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Research Paper

A STUDY ON IMPACT OF GST ON MSME AND SMALL TRADER IN INDIA.

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Abstract

The implementation of the Goods and Services Tax (GST) has significantly transformed the taxation landscape for Micro, Small, and Medium Enterprises (MSMEs) and small traders in India. This study leverages the capabilities of Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL) to analyze the multifaceted impact of GST on these vital sectors of the Indian economy. By utilizing large datasets sourced from government records, tax filings, business surveys, and market reports, the study aims to understand how GST has influenced operational costs, compliance burdens, revenue patterns, and overall business sustainability for MSMEs and small traders.The research employs ML algorithms to classify and predict the financial health of MSMEs pre- and post-GST implementation, identifying key factors that drive business performance under the new tax regime. Deep Learning models, including time-series forecasting, are used to evaluate trends in tax compliance, revenue growth, and market adaptability. Furthermore, Natural Language Processing (NLP) techniques analyze textual feedback from business owners and stakeholders collected through surveys and social media to gauge sentiment and challenges related to GST. The integration of AI-driven analytics provides a

comprehensive and data-driven perspective on the GST's effects, offering valuable insights for policymakers, business owners, and financial institutions aiming to support the MSME sector in India.

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I.INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) and small traders form the backbone of the Indian economy, contributing significantly to employment generation, industrial output, and exports. The introduction of the Goods and Services Tax (GST) in India marked a major reform in the indirect tax system, aiming to unify multiple taxes into a single, streamlined structure. While GST has the potential to improve tax compliance and create a common national market, its implementation has posed various challenges and opportunities for MSMEs and small traders, especially regarding compliance costs, cash flow management, and pricing strategies.Traditional methods of analyzing GST's impact rely heavily on financial reports and survey data, often missing deeper patterns and predictive insights. With advancements in Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL), it is now possible to process large volumes of structured and unstructured data to reveal nuanced trends and forecast future scenarios. This study applies these intelligent technologies to comprehensively assess the effects of GST on MSMEs and small traders, exploring operational efficiency, market adaptation, and financial sustainability. The findings aim to provide actionable insights that can help policymakers tailor support mechanisms and guide businesses through a rapidly evolving tax landscape.

Definition:

The Goods and Services Tax (GST) is a unified, destination-based indirect tax introduced in India in July 2017 to replace a multitude of indirect taxes such as excise duty, service tax, and VAT. GST is levied at every stage of the supply chain on the value addition, aiming to simplify tax administration and create a seamless national market. The tax structure and compliance requirements introduced by GST have significant implications for Micro, Small, and Medium Enterprises (MSMEs) and small traders, who constitute a large segment of the Indian economy and contribute substantially to employment and GDP.MSMEs are businesses classified based on their

investment in plant, machinery, or equipment and annual turnover, encompassing manufacturing units, service providers, and traders. Small traders are individual entrepreneurs or small-scale retailers and wholesalers who often operate with limited capital and resources. These businesses are particularly vulnerable to regulatory changes like GST due to challenges in compliance, cash flow, and administrative overheads. To analyze the impact of GST on these sectors, this study employs Artificial Intelligence (AI) techniques including Machine Learning (ML) and Deep Learning (DL), which allow for processing large volumes of structured and unstructured data. Additionally, Natural Language Processing (NLP) is used to interpret textual feedback and sentiments from business owners, providing a comprehensive view of GST's effects.

research methodology:

This study adopts a data-driven approach utilizing Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL) to analyze the impact of GST on Micro, Small, and Medium Enterprises (MSMEs) and small traders in India. The research begins with the collection of both structured data—such as financial statements, GST tax filings, transaction records, and market performance metrics—and unstructured data, including survey responses, interview transcripts, and social media feedback from MSME owners and small traders. This comprehensive dataset enables the application of advanced AI techniques to extract meaningful patterns and trends.Machine learning models such as Random Forest, Support Vector Machines (SVM), and XGBoost are employed to classify and predict the financial health and compliance behavior of businesses before and after GST implementation. Deep learning models, particularly Long Short-Term Memory (LSTM) networks, are used for time-series forecasting of revenue and tax compliance trends. Additionally, Natural Language Processing (NLP) techniques analyze textual data to assess sentiments, challenges, and perceptions about GST from business stakeholders. Model performance is evaluated using metrics like accuracy, precision, recall, and mean squared error (MSE) to ensure robustness and reliability. This AI-powered methodology provides a holistic understanding of GST's multifaceted impact on MSMEs and small traders.

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III.DATA ANALYSIS AND INTERPRETATION

INTERPRETATION:

The analysis reveals that the introduction of GST has had a mixed impact on MSMEs and small traders across India. On one hand, GST has promoted formalization, created a unified national market, and increased transparency in the taxation system. On the other hand, it has also introduced compliance complexities, especially for small businesses with limited digital and financial literacy. By applying Machine Learning (ML) algorithms to financial and compliance data, the study uncovers patterns indicating that businesses with digital accounting systems and GST training adapted more successfully, while those without struggled to meet compliance deadlines and faced penalties.

INTERPRETATION:

Additionally, Natural Language Processing (NLP) techniques applied to survey feedback and social media posts highlighted a prevalent sentiment of confusion, concern, and adjustment difficulties, especially in the initial years post-GST rollout. However, over time, DL-based time-series forecasting using LSTM models showed a gradual increase in revenue growth and GST compliance rates, especially in urban and semi-urban areas. These interpretations suggest that AI-based policy tracking and digital support systems could bridge the adaptation gap and enhance the resilience of MSMEs and small traders in the GST framework.

IV.FINDINGS

The study identifies several key findings regarding the impact of GST on MSMEs and small traders in India, especially when analyzed through AI, ML, and DL frameworks. Firstly, Machine Learning models revealed that smaller businesses

with limited digital infrastructure faced greater challenges in adapting to the GST regime, resulting in delayed filings, penalties, and compliance fatigue. On the contrary, businesses that adopted accounting software and maintained digital records showed improved compliance and tax management, indicating that digital readiness is a major factor in GST success.

Secondly, sentiment analysis using NLP techniques on survey responses and social media posts indicated a gradual shift in perception—from resistance and confusion to acceptance and strategic adaptation. Many small traders reported initial difficulties due to the complexity of input tax credit, filing deadlines, and e-way bills, but showed better understanding and satisfaction as they gained exposure and government support improved. Lastly, Deep Learning models (e.g., LSTM) showed that revenue, tax returns, and transaction volumes from compliant MSMEs have seen moderate growth trends post-GST, particularly in the manufacturing and service sectors. These findings highlight the need for targeted training, AI-powered support tools, and simplification efforts to ensure inclusive and effective GST implementation.

V.CONCLUSION

The introduction of the Goods and Services Tax (GST) marked a significant milestone in India's economic reform, aiming to streamline the tax system and foster a unified national market. However, for Micro, Small, and Medium Enterprises (MSMEs) and small traders, the transition has been both a challenge and an opportunity. This study, using Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL), provides a modern analytical perspective on the impact of GST on this critical sector. The integration of these technologies allowed for deeper insights into compliance trends, revenue behavior, and sentiment shifts, which traditional analytical methods often overlook.Findings from ML and DL models indicate that digitally empowered MSMEs are more adaptable and have experienced a smoother transition under GST. Conversely, small traders with limited awareness and digital literacy face considerable barriers. The study also highlights the importance of sentiment, as revealed by Natural Language Processing (NLP), showing that over time, with proper support and adaptation, small businesses began to view GST more favorably. These insights reinforce the idea that digital enablement, education, and

policy simplification are essential to making GST more inclusive and less burdensome for the small business sector.In conclusion, GST has the potential to bring long-term benefits to MSMEs and small traders if supported by AI-powered compliance tools, accessible digital platforms, and continuous capacity building. Policymakers must focus on technological inclusion, simplified processes, and targeted interventions to ensure that the benefits of GST are equitably distributed across all levels of Indian enterprise. This study not only adds value to the understanding of GST's economic implications but also sets the foundation for future research that applies intelligent systems to policy evaluation.

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