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"GST in India: Assessing Trends in Revenue Mobilisation, Formalisation and Digital Compliance"

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Abstract

India's Goods and Services Tax (GST) implemented on 1st July 2017, replacing multiple indirect-tax system with a unified national tax. Existing studies examines the GST revenue effect, its compliance and digital tools, or its influence on the informal economy as separate strands, leaving limited assessment of how taxpayer formalization, digital compliance infrastructure and revenue mobilization have moved together over the post-GST period. The paper is based on secondary data, drawn from government official websites for GST, the GST council, the GSTN portal, the Central board of Indirect Taxes and Customs, the Ministry of Finance/Press information Bureau, the Ministry of Statistic and Programme Implementation to examine the trends in active tax payer registration, e-way bill and e -invoicing generation and gross GST collections. Using trend analysis, percentage growth and compounded annual growth rate. The three indicators appear mutually reinforcing, though the aggregate data cannot establish causal direction. The findings carry implications for simplifying compliance for small taxpayers, deepening digital infrastructure and using GST data more effectively for policy.

Keywords: *Goods and Services Tax, Economic formalization, digital tax administration, e-way bill, revenue mobilization, India.*

1. INTRODUCTION

1.1 Historical Background

The Goods and Services Tax, implemented on 1st July 2017, is widely regarded as India's most significant indirect-tax reform, after independence, subsuming multiple central and state taxes- excise duty, service tax, value-added tax and octroi among them- into a single destination-based tax administered jointly by the Central and the States through GST council. Beyond its stated goal of creating "one nation, one tax," GST was designed around a largely paperless compliance chain: online registration, electronic return filing, invoice matching, and from 2018 onward, an electronic way-bill system for tracking the movement of goods, later supplemented by mandatory e-invoicing for progressively smaller taxpayers. This digital backbone was intended to do more than ease compliance; firms need to register, report and reconcile transactions electronically.

These three dimensions-formalization, digitalization and revenue generation- are conceptually different but practically interconnected. A firm that registers under GST to access input tax credit becomes part of the formal tax base, its transactions, once routed through e-way bills and e-invoices, become visible to tax administrators, and this help to improves compliance and the buoyancy of tax revenue relative to economic growth.

1.2 Literature Review

The literature on GST since 2017 has grown substantially, through much of it treats revenue, compliance and formalization as separate research question.

(Garg et al., 2025) while conducting an empirical study using time-series and panel method found a positive association between GST revenue and macroeconomic growth, while also flagged the role of fiscal deficit and inflation as offsetting factors. A study conducted by (Chowdappa & Benni, 2025) for analyzing disparity in GST revenue growth across different states of India, found that industrially advanced states such as Maharashtra, Gujarat and Karnataka consistently outperformed smaller states, and with the COVID-19 shock produced a clear, temporary dip in collection before a strong rebound. Meanwhile (NGUYEN, 2019) in his cross-country evidence on indirect-tax

reform mainly including comparative work from Vietnam and other Asian economies similarly found that well-administered indirect taxes supports rather than hindering growth when paired with credible enforcement.

While examining GST digital (Mansor et al., 2016) studies e-invoicing and information technology adoption experience of Malaysian GST suggested that the sophistication of tax authority's IT system affects compliances outcome, a similar kind of study in context to India has been conducted by (Sundari & Saravanabhavan, 2026) the extension of e- invoicing to progressively smaller taxpayers and the integration of e-way bills with invoice data has been presented by both government and practitioner sources as central to narrowing the gap between reported and actual transaction, and to enable data-driven, risk-based scrutiny of returns rather than blanket audits. Behavioral evidence from GST's own recent rate-rationalization cycle reinforces this point: survey-based work on automobile-sector MSMEs founds that voluntary compliance under GST is shaped not only by taxpayers' attitudes and perceived behavioral control but also by intrinsic tax morale and institutional trust, operating alongside-rather than in place of- the deterrence effect of digital monitoring.

While going through the studies considering formalization particularly of MSMEs (Rai & Upadhayay, 2025) found that GST has promoted tax transparency, economic integration, and a simplified tax system and eliminates interstate barrier but MSME's still continue to struggle with increased compliance costs, procedural changes and frozen credits. Meanwhile (Singhal et al., 2022) framed GST registration as a straightforward channel of formalization, in which access to input tax credit and participation in organized supply chain pulls informal firms into the tax net. A similar kind of study conducted by (Roy & Khan, 2021) states other caution that digitalization of taxation can produce "premature formalization," in which smaller, low-capability firms can bear compliance costs disproportionate to their gaons, while some formal sector continue to find way around the rules so that formalization is uneven rather than universal. While a survey based study conducted by (Ghosh, 2022) on MSMEs likewise documents adverse short-run coping costs alongside the longer-run benefits of formal-sector participation. Meanwhile (Harshali Rajendra Kolte & Prof. Shrikant Jagtap, 2026a; Veer, 2026) conducted sector-specific studies -covering, for instances, the automobile trade and industrial MSME clusters-generally create this mixed picture: compliance costs and working capital pressure eased over time as digital literacy and third party GST supports services matured, even as the smallest firms continued to report friction. A study conducted by (Jain et al., 2026) on structural or state-level determinants of indirect-tax revenue- sectoral composition, government expenditure and fiscal transfers- also help explain why formalization and revenue gains have not been uniform across India's states, whereas (Shacheendran V, 2024) conducted systematic identification of the specific frictions taxpayers fac, using approaches such as interpretive structural modelling, further shows that procedural complexity and refund delays remain recurring barriers even as the overall system has matured.

1.3 Research Gap

While going through the existing literature it was found that most of the studies isolate one dimension-revenue buoyancy, MSME compliance cost, or formalization. There remains limited assessment of how these three publicly reported indicators have moved together across since GST rollout, and what that jointly movement suggests about the reform's broader trajectory.

1.4 Research Question

1. How has GST revenue collections trended since implementation, and what do these trends imply for the mobilization of tax revenue in India?
2. How has GST taxpayer registration evolved since 2017, and does this trend indicate about the formalization of the Indian economy?
3. How has GST's digital compliance improved - particularly e-way bills and e-invoicing, and what has this meant for digital tax administration in India?

1.5 Research Objective

1. To examine GST revenue trends and their implications for revenue mobilization.
2. To examine GST taxpayer registration trends as an indicator of economic formalization.
3. To analyze digital GST compliance through indicators such as e-way bills and e-invoicing.

2 Research Methodology

This study is based entirely on secondary data. The study period runs from GST's introduction in July 2017 through fiscal year 2024-25.Data were drawn from official government and institution sources, the GST Council; the GST Network (GSTN)/ GST portal, which publishes registration and return-filling statistics; the Central Board of Indirect Taxes and Customs; the ministry of Finance; Department of Revenue, and its releases through the Press Information Bureau; the e-way Bill system operated under the GST framework; and the Ministry of Statistics and Programme Implementation, which provides the GDP context against which GST revenue growth is assessed. Aggregate data; year-on-year percentage growth, compound annual growth rate (CAGR) over multiple year and descriptive comparison across years for analyzing trends of the indicators.

3. Results and Discussion

3.1 GST Revenue Performance

Gross GST collections provide an important indicator of the revenue performance of the GST regime Table 1 presents the annual gross GST collection from 2017-18 to 2025-26, covering the period from the initial implementation of GST through the pandemic and the recovery phase. Examining the trajectory of collection of GST's, help to assess the extent to which GST revenue mobilization has evolved over the period.

Table 1. Gross GST Collections, FY 2017-28 to FY 205-26

Financial Year	Gross GST collection (Rs in Crore)	Year-on-Year Growth (%)
2017-2018	7,40,607.00	N/A
2018-19	11,77,345.00	~59%
2019-20	12,22,122.00	~3.80%
2020-21	11,36,805.13	~ (6.98%)
2021-22	14,83,290.83	~30.48%
2022-23	18,07,680.26	~21.89%
2023-24	20,18,249.20	~11.65%
2024-25	22,08,861.00	~9.44%
2025-26	22,27,096.00	~0.83%

Source: Compiled from Official GST collection data.

Formula used for Year-on-Year Growth

The annual growth rate in gross GST collection is calculated using:

YoY Growth (%) = Current Year Collection – Previous Year Collection / Previous year collection * 100

CAGR Calculation

To examine the overall annualized growth in gross GST collection over the complete period, the Compounded Annual Growth Rate is calculated as:

$CAGR = (\text{Ending value}/\text{Beginning value})^{1/n} - 1$

$CAGR = (22,27,096/740607)^{1/8} - 1$

$= 0.14752795$

~14.75%

The trend in gross GST collections indicates a substantial expansion of GST revenue mobilization since its implementation, from *Rs 7.41 lakh crore in 2017-18 to Rs 22.27 lakh crore in 2025-26,* registering a CAGR of approximately *14.75%.* The initial years shows growth, with collections increasing by *59% in 2018-19*. However, growth moderated to *3.80%* in *2019-20* before a decline by *6.98% in 2020-21*. The decline corresponds with the COVID-19 pandemic and the related disturbance in economic activity. Then a recovery was observed, with increase in collection by *30.48% and 21.89% in year 2021-22 and 2022-23* respectively. The strong post-pandemic recovery is consistent with the broader evidence of sustained expansion in GST collection observed in recent studies (Chowdappa & Benni, 2025; Garg et al., 2025)

Following the strong recovery phase, the rate of growth moderated to *11.65% in 2023-24 and 9.44% in 2024-25*, while collections continued to increase in absolute terms. In *2025-26* it reached to *Rs 22.27 lakh crore*, although the annual growth was merely *0.83%.*

Overall, the trend demonstrates a significant expansion in GST collection over the study period, with the trajectory characterized by rapid initial growth, a pandemic related decline, a strong recovery and comparatively slower growth in the most recent year.

3.2 GST Taxpayer Registration and Formalization

Active taxpayer registrations, serves as an important indicator of the expansion of the registered tax base under GST. The trend in active taxpayer registration during period 2018-19 to 2024-25 is presented in Table 2.

Table 2. Active GST Taxpayer Registrations, 2018-29 to 2024-25

Year	Active Taxpayer	Year-on-Year Growth (%)
2018-19	12,373,466	-
2019-20	12,878,771	~4.08%
2020-21	13,030,607	~1.18%
2021-22	14,048,904	~7.81%
2022-23	14,299,431	~1.78%
2023-24	14,718,888	~2.93%
2024-25	15,614,054	~6.08%

Source: Compiled from GST Annual Report (2018-2019 to 2024-2025)

Formula used for Year-on-Year Growth

The annual growth rate in active taxpayer is calculated as:

YoY Growth (%) = Current Year Active Taxpayer – Previous Year Active Taxpayer/ Previous Year Active Taxpayer *100

The taxpayer base has grown from *12,373,466 in 2018-19 to 15,614,054 in 2024-25* representing an overall increase of approximately *26.19%.* the taxpayer base increased each year, although the pace of growth varied across the period. The number of active taxpayers increased from *12,373,466 in 2018-19 to 12,878,771 in 2019-20* and further to *13,030,607 in 2020-21*. A comparatively higher increase was observed in *2021-22* when active taxpayer reached *14,048,904* recording a year-on-year growth of *7.81%.* Thereafter, the taxpayer base continued to expand, reaching *14,299,431 in 2022-23, 14,718,888 in 2023-24 and 15,614,054 in 2024-25*. The corresponding year-on-year growth rate counts to *1.78%, 2.93% and 6.08%,* respectively. This pattern is consistent with the view that GST registration functions as an entry point into the formal economy, particularly for MSMEs seeking input tax credit and access to organised supply chain (Harshali Rajendra Kolte & Prof. Shrikant Jagtap, 2026b). At the same time, growth in new registrations slowed sharply after the introduction of mandatory biometric verification in late 2023, aimed at controlling fraudulent registrations used for claiming fake input tax credit- a reminder that headline registration growth alone does not equate to genuine formalisation, since it can also reflect compliance-tightening measures that filter out non-genuine entities rather than only adding new economic activity. This nuance echoes concerns in the literature that digitalisation led formalisation can be uneven, imposing disproportionate costs on smaller, lower-capability firms even as it curtails the informal or fraudulent margin (Ghosh, 2022; Roy & Khan, 2021).

3.3 Digitalisation of GST Compliance

The e-way bill system is an important digital-compliance instrument under GST for monitoring the movement of goods. The trend in total e-way bills generated during the period 2019-2020 to 2024-25 is presented in Table 3.

Table 3. Total E-Way Bills Generated, 2019-20 to 2024-25

Financial Year	Total E-Way Bills	Year-on-Year Growth (%)
2019-20	619,586,107	-
2020-21	599,564,323	(3.23) %
2021-22	736,058,912	22.77%
2022-23	947,349,981	28.71%
2023-24	1,101,124,868	16.23%
2024-25	1,293,998,018	17.52%

Source: Compiled from GST Annual Report 2024-2025

Total e-way bill generation increased form *619,586,107 in 2019-20 to 1,293,998,018 in 2024-25*, representing an overall increase of approximately *108.85%,* with a compound annual growth rate of around *15.87%.* the number of e-way bills decline by *3.23% in 2020-21,* followed by a substantial increase of *22.77% in 2021-22*. Growth further increased to *28.71%* in *2022-23, followed by 16.23% and 17.52% in 2023-24 and 2024-25* respectively. Monthly e-way bill generation has thus increased several-fold since the systems introduction, indicating a substantial expansion in the use of the digital mechanism for documenting the movement of goods. From march 2024, e-invoice-enabled taxpayers have been barred from generating e-way bills without a corresponding e-invoice, directly linking the two systems and strengthening the integration of invoice and goods movement. Government and practitioner sources describe these integrated digital tools, together with GSTN's data-analytics engine that cross-references return, e-way bills.

E-invoices and income tax data, as mechanism that can support the identification of circular trading and fake invoicing, and improve the monitoring of compliance. This is broadly consistent with the literature on digital infrastructure sophistication as a driver of compliance (Mansor et al., 2016). The data presented here shows increase in total e-way bill generation over the period, with positive annual growth in all years except 2020-21; they therefore indicate an expanding use of the e-way bill system, but do not themselves establish the extent of improvement in tax compliance or reduction in tax evasion.

3.4 Findings

While analysing all three indictors, it shows mutually relatedness, if not strictly causal, relationship. Taxpayer registration expanded fastest in GST's early years as previously unregistered firms enter into formal den, digital compliance tools then matured though the middle years, most visibly through the increase in total e-way bill generation, and revenue growth, after the pandemic-related decline, has settled into a steady pace. The data available here cannot establish whether digitalisation caused the revenue gains, whether revenue growth simply reflects a recovering and formalising economy that digitalisation happened to accompany or some combination of both; for establishing that firm level primary data would be required. Overall, however, the joint movement of registration, digital compliance and revenue indicators over 2018-25 suggests that GST's digital architecture and its formalisation of the tax base have progressed together.

3.5 Limitations of Study

The analysis relies on secondary data and does not have control for confounding macroeconomic factors, policy changes or definitional shifts in how active taxpayer or e-way bill statistics are compiled across years. study doesn't establish causality between digitalisation. Formalisation, and revenue outcomes.

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