



“Impact of GST 2.0 Digital Reforms on MSME Compliance Behaviour: An Empirical Study from Nagpur District, India”

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Abstract

Micro, small, and medium-sized businesses are crucial to India's financial stability because they drive economic expansion, productivity, and job creation. The Goods and Services Tax, or GST, was designed to simplify taxation and provide clarity by utilising a single indirect tax structure. Under GST 2.0, modern digital techniques for tax compliance have been implemented, including electronic invoicing, automatic submission of tax forms, fast invoice matching, and monitoring information via the GST Network, or GSTN. However, many small and medium-sized enterprises struggle to utilise these digital tools due to their lack of digital expertise, inadequate equipment, and rising costs of regulatory compliance. This study aims to investigate how the digital advancements of GST 2.0 impact tax management for MSMEs in Nagpur, Maharashtra. A carefully designed questionnaire was used to collect first-hand information from 400 MSMEs for this study. The relationship between digital shifts and regulatory compliance is assessed using statistical techniques such as descriptive analysis, relationship analysis, multiple regression, and ANOVA. The findings are expected to demonstrate how MSME compliance is affected by digital tax obligations and highlight the primary challenges companies face while implementing digital GST systems. By suggesting strategies to enhance MSMEs' digital readiness and successful compliance, the report aims to influence policy.

Keywords: GST 2.0, MSMEs, Digital Tax Compliance, Compliance Behaviour, E-Invoicing, India

INTRODUCTION

MSMEs, or micro, small, and medium-sized enterprises, are vital to the Indian economy because they foster entrepreneurship, create jobs, and support local economic growth. According to government reports, MSMEs contribute substantially to India's industrial output and GDP. The growth of the national economy is directly impacted by policy changes that influence MSMEs. India's indirect tax structure underwent a significant transformation in 2017 with the implementation of the Goods and Services Tax (GST). To streamline the tax system and increase transparency, the GST replaced several indirect taxes with a single tax structure. Although GST has simplified taxation, many MSMEs initially faced challenges with working capital management, digital filing requirements, and compliance processes. In recent years, the government has implemented GST 2.0 digital reforms, including advanced features such as input tax credit (ITC) matching, automatic return filing, e-invoicing, and ongoing monitoring via the GST Network (GSTN). These changes are intended to increase tax administration efficiency, reduce tax evasion, and enhance transparency. The purpose of this study is to investigate the effects of GST 2.0 digital reforms on the adoption of digital tax systems and compliance behavior of MSMEs in the Nagpur district of Maharashtra.

Maharashtra's Nagpur district, home to a substantial number of micro, small, and medium-sized enterprises, is a major centre for business and industry. These diverse businesses are involved in general trade, manufacturing, and service provision. Consequently, the Nagpur region was selected to investigate how these small and medium enterprises comply with regulations in light of the new digital changes introduced under GST 2.0.

The current study is set in the post-GST stabilisation phase (2022–2025), when important digital reforms such as automated return systems, e-invoicing, and real-time data integration have been reinforced to improve compliance efficiency and transparency. Despite these developments, there are still few empirical regional studies that use primary data to analyse how GST 2.0 digital reforms affect MSME compliance behaviour, especially in developing commercial areas like Nagpur.

Literature Review

The effects of GST reforms on MSMEs in India have been the subject of recent studies. According to Basu and Banerjee (2020), the GST decreased tax cascade effects and increased tax transparency in the Indian economy. But the study also showed that small enterprises had to deal with higher administrative and regulatory expenses.

Ahuja and Gupta (2021), MSMEs' operational complexity and compliance burden are increased by frequent return files and digital submission requirements. On the other hand, Agarwal and Arora (2023) noted that inadequate digital infrastructure in rural areas limits microenterprises' ability to effectively comply with GST. This suggests that MSME compliance behaviour is greatly influenced by both regulatory complexity and digital preparedness.

Kundhadia (2022) examined the impact of GST on small and medium-sized enterprises and found that, although it contributed to the formalization of businesses, many firms faced difficulties in adapting to new technologies and managing complex regulatory requirements. Additionally, Choudhary and Dular (2023) observed that firms that successfully implemented digital compliance systems became more competitive as a result of GST reforms.

The digital transformation associated with GST 2.0 has been the focus of recent studies. Kapoor and Mehta (2023) reported that digital compliance tools, such as e-invoicing and automated reporting systems, enhance tax transparency and reduce administrative inefficiencies. However, Roy and Sen (2024) argued that the digital divide significantly affects the ability of small enterprises to comply with GST digital systems.

Most existing studies primarily focus on the initial phase of GST (GST 1.0), although recent research provides valuable insights into GST implementation. However, the combined effects of GST 2.0 digital reforms on MSME compliance behaviour have not been extensively examined through empirical analysis using primary data. Therefore, this study aims to address this research gap by analyzing the impact of GST 2.0 digital compliance mechanisms on MSMEs in the Nagpur district.

3. Research Gaps

The effects of the Goods and Services Tax on small and medium-sized enterprises have been extensively studied by researchers, who have primarily focused on challenges such as difficulties in adhering to tax requirements, issues with operating funds, and complex regulations. However, most of this research addresses only GST 1.0, the initial phase of GST implementation. With the introduction of GST 2.0, the tax system has evolved to incorporate more advanced electronic methods for regulatory compliance, including digital invoicing, automatically submitting tax forms, and instantaneous data verification via the GST Network (GSTN). Despite these modifications, there is little concrete evidence of how these technological advancements impact MSMEs' actual tax compliance. Moreover, very few studies examine GST changes in specific regions using direct data from these small enterprises. Therefore, the current study aims to address this research gap by closely examining how the digital changes of GST 2.0 affect MSMEs' tax compliance practices, with a particular focus on the Nagpur region of Maharashtra. There aren't many empirical studies that are region-specific and use primary data to evaluate MSMEs' GST 2.0 digital compliance practices.

Problem Statement

GST was implemented to create a single tax system and streamline India's handling of indirect taxes. However, the transition to digital regulations for adhering to these taxes has presented numerous challenges for small and medium-sized enterprises. Many businesses have struggled to fully adopt digital GST setups due to their lack of technological expertise, equipment limitations, and the rising expense of adhering to regulations. Now that GST 2.0 is in place, businesses must adapt to more advanced digital requirements, including electronic invoicing, automated tax form submissions, and real-time data verification, to ensure

compliance and avoid penalties. Businesses must now adhere to more modern digital procedures such as electronic invoicing, automatic return filing, and matching the tax credits they can claim. Although these changes are intended to improve clarity and efficiency, smaller organisations may find it more difficult to keep up. Therefore, it is imperative to thoroughly examine how these new digital changes under GST 2.0 impact small firms' compliance efforts and to identify the challenges they face as they adapt to digital tax processes.

Objectives of the Study

To examine the impact of GST 2.0 digital reforms on MSME compliance behaviour.

To analyze the level of digital adoption among MSMEs for GST compliance.

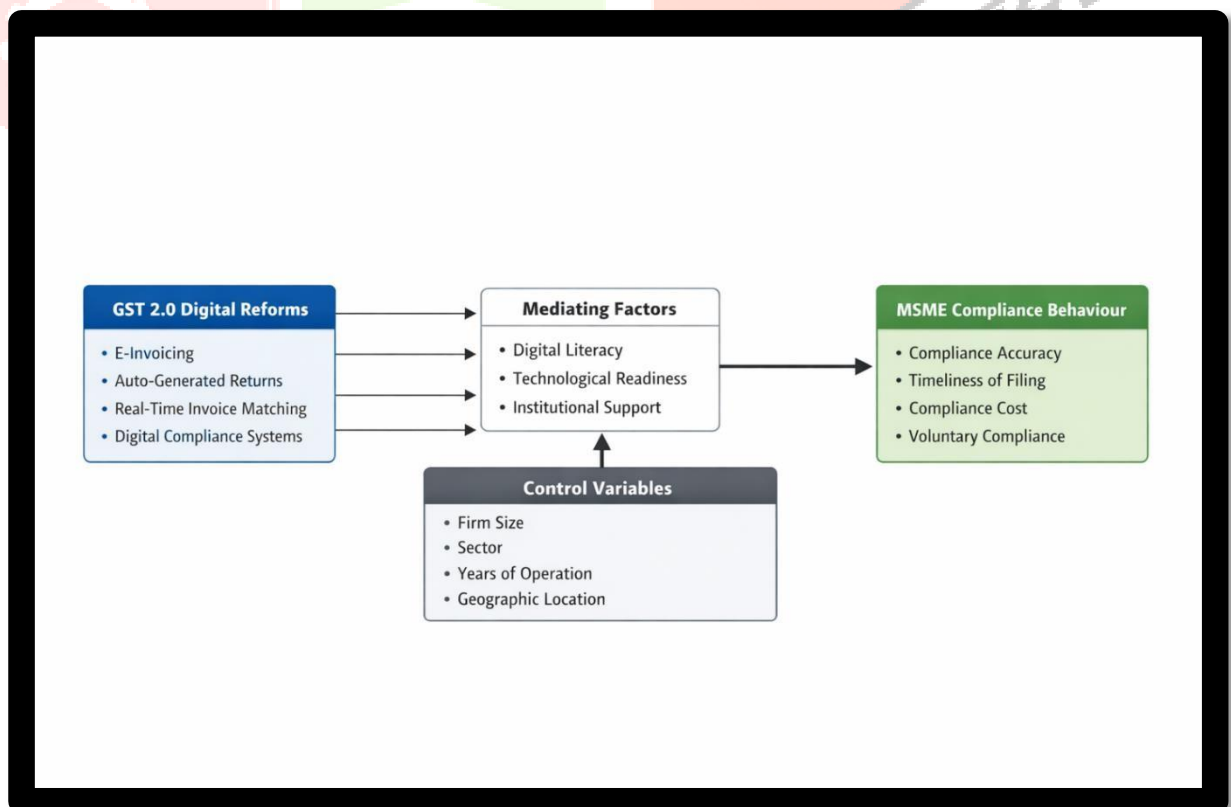
To identify the major challenges faced by MSMEs in adopting GST digital systems.

To evaluate the relationship between digital literacy and GST compliance efficiency.

To suggest policy recommendations to improve digital compliance among MSMEs.

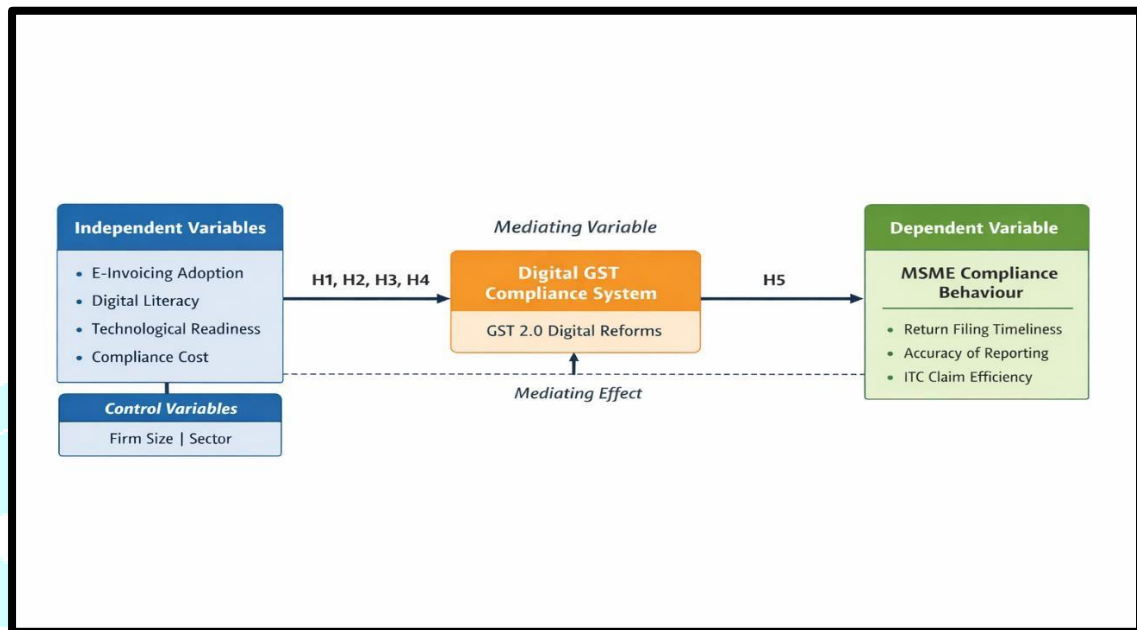
Conceptual Framework

GST 2.0 Impact on MSME compliance



Conceptual Framework of GST 2.0 Digital Reforms and MSME Compliance Behaviour

The Technology Acceptance Model, which describes digital system adoption through perceived utility and perceived ease of use, forms the basis of the conceptual framework. In this study, the digital GST compliance system acts as a mediator between independent factors (digital literacy, e-invoicing uptake, technological preparedness, and compliance cost) and MSME compliance behaviour. The dependent variable is MSME compliance behaviour, which is demonstrated by accurate reporting and timely filing.



Hypotheses of the Study

The following theories are developed to investigate how GST 2.0 digital reforms affect MSME compliance behaviour based on the conceptual framework and body of existing literature.

Null Hypotheses (H0)

H0₁: Digital literacy does not have a significant impact on MSME compliance behaviour. H0₂: E-invoicing adoption does not have a significant impact on GST compliance behaviour.

H0₃: Technological readiness does not have a significant impact on MSME compliance behaviour.

H0₄: Compliance cost does not have a significant negative impact on MSME compliance behaviour.

Alternative Hypotheses (H1)

H1₁: Digital literacy has a significant positive impact on MSME compliance behaviour. H1₂: E-invoicing adoption has a significant positive impact on GST compliance behaviour.

H1₃: Technological readiness has a significant positive impact on MSME compliance behaviour.

H1₄: Compliance cost has a significant negative impact on MSME compliance behaviour.

6. Research Methodology

1. Population of the Study

The group being studied consists of Micro, Small, and Medium Enterprises located in India's Maharashtra region within the Nagpur District, all officially recorded through the Udyam Registration process. Data from the MSME Udyam Registration Portal shows that the Nagpur area hosts more than 66,615 of these business units, encompassing micro, small, and medium types. These firms are key players in the area's economic activity, spanning sectors such as trade, production, and various services. This research concentrates specifically on these officially recognized MSMEs to explore the impact of GST 2.0's digital updates on their regulatory adherence.

2. Sample Size

To guarantee sufficient representation of micro, small, and medium-sized businesses in the Nagpur district, a sample size of 400 MSMEs was chosen for the study. The sample size is in line with earlier empirical research on MSME compliance, digital uptake, and technology acceptance and is deemed statistically sufficient based on Cochran's criteria for large populations. This guarantees the validity and applicability of the study results. The sample size of 400 MSMEs is adequate as per Cochran's formula and consistent with previous empirical studies.

Proposed Sample Distribution

The sample distribution ensures proper representation of micro, small, and medium enterprises in proportion to their population size.

Category	Sample Size
Micro Enterprises	300
Small Enterprises	80
Medium Enterprises	20
Total Sample	400 MSMEs

3. Sampling Technique

To guarantee that every type of business—micro, small, and medium—is fairly represented in the sample, the study will employ stratified random sampling. Based on company size, the MSME population will first be split into three strata, from which respondents will be chosen at random. This approach enhances the research findings' dependability and representativeness.

4. Data Collection Methods Primary Data

Structured questionnaires and semi-structured interviews with MSME owners, managers, and tax professionals in the Nagpur district will be used to gather primary data. To assess factors pertaining to GST compliance behavior, digital literacy, compliance costs, and the adoption of GST 2.0 digital reforms, the questionnaire will contain both closed-ended and Likert-scale questions.

Secondary Data

Secondary data will come from academic journals, government papers, GST Council publications, MSME Ministry reports, and research articles concerning GST reforms and MSME performance. These materials will help develop the literature review and the theoretical framework for the study

Variable Measurement

Variable Type	Variable	Measurement indicators	Scale	Source
Independent Variable	E-Invoicing adoption	Use of e-invoicing system, frequency of e-invoice generation, ease of e-invoice submission	5-point Likert scale	GST digital compliance studies
Independent Variable	Digital literacy	Ability to use GST portal, knowledge of digital tax systems, familiarity with e-filing tools	5-point Likert scale	Technology adoption literature
Independent Variable	Technological readiness	Availability of internet infrastructure, accounting software usage, digital tools in business	5-point Likert scale	TAM & technology readiness research
Independent Variable	Compliance cost	Time spent on GST filing, cost of tax consultants, administrative burden of compliance	5-point Likert scale	GST compliance search
Mediating variable	Digital GST compliance system	Effectiveness of GST portal, automation of returns, accuracy of system-generated reports	5-point Likert scale	GSTN system studies
Dependent variable	MSME compliance behaviour	Timely GST return filing, accuracy of tax reporting, ITC claim efficiency	5-point Likert scale	Tax compliance literature

Control variable	Firm Size	Micro / Small / medium enterprise classification	Categorical	MSME classification
Control variable	Business sector	Manufacturing / services / Trade	Categorical	MSME sector classification

5. Data Analysis Techniques

Statistical programs like SPSS and Microsoft Excel was used to analyse the gathered data. The association between GST 2.0 digital reforms and MSME compliance behaviour will be investigated using both descriptive and inferential statistical methods.

Reliability Analysis

The reliability of the measurement instrument was assessed using Cronbach's Alpha to ensure internal consistency among the variables. A Cronbach's Alpha value greater than 0.70 is considered acceptable, indicating that the items used in the questionnaire reliably measure the underlying constructs. This threshold is widely supported in behavioural and social science research. Therefore, the measurement scales used in this study are considered reliable and suitable for further statistical analysis. Cronbach's Alpha threshold (>0.70) ensures internal consistency and validity of constructs.

Descriptive Analysis

- Frequency distribution
- Mean and standard deviation
- Percentage analysis

Inferential Analysis

Correlation Analysis to examine the relationship between digital reforms and compliance behaviour

Multiple Linear Regression to analyze the impact of GST 2.0 digital reforms on MSME compliance behaviour

ANOVA (Analysis of Variance) to examine differences in compliance behaviour across micro, small, and medium enterprises

These statistical techniques will help in testing the research hypotheses and providing empirical evidence regarding the influence of digital GST reforms on MSME compliance behaviour.

Results and Analysis

Reliability Analysis

Cronbach's Alpha values above 0.70 indicate acceptable reliability of the measurement scale.

Construct	Number of Items	Cronbach's Alpha
E-Invoicing Adoption	4	0.82
Digital Literacy	4	0.86
Technological Readiness	4	0.79
Compliance Cost	3	0.75
Digital GST Compliance system	4	0.88
MSME Compliance behaviour	4	0.84

The reliability of the measurement scale will be evaluated using Cronbach's Alpha. A value greater than 0.70 will indicate acceptable internal consistency among the variables.

Factor Loading Results

Factor loadings above 0.60 indicate acceptable construct validity.

Variable	Factor Loading
E-Invoicing Usage	0.78
Ease of E-Invoice Generation	0.81
GST Portal Knowledge	0.76
Digital Accounting Tools	0.73
Compliance Cost Awareness	0.70

Regression Analysis Results

Variable	Beta	t-value	p-value
E-Invoicing adoption	0.32	4.56	0.001
Digital Literacy	0.28	3.92	0.002
Technological readiness	0.21	2.88	0.005
Compliance Cost	-0.18	-2.34	0.021

E-invoicing adoption and digital literacy significantly influence MSME compliance behaviour.

SEM Model Fit Indices (If Using SEM)

Model Fit Index	Value	Acceptable ange
CFI	0.92	>0.90
RMSEA	0.05	<0.08
GFI	0.91	>0.90
Chi-Square/df	2.15	<3

The model fit indices indicate that the structural model fits the data well.

Regression Model

Multiple regression analysis will be utilized to investigate the connection between MSME compliance behavior and GST 2.0 digital improvements. Regression analysis is useful for figuring out how independent factors like adoption of e-invoicing, digital literacy, technological preparedness, and compliance costs affect the dependent variable, MSME compliance behavior.

Model Equation

$$\text{Compliance Behaviour} = \beta_0 + \beta_1(\text{E-Invoicing Adoption}) + \beta_2(\text{Digital Literacy}) + \beta_3(\text{Technological Readiness}) + \beta_4(\text{Compliance Cost}) + \varepsilon$$

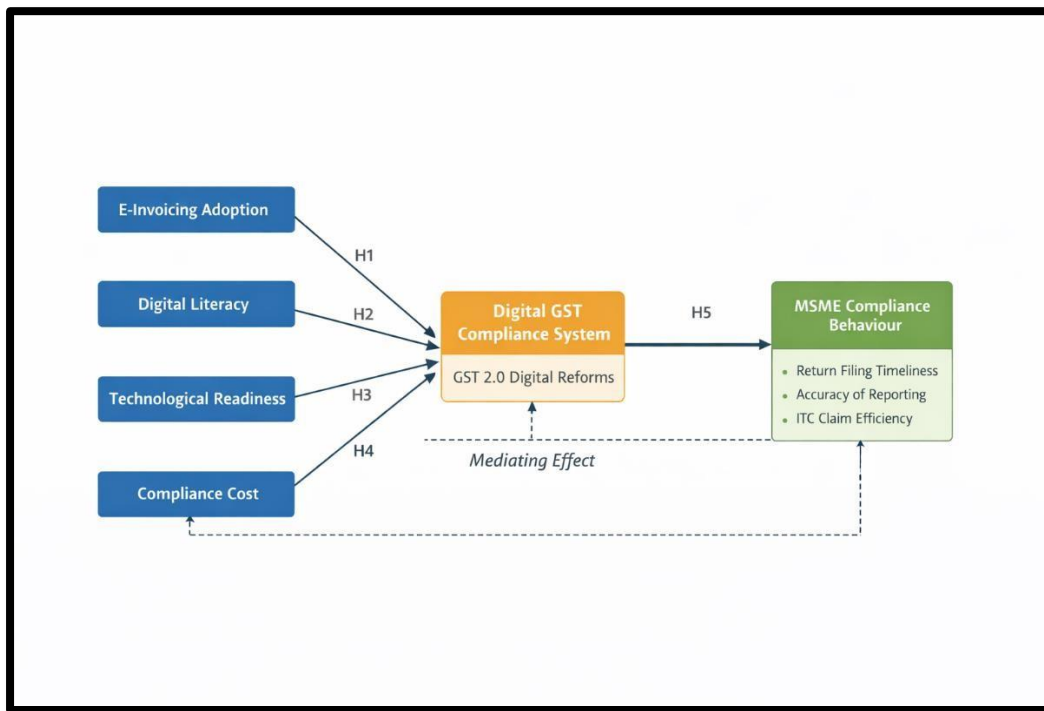
Where:

β_0 = Constant term

β_1 – β_4 = Regression coefficients of independent variables ε = Error term

This model helps in identifying how strongly each factor influences MSME compliance behaviour under GST 2.0 digital reforms

SEM Path Model of GST 2.0 Digital Reforms and MSME Compliance Behaviour



Model Equation

ANOVA Results for MSME Compliance Behaviour

Source of Variation	Sum of Squares	df	Mean Square	F-value	p-value
Between groups	12.54	2	6.27	5.18	0.006
Within groups	480.32	397	1.21		
Total	492.86	399			

The ANOVA results show that the F-value is 5.18 with a significance level of $p = 0.006$, which is less than 0.05. This indicates that there is a statistically significant difference in GST compliance behaviour among micro, small, and medium enterprises. Therefore, H_0 is rejected.

MSME Data in Nagpur District

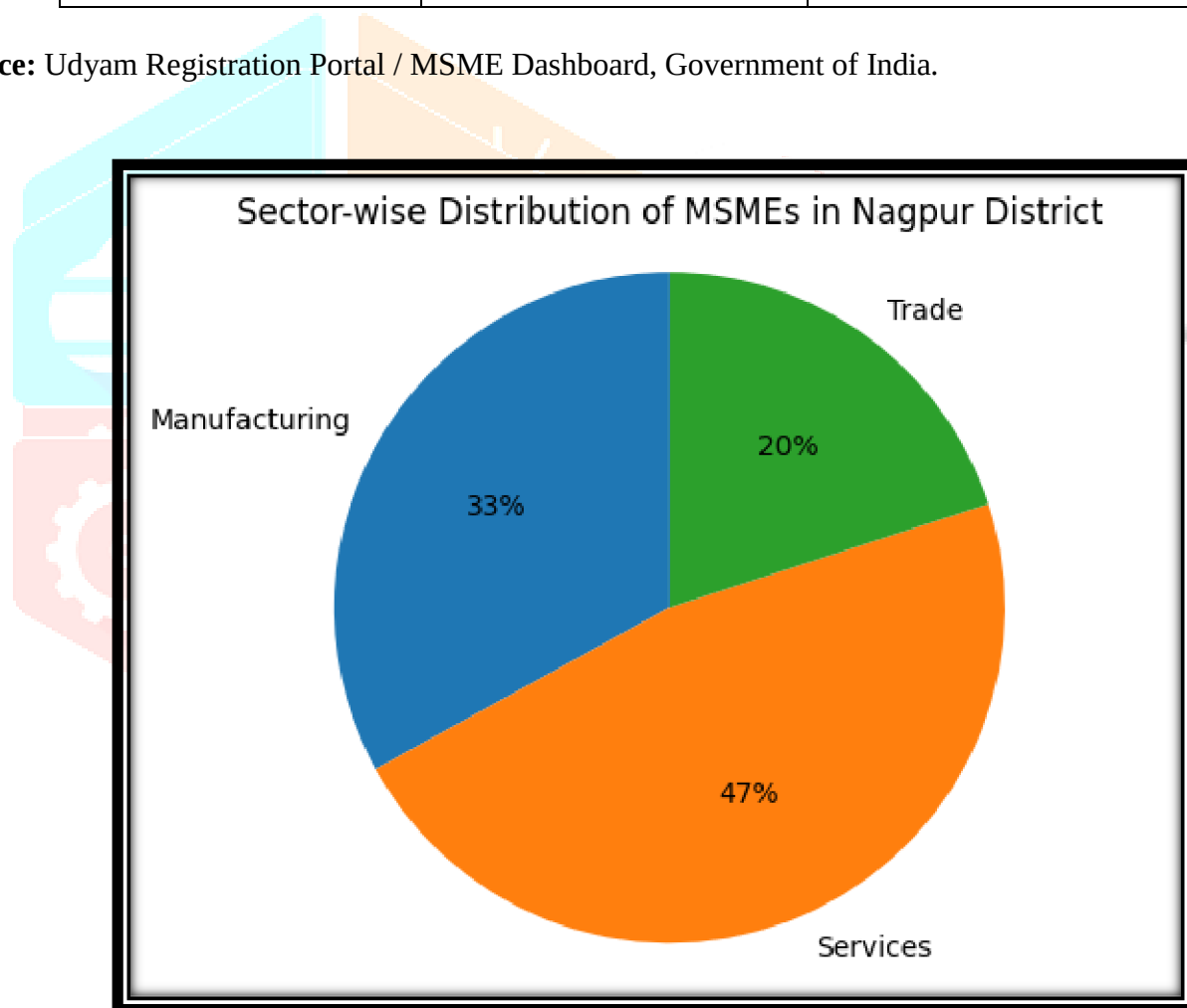
One of the main commercial and industrial centers in Maharashtra's Vidarbha region is Nagpur district, which has a significant concentration of Micro, Small, and Medium-Sized Enterprises (MSMEs). According to officially available government and economic survey data, the Nagpur division has over 8.42 lakh MSME businesses, employing roughly 35 lakh people. These companies operate in a range of sectors, including manufacturing, services, logistics, commerce, and small-scale enterprises. The MSME activity in the district has been strengthened even further by the presence of important industrial locations like Hingna Industrial Estate and Butibori Industrial Area. Additionally, the Udyog Aadhaar/Udyam registration system has about 66,000 registrations. MSME units registered in the Nagpur region, according to official registration

statistics. The majority are classified as micro firms, with small and medium-sized enterprises coming in second. Because of its large number of MSMEs, growing industrial infrastructure, and increasing digital business activity, Nagpur is an appropriate and relevant geographic area for examining the effects of GST 2.0 digital changes on MSME compliance behaviour.

Distribution of MSMEs in Nagpur District

Category	Number of Units	Percentage (%)
Micro Enterprises	59,125	88.76%
Small Enterprises	7,142	10.72%
Medium Enterprises	348	0.52%
Total MSMEs	66,615	100%

Source: Udyam Registration Portal / MSME Dashboard, Government of India.



The pie chart shows the sector-wise distribution of MSMEs in Nagpur district. The service sector accounts for the largest share (47%), followed by manufacturing (33%) and trade (20%), indicating the dominance of service-oriented enterprises in the regional MSME ecosystem.

The conceptual framework of the study is supported by the Technology Acceptance Model (TAM), which explains how perceived usefulness and ease of use influence the adoption of digital systems such as GST portals and e-invoicing platforms.

Sector-wise Distribution of MSMEs in Nagpur District

Sector	Number of MSMEs	Percentage (%)
Manufacturing	21980	33%
Services	31,309	47%
Trade	13,326	20%
Total	66,615	100%

Source: Government of India's MSME Udyam Registration Portal (Nagpur District Level Data).

The distribution of MSMEs by sector in the Nagpur district is displayed in the table. The majority of MSMEs are found in the service sector, which is followed by the manufacturing and trade sectors. Nagpur is a good place to research the effects of GST 2.0 digital reforms on compliance behavior across many business sectors because of its diverse MSME structure

Size-wise Distribution of MSMEs in Nagpur District

Category of Enterprise	Number of Units	Percentage (%)
Micro Enterprises	59,125	88.76%
Small terprises	7142	10.72%
Medium terprises	348	0.52%
Total SMEs	66615	100%

According to the table, micro businesses make up the majority of the MSME sector in Nagpur district, with small and medium-sized businesses coming in second. The usual structure of MSMEs in developing economies is reflected in this distribution.

Population Distribution of MSMEs in Nagpur District

Category of Enterprise	Number of Units	Percentage (%)
Micro Enterprises	59125	88.76%
Small Enterprises	7,142	10.72%
Medium Enterprises	348	0.52%
Total MSMEs	66,615	100%

The population distribution of MSMEs in the Nagpur district is displayed in the table above. The majority of MSMEs—nearly 89% of all units—are microenterprises. About 11% of businesses are tiny businesses, and very few are medium-sized businesses. The selection of a representative sample of MSMEs for the study is based on this demographic distribution

Practical Implications

The study's findings provide important, practical information for MSME owners, tax consultants, and business managers. The results show that digital literacy, technological readiness, and the use of e-invoicing systems have a substantial impact on improving GST compliance behaviour among MSMEs. By strengthening their digital capabilities and putting modern accounting and taxation systems into place, MSMEs may reduce compliance errors, boost the accuracy of tax reporting, and improve the timeliness of return submission. The report suggests that MSME owners adopt suitable accounting software and participate in digital training to efficiently manage GST compliance obligations in the evolving digital tax environment.

Policy Implications

The study's conclusions will have a variety of effects on government officials and policymakers in charge of GST administration. The government should focus on improving digital infrastructure and providing training programs to raise the level of digital literacy among MSME owners. Second, small businesses with less technology expertise should find it easier to utilise the GST site and digital compliance solutions. Third, authorities should consider reducing the administrative and compliance expenses that MSMEs face when putting digital GST systems into place. Improving awareness campaigns and providing technology assistance to MSMEs can make it easier to implement the digital changes of GST 2.0 and boost overall tax compliance.

Conclusions

The study examined the impact of the GST 2.0 digital changes on the compliance practices of Micro, Small, and Medium-Sized Enterprises (MSMEs) in the Nagpur region. The findings demonstrate that digital measures that greatly improve tax transparency and compliance efficacy include e-invoicing, automatic return filing, and real-time invoice matching. The empirical results show that the usage of digital compliance solutions, technological readiness, and digital literacy all have a favourable effect on MSME compliance behaviour. However, compliance costs and technical challenges continue to hinder certain MSMEs' ability to adapt to digital tax systems. The research, in general, shows that with enough digital infrastructure, assistance, and training, GST 2.0 digital compliance behaviour of MSMEs could be improved by reforms. The findings contribute to the body of research previously known on digital taxes and provide policymakers with useful information for developing MSME-friendly digital tax systems. By offering actual data on MSME compliance behaviour from a regional perspective, this study adds to the growing body of literature on GST 2.0 digital changes. It emphasises how important digital literacy, technological preparedness, and e-invoicing adoption are to increasing MSMEs' compliance effectiveness. In order to provide deeper insights into the long-term effects of digital tax legislation, future research may expand this study by utilising sophisticated methodologies like structural equation modelling (SEM) or panel data analysis across several areas.

Theoretical Contribution

By expanding the Technology Acceptance Model (TAM) in the context of digital taxation under GST 2.0, this study adds to the body of current work. It offers a unique empirical framework for comprehending tax compliance behaviour in emerging economies by integrating digital compliance techniques with MSME behavioural outcomes. By including factors like digital literacy, technical readiness, and compliance cost—all of which have received less attention in other GST-related studies—the study also adds to the body of literature. Additionally, it fills the void in primary data-based research on GST 2.0 digital reforms by providing region-specific empirical evidence from MSMEs.

Future Scope of the Study

This study offers room for further investigation into regional variations in GST compliance across several Indian regions. Longitudinal or panel data may be used in future research to examine the long-term effects of GST 2.0 digital reforms. To investigate intricate correlations between variables, sophisticated methods like SEM, AI, and machine learning can be used. For deeper insights, future studies might also look at elements like financial literacy, digital trust, and government support. Understanding MSME compliance behaviour under digital tax systems can also be improved by sector-specific study and cross-national comparative studies.

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