



Statistical Analysis of GST Impact on MSMEs in Chengalpattu, Tamil Nadu: A Study on Compliance, Profitability, and Growth

M. R. Ramesh

Indira Gandhi Centre for Atomic Research, Kalpakkam-603102, Tamilnadu

Corresponding Author – M. R. Ramesh

DOI - 10.5281/zenodo.15533849

Abstract:

The introduction of the Goods and Services Tax (GST) in India was intended to create a simplified and transparent tax structure. However, its impact on Micro, Small, and Medium Enterprises (MSMEs) has been widely debated. This study employs statistical techniques, including descriptive statistics, correlation, and regression analysis, to evaluate the effects of GST on MSMEs in Chengalpattu, Tamil Nadu.

Primary data was collected from 150 MSMEs across various sectors through structured surveys and interviews. Descriptive analysis revealed that 68% of respondents reported increased compliance costs post-GST implementation, primarily due to mandatory digital filing and higher tax rates on raw materials. A Pearson correlation analysis indicated a negative relationship (-0.52) between compliance costs and profitability, suggesting that higher GST-related expenses significantly impact net earnings. Furthermore, regression analysis showed that a 1% increase in GST compliance costs leads to an average decline of 0.65% in profitability, highlighting the financial strain on small enterprises.

Additionally, the study identified a weak correlation (0.21) between GST compliance and business growth, indicating that despite tax standardization, MSMEs in Chengalpattu struggle to expand due to delayed input tax credit (ITC) refunds and working capital constraints. Sector-wise analysis revealed that manufacturing MSMEs faced greater challenges compared to service-based firms due to differential tax rates and raw material costs.

The findings emphasize the need for policy reforms to simplify GST procedures, expedite ITC refunds, and offer financial assistance to small businesses. Addressing these concerns is crucial for sustaining the growth and competitiveness of MSMEs in Chengalpattu. Future research can explore industry-specific GST impacts and long-term economic trends to guide policymaking for MSMEs.

Keywords: GST, MSMEs, Chengalpattu, Tamil Nadu, Statistical Analysis, Compliance Burden, Profitability, Regression Analysis, Correlation, Descriptive Statistics

Introduction:

The Goods and Services Tax (GST) was introduced in India in 2017 as a major tax reform aimed at simplifying the complex taxation structure. While GST was expected to bring uniformity, its impact on Micro, Small, and Medium Enterprises (MSMEs) remains a subject of debate. MSMEs play a crucial role in India's economic growth, contributing significantly to employment and GDP. However, compliance burdens,

tax rates, and financial constraints have raised concerns regarding their sustainability under GST.

This study examines the statistical impact of GST on MSMEs in Chengalpattu, Tamil Nadu, focusing on compliance challenges, profitability, and business growth. The study utilizes quantitative techniques such as descriptive statistics, correlation, and regression analysis to assess the implications of GST on small businesses.

Objectives:

1. To analyze the compliance burden faced by MSMEs under GST.
2. To study the impact of GST on profitability using statistical methods.
3. To evaluate the relationship between GST compliance and business growth.
4. To provide policy recommendations for improving GST implementation for MSMEs.

Significance of the Study:

MSMEs are the backbone of India's economy, accounting for nearly 30% of the country's GDP and providing employment to millions. However, the introduction of GST has led to significant changes in taxation policies, affecting MSMEs' cash flows, operational costs, and overall business growth. Understanding the impact of GST on MSMEs is crucial for policymakers, business owners, and financial analysts to design effective tax policies and support mechanisms.

This study is significant for the following reasons:

- **Assessing Compliance Challenges:** Many MSMEs struggle with GST compliance due to frequent changes in tax rates, complex return filing procedures, and digitalization requirements. This study provides insights into how compliance burdens affect business operations.
- **Understanding Profitability Trends:** The study analyzes how GST has influenced MSMEs' profitability, considering tax liabilities, input tax credit availability, and financial constraints.
- **Exploring Business Growth Patterns:** By examining the correlation between GST compliance and business expansion, this study evaluates whether GST has promoted or hindered MSME growth.
- **Providing Policy Insights:** Based on statistical findings, the study offers

recommendations for improving GST policies, easing compliance burdens, and supporting MSME sustainability.

Literature Review:

The impact of the Goods and Services Tax (GST) on Micro, Small, and Medium Enterprises (MSMEs) has been extensively studied by researchers, with findings highlighting both benefits and challenges. While GST has simplified tax structures and improved transparency, its implementation has created several operational and financial difficulties for MSMEs.

Gupta & Sharma (2019) found that MSMEs faced increased compliance costs due to mandatory digital tax filing. Many small businesses, particularly those in semi-urban and rural areas, struggled with adapting to the online GST filing system due to limited digital literacy and inadequate technological infrastructure. The authors emphasized that while GST enhanced tax compliance, the financial burden of hiring tax consultants and upgrading accounting software added to operational expenses.

Agarwal et al. (2021) focused on the working capital constraints faced by MSMEs due to delays in Input Tax Credit (ITC) refunds. The study revealed that MSMEs dependent on regular cash flows for procurement and production suffered liquidity crunches, hindering their ability to expand operations. The delayed refunds resulted in restricted cash flows, compelling many businesses to resort to short-term credit, further escalating their financial liabilities.

Kumar (2020) examined the broader financial implications of GST on MSMEs. While acknowledging that GST streamlined the taxation process and reduced tax cascading, the study highlighted that small enterprises struggled with higher compliance requirements and initial financial setbacks. Kumar argued that the requirement for

frequent tax filings and digital record-keeping placed additional strain on MSMEs with limited financial and human resources.

Overall, the literature suggests that while GST offers long-term benefits such as tax uniformity and enhanced business transparency, MSMEs continue to face challenges in compliance, liquidity management, and financial stability. Addressing these concerns through targeted policy interventions is crucial for ensuring the sustainable growth of MSMEs under the GST regime.

Methodology:

1. Data Collection:

This study employed a quantitative research approach to analyze the impact of GST on MSMEs in Chengalpattu, Tamil Nadu. Primary data was collected from 150 MSMEs across various sectors, including manufacturing, retail, and services. Structured surveys were designed to capture information on compliance costs, tax burdens, profitability, and business growth. Additionally, in-depth interviews with business owners and financial officers provided qualitative insights into the operational challenges faced under the GST regime. The data collection process ensured representation across different business sizes and categories to provide a comprehensive analysis.

2. Statistical Techniques:

To assess the impact of GST on MSMEs, the study utilized the following statistical techniques:

- **Descriptive Statistics:** This technique was used to examine trends in compliance costs, tax burdens, and financial performance indicators among MSMEs. Measures such as mean, median, and standard deviation were calculated to summarize the data effectively.
- **Correlation Analysis:** A Pearson correlation analysis was conducted to evaluate relationships between GST compliance, profitability, and business growth. This helped in understanding whether increased compliance costs had a direct impact on business performance.
- **Regression Analysis:** A multiple regression model was applied to determine the extent to which GST compliance costs influenced profitability, considering other relevant business variables.

These statistical techniques provided an empirical foundation for assessing the implications of GST on MSMEs in Chengalpattu.

Results and Discussion:

This section presents the statistical analysis of the impact of GST on MSMEs in Chengalpattu, Tamil Nadu. It includes descriptive analysis, correlation analysis, and regression analysis, with supporting tables for each dataset.

1. Descriptive Analysis:

The descriptive analysis provides an overview of the key findings from the survey and financial data of MSMEs.

Table 1: Key Descriptive Statistics

Indicator	Percentage/Mean
MSMEs reporting increased compliance costs	68%
MSMEs experiencing ITC refund delays	45%
MSMEs affected by raw material GST rates	62%
Mean compliance cost increase (%)	10.2%
Mean ITC refund delay (days)	30.5 days

The study found that 68% of MSMEs reported an increase in compliance costs post-GST, largely due to the complexity of tax filings and mandatory e-invoicing. Additionally, 45% of businesses faced delays in Input Tax Credit (ITC) refunds, leading to cash flow constraints. Among manufacturing MSMEs, 62% found

GST rates on raw materials unfavorable, impacting production costs and overall profitability.

2. Correlation Analysis:

Correlation analysis was conducted to determine the relationship between GST compliance, profitability, and business growth.

Table 2: Correlation Matrix

Variable	Compliance Cost Increase (%)	ITC Refund Delay (days)	Profitability Decline (%)	Business Growth (%)
Compliance Cost Increase (%)	1.00	0.10	-0.52	0.21
ITC Refund Delay (days)	0.10	1.00	-0.03	0.09
Profitability Decline (%)	-0.52	-0.03	1.00	-0.09
Business Growth (%)	0.21	0.09	-0.09	1.00

- A **negative correlation (-0.52) between compliance costs and profitability** suggests that higher tax burdens reduce net earnings.
- A **weak correlation (0.21) between GST compliance and business growth** indicates that GST standardization has

had limited positive effects on business expansion.

3. Regression Analysis:

A regression model was applied to measure the impact of compliance costs on profitability.

Table 3: Regression Results

Independent Variable	Dependent Variable	Coefficient
Compliance Cost Increase (%)	Profitability Decline (%)	-0.65
Unfavorable Raw Material Taxation	Profitability Decline (%)	-0.48
ITC Refund Delay (days)	Profitability Decline (%)	-0.03

Findings from the regression analysis indicate:

- For every 1% increase in compliance costs, profitability declined by 0.65%.
- Small businesses faced a greater impact due to limited financial resources.
- Manufacturing firms were affected more than service-based businesses due to raw material taxation.

Discussion:

The results highlight the financial strain imposed by GST on MSMEs. The increased compliance burden has significantly impacted profitability, with smaller businesses struggling the most due to limited working capital. The weak correlation between compliance and business growth suggests that while GST aimed to create a uniform tax structure, its benefits have not translated into substantial

business expansion. To mitigate these challenges, policymakers should consider measures such as:

- Streamlining ITC refund processes.
- Reducing tax rates on raw materials for manufacturing MSMEs.
- Offering tax incentives and subsidies for small businesses to improve financial stability.

This analysis underscores the need for continued assessment and reforms to ensure that MSMEs can sustain growth under the GST regime.

Conclusion and Recommendations:

1. Key Findings:

The implementation of the Goods and Services Tax (GST) in India was aimed at simplifying the indirect tax structure and promoting economic growth. However, its impact on Micro, Small, and Medium Enterprises (MSMEs) has been mixed. Based on the analysis, the following key findings have emerged:

- **GST compliance increases operational costs for MSMEs.** The requirement for regular filings, maintenance of detailed records, and adherence to complex tax regulations add financial and administrative burdens to small businesses.
- **Profitability is negatively impacted by compliance burdens.** Many MSMEs struggle with hiring professional accountants or investing in digital tools for GST compliance, reducing their overall profit margins.
- **Business growth has not significantly benefited from GST standardization.** While GST was expected to create a uniform market, the expected benefits of easier interstate trade and reduced tax complexities have not materialized significantly for MSMEs.

- **Delays in Input Tax Credit (ITC) refunds contribute to financial strain.**

A major concern among MSMEs is the delayed processing of ITC refunds, leading to liquidity issues and hampering their ability to invest in growth opportunities.

2. Recommendations:

To address these challenges and enhance the efficiency of GST compliance for MSMEs, the following recommendations are proposed:

- **Simplifying GST compliance procedures:** The government should introduce simplified compliance frameworks tailored for MSMEs, such as reduced filing frequencies, pre-filled tax returns, and an easier registration process to lower administrative burdens.
- **Ensuring timely ITC refunds:** Streamlining ITC refund mechanisms through automated processing and reducing bureaucratic delays would improve the cash flow of MSMEs and reduce financial stress.
- **Providing financial assistance and training programs:** MSMEs often lack the necessary expertise to navigate GST compliance efficiently. Government and industry associations should offer training programs and financial aid to help small businesses adapt to GST requirements.
- **Revising tax rates for MSMEs, particularly in manufacturing sectors:** The government should consider lower GST rates for small manufacturers and businesses to enhance their competitiveness and sustain long-term profitability.

Future Research Directions:

While this study highlights key GST-related challenges faced by MSMEs, further research is necessary to gain deeper

insights into sector-specific issues. Future research should focus on:

- **Industry-Specific GST Challenges:** Different industries have unique compliance challenges under GST. A sector-wise analysis, particularly in rural MSMEs, would provide valuable insights for policymakers.
- **Role of Digital Tools in Reducing Compliance Burdens:** Investigating the impact of digital tax filing tools and automation on easing GST compliance for MSMEs can offer practical recommendations.
- **Longitudinal Studies on GST's Economic Impact:** Long-term studies evaluating how GST has influenced the financial health, expansion opportunities, and overall sustainability of MSMEs will help shape future tax reforms.

In conclusion, while GST has streamlined taxation at a macro level, its

implementation challenges for MSMEs must be addressed to foster an inclusive and growth-oriented business environment. Strategic interventions, regulatory improvements, and supportive policies can ensure that MSMEs fully benefit from the GST regime without undue financial and administrative burdens.

References:

1. Agarwal, R., Sharma, P., & Verma, S. (2021). Impact of GST on MSMEs in India: A Financial Perspective. *Journal of Economic Policy Studies*, 7 (2), 89-104.
2. Gupta, A., & Sharma, K. (2019). Compliance Challenges of MSMEs under GST. *International Journal of Financial Research*, 5 (1), 56-72.
3. Kumar, R. (2020). GST and Small Business Growth: A Critical Analysis. *Indian Journal of Business and Taxation*, 12 (4), 101-118.