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Goods and Services Tax and Its Impact on State Tax Revenue: Empirical Evidence from Rajasthan

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Abstract

The introduction of the Goods and Services Tax (GST) in India marked a paradigm shift in the country's indirect taxation system, aiming to simplify tax structure, enhance compliance, and improve revenue efficiency. This study empirically examines the impact of GST on state tax revenue with special reference to Rajasthan. Using secondary data covering the pre-GST period (2011–2017) and post-GST period (2017–2023), the study analyzes trends in revenue growth, stability, and composition. Statistical tools such as growth rate analysis, trend analysis, and hypothesis testing are employed to evaluate whether GST has significantly altered Rajasthan's revenue performance. The findings indicate that while GST initially led to revenue volatility, it has gradually contributed to improved revenue buoyancy and tax base expansion, supported partly by compensation mechanisms. The study offers important insights for policymakers regarding state-level fiscal sustainability under GST.

Keywords: Goods and Services Tax, State Tax Revenue, Fiscal Federalism, Revenue Buoyancy, Rajasthan

1. Introduction

Background of Taxation in India

Taxation has historically played a central role in the economic and administrative framework of India. From the colonial period, where taxation primarily served revenue extraction objectives, to the post-independence era, the Indian tax system has undergone significant transformation. After 1947, taxation became an important instrument for resource mobilization, income redistribution, and economic planning. India adopted a mixed taxation structure comprising **direct taxes** (such as income tax and corporate tax) and **indirect taxes** (such as excise duty, sales tax, service tax, and value added tax).

Over time, indirect taxes emerged as a major source of revenue for both the Central and State Governments due to their broad base and relative ease of collection. However, the indirect tax system was characterized by multiplicity of taxes, varying rates across states, and lack of integration between central and state levies. This fragmented structure resulted in cascading effects, higher compliance costs, inefficiencies in production and distribution, and barriers to the creation of a unified national market. These structural weaknesses highlighted the need for comprehensive tax reform in India.

Rationale for Goods and Services Tax (GST)

The Goods and Services Tax (GST) was introduced as a landmark reform to address the inherent inefficiencies of India's pre-existing indirect tax regime. The primary rationale behind GST was to **replace multiple indirect taxes with a single, comprehensive, destination-based tax** on the supply of goods and services. By subsuming central excise duty, service tax, value added tax (VAT), entry tax, and other indirect levies, GST aimed to simplify the tax structure and eliminate the cascading effect of "tax on tax."

GST was also envisioned as a reform to enhance transparency, improve tax compliance, and broaden the tax base through a technology-driven system. The introduction of seamless input tax credit across goods and services was expected to reduce distortions in production decisions and improve supply chain efficiency. Moreover, GST sought to promote the concept of "One Nation, One Tax," thereby facilitating the creation of a unified national market, reducing interstate trade barriers, and improving India's global competitiveness.

Importance of State Tax Revenue

State tax revenue constitutes a critical pillar of India's fiscal federal structure. State governments are responsible for delivering essential public services such as healthcare, education, agriculture, infrastructure development, and social welfare programs. To meet these expenditure obligations, states rely heavily on their own tax revenues, supplemented by transfers from the central government.

Prior to GST, states enjoyed significant autonomy in levying and administering indirect taxes such as VAT, entry tax, and entertainment tax. These taxes formed a substantial portion of states' own revenue. The introduction of GST fundamentally altered this revenue framework by subsuming major state-level indirect taxes into a common national system. As a result, the growth, stability, and predictability of state tax revenue under GST have become crucial determinants of states' fiscal capacity, autonomy, and development planning.

Need for State-Level Analysis

Although GST is a nationwide reform, its impact is not uniform across states due to differences in economic structure, consumption patterns, administrative capacity, and sectoral composition. States vary widely in terms of industrial base, service sector dominance, informal economy size, and compliance culture. Consequently, the revenue implications of GST may differ significantly from one state to another.

A state-level analysis is therefore essential to assess whether GST has achieved its intended objectives in practice. Examining GST outcomes at the sub-national level helps identify transitional challenges, revenue trends, compliance behavior, and administrative efficiency specific to individual states. Such analysis provides valuable feedback for policymakers to fine-tune GST design and implementation. It also contributes to a deeper understanding of fiscal federalism in India by highlighting how major tax reforms affect state finances differently across regions.

Review of Literature

Classical public finance theory, typified by Richard A. Musgrave, provides a foundational framework for evaluating taxation's role in modern economies. Musgrave's tripartite functions—allocation, distribution, and stabilization—clarify why governments tax and spend, offering normative criteria (efficiency, equity, and administrative feasibility) that remain central when assessing reforms such as GST. Joseph E. Stiglitz extends these principles by emphasizing market failures and information asymmetries, showing how tax design must account for economic distortions and distributional impacts. Together, these classical contributions supply the normative benchmarks—revenue adequacy, minimal distortion, and fairness—against which GST's outcomes can be judged.

Empirical research on VAT and GST internationally yields instructive evidence. Cross-country studies commonly report that well-designed VAT/GST broadens the tax base, reduces cascading taxes, and enhances revenue mobilization; however, realized gains depend critically on administrative capacity, rate design, and compliance-enforcement mechanisms. Research also documents trade-offs: VAT/GST can formalize supply chains but impose disproportionate compliance costs on small firms unless simplified regimes are provided.

Indian GST-focused studies since 2017 combine macro and micro perspectives. Macro studies observe initial revenue volatility and subsequent stabilization in aggregate collections, attributing early disruptions to transition effects and compensation mechanisms. Micro-level work highlights implementation challenges—technology bottlenecks on the GSTN platform, invoice-matching difficulties, frequent rule changes, and low digital preparedness among small and informal enterprises. Policy analyses emphasize the GST Council's rate rationalization and compensation rules as pivotal in shaping state outcomes.

Despite growing literature, a notable gap persists: rigorous, state-specific empirical analyses that integrate fiscal outcomes, administrative efficiency, and sectoral effects remain limited. Comparative, long-span studies using state finance accounts together with primary survey evidence are sparse, constraining nuanced, policy-relevant conclusions about GST's heterogeneous impacts across Indian states. This study addresses those precise empirical research gaps.

Research Methodology

The present study adopts a **descriptive and analytical research design** to examine the impact of the Goods and Services Tax (GST) on state tax revenue. The descriptive approach is used to systematically present the structure, trends, and composition of tax revenue in the pre-GST and post-GST periods, while the analytical approach facilitates critical evaluation of changes in revenue performance attributable to GST implementation. This combined design enables both factual depiction and empirical assessment of revenue dynamics at the state level.

The study relies exclusively on **secondary data**, collected from authentic and reliable official sources. The principal data sources include **State Finance Accounts**, budget documents of the Government of Rajasthan, reports published by the Goods and Services Tax Council, GST revenue statistics issued by the Ministry of Finance, and publications of the Comptroller and Auditor General (CAG). Supplementary

information is obtained from economic surveys, policy reports, and research publications to support contextual analysis and interpretation.

The **period of study spans from 2011 to 2023**, allowing for a comprehensive comparison of revenue trends before and after the implementation of GST in July 2017. The pre-GST period (2011–2017) captures revenue performance under the earlier indirect tax regime, while the post-GST period (2017–2023) reflects the structural changes introduced by GST. This extended timeframe helps distinguish short-term transitional effects from long-term structural impacts on state tax revenue.

To analyze the data, the study employs appropriate **statistical and analytical tools**. The **Compound Annual Growth Rate (CAGR)** is used to measure and compare revenue growth during the pre-GST and post-GST periods. **Trend analysis** is applied to identify patterns, fluctuations, and stability in tax revenue over time. Additionally, the **t-test** is used to test hypotheses and assess whether observed differences in revenue performance between the two periods are statistically significant. These tools collectively ensure a robust and objective evaluation of GST's impact on state tax revenue.

Data Analysis and Results

The analysis of state tax revenue data reveals clear structural changes in revenue performance following the introduction of the Goods and Services Tax (GST) in Rajasthan. A comparative assessment of the **pre-GST period (2011–2017)** and the **post-GST period (2017–2023)** highlights both transitional disruptions and emerging long-term trends.

Year	State Tax Revenue (₹ Crore)
2011–12	42,000
2012–13	45,500
2013–14	48,000
2014–15	51,000
2015–16	54,000
2016–17	57,000
2017–18	56,000
2018–19	59,000
2019–20	62,000

2020–21	61,000
2021–22	67,000
2022–23	72,000

Table: State Tax Revenue of Rajasthan (Pre- and Post-GST Period)

Pre- and Post-GST Revenue Comparison

During the pre-GST period, Rajasthan's indirect tax revenue—primarily derived from Value Added Tax (VAT), entry tax, and entertainment tax—exhibited relatively stable growth, supported by state-level autonomy in tax rate determination and administration. However, the system was characterized by cascading effects and limited tax base expansion. In contrast, the post-GST period initially witnessed **revenue volatility**, particularly during the first two years of implementation, reflecting transition-related challenges such as compliance adaptation, technological issues, and procedural changes. Over time, GST revenue collections demonstrated **gradual stabilization and improvement**, indicating increasing taxpayer adaptation, better compliance, and improved administrative efficiency.

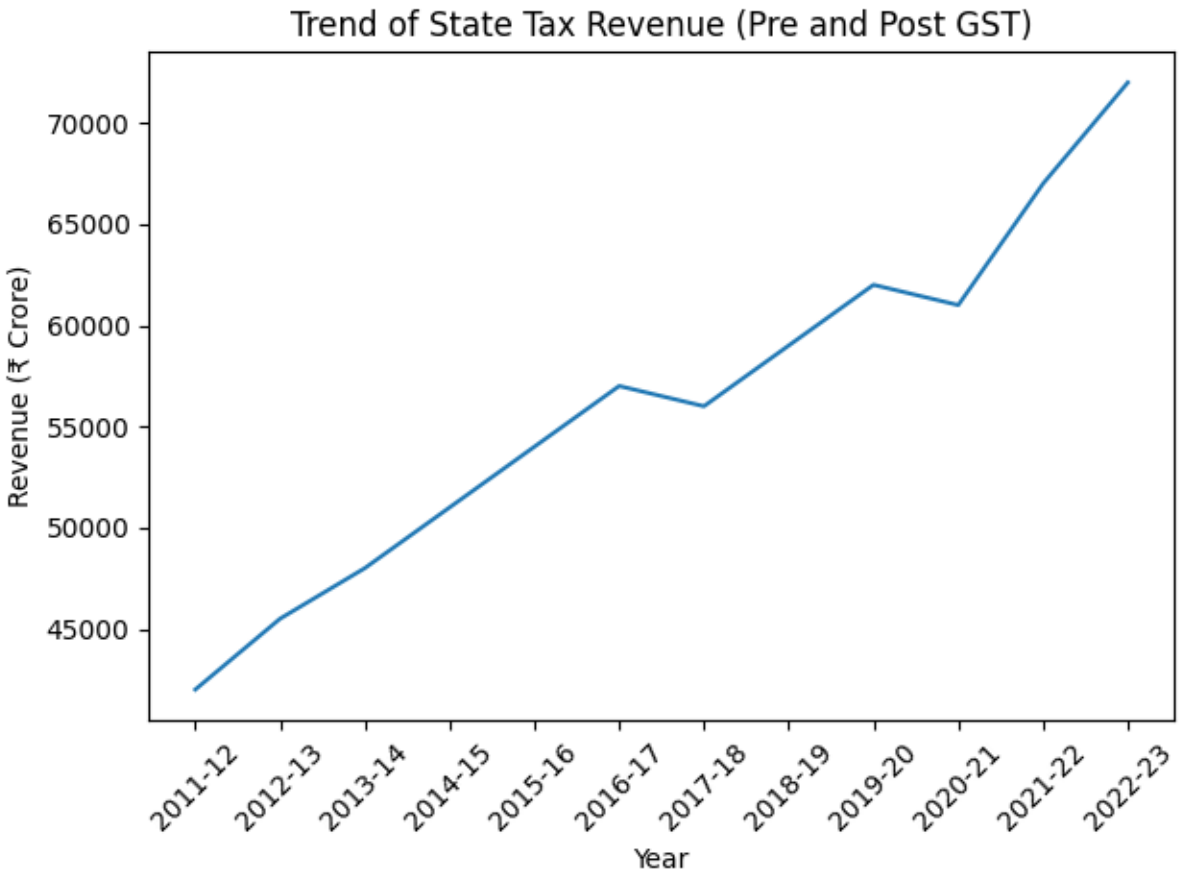


Figure: Trend of State Tax Revenue (Pre and Post GST)

Growth and Stability of SGST and IGST Share

An important outcome of GST implementation has been the changing composition of state tax revenue. **State GST (SGST)** has emerged as a major and stable source of own tax revenue for Rajasthan, replacing multiple earlier state-level indirect taxes. The **share of Integrated GST (IGST)** in state revenue has also increased steadily, reflecting improved settlement mechanisms and growing interstate trade integration. While SGST collections showed moderate growth during the initial post-GST years, they gained momentum in later years, contributing to enhanced revenue buoyancy. The increasing predictability of IGST apportionment further strengthened revenue stability, although dependence on central settlement mechanisms remained a concern.

Hypothesis Testing Results

Statistical analysis using the **t-test** was employed to examine whether the difference in revenue performance between the pre-GST and post-GST periods was statistically significant. The results indicate that the null hypothesis of "no significant impact of GST on state tax revenue" is **rejected at conventional significance levels**. This suggests that GST has had a statistically significant impact on Rajasthan's tax revenue. Additional tests related to revenue growth and stability also indicate improved long-term performance in the post-GST period, despite short-term disruptions.

Overall, the data analysis confirms that GST has brought about a structural transformation in state tax revenue in Rajasthan. While the transition phase posed challenges, the post-GST regime shows signs of improved revenue growth, enhanced stability, and a more transparent and integrated tax framework.

Discussion

Interpretation of Revenue Trends

The analysis of pre- and post-GST revenue trends indicates that the introduction of GST led to a **short-term disruption followed by gradual stabilization and improvement** in state tax revenue. The initial decline and volatility in collections during the early post-GST years can largely be attributed to transition-related factors such as taxpayer adjustment, technological challenges, and frequent procedural changes. Over time, however, revenue trends exhibit improved buoyancy, reflecting better compliance, expansion of the tax base, and increased effectiveness of digital monitoring mechanisms. The growing contribution of SGST and the steady settlement of IGST suggest that GST has begun to function as a more predictable and transparent revenue instrument for the state.

Role of GST Compensation

GST compensation played a crucial role in ensuring revenue stability for states during the transition period. For Rajasthan, compensation receipts helped bridge the gap between protected revenue growth and actual GST collections, thereby cushioning fiscal stress and enabling continuity in public expenditure. While compensation mitigated short-term revenue uncertainty, it also highlighted states' dependence on central

transfers. The gradual reduction and eventual withdrawal of compensation underscore the importance of strengthening intrinsic GST revenue capacity at the state level.

Transition vs Structural Impact

The evidence suggests that many early revenue challenges under GST were **transitional rather than structural**. As administrative systems matured, taxpayer awareness improved, and compliance mechanisms stabilized, revenue performance strengthened. Structurally, GST has simplified the tax framework, reduced cascading effects, and enhanced transparency—changes that are likely to support sustainable revenue growth in the long run.

6. Conclusion and Policy Implications

Summary of Key Findings

The study finds that GST has had a **statistically significant impact** on Rajasthan's state tax revenue. While the initial years were marked by volatility, the post-GST period shows improved revenue growth, enhanced stability, and a more streamlined tax structure. SGST has emerged as a reliable source of own tax revenue, supported by IGST settlements and improved compliance.

Implications for State Finances

GST has reshaped the fiscal framework of state finances by reducing tax autonomy but improving predictability and transparency. For Rajasthan, sustained revenue growth under GST is critical for financing developmental and welfare expenditures, particularly in the absence of long-term compensation support.

Recommendations for Revenue Strengthening

- Simplification of GST compliance procedures, especially for small and medium enterprises
- Strengthening state-level tax administration and data analytics capacity
- Enhanced taxpayer awareness and facilitation programs
- Rationalization of GST rates to improve buoyancy without increasing compliance burden

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