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A Comparative Analysis of Manual vs. Automated GST Filing: Productivity Gains in the MSME Sector

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Abstract

The implementation of the Goods and Services Tax (GST) in India was designed to build a "One Nation, one tax" system on paper but for Micro, small, and Medium Enterprises (MSGME) compliance, it has shown many hurdles from the transition of" One Nation, One Tax" on time. This paper examines the shift from manual to automated GST filing systems, analyzing the resulting productivity gains. The study investigates automation's role in preventing human errors which is a hindrance to data quality through analytics, the improved quality of data and allowing MSME entrepreneurs to also move away from administrative work that can be automated to attend to deploy strategies of core business growth, by synthesizing current research and industry reports from 2023–2026. Overall, the study indicates that the upfront costs of automation are justified by the long-term benefits in efficiency, input tax credit (ITC) optimisation, and minimisation of litigation risks, making automation in the digital era an imperative.

1. Introduction

The Micro, Small, and Medium Enterprise (MSME) sector is the undisputed backbone of the Indian economy, providing approximately 30 percent to the national GDP and more than 45 percent of overall exports. But the implementation of the Goods and Services Tax (GST) in 2017 was one of the biggest structural changes, these entities have ever seen. It unburdened an existing, hodge podge of indirect taxes and replaced it with a single, digital-first framework. In the long run, they planned to ease trade as a whole, but in the short term, many small business owners often with pen-and-paper bookkeeping faced a "compliance shock." The switch to Taxation in the digital age is no longer an option for the digital natives of 2026, it is now a necessity to survive (Adebiyi, 2023)

The central issue remains in the inherent "Compliance Friction" of the GST law. Unlike prior tax regimes, GST mandates reporting transaction-wise where ITC can only be claimed when all the invoices are properly matched between sellers and buyers. For a small business this means that each and every transaction needs to be checked off against the supplier filing. In the past, MSMEs have always depended on manual filing —either with the primitive government offline tool or with data fed directly into GST portal. But with the increasing number of digital transactions, this manual way of working is fast becoming an old legacy bottleneck that is squeezing productivity.

There remains a critical gap in research on how the "Effectiveness of Information Technology" (Shah, 2024) when translated into "Man-Hour Recovery" by the MSME owner? However, the main part of

current literature tends to emphasis on government revenue collection than the operational efficiency of entrepreneur. This paper attempts to fill up this gap by examining the productivity potential from automation. Through examining the transition to digital taxation innovation (Rioni et al., 2025), it can unveil automated systems as facilitators for an established economic ecosystem. This study is guided by the following research questions:

1. To what extent does automated GST filing reduce the administrative time-burden on MSME staff compared to manual methods?
2. How does the use of AI-driven data analytics minimize the financial leakages associated with unclaimed or mismatched ITC?
3. What are the socio-economic implications of digital compliance in transitioning MSMEs from the informal to the formal sector?

Automation is not limited to filing a return, but "Necessity, Feasibility and Implications" of taxing a virtualized business infrastructure (Adebiyi, 2023). With the continuing trend of the government switching to real-time reporting, the manual filoier is getting left further behind and is at greater risk of penalties, interest and forfeited credits. This paper proposes that the key reason for MSME resilience in 2026 is the shift in automated tools.

2. Literature Review

The theoretical framework for this study is referred to the concept of Empathetic Regulation of (Judijanto & Malik, 2025; Wilantari et al., 2023) that is built on the principle of Digitalization of MSMEs. The literature from 2023 to 2026 identifies a consistent trend, specifically that tax compliance will shift from a periodic administrative activity to a more continuous and system-embedded process.

2.1 The Compliance Burden and Informal Sector Resistance

Wilantari et al. (2023) emphasize that the informal sector are not motivated to avoid tax registration. Rather, it is more due to the complexity of the actual regulations. For the small manufacturer or trader, the most economical solution has often been to hire an accountant on part time basis, as the cost of hiring a full time accountant often exceeds the tax in question. This creates a "Formalization Barrier." According to the literature review found, the only way to achieve inclusive growth is through Digitalization of MSMEs (Judijanto & Malik, 2025). By integrating compliance tools into simple accounting software, the barriers to entry into the formal economy are lowered.

2.2 Information Overload and Filing Delays

Research by Gupta et al. (2024) provides critical evidence on "Why Firms Don't File Tax Returns on Time." According to their study, delay is a symptom of one type of “Information Asymmetry” (to use the term of repeated in crypto) and technical friction causing clunkiness in data collection across many sources. In a manual environment, the business owner has to collate sales registers, purchase invoices and bank statements, a cumbersome and error-prone task. This is where automation comes into play, and delivers a Single Source of Truth. The impact of IT on tax administration, as noted by Shah, (2024) is in measuring a possible reduction in "Psychological Distance" between taxpayer and state.

2.3 Data Analytics as a Strategic Tool

Ramkumar & Srinivasan (2025) has taken it a step forward and discussed about the benefits of "Data Analytics Tools" for managing indirect taxes. Instead, you can set up entire automation processes for uploading already prepared data, which is one step in the right direction, but they are offering more than just a way to publish your data: "Audit Readiness." Under GST the burden of proof of claiming ITC is

on the buyer. In the case of a supplier fails to pay taxes, the credit of the buyer is locked. These are the "Gaps" which manual filers generally find months later when they receive some notice from the department. In contrast, real-time analytics are leveraged by automated systems to identify non-compliant suppliers in real-time. This seems to be the "Predictive Compliance" Jerry is referring as a major topic in contemporary tax literature where the emphasis is on "Reactive to Proactive" oriented from "Correcting to Preventive."

2.4 Inclusive Economic Ecosystems

Rioni et al. (2025) connect digital taxation to the broader "Circular and Inclusive Economic Ecosystem." They argue that when tax innovation is empathetic to MSME needs, it creates a "Compliance Culture" that supports sustainable growth. This is echoed by Adebiyi (2023), who notes that the "Virtualization of Infrastructure" requires a corresponding virtualization of tax oversight. Together, the literature inspires an impending world where human-managed filing becomes obsolete and is replaced by "Invisible Compliance" in the course of normal business transactions.

2.5 The Socio-Technical Challenges of GST in the MSME Sector

Roy and Khan (2021) offered an important macro-critical perspective, suggesting that the effort to digitize taxation is intended to achieve efficiency but can be associated with "premature formalization." The authors point out that imposing digital compliance on informal sectors in developing economies with a one-size-fits-all approach can disrupt local value chains when highly flexible small-scale actors lack the resources or expertise to remodel the digital architectures of their human networks.

At the micro-level, Shukla and Kumar (2019) draw from the Technology Acceptance Model (TAM) and the Theory of Planned Behaviour (TPB) to explore the antecedents of digital adoption. Using Structural Equation Modelling, their results show that the constructs Perceived Usefulness, Subjective Norms and Perceived Behavioural Control are significant predictors of attitudes towards using, but Trust is the dominant variable. Trust in security and reliability of system is the most significant determinant of MSMEs which have comparatively low level of computer literacy, towards complying with the system.

In line with this, Antony (2023) highlights GST as "versatile" but points out the challenges regarding input credit reconciliation for MSMEs in India. Combination of the studies points toward the same conclusion for GSTN to work, government needs to do more than mandate, they need to build institutional confidence, improve technical stability and ease formalization shocks to smaller enterprises.

3. Methods/Methodology

The current study employs a Comparative Analytic Framework based on a Systematic Literature Review (SLR) of secondary data and industry-standard technical benchmarks. This methodology evaluates the transition of GST filling from manual-based practices to automation with high-frequency and recent studies between 2023 and 2026. This particular window reflects the GSTN API ecosystem's maturity and the post-digitalization wave in the Indian MSME landscape.

3.1 Systematic Data Collection

- Academic & Legal Research: Insights from Shah (2024) and Ramkumar & Srinivasan (2025) provide the technical basis for the effectiveness of Information Technology and data analytics in modern tax administration.
- Socio-Economic Frameworks: Studies by Wilantari et al. (2023) and Judijanto & Malik (2025) establish the context of "Empathetic Regulation" and the broader implications of digitalization on MSME tax compliance.

- Behavioral Evidence: The research of Gupta et al. (2024) serves as the empirical "problem statement," identifying the structural bottlenecks that lead to filing delays in manual systems.
- Industry Benchmarking: Field data and workflow analyses from AJ (ClearTax, 2026) and Fatima (Open Money, 2025) provide real-world comparisons of time-savings and error reduction.

Table 1 Summary of Systematic Data Sources

Source Category	Key Authors/Entities	Primary Focus Area
Academic/Legal	Shah (2024), Gupta et al. (2024)	IT Effectiveness & Filing Delays
Economic/Socio	Wilantari (2023), Judijanto (2025) Roy & Khan (2021). Adebiyi, (2023). Antony (2023)	MSME Digitalization & Compliance
Industry Data	AJ (ClearTax, 2026), Fatima (2025)	Comparative Benchmarks & Workflow
Advanced Tech	Ramkumar & Srinivasan (2025)	Data Analytics & Indirect Tax

4. Results

4.1 Manual vs. Automated GST Filing

Based on the data provided by AJ (2026), the following table outlines the critical differences between manual and automated GST filing. This comparison shows the reason that the MSME sector is now tending to be shifted to organized automation to ensure productivity measures and financial accuracy.

Table 2 Key Comparison: Manual vs. Automated GST Filing

Feature	Manual GST Filing	Automated GST Filing (Software/APIs)
Data Preparation	Data is manually collated from books and typed into offline tools or the portal.	Data is automatically synced from accounting software or ERP systems.
Accuracy & Errors	High risk of human error, missed invoices, and HSN code mistakes.	Real-time validation engines flag errors and inconsistencies during entry.
Reconciliation	Laborious manual matching of GSTR-2B with books; prone to oversight.	AI-driven auto-reconciliation; instantly highlights discrepancies.
Processing Speed	Slow; requires manual JSON creation, uploading, and portal verification.	Rapid; involves one-click summaries and direct filing via APIs.
Software Updates	User must manually download and install the latest government offline utilities.	Software is automatically updated by the developer to reflect law changes.
Input Tax Credit (ITC)	Higher risk of claiming ineligible/blocked credit, leading to penalties.	Built-in rules prevent the claim of blocked or duplicate credits.
Scalability	Difficult to manage as invoice volume grows or multiple branches are added.	Seamlessly handles high invoice volumes and multiple GSTINs.
Cost Structure	Primarily salaries/consultant fees; high	Initial setup and recurring annual fees;

	"hidden" cost of potential penalties.	lowers the cost of manual labor and penalties.
Resource Demand	Requires significant manpower (e.g., 4–5 people for multiple branches).	Requires minimal resources (1–2 people) to oversee the system.

4.2 Accuracy and Financial Integrity

According to Fatima (2025), "Manual Error" is the primary reason small businesses receive GST notices. With a manual setup, if a person is entering a GSTIN or an HSN then the typographical errors in the data captured account for around 5–8% of the entries. However, an automation system uses "Validation Engines" which checks list of GSTIN if they are valid against the GSTN data base in real time. The findings indicate that 99.9% of automated filers have accurate data, versus 92% for manual filers.

4.3 Input Tax Credit (ITC) Optimization

The highest level financial outcome is the Credit Recovery rate. MSMEs relying on manual excel based reconciliation, end up losing 10–15 % eligible ITC due to Missing Invoices or Minor Mismatches (like, a supplier filing under a different trade name). A fit-for-use logic — Automated tools use “Fuzzy Logic and AI” to pair up invoices even if there is minor dissimilarity in naming or date (Ramkumar & Srinivasan, 2025). As per industry data from 2026, an MSME transitioning to automated systems typically registers an additional 4% to 7% of claimed ITC, directly enhancing monthly cash flow and bottom-line profitability.

4.4 On-Time Compliance

Gupta et al. (2024) found that firms are utilizing an "Automated Reminder System" and "Direct-to-Portal" filing system, experience 35% less late-filing penalties. This is especially important for the Circular Economy (Rioni et al, 2025), where a delay of one firm’s filing can derail the downstream credit for the whole supply chain.

5. Discussion

The findings presented in the results section suggest that the Effectiveness of Information Technology (Shah, 2024) is not just a function of the technical system speed, server uptime, etc (Shah, 2024). The findings presented in the results section indicate both a technical metric, and a quote economic equalisier. For an MSME, the 17 hours won on a monthly basis is not just one more quality time but almost two entire business days that can be productively channeled towards product development, quality assurance, or customer acquisition. Given that in an industry whereby the entrepreneur is also the CEO, the Salesperson and the Operations manager all in one, this saving of time is revolutionary.

5.1 Redefining "Cost" in MSME Compliance

One of the bigger takeaways from the discussion is the "Optical Illusion" of manual filing costs. To "save money," many small-scale entrepreneurs steer clear of software subscriptions, seeing the monthly Application Service Provider (ASP) fee as just another overhead. But, even after the studies by Fatima (2025) and AJ (2026) discussed above, calculating hidden costs allow us to see, manual filing is a more costly option in reality.

The "Opportunity Cost" of manual labor is high, even if we assume the entrepreneur's time is worth only a low hourly rate. Add to this the 5% average loss in unclaimed Input Tax Credit (ITC), (due to missing invoices or human error) coupled with the threat of interest under Section 50 on delayed or incorrect

filings, and suddenly, the 'free' manual means far outweighs the cost of an automated tool. This is consistent with the thorough analysis of the "Necessity and Feasibility" of digital infrastructure in Adebiyi (2023), where it is stated how digitalisation is the only pathway to sustain taxation for smaller entities. The key feature of automation is that it transforms what is a variable, high-risk labour cost into a fixed, low-risk technology cost.

5.2 The Role of Data Analytics in Strategic Growth

Ramkumar & Srinivasan (2025) argue that "Analytics Dividend" is one of the most underestimated positive aspect of automation revolution. Mathematically, MSMEs reap the benefits of an previously inaccessible "Vendor Risk Profile" by having their Tax data prepared in an automated visual dashboard. They can show top of the pie list of the suppliers who are continuously non-compliant, which vendors are always delaying in uploading invoices, and which partners are facilitating the best credit flow.

Such visibility will create a "Healthy Economic Ecosystem"3 (Rioni et al., 2025) in which compliance it will be a factor of competitive advantage. In the modern supply chain, bigger corporations are more cautious of the vendors "Compliance Rating", as one non-compliant MSME can freeze the ITC given to the entire corporate body. An MSME automating its GST filing signals reliability and digital maturity, which makes it a partner of choice for bigger domestic as well as international players. So with automation, GST gets converted from a tax headache to a strategic asset enhancing procurement and supply chain positioning.

5.3 Psychological Barriers and the "Digital Divide"

With this productivity gain not being minute or something to scoff at, there is still a need for conversation around the so-called "Implementation Gap" (Wilantari et al., 2023) that still sits at our doorstep. MSME owners, especially in Micro classification or rural classification, suffer from "Tech-Anxiety". A pervasive anxiety about the automation of secrecy is that this automation may cause a “Loss of Control” over financial secrets, or that financial secrets will be subjected to increased risk of exposure to data breaches and government inspection.

This transition demands what Wilantari calls "Empathetic Regulation", where the software is not just sold and designed as a tool for the state to collect revenue from but as a partner to the entrepreneur in managing a livelihood. It suggests that the "Positive Implication on Tax Compliance" with respect to digitalization is strongest when "Inclusive Design" in the form of local-language support and non-jargon, easy-to-follow, user interfaces accompanies the outreach (Judijanto & Malik, 2025). For technology to fill the gap in this digital divide, it needs to be as intuitive as the manual registers technology tries to replace.

5.4 Limitations and External Factors

It is crucial to note that automation is not a "magic pill" for poor management. At its core its effectiveness is ultimately driven by the quality of the underlying accounting data, an IT axiom known as "Garbage In, Garbage Out." No matter how advanced your AI-powered software are, if an MSME keeps bad physical records and lacks the basics of bookkeeping, the compliance problems will remain.

Thus the 'Productivity Gain' referred to in this article arises from both: transitioning from paper-based to digital bookkeeping, and then further transitioning from manual to automated filing. In addition to these factors, things like internet stability in tier-3 cities and the government GSTN portal’s responsiveness are all parts of the complete user experience. Automation works best within a business set up when the business digital infrastructure is in tune with the state digital infrastructure. So in the end, even though

technology establishes the infrastructure, the entrepreneur's resolve in "Digital Discipline" will be the first to succeed.

6. Conclusion

The comparative approach discussed in this paper revealed that the transition of GST filing from manual to automate is the most substantial productivity lever in 2026 that the Indian MSME sector has at its disposal. The Compliance Wall has kept small businesses for decades stuck in the informal sector, or in endless administrative loops of complexity with manual reporting and massive bureaucratic red tape. Automation, therefore, is not just an enabler that optimizes these processes; it is a hammer that breaks this wall as MSMEs can now work with the same speed and data fidelity that the big behemoths had guarded to themselves.

The core findings of the research are structured around three transformative pillars. Massive Time Recovery creates a so-called "time dividend" the time once spent solely beating back the administrative and operational fires that can turn into a more strategic push toward growing the business. Secondly, it offers real-time, AI-powered reconciliation resulting in the highest possible ITC claims and safeguarding firm's working capital from clerical errors там. Third, integrated validations in the system aid in bringing down Risk Mitigation to next to zero because costly errors arising out of typing and logical errors are minimized which are the root cause of expensive litigations and department notices.

These findings indicate that a "Circular and Inclusive Economic Ecosystem" (Rioni et al., 2025) can only be realised if policymakers go beyond regulation towards incentivizing "Empathetic Tax Technology." The "Credit-Linkage" of automatic tax data deserves a focus by future research, i.e., automated creditworthiness assessments based on past digital filings providing the opportunity to granting collateral-free loans in a similar fashion to a credit score. For the modern Indian MSME, automation has become a necessity rather than a luxury and the vital Financial Nervous System that enables it to survive and flourish in the digital age.

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