

## **Evaluating the Impact of GST on Indirect Tax Revenue and Tax Efficiency in North-Eastern India**

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### **Abstract:**

*Along with the vision of One Nation, One Tax, the implementation of GST was designed to enhance revenue collection. Objective of this paper is to explore whether indirect tax revenue has raised for 8 north-eastern states, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, and Assam post GST roll out and to examine tax effort (efficiency) of these states. The study has used data from GST Network (GSTN) database for the pre-GST period (FY 2012-13 to 30th June 2017) and post-GST period (1st July 2017-18 to FY 2023-24). To fulfil the objectives, the study has used the variables like Indirect tax revenue, its year-on-year growth rate, Indirect tax revenue as a percentage of GSDP, monthly compliances. The results of the study demonstrate that revenue collection has increased following the enactment of GST, and tax effort has improved over the period since the GST rollout. These findings will assist in shaping future policy decisions and enhancing the tax administration of the states.*

**Keywords:** GST, Gross State Domestic Product (GSDP), Tax effort (efficiency)

### **Introduction:**

On 1st July 2017, Goods and Services Tax Act ,2017 was rolled out all over India and India as a country transformed into 'One Nation One Tax'. 28 States and 8 Union Territories have been integrated through one thread of GST. GST has subsumed various central taxes and state taxes to avoid cascading effect and allow seamless flow of ITC at each stage of transaction in the supply chain from one corner of country to other. So, GST is not only comprehensive tax but also allows smooth and transparent functioning of supply chain spread across India. Apparently, it is observed that enactment of GST has raised revenue of the country. A considerable part of indirect taxes is subsumed in Central GST and State level

GST. In the case of states, their major source of income is SGST. Minor upheaval in collection may suffer states' public finance and expenditures. Hence, GST revenue collection needs in-depth assessment for fiscal management of union and states.

This paper has attempted to explore whether indirect tax revenue has raised for 8 North-Eastern states, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, and Assam post GST roll out and to examine tax effort (efficiency) of these states.

Given the data available in the public domain, this paper has calibrated Indirect tax revenue, its year-on-year growth rate, indirect tax revenue as a percentage of GSDP for period from FY

2012-13 to FY 2023-24 and tax effort (efficiency) based on compliance for period from 1ST July 2017-18 to FY 2023-24. For the period FY 2012-13 to 2017-18 (up to 30 June 2017), state-wise revenue subsumed in GST is considered to match with the data post-GST regime (from 1 July 2017 state GST collection including Integrated GST settlement). In the next section, a comprehensive review of literature specific to state-specific studies in India is presented. In section 3, data source and methodology of the study and in section 4, data analysis and data interpretation are discussed. In section 5, conclusion is presented. To my knowledge, there is no study which review GST revenue and tax effort (efficiency) of north-eastern states based on parameters discussed above and therefore, the present paper fills the gap in literature.

**Literature Review:**

Tax collection depends on tax capacity and tax effort (or efficiency) of a country or state. Being consumption-based tax, tax capacity of state in GST depends on consumption base of a state, scale of economy and structure of economy. Given tax capacity, tax collection varies across states due to differences in tax efficiency (tax effort).

Estimation of tax efficiency has always been an area of research in public finance both from cross-country and within a country from sub-national perspective. Methodologies in estimation of tax efficiency have evolved from income approach, representative tax system (RTS) approach, regression approach to stochastic frontier analysis (SFA). Indicators of tax base or tax capacity for particular tax or

taxes and tax efficiency (or tax effort) vary across these approaches. For example, in income approach national (or subnational) income is taken as the tax base and the ratio of tax collection to national (or subnational) income as the tax effort. Mukherjee (2019) found that for the period 2001–2002 to 2015–2016, tax (comprehensive VAT) capacity of states is a function of the scale of economic activity (measured by GSDP) and of the structural composition of the economy.

Though, Gross State Domestic Product (GSDP) may not be the only indicator for tax base, ratio of GST to GSDP and year-on-year growth rate may indicate whether revenue has increased post GST period in comparison with pre-GST period.

Extant literature (Zaki, 1992; Bird et al., 2008; Botlhole, 2010; Pessino and Fenochietto, 2013) has attempted to estimate tax effort and taxable capacity using different socio-economic factors such as corruption, voice and accountability.

Finally, Pessino and Fenochietto (2013) identified per capita GDP, the composition of the economy, the degree of openness of an economy, the ratio of public debt to GDP, the level of education of a country, and institutional factors such as corruption and governance.

The existing papers typically examine the tax capacity of states or countries by considering various empirical economic and socio-economic factors. However, this paper diverges from that approach by focusing specifically on reviewing the indirect tax collections before and after the GST rollout, using growth rate, the ratio of indirect taxes to

GSDP in the eight North-Eastern states. This review covers an extensive 11-year period from 2012-13 to 2023-24, providing a unique and valuable contribution to the literature on indirect taxes. This comprehensive analysis fills a gap in existing research, offering insights that have not been previously explored in the context of the North-Eastern states.

The tax effort of states can be viewed as a self-help process whereby efforts are made to mobilize additional revenues as the economy grows and taxable capacity expands. Tax effort may be enhanced by the introduction of new taxes, changes in the rates and bases of existing taxes, and improvement in tax administration and collection.

Apart from this, tax effort can be utilised by improving tax compliance, broadening tax base, and by providing robust technology platform.

In this paper, tax efficiency will be calibrated and gauged with respect to tax compliances, and tax base. After scrutiny of many research papers, it is observed that this is gap in literature.

**Data Source and Research Methodology:**

Data for the present paper were obtained from website of Goods and Services Network (GSTN) and website of Ministry of Statistics and Program Implementation, Govt. of India. The period under study is 2012-13 to 2023-24. 8 North-Eastern States are considered for this study. Those are Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, and Assam.

For each state, the indirect taxes subsumed under GST for the period from

2012-13 to 2017-18 (up to June 30, 2017) are considered on a year-wise basis. This approach allows for a precise comparison with data from the post-GST regime, starting from July 1, 2017. Year-wise State GST (SGST) collections, including Integrated GST (IGST) settlements, are considered from July 1, 2017, to 2024.

Study employed following variables, year wise indirect tax collections and Year wise GSDP of states. Year-on-year growth rate of indirect taxes, Indirect tax revenue as a percentage of GSDP (Indirect tax collection to GSDP Ratio) is quantified for all states and compared for each state with pre-GST period and post GST enactment period. GST was enacted on July 1, 2017. GSDP is available for FY 2017-18 and not quarterly (April, May June 2017). Hence first quarter (April, May, and June) of FY 2017-18 is considered in post GST roll out period. Comparisons are explained by bar chart and line graphs.

Tax efficiency has been assessed by considering compliances such as monthly return GSTR 3B for period from FY July 1, 2017- 18 to FY 2021-22. Monthly percentage of GSTR 3B filed by due date is averaged out per year for each state. Line graph is plotted to assess efficiency of compliances.

Further, number of suppliers who has issued E-way bills are quantified for each year. Line graph is plotted to assess efficiency of compliances.

Number of registrations on closing of 2017-18 and 2023-24 are compared state wise and percentage rise at the end of FY 2023-24 over 2017-18 is measured. This is explained in bar chart and line graph.

**DATA INTERPRETATION AND ANALYSIS:**

**Table-1**

Indirect Taxes (Cr.) from FY 2012-13 to FY 2023-24								
FY	Sikkim	Arunachal	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
12-13	194.40	*	195.51	263.71	109.10	572.88	379.27	4467.12
13-14	253.21	*	178.43	386.57	135.56	628.20	309.89	4878.21
14-15	220.12	*	215.94	432.78	148.90	667.90	448.26	5244.91
15-16	245.45	256.03	256.10	347.06	188.91	788.73	636.17	5985.50
16-17	263.50	*	303.67	499.05	210.17	842.16	587.21	6970.97
17-18	240.70	213.00	243.03	396.95	216.42	578.80	347.99	5777.18
18-19	367.42	558.65	427.86	286.80	423.67	849.45	701.87	7428.05
19-20	471.76	791.98	602.66	638.19	524.41	994.38	883.31	8521.45
20-21	412.63	840.44	639.51	838.84	525.29	982.94	770.76	8038.17
21-22	632.05	1125.77	823.99	833.34	719.39	1222.82	1090.33	10152.09
22-23	825.44	1612.15	949.42	1111.69	882.49	1417.14	1454.13	12277.54
23-24	958.38	1925.59	1071.13	1418.72	976.66	1604.44	1734.18	14869.12

\*Figures for Arunachal Pradesh are not available for FY 12-13, 13-14, 14-15 and 16-17.

**Figure-1**

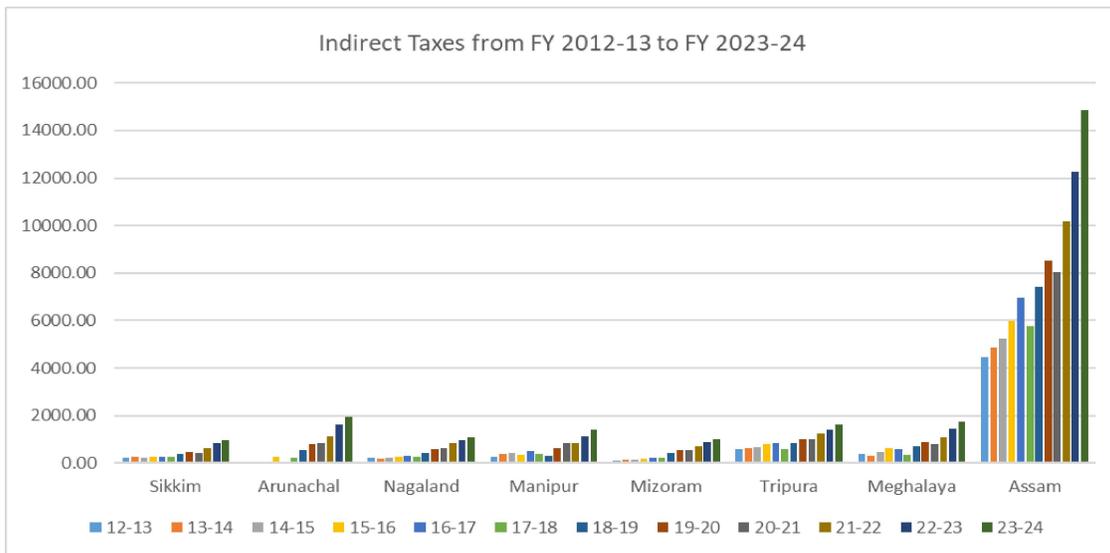


Table-1 provides a year-wise breakdown of indirect tax revenues (in crore) for the eight North-Eastern states from FY 2012-13 to FY 2023-24. The data indicates a steady growth in revenue collections both before and after the introduction of GST. This trend is further illustrated in the accompanying bar chart (Figure-1). Table-2 provides year-wise

Indirect Taxes Growth Rate from FY 2013-14 to FY 2023-24.

However, during the GST implementation year of FY 2017-18, Sikkim, Nagaland, Manipur, Tripura, Meghalaya, and Assam experienced a decline in revenue collections. In the subsequent years, FY 2018-19 and FY

2019-20, all states except Manipur saw a return to positive growth rates. Manipur continued to experience negative growth in FY 2018-19.

The COVID-19 pandemic impacted revenue collections in FY 2020-21, with Sikkim, Tripura, Meghalaya, and Assam

recording negative growth rates. Despite these challenges, there was a rebound in the following years. During FY 2021-22, all states showed positive growth rates except for Manipur, which had a slight decrease in tax collections, with a negative growth rate of 0.65%.

**Table-2**

Indirect Taxes Growth Rate from FY 2013-14 to FY 2023-24								
FY	Sikkim	Arunachal	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
13-14	30.25		-8.74	46.59	24.26	9.66	-18.29	9.20
14-15	-13.07		21.02	11.95	9.84	6.32	44.65	7.52
15-16	11.51		18.60	-19.81	26.87	18.09	41.92	14.12
16-17	7.35		18.57	43.79	11.25	6.77	-7.70	16.46
17-18	-8.65		-19.97	-20.46	2.97	-31.27	-40.74	-17.13
18-19	52.65	162.28	76.05	-27.75	95.76	46.76	101.69	28.58
19-20	28.40	41.77	40.85	122.52	23.78	17.06	25.85	14.72
20-21	-12.53	6.12	6.11	31.44	0.17	-1.15	-12.74	-5.67
21-22	53.17	33.95	28.85	-0.65	36.95	24.40	41.46	26.30
22-23	30.60	43.20	15.22	33.40	22.67	15.89	33.37	20.94
23-24	16.11	19.44	12.82	27.62	10.67	13.22	19.26	21.11

**Table-3**

(Indirect Taxes/GSDP)* 100								
FY	Sikkim	Arunachal Pradesh	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
12-13	1.58		1.38	1.92	1.30	2.64	2.76	2.85
13-14	1.83		1.07	2.39	1.32	2.45	1.92	2.74
14-15	1.43		1.17	2.39	1.10	2.26	2.47	2.68
15-16	1.36	1.38	1.31	1.78	1.25	2.19	3.26	2.63
16-17	1.27		1.40	2.34	1.22	2.13	2.76	2.74
17-18	0.93	0.95	1.00	1.54	1.12	1.32	1.18	2.04
18-19	1.29	2.21	1.61	1.05	1.93	1.70	2.18	2.40
19-20	1.50	2.64	2.03	2.14	2.10	1.84	2.54	2.46
20-21	1.25	2.75	2.14	2.82	2.20	1.84	2.28	2.37
21-22	1.68	3.24	2.65	2.28	2.59	1.95	2.81	2.47
22-23	1.93	4.07	2.66			1.95	3.41	2.49

Table-3 presents the ratio of indirect tax collections to GSDP for all states from FY 2012-13 to FY 2021-22.

**Table-4**

Average of Indirect Taxes to GSDP ratio for Pre-GST and post GST period								
FY	Sikkim	Arunachal Pradesh	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
2012-13 to 2016-17	1.49	1.38	1.27	2.16	1.24	2.34	2.63	2.73
2017-18 to 2022-23	1.43	2.64	2.02	1.96	1.99	1.77	2.40	2.37
% Rise	-4.15	91.44	59.04	-9.18	60.36	-24.40	-8.83	-13.11

Table-4 compares the average ratios for the pre-GST and post-GST periods.

For Sikkim, the percentage ratio of indirect tax collection to GSDP ranged between 1% and 2% during the pre-GST period. This ratio dropped to 0.93% in FY 2017-18, the year GST was introduced. It showed a gradual increase in FY 2018-19 and FY 2019-20. Due to the impact of COVID-19, the ratio fell to 1.25% in FY 2020-21. However, it rebounded to 1.93% in FY 2021-22. However, there is marginal decline by 4.15% in post GST average ratio.

In the case of Arunachal Pradesh, revenue data for the pre-GST period is only available for FY 2015-16, where the ratio was 1.38%. This figure is used as an indicator for the pre-GST period. The ratio decreased to 0.95% in FY 2017-18 but increased significantly to 2.21% in FY 2018-19 and reached 4.07% in FY 2022-23.

Nagaland and Mizoram had average pre-GST ratios of 1.27% and 1.24%, respectively. Post-GST, from FY 2017-18 to FY 2022-23, these ratios increased to 2.02% and 1.99%, respectively. This represents a percentage increase of 59.04% for Nagaland and 60.36% for Mizoram.

Conversely, Manipur, Tripura, Meghalaya, and Assam experienced declines in their post-GST average ratios, with decreases of 9.18%, 24.40%, 8.83%, and 13.11%, respectively.

Overall, out of the eight states, three—Arunachal Pradesh, Nagaland, and Mizoram—showed significant increases in their GST to GSDP ratios, each exceeding 50%. In contrast, Sikkim, Manipur, Tripura, Meghalaya, and Assam experienced declines in their ratios during the post-GST period.

GSTR-3B is a monthly return that must be filed by taxpayers registered under the Goods and Services Tax (GST) system in India. Table-5 shows the percentage of GSTR-3B returns filed by the due date. In FY 2017-18, the compliance percentage was below 50% for all states except Sikkim, which had a compliance rate of 51.39%. Over the years, it appears that the tax administrations of the respective states have significantly improved their tax efficiency, with compliance rates rising above 60% for all states. Notably, Tripura has seen a compliance rise exceeding 70%.

**Table-5**

Percentage of GSTR-3B filed by due date								
FY	Sikkim	Arunachal Pradesh	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
17-18	51.39%	25.90%	23.04%	25.03%	32.73%	44.82%	35.30%	35.55%
18-19	52.06%	32.54%	35.29%	34.49%	42.88%	56.37%	50.92%	40.13%
19-20	50.37%	34.16%	40.79%	37.09%	46.02%	57.22%	51.12%	42.96%
20-21	45.52%	37.91%	40.74%	29.75%	42.14%	50.47%	47.41%	41.14%
21-22	53.59%	48.09%	52.82%	40.47%	53.97%	61.19%	52.52%	53.43%
22-23	62.89%	53.06%	63.87%	53.93%	61.34%	73.23%	61.94%	65.59%

**Figure-2**

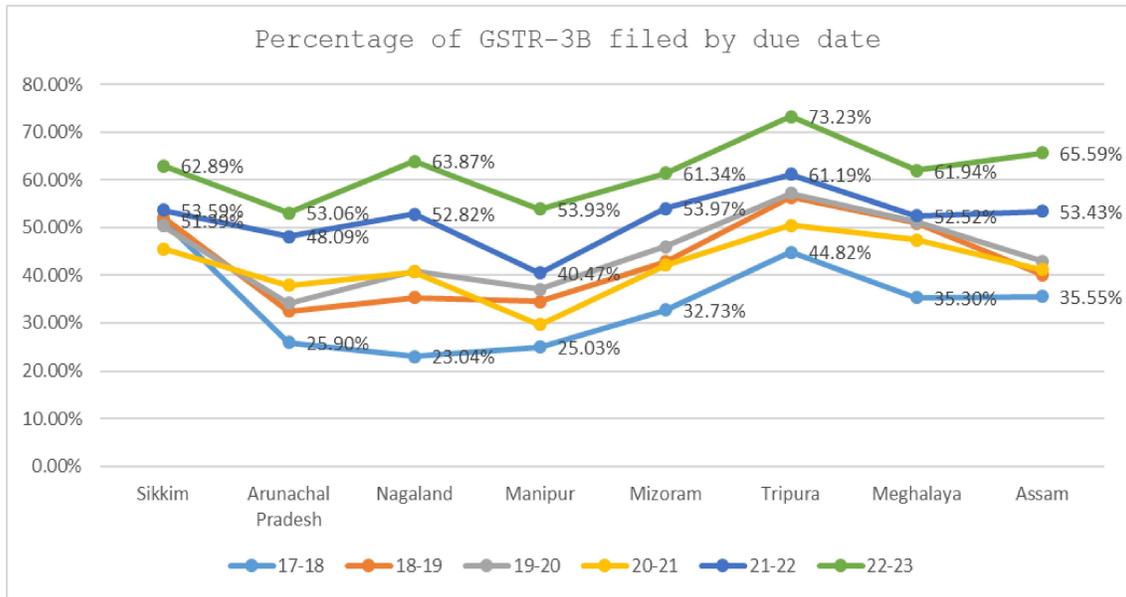


Figure-2, a line graph, clearly illustrates that the compliance rate for FY 2022-23 surpasses those of all previous fiscal years.

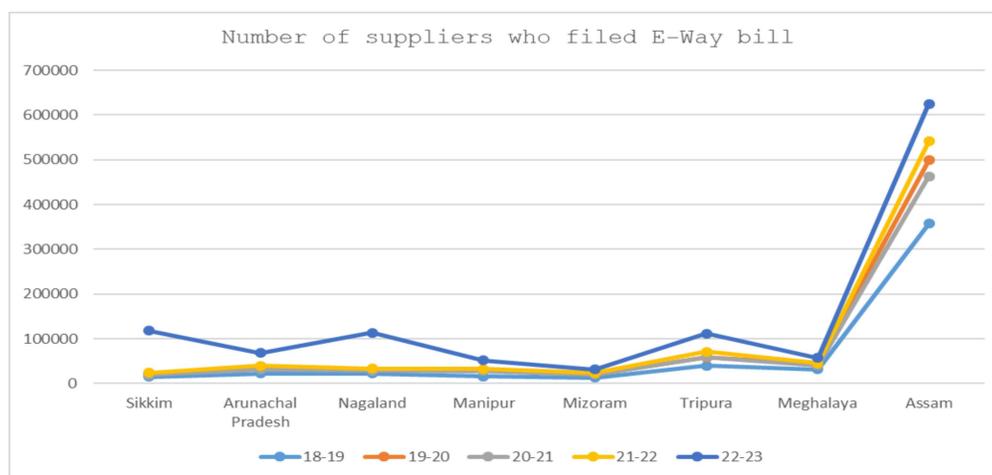
E-Way bill system is for GST registered person / enrolled transporter for generating the way bill (a document to be carried by the person in charge of conveyance) electronically on commencement of movement of goods exceeding the value of Rs. 50,000 in relation to supply or for reasons other than supply or due to inward supply from an unregistered person.

Table-6 presents the number of suppliers who filed E-Way bills from FY 2018-19 to FY 2022-23 for eight North-Eastern states.

**Table-6**

Number of suppliers who filed E-Way bill								
FY	Sikkim	Arunachal Pradesh	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
18-19	15347	22161	22045	16147	13469	39575	31218	357674
19-20	21249	33236	30724	29551	20394	58452	44515	499168
20-21	19631	31839	28709	28044	20706	59131	40495	463496
21-22	23770	39464	33578	32883	22990	71305	45223	541102
22-23	117885	67909	113447	51586	31689	111950	57555	625158
% Rise for 22-23 over 18-19	768.13	306.43	514.62	319.48	235.27	282.88	184.36	174.78

**Figure-3**



The accompanying line graph (figure-3) highlights that compliance in FY 2022-23 surpasses all previous fiscal years.

For Arunachal Pradesh, Manipur, Mizoram, Tripura, Meghalaya, and Assam, the number of suppliers filing E-Way bills increased significantly by 306.43%, 319.48%, 235.27%, 282.88%, 184.36%, and 174.78%, respectively. Sikkim and

Nagaland saw exceptionally high increases of 768.13% and 514.62%, respectively.

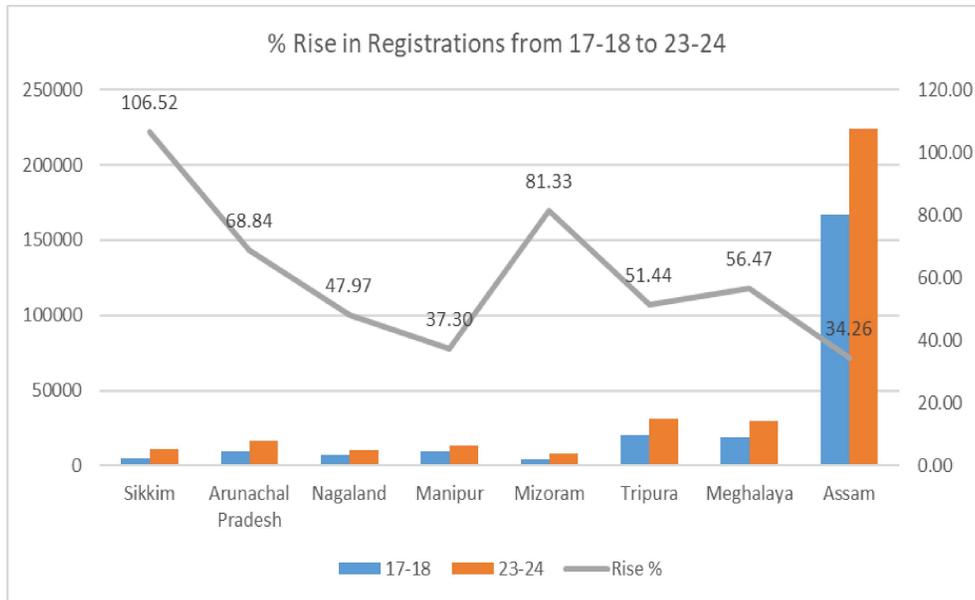
Table-7 calculates the percentage increase in the number of registrations by the end of FY 2023-24 compared to the end of FY 2017-18. Sikkim has experienced the highest rise, with a 106.52% increase. Mizoram, Arunachal Pradesh, Meghalaya, and Tripura have also seen significant

growth in registrations, each with an increase of over 50%. Nagaland, Manipur, and Assam have recorded notable increases in registrations, ranging between 30% and 50%.

Table-7

% Rise in Registrations from 17-18 to 23-24								
FY	Sikkim	Arunachal Pradesh	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
17-18	5233	9937	6925	9719	4253	20350	19015	167075
23-24	10807	16778	10247	13344	7712	30818	29753	224315
Rise %	106.52	68.84	47.97	37.30	81.33	51.44	56.47	34.26

Figure-4



This data is illustrated in Figure-4, which includes both a bar chart and a line graph to visualize the changes.

**Conclusion:**

In conclusion, the analysis of indirect tax data for the eight North-Eastern states from FY 2012-13 to FY 2023-24 shows significant trends and patterns:

**1. Revenue Growth and GST Impact:**

Revenue collections have generally increased over the period, despite initial

declines in FY 2017-18 when GST was introduced. Most states rebounded with positive growth in subsequent years, though the COVID-19 pandemic caused temporary setbacks in FY 2020-21.

**2. GSDP Ratios:**

The ratio of indirect tax collections to GSDP has varied, with significant increases observed in states like Arunachal Pradesh, Nagaland, and Mizoram post-GST. However, some states such as Sikkim, Manipur, Tripura, Meghalaya, and Assam saw decreases in

this ratio. It is important to note that GSDP, being a macroeconomic variable, depends heavily on the economic scale and structure of each state. States with larger economies or more robust economic activities tend to generate higher GSDP, which can influence the ratio of tax collections.

**3. Compliance Improvements:** GSTR-3B filing compliance has improved across all states, with rates rising above 60% by FY 2022-23, and Tripura exceeding 70%. This improvement suggests enhanced tax administration efficiency.

**4. E-Way Bill Filings:** There has been a substantial increase in the number of

suppliers filing E-Way bills, particularly in Sikkim and Nagaland, indicating greater adherence to compliance requirements.

**5. Registration Increases:** The number of registrations has surged, with Sikkim showing the highest increase at 106.52%. Other states also recorded significant growth, reflecting broader participation in the GST system.

Overall, the North-Eastern states have shown considerable progress in tax collection, compliance, and registration under the GST regime, highlighting the positive impact of improved tax efficiency in tax administration.

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