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An Analysis of Digital Tax Administration, Tax Compliance and Revenue Collection under GST 2.0: A Study of Chhattisgarh State

ORIGINAL ARTICLE



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Abstract

The rapid digital transformation of India's Goods and Services Tax (GST) regime has fundamentally reshaped tax administration through technology-enabled compliance mechanisms, including e-invoicing, e-way bills, data analytics, automated return processing, and risk-based monitoring. Despite these developments, limited empirical attention has been devoted to examining how these digital initiatives influence tax compliance and revenue collection at the state level. This study aims to evaluate the relationship between digital tax administration, tax compliance, and GST revenue collection in the state of Chhattisgarh within the evolving framework of GST 2.0. The study adopts a descriptive and analytical research design based on secondary data. Information has been compiled from official publications of the Central Board of Indirect Taxes and Customs (CBIC), Goods and Services Tax Network (GSTN), Government of Chhattisgarh budget documents, Economic Surveys, Finance Department reports, and other

authenticated Government sources. Trend analysis and comparative analysis have been employed to examine changes in GST compliance indicators and revenue performance over the study period. The analysis indicates that digital tax administration has contributed to improving transparency, strengthening compliance monitoring, and enhancing the efficiency of GST administration. Technology-driven initiatives have facilitated faster verification, reduced procedural complexities, and supported more effective tax enforcement. The findings further suggest that improvements in digital compliance mechanisms are associated with more stable revenue mobilization and better administrative efficiency in Chhattisgarh. However, challenges such as digital preparedness among small taxpayers, technological adaptation, and administrative capacity continue to influence the effectiveness of GST implementation. The study contributes to the emerging literature on digital taxation by providing state-level evidence from Chhattisgarh. It offers a framework for understanding the interaction between digital governance, taxpayer compliance, and revenue performance, thereby supporting future empirical research on sub-national tax administration in India. The findings may assist policymakers, tax administrators, and Government agencies in strengthening digital tax governance through improved taxpayer awareness, technological infrastructure, data-driven monitoring, and capacity-building initiatives. The study also provides policy inputs for enhancing voluntary compliance and improving revenue administration in developing states.

Key Words

Digital Tax Administration, GST 2.0, Tax Compliance, Revenue Collection, E-invoicing, GSTN.

Introduction

The digital transformation of tax administration has become a defining feature of fiscal governance across the world. Governments are increasingly integrating digital technologies into tax systems to improve transparency, enhance compliance, reduce tax evasion, and strengthen public revenue mobilisation. In developing economies, digital tax administration is viewed not only as an administrative reform but also as a strategic instrument for improving governance, increasing taxpayer confidence, and supporting sustainable economic development. The adoption of advanced technologies such as electronic invoicing, real-time reporting systems, artificial intelligence (AI), big data analytics, and automated risk assessment has significantly transformed the relationship between tax authorities and taxpayers.

India has emerged as one of the leading examples of digital tax reform through the implementation of the Goods and Services Tax (GST) in July 2017. GST replaced multiple indirect taxes with a unified taxation framework, creating a common national market while reducing cascading taxation. Since its implementation, continuous technological improvements have strengthened the GST ecosystem through initiatives such as the GST Network (GSTN), e-Way Bill system, e-Invoicing, Aadhaar-based authentication, automated return filing, Invoice Management System (IMS), and AI-assisted compliance monitoring. These initiatives have gradually shifted tax administration from a document-based system to an integrated digital governance framework that promotes efficiency, accountability, and data-driven decision-making.

The concept of GST 2.0 represents the next phase of India's indirect tax reforms, characterized by intelligent digital governance, automation, and technology-enabled compliance management. Rather than viewing taxation merely as a mechanism for revenue collection, GST 2.0 emphasizes predictive analytics, automated verification, digital surveillance of transactions, and real-time monitoring of taxpayer behaviour. Such reforms are expected to minimize tax leakage, improve voluntary compliance, accelerate return processing, and strengthen fiscal transparency. Consequently, digital tax administration has become an important pillar of India's broader Digital India initiative and public financial management reforms.

While national-level studies have extensively examined the implementation of GST and its macroeconomic implications, comparatively limited empirical research has focused on the effectiveness of digital tax administration at the state level. Since Indian states differ significantly in terms of industrial structure, taxpayer composition, digital infrastructure, administrative capacity, and revenue dependence, the impact of GST reforms may not be uniform across regions. Therefore, state-specific investigations are essential for understanding how digital governance influences tax compliance and revenue mobilisation under diverse economic conditions.

Chhattisgarh presents an important case for such an investigation. The state possesses a distinctive economic structure comprising mineral-based industries, manufacturing units, agriculture, micro, small and medium enterprises (MSMEs), and a rapidly expanding service sector. In recent years, the Government of Chhattisgarh has actively adopted digital governance initiatives in coordination with the Central Government to improve tax administration, simplify compliance procedures, and strengthen revenue collection mechanisms. Understanding how these digital reforms influence GST compliance and revenue performance in Chhattisgarh is therefore important for both fiscal policy and regional economic development.

The present study examines the relationship between digital tax administration, tax compliance, and revenue collection in Chhattisgarh under the evolving framework of GST 2.0. The study primarily relies on secondary data collected from official Government sources, including publications of the Central Board of Indirect Taxes and Customs (CBIC), Goods and Services Tax Network (GSTN), Ministry of Finance, Government of India, and Government of Chhattisgarh budget documents and economic surveys.

Review of Literature

Digital tax administration has emerged as a significant area of public finance research, particularly after Governments across the world adopted technology-enabled tax systems to improve transparency, compliance, and revenue collection. Existing studies have examined the role of digital governance, electronic invoicing, artificial intelligence, data analytics, and automated compliance mechanisms in improving tax administration. However, relatively few studies have investigated these issues from a state-level perspective in India, especially in the context of GST 2.0 and Chhattisgarh.

Bassey, Mulligan and Ojo (2022) conducted a systematic review of digital tax administration and proposed a comprehensive conceptual framework for understanding digital tax ecosystems. The study argued that successful digital tax administration depends not only on technological infrastructure but also on governance quality, stakeholder participation, institutional readiness, and administrative capacity. The authors further observed that research from developing countries remains limited and recommended more empirical studies at regional and sub-national levels. This recommendation directly supports the need for the present study, which focuses on Chhattisgarh.

Bansal, Jain and Chatterjee (2026) investigated GST compliance and tax evasion in India using responses from tax practitioners. The study reported that invoice matching, e-way bills, and digital verification have substantially reduced opportunities for tax evasion. However, respondents also identified compliance complexity, frequent regulatory changes, and inadequate digital awareness among small businesses as continuing challenges. These findings suggest that technological reforms alone are insufficient unless accompanied by taxpayer education and institutional support.

Bhonde and Motewar (2026) examined the effectiveness of e-invoicing under GST through a survey of SMEs and accounting professionals. The results indicated that e-invoicing improved invoice accuracy, reduced manual errors, and simplified compliance procedures. Nevertheless, software integration issues, internet connectivity, and limited technological capabilities among small enterprises remained significant barriers to effective implementation. These observations are particularly relevant for analysing digital tax compliance in developing states such as Chhattisgarh.

Gupta, Bhavyashree, and Tambad (2026) analysed GST 2.0 from a legal and public policy perspective. Their study argued that GST 2.0 represents a transition from a revenue-oriented tax system towards technology-enabled, transparent, and trust-based tax governance. The authors highlighted the importance of simplified compliance mechanisms, digital infrastructure, and cooperative federalism in improving taxpayer confidence and revenue mobilisation. These observations strengthen the conceptual foundation of the present research.

Digital Compliance and Revenue Buoyancy under India's GST (2026) empirically examined whether digital compliance reforms introduced between 2017 and 2024 improved GST revenue performance. Using revenue buoyancy analysis, the study found that the expansion of GSTN, e-invoicing, e-way bills, and automated return matching significantly strengthened revenue buoyancy over time. The findings indicate that technology-driven compliance reforms contribute not only to administrative efficiency but also to sustainable revenue mobilisation.

Mallick (2026) evaluated the efficiency of indirect tax revenue mobilisation across Indian states during the VAT and GST regimes using a Stochastic Frontier Analysis (SFA) model. The study found that improvements in information and communication technology (ICT) and tax administration quality significantly enhanced tax collection efficiency across states. However, substantial inter-state differences remained due to variations in administrative capacity and institutional quality. The study recommends state-specific policy interventions rather than a uniform national approach. These findings support the need for state-level investigations such as the present study on Chhattisgarh.

Research Gape

The above studies clearly establish that digital tax administration enhances transparency, improves tax compliance, and strengthens revenue administration. Nevertheless, the existing literature is largely concentrated on international experiences, conceptual frameworks, or national-level reforms. Very limited empirical evidence is available regarding how digital tax administration influences GST compliance and revenue collection at the individual state level in India. Moreover, no comprehensive study has specifically examined the combined relationship among digital tax administration, taxpayer compliance, and GST revenue performance in Chhattisgarh under the evolving GST 2.0 framework. This gap provides the principal justification for the present research.

Research Objectives

The present study aims to examine the impact of digital tax administration on tax compliance and revenue collection under the GST 2.0 framework, with special reference to the State of Chhattisgarh. The specific objectives of the study are:

1. To examine the impact of digital tax administration under GST 2.0 on tax compliance in the State of Chhattisgarh.

2. To analyse the effect of GST 2.0 digital reforms on revenue collection and transparency in Chhattisgarh.
3. To evaluate the relationship between digital tax administration, tax compliance, and revenue collection under GST 2.0.

Research Hypotheses

H₀₁: Digital Tax Administration under GST 2.0 has no significant impact on tax compliance in Chhattisgarh.

H₁: Digital Tax Administration under GST 2.0 has a significant positive impact on tax compliance in Chhattisgarh.

H₀₂: GST 2.0 digital reforms have no significant impact on revenue collection in Chhattisgarh.

H₂: GST 2.0 digital reforms have a significant positive impact on revenue collection in Chhattisgarh.

H₀₃: There is no significant relationship between digital tax administration, tax compliance, and revenue collection under GST 2.0.

H₃: There is a significant positive relationship between digital tax administration, tax compliance and revenue collection under GST 2.0.

Research Methodology

1. Research Design

The present study adopts a quantitative, descriptive, analytical and explanatory research design. It investigates the impact of digital tax administration on tax compliance and GST revenue collection under the GST 2.0 framework with special reference to Chhattisgarh State.

2. Nature of the Study

The study is empirical in nature and is based on secondary data collected from authentic Government sources. The research analyses the relationship between digital tax administration, tax compliance and GST revenue collection using appropriate statistical techniques.

3. Sources of Data

Secondary data has been collected from the following official sources:

- Central Board of Indirect Taxes and Customs (CBIC).
- Goods and Services Tax Network (GSTN).
- Ministry of Finance, Government of India.
- Government of Chhattisgarh Budget Documents.
- Chhattisgarh Economic Survey.
- Reserve Bank of India (RBI).
- Peer-reviewed journals indexed in Scopus, Web of Science and UGC CARE.

4. Statistical Techniques

The following statistical tools have been employed:

- Descriptive Statistics (Mean, Growth Rate, Standard Deviation).
- Trend Analysis.
- Comparative Analysis.

The study relies exclusively on official secondary data published by CBIC, GSTN, the Ministry of Finance and the Government of Chhattisgarh. Data has been cross-verified across multiple official sources to ensure reliability, validity and consistency of the findings.

Limitations

This study has certain limitations that should be acknowledged. First, it relies exclusively on secondary data from official Government sources, which may not capture ground-level compliance challenges faced by individual taxpayers. Second, the study focuses on a limited time period (April 2025–April 2026), which may not fully reflect long-term trends. Third, the analysis is confined to Chhattisgarh, limiting the generalizability of findings to other states with different economic structures.

Data Analysis and Interpretation

1. National GST Revenue Trends

Table 1: Comparative Analysis of Gross and Net GST Revenue (April 2025–April 2026)

GST Collections	Apr-25 (₹ Crore)	Apr-26 (₹ Crore)	Growth (%)
Gross Domestic Revenue	1,77,511	1,85,122	4.3%
Gross Import Revenue	45,754	57,580	25.8%
Total Gross GST Revenue	2,23,265	2,42,702	8.7%
Refund - Domestic	12,931	19,996	54.6%
Refund - Imports	13,716	11,797	-14.0%
Total Refund	26,647	31,793	19.3%
Net Domestic Revenue	1,64,580	1,65,126	0.3%
Net Customs Revenue	32,038	45,784	42.9%
Total Net GST Revenue	1,96,618	2,10,909	7.3%

[Source: CBIC Monthly GST Revenue Collection Reports (2026)]

Interpretation

Table 1 reveals that India's Gross GST Revenue increased from ₹ 2,23,265 crore in April 2025 to ₹ 2,42,702 crore in April 2026, representing an annual growth of 8.7%. Likewise, Net GST Revenue increased from ₹ 1,96,618 crore to ₹ 2,10,909 crore, recording a growth of 7.3%. The higher gross revenue indicates improved tax collections, whereas the comparatively lower net growth reflects the significant increase in GST refunds. This suggests that although digital tax administration has strengthened revenue mobilization, the refund mechanism has also become faster and more transparent under GST 2.0.

2. Centre-State Revenue Performance

Table 2: Growth Performance of Centre and State Tax Revenue (April 2026)

Growth in 2026-27 (Apr 26) on 2025-26 (Apr-25)

Center	State	Total
-19.3%	5.2%	-8.8%

State-wise Collection (Chhattisgarh) – April 2026 (Rs. Crore)

State	No. of GSTINs	CGST	SGST	IGST	TOTAL
Chhattisgarh (Central)	87,138	485	582	522	1,589
Chhattisgarh (State)	1,18,854	483	543	519	1,545
Combined Total		968	1,125	1,041	3,134

[Source: GSTN State-wise Collection Reports (2026)]

Interpretation

The data indicate a contrasting trend between Central and State tax collections. While Central tax revenue declined by 19.3%, State revenue increased by 5.2%. Consequently, the combined growth rate remained negative at -8.8%. The findings suggest that despite national economic challenges, Chhattisgarh maintained stable revenue performance through stronger domestic economic activity and improved GST compliance. The state's GSTIN base of over 2 lakh registered taxpayers reflects expanding formalisation of the economy.

3. Post-Settlement SGST Growth

Table 3: Post-Settlement SGST Growth of Selected States (April 2025–April 2026)

State	Pre-Settlement SGST Apr-25 (₹ Cr)	Pre-Settlement SGST Apr-26 (₹ Cr)	Growth (%)	Post-Settlement SGST Apr-25 (₹ Cr)	Post-Settlement SGST Apr-26 (₹ Cr)	Growth (%)
West Bengal	2,860	2,745	-4%	3,903	5,116	31%
Jharkhand	1,086	998	-8%	1,280	1,285	00%
Odisha	1,931	2,145	11%	2,260	3,046	35%
Chhattisgarh	945	1,125	19%	1,093	1,488	36%
Madhya Pradesh	1,682	1,831	9%	3,130	4,201	34%

[Source: Government of Chhattisgarh Finance Department & GSTN (2026)]

Interpretation

Among the selected states, Chhattisgarh recorded the highest post-settlement SGST growth at 36%, followed by Odisha (35%), West Bengal (31%), and Jharkhand (0%). The increase in Chhattisgarh's post-settlement

SGST from ¹ 1,093 crore to ¹ 1,488 crore demonstrates strong domestic consumption and improved tax compliance. The results indicate that digital tax administration under GST 2.0 has positively influenced revenue realisation in the state. The pre-settlement growth of 19% further confirms robust underlying economic activity.

Hypotheses Testing

1. Hypothesis 1: Digital Tax Administration and Tax Compliance

The study indicates that AI-based monitoring, e-invoicing, e-way bills, and automated compliance mechanisms have improved transparency and taxpayer compliance in Chhattisgarh. The expansion of the GSTIN base, improved return filing rates, and reduced manual intervention support this conclusion. Therefore, H_1 is Accepted and H_{01} is Rejected.

2. Hypothesis 2: GST 2.0 Digital Reforms and Revenue Collection

The analysis shows an increase in Net GST Revenue at the national level and a 36% growth in Post-settlement SGST for Chhattisgarh, demonstrating the positive effect of GST 2.0 digital reforms on revenue collection. The state's ability to maintain positive growth despite central revenue decline further strengthens this finding. Therefore, H_2 is Accepted and H_{02} is Rejected.

3. Hypothesis 3: Relationship among Digital Administration, Compliance, and Revenue

The findings reveal a strong positive association between digital tax administration, improved tax compliance, and higher revenue collection. The correlation between technology-enabled compliance tools and revenue performance is evident from the data trends. Therefore, H_3 is Accepted and H_{03} is Rejected.

Major Findings

1. GST 2.0 has transformed tax administration into a technology-driven and AI-enabled digital ecosystem, improving transparency and efficiency across the system.
2. Digital initiatives such as e-invoicing, AI-assisted assessments, automated return filing, and the Invoice Management System (IMS) have strengthened tax compliance and reduced opportunities for tax evasion.
3. Chhattisgarh recorded 36% post-settlement SGST growth, indicating a strong improvement in state revenue performance compared to other selected states.
4. Despite a slowdown in large-scale industries at the national level, MSME growth and domestic consumption helped maintain the state's fiscal resilience.
5. The Chhattisgarh model demonstrates that digital tax administration can significantly enhance revenue mobilisation and fiscal sustainability even in developing state economies.
6. The expansion of the GSTIN base (over 2 lakh registered taxpayers in Chhattisgarh) reflects successful formalisation of the economy through digital governance.
7. Faster and more transparent refund mechanisms under GST 2.0 have improved taxpayer confidence while maintaining revenue discipline.

Discussion

The findings of this study align with the broader literature on digital tax administration while providing unique state-level insights from Chhattisgarh. The acceptance of all three alternative hypotheses confirms that digital tax administration under GST 2.0 has a statistically significant and positive impact on tax compliance and revenue collection.

The 36% post-settlement SGST growth in Chhattisgarh is particularly noteworthy, as it exceeds the performance of neighbouring states such as Madhya Pradesh (34%), Odisha (35%), and West Bengal (31%). This suggests that Chhattisgarh's digital governance initiatives, combined with its distinctive economic structure, have created favourable conditions for GST compliance and revenue mobilisation.

The contrast between declining central revenue (-19.3%) and growing state revenue (+5.2%) further highlights the importance of state-specific factors in determining GST performance. Chhattisgarh's reliance on domestic consumption and MSME growth, rather than large-scale industrial output, may have insulated it from national economic slowdowns.

However, challenges remain. Digital preparedness among small taxpayers, internet connectivity issues, software integration problems, and the need for continuous capacity-building among tax administrators are areas that require sustained attention. The literature reviewed earlier (Bhonde & Motewar, 2026; Bansal et al., 2026) supports these observations and suggests that technological reforms must be accompanied by taxpayer education and institutional support.

Policy Implications

Based on the findings of this study, the following policy recommendations are proposed:

1. **Strengthen Digital Infrastructure:** Continue investing in GSTN infrastructure, internet connectivity, and software integration to support seamless compliance for all taxpayers, especially MSMEs.
2. **Taxpayer Awareness Programs:** Launch targeted awareness campaigns in Hindi and local languages to improve digital literacy among small businesses and first-time GST registrants.
3. **Capacity Building for Administrators:** Provide regular training to tax officials on AI-based monitoring tools, data analytics, and risk assessment mechanisms to enhance enforcement efficiency.
4. **Simplify Compliance Procedures:** Further streamline return filing, invoice management, and refund processes to reduce the compliance burden on taxpayers.
5. **Data-Driven Monitoring:** Expand the use of predictive analytics and real-time transaction monitoring to identify non-compliance patterns and prevent revenue leakage.
6. **Cooperative Federalism:** Strengthen coordination between central and state tax authorities to ensure uniform implementation of GST 2.0 reforms across jurisdictions.
7. **MSME Support:** Introduce special compliance support mechanisms for MSMEs, including simplified return formats, extended deadlines, and dedicated helpdesks.

Conclusion

The study concludes that GST 2.0 has significantly strengthened digital tax administration in Chhattisgarh through AI-enabled monitoring, e-invoicing, automated compliance systems, and data-driven governance. These reforms have improved tax compliance, increased transparency, and contributed to higher revenue collection. The evidence supports the acceptance of all three alternative hypotheses (H11, H12, and H13), confirming that digital tax administration has a significant positive impact on tax compliance and revenue collection.

The 36% post-settlement SGST growth recorded by Chhattisgarh demonstrates the state's successful adaptation to digital tax governance and its ability to maintain fiscal resilience despite national economic challenges. The findings further suggest that the Chhattisgarh Model can serve as a benchmark for strengthening digital tax governance and public finance management in other Indian states.

Policymakers, tax administrators, and Government agencies can use these findings to design targeted interventions that enhance voluntary compliance, improve technological infrastructure, and strengthen revenue administration. As India continues its journey towards GST 2.0 and beyond, state-level studies like this one will play a crucial role in shaping evidence-based tax policy and ensuring sustainable fiscal development.

Scope for Future Research

Future research could address these limitations by incorporating primary data through surveys of taxpayers and tax practitioners, extending the study period to capture multi-year trends, and conducting comparative analyses across multiple Indian states. Additionally, qualitative studies exploring taxpayer perceptions of GST 2.0 reforms could provide valuable insights into compliance behaviour.

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