is conducted to find out the significant difference in indirect tax collection by Centre and States before and after GST.

Table 13: Indirect Tax Collection by Centre and States Before and After GST

Indirect Tax Collection by Centre & States	Mean	Std. Deviation	Std. Error Mean
Before GST	1229132.83	290313.716	118520.078
After GST	2250794.17	412588.023	168438.355

Source: Primary Data.

Table 13 shows the mean values, standard deviation and standard error mean of indirect tax collection by Centre and States before and after GST. It shows that indirect tax collection by Centre and States after GST (M=2250794.17, S.D.=412588.023) is more than indirect tax collection by Centre and States before GST (M=1229132.83, S.D.=290313.716).

Table 14: Paired T-Test Results for Indirect Tax Collection by Centre and States Before and After GST

Indirect Tax Collection by Centre & States	Paired Differences					t	Sig. (2-tailed)
	Mean	Std. Dev.	Std. Error	95% Conf. Interval			
				Lower	Upper		
Before and After GST	-1021661.33	147815.88	60345.58	-1176784.6	-866538.08	-16.93	0.000

Source: Primary Data.

Table 14 indicates the Paired T-Test results for indirect tax collection by Centre and States before and after GST. The paired mean difference is -1021661.33 with a 95% confidence interval ranging from -1176784.6 to -866538.08. The 't' value (-16.93) for indirect tax collection by Centre and States before and after GST is significant at 0.05 level (as $p < 0.05$), so the null hypothesis is rejected and it is concluded that there is significant difference in indirect tax collection by Centre and States before and after GST.

Findings of the Study:

- 1) In 2017-18 the total collection of GST in India was Rs. 719078 crores which increased to Rs. 1807679 crores in 2022-23 showing 151.39% increase.
- 2) The monthly average of GST collection was also increased from Rs. 89885 crores in 2017-18 to Rs. 150640 crores in 2022-23 showing 67.59% increase.
- 3) Indirect tax - GDP ratio is increased from 9.98% in 2017-18 to 18.17% in 2022-23. GST - indirect tax ratio is also increased from 38.72% in 2017-18 to 62.15% in 2022-23.
- 4) The 't' value (-10.86) for indirect tax - GDP ratio before and after GST is significant at 0.05 level (as $p < 0.05$), so the null hypothesis is rejected.
- 5) The 't' value (-30.98) for indirect tax collection by Centre before and after GST is significant at 0.05 level (as $p < 0.05$), so the null hypothesis is rejected.
- 6) The 't' value (-8.24) for indirect tax collection by States before and after GST is significant at 0.05 level (as $p < 0.05$), so the null hypothesis is rejected.
- 7) The 't' value (-16.93) for indirect tax collection by Centre and States (Combined) before and after GST is significant at 0.05 level (as $p < 0.05$), so the null hypothesis is rejected.

Conclusions:

- 1) GST collection showed an increasing trend
- 2) Indirect tax (particularly GST) has a significant contribution in GDP of India.
- 3) There is significant difference in indirect tax - GDP ratio before and after GST.
- 4) There is significant difference in indirect tax collection by Centre before and after GST.
- 5) There is significant difference in indirect tax collection by States before and after GST.
- 6) There is significant difference in indirect tax collection by Centre and States (Combined) before and after GST.

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