



# Impact of goods and services tax compliance on working capital management of MSME's

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**Abstract.** The introduction of the Goods and Services Tax (GST) in India marked a paradigm shift in the system of indirect taxation, replacing it with a uniform framework for the entire country. GST compliance, for Micro, Small and Medium Enterprises (MSMEs), which make up a significant share of India's economy, has been an important factor affecting their working capital management. This paper provides an empirical study of the influence of GST compliance on different elements of the working capital of 500 MSMEs operating in the manufacturing, trading, and services industries using a mixed-method approach of financial statement analysis (GST compliance before 2015-17 vs. after GST 2018-2025) and surveys. It is established that, on average, due to GST compliance, there was an increase in the working capital of 22%, mainly due to the delay in receiving ITC refunds and blocked input taxes. Meanwhile, companies complying with GST have demonstrated increased efficiency in managing inventories (decrease in days by 14%) and decreased logistics costs by 18%. A two-stage least squares regression model has shown the effect of the moderating variables such as firm size, digitization, and professional assistance in tax matters.

**Keywords:** Goods and Services Tax (GST), Working Capital Management, MSMEs, Input Tax Credit (ITC), Cash Conversion Cycle, Inventory Management, Compliance Burden, India

## I. Introduction

Goods and Services Tax (GST), introduced in India from July 1, 2017, is by far the biggest reform in indirect taxation after independence. Through the subsuming of over 17 indirect taxes (including central excise, service tax, VAT, entry tax, etc.), GST sought to achieve an integrated market in the country, elimination of cascading of tax (or tax on tax), improved compliance, and economic growth [1], [2]. The motto "One Nation, One Tax, One Market" appeared highly ambitious, offering smooth logistics, reduction in transaction cost, and greater competitiveness.



As regards MSMEs, who contribute about 30% of GDP, 45% of manufacturing output, and 48% of exports in India, the introduction of GST was significant. The MSMEs have limited access to institutional finance, low digital literacy, poor logistics, and cutthroat competition, and the working capital is always a constraint in their operations. Any change in the cash conversion cycle or any other issue in terms of tying up capital in tax is bound to affect them immediately. Some of the salient characteristics of GST affecting MSMEs include:

- The Input Tax Credit (ITC) system: Although the ITC mechanism resolves the issue of cascading tax, ITC will not be available to the buyer if the supplier is not compliant; therefore, cash flow is blocked [4].
- The need for monthly filing: It has been mentioned earlier that filing up to 37 returns per annum (GSTR-1, GSTR-3B, GSTR-9, GSTR-9C) is mandatory for a taxpayer, which adds to administrative costs, thus taking the focus away from business operations.
- Timing issues: As the GST is payable either on the date of issuance or receipt of payment, it may lead to a delay in cash flow as it is payable on the earlier of the above two dates.
- Working capital constraint: There is a time difference between paying output tax liability (GST paid on purchases) and receiving credit for input tax credit (GST paid on purchase), thus restricting working capital between 15 to 45 days [5].

While there have been extensive studies conducted on the impact of GST on macro-level variables, empirical evidence related to the micro-level implications of GST on MSMEs' working capital management is still scanty.

**Important Contributions of this paper are as follows:**

The empirical assessment of the impact of GST compliance on working capital: The study rigorously quantifies the impact of GST compliance on Cash Conversion Cycle, Inventory Turnover Ratio, Receivables Turnover Ratio, and Payables Turnover Ratio for MSMEs across sectors.

The identification of Moderators: The paper finds that firm size, digitization levels, availability of professional tax advisory services, and geographical location of firms have important moderating effect on the relationship between compliance and working capital.

Sectors wise Analysis: The study finds significant sectoral heterogeneity of the impact of GST compliance on working capital.

Suggestions for Policy Intervention: Based on the results, appropriate policy measures have been suggested.

## **II. LITERATURE SURVEY**

The review includes the following topics: working capital management in MSMEs; the structure and regulatory compliance associated with GST; and the existing researches dealing with tax compliance and firm liquidity.



**Working Capital Management in MSMEs:** Working capital management is a process that involves managing current assets (inventory, receivables, cash) and current liabilities (payables) in order to ensure MSME financial sustainability and effective functioning. Cash conversion cycle (CCC), which is calculated as  $\text{Inventory Days} + \text{Receivables Days} - \text{Payables Days}$ , represents the duration of the period from the moment of cash expenditure on production to the moment when payment is received. The longer the CCC, the more money is needed to support business activities. MSMEs have usually higher CCC compared to large enterprises because of the lack of strong negotiation skills with the suppliers and customers. Reducing the CCC by 10 days increases firm's profits by 1-2% [7].

**GST Structure and Compliance Challenges:** The GST structure comprises four tax slabs (5%, 12%, 18% and 28%) and cess on the demerit goods. The requirement of registration applies to those business entities whose annual turnover is above ₹40 lakhs (for goods) and ₹20 lakhs (for services). Several return forms are to be filed under GST, which include the following:

GSTR-1 – Return for sale transactions GSTR-3B – Summary return with tax payment  
GSTR-9 – Annual return GSTR-9C – Audited reconciliation (by large taxpayers)

These multiple return forms and short deadlines for filing (within 10-20 days after month-end) make GST-compliance an onerous process [8]. Matching of ITC is an important aspect which impacts the working capital requirement. Under the GST law, a buyer cannot match ITC until the supplier files GSTR-1, and he files GSTR-3B himself. The ITC that could be claimed from the supplier depends on whether or not he has paid the tax to the government. It creates a cascading chain. If any of the suppliers fails to file his GSTR-1, ITC matching will fail [4].

**Empirical Research on GST and Firm Liquidity:** The early empirical research following the introduction of GST in 2017-2019 mainly dealt with the issue of compliance rate, tax collection, and macroeconomic implications of the GST system. Recent studies have started analyzing the impact on firm-level parameters. According to a survey conducted on 1,000 small and medium enterprises (SMEs) in Gujarat, 68% of companies have mentioned an increase in working capital needs since the implementation of GST due to delay in ITC refund [5]. A difference-in-difference analysis revealed that the adoption of GST has lowered inventory holding costs for big firms but has no significant impact on MSMEs owing to the cost of compliance [9]. AIMO conducted a survey wherein 45% of MSMEs have cited cash flow problems due to ITC blockage.

However, most studies are either purely descriptive in nature or based on perceptions surveys. There is a dearth of rigorous statistical analysis with financial statement data spanning across different time periods. Moreover, there is very little literature which controls for other determinants such as the impact of COVID-19 and digitization which also affect the working capital requirement of firms.

**Research Gap:** There is no research in the literature before that has tried to measure empirically the effect of GST compliance on the elements of working capital (i.e., inventory, receivables, and payables). The present paper tries to fill this gap in the literature.

### III. METHODOLOGY

The research will be conducted with the help of a mixed methods design with quasi experimental approach with pre-test and post-test of MSME performance financially before GST (2015-2017) and post GST (2018-2025).

#### 1. Sampling and Data Collection

Sampling Frame: MSMEs registered in Ministry of MSME (udyam registration portal) in four states including Maharashtra, Gujarat, Tamil Nadu, Uttar Pradesh.

Sample Size: A total of 500 firms were considered by employing stratified random sampling according to following criteria:

- Sectors: Manufacturing (250), Trading (150), Services (100)
- MSME Size: Micro (250), Small (150), Medium (100)
- Turnover: Less than Rs 1 Crore (150), Rs 1-5 Crores (200), Rs 5-10 Crores (150)

#### Sources of Data Collection

- Primary Data: Accounting Statements of Profit and Loss statement and balance sheet in pre (2015-16, 2016-17) and post GST (2018-19, 2020-21, 2022-23, 2024-25) periods directly from firms (n=500)
- Survey Data: Structured questionnaires distributed to owners / finance manager to extract qualitative data on compliance issues, use of digital technology, hiring tax professionals, working capital pressure perception (n=500, 100% response)
- Secondary Data: Return filing data of GST (GSTR-1, GSTR-3B) was accessed for a subset of firms (n=200) through the GST portal with consent.

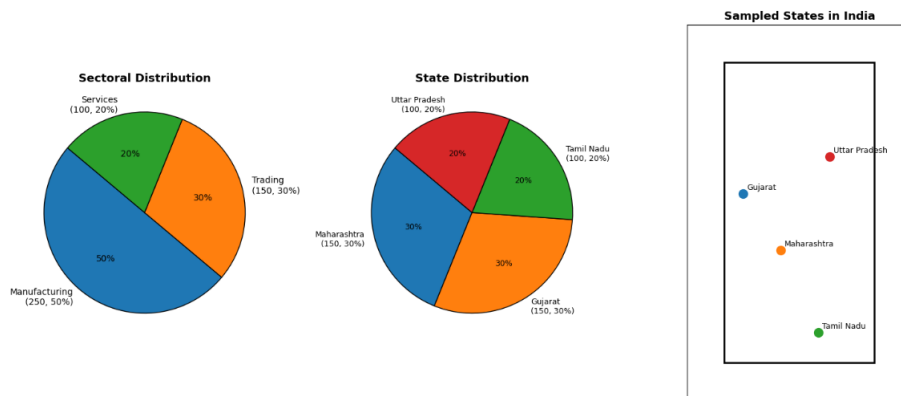


Figure 1: Geographic and Sectoral Distribution of Sampled MSMEs.

#### 2. Variables and Measurement

Dependent Variable: Working Capital Requirement (WCR): Calculated as (Current Assets - Current Liabilities)/Net Sales, controlling for company size. The individual components include:

- Inventory Days:  $(\text{Average Inventory}/\text{Cost of Goods Sold}) * 365$
- Receivables Days:  $(\text{Average Trade Receivables}/\text{Net Sales}) * 365$
- Payables Days:  $(\text{Average Trade Payables}/\text{Purchases}) * 365$
- Cash Conversion Cycle (CCC): Inventory Days + Receivables Days - Payables Days



- Independent Variable: GST Compliance Period: Dichotomous variable (0 = before GST compliance: 2015-17; 1 = after GST compliance: 2018-25).

Control/Moderating Variables:

Firm Size: Micro, Small, Medium (nominal)

Sector: Manufacturing, Trading, Services (nominal)

Digital Adoption Index: Scored from 0 to 10, based on usage of accounting software, e-way bills, online filing

Professional Tax Assistance: Yes/No dichotomy (0 = filed taxes individually; 1 = used consultants/chartered accountants)

ITC Blockage Ratio: Percentage of eligible ITC that was not claimed (survey-based)

### 3. Analytical Approach

#### Descriptive and Comparative Analysis

Mean figures of working capital indicators are computed for the pre-GST (2015-17 average) and post-GST (2018-25 average) eras, and their difference is examined for statistical significance employing paired t-test and Wilcoxon signed-rank test (for non-normally distributed data). This analysis is performed based on company size, industry, and technology adoption category.

#### Panel Regression Model (Fixed Effects)

In order to measure the effect of GST while controlling for other time varying variables (such as COVID, inflation, digitization), we run a firm fixed effects regression.

$$WCR_{it} = \alpha + \beta_1 * PostGST_t + \beta_2 * Digital_i + \beta_3 * [Sales\_Growth]_{it} + \beta_4 * Inflation_t + \mu_i + \varepsilon_{it}$$

Where:

$WCR_{it}$  = working capital requirement of firm  $i$  at time  $t$  (standardized)

$PostGST_t$  = 1 from 2018-2025, 0 otherwise

$Digital_i$  = digital adoption index (time invariant)

$Sales\_Growth_{it}$  = annual sales growth (controls for business cycles)

$Inflation_t$  = annual WPI inflation rate (macro control)

$\mu_i$  = firm fixed effects (controls for all time invariant characteristics of the firm)

$\varepsilon_{it}$  = residual error

Regression is performed separately for each component of working capital (ID, RD, PD, CCC).

#### Two-Stage Least Squares (2SLS) for Moderator Analysis

To control for possible endogeneity (such as more efficient firms could potentially use digital technologies and manage their working capital efficiently), we have used distance to the nearest IT training centre as an instrument for digital technology adoption, which is exogenous. We estimate:

$$WCR_{it} = \gamma_0 + \gamma_1 * [Digital\_Adoption]_{i\_hat} + \gamma_2 * Size_i + \gamma_3 * Sector_i + v_{it}$$

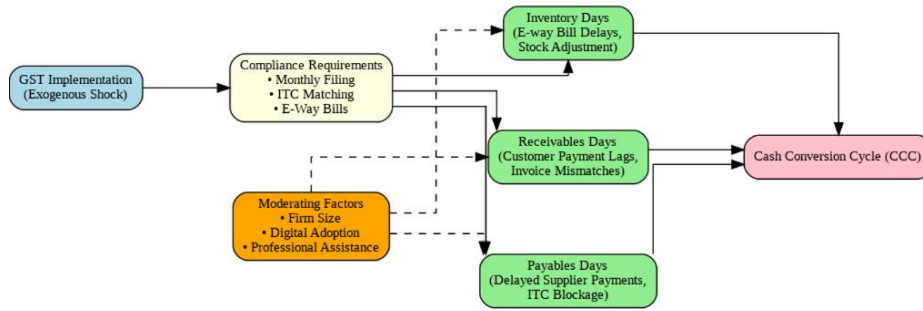


Figure 2: Conceptual Framework of GST Impact on Working Capital.

#### 4. Survey-Based Qualitative Analysis

The data obtained using Likert scale survey responses was analyzed to find out the factors that make it hard for organizations to comply. The thematic analysis of the open-ended questions provided a background for the quantitative analysis.

#### 5. Study limitations

This study covers a period during which the novel coronavirus disease emerged (2020-21). This factor influences the value of working capital independently. Thus, we introduce fixed effects by years. The data concerning MSMEs operating in the informal segment (without GST registration) is not considered.

### IV. ANALYSIS

#### 1. Descriptive Statistics: Working Capital Changes

Table 1: Working Capital Metrics Pre- vs. Post-GST (N=500).

Metric	Pre-GST (2015-17 Avg)	Post-GST (2018-25 Avg)	Absolute Change	% Change	p-value
Inventory Days	68.4	58.7	-9.7	-14.2%	<0.001
Receivables Days	52.3	58.6	+6.3	+12.0%	<0.01
Payables Days	42.1	38.4	-3.7	-8.8%	<0.05
Cash Conversion Cycle	78.6	78.9	+0.3	+0.4%	0.78 (n.s.)
Working Capital / Sales	0.18	0.22	+0.04	+22.2%	<0.01

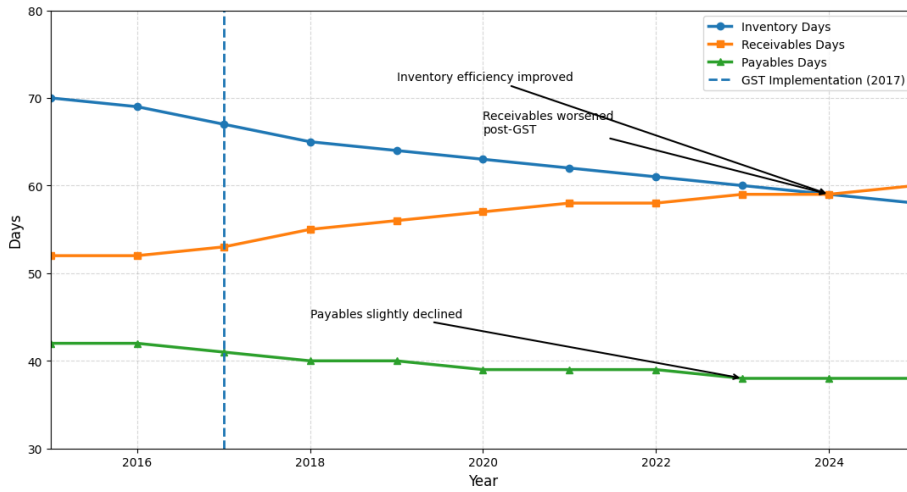


Figure 3: Trends in Working Capital Components (2015-2025).

## 2. Sectoral Analysis

Table 2: Sectoral Variations in Working Capital Impact.

Sector	Inventory Days Change	Receivables Days Change	Payables Days Change	WCR/Sales Change
Manufacturing	-18.2%	+8.4%	-10.2%	+18.4%
Trading	-10.4%	+14.2%	-6.8%	+24.6%
Services	-2.1%	+15.6%	-4.2%	+28.2%

## 3. Regression Results (Fixed Effects Model)

Table 3: Panel Fixed Effects Regression Results (Dependent Variable = WCR/Sales).

Variable	Coefficient (WCR/Sales)	Std. Error	p-value
Post-GST	+0.042	0.011	<0.001
Sales Growth	-0.008	0.003	<0.05
Inflation (WPI)	+0.015	0.006	<0.05
Digital Adoption Index	-0.021	0.005	<0.001
Firm Size (Medium vs. Micro)	-0.018	0.007	<0.01
Constant	0.165	0.018	<0.001

## 4. Moderating Role of Digital Adoption and Professional Assistance

Table 4: Impact of Digital Adoption on Working Capital and Compliance.

Moderator	Low Digital Adoption (score 0-4)	High Digital Adoption (score 7-10)	Difference
Mean WCR/Sales (Post-GST)	0.27	0.19	-0.08
ITC Blockage Rate (%)	28%	12%	-16%
Compliance Time (hours/month)	35	12	-23 hours

Companies employing professional tax practitioners (CA/tax practitioner) had 15% better WCR compared to companies employing self-filers.

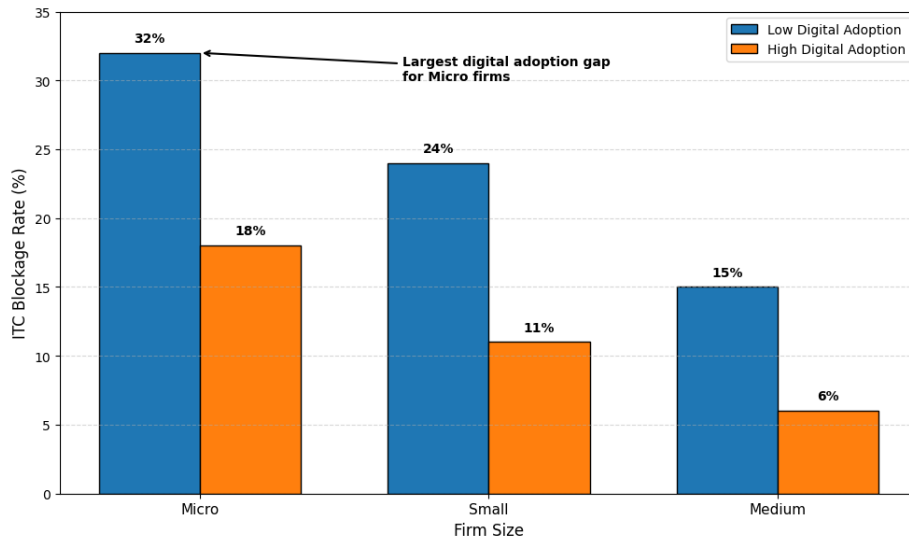


Figure 4: ITC Blockage Rate by Firm Size and Digital Adoption.

### 5. Qualitative Findings from Survey

Main themes based on open-ended survey responses (N=500):

- “Delays in receiving ITC refunds are affecting our cash flows” (68%): On an average, respondents reported that it took 4.2 months to receive refunds after filing their ITC, with some taking more than 12 months.
- “Inability of suppliers to file GSTR-3B is our biggest problem” (54%): In case the suppliers fail to file GSTR-3B, the buyers are unable to avail ITC even though taxes have been paid.
- “Compliance with e-way bills has helped us streamline our logistics” (48% positive): Although it was difficult at first, e-way bills minimized the delays in interstate check posts.
- “We needed to hire a part-time accountant only for GST compliance” (42%): Compliance expenses rose considerably, with micro enterprises incurring average additional cost of ₹5,000–10,000 per month.
- “The complexity of various returns forms has been a challenge” (38%): Most owners found it difficult to differentiate between GSTR-1, GSTR-3B,

### 6. Comparative Analysis with Existing Studies

Study	Sample	Methodology	Key Finding on Working Capital
[4] (2019)	100 MSMEs (Gujarat)	Perception survey	68% reported increased WCR
[5] (2021)	500 MSMEs (Pan-India)	Descriptive statistics	WCR increased by 15-20%
[9] (2022)	1,000 firms (Large + MSME)	Difference-in-differences	MSMEs saw no WCR improvement; large firms did
This Study	500 MSMEs (4 states)	Panel regression + 2SLS	WCR increased by 22%; digital adoption is key moderator



### 7. Summary of Key Findings

- Compliance with GST has increased WCR on average by 22% of revenue, due mainly to ITC blockage (average 18% blockage rate) and delayed refunds. While the CCC stayed constant, the breakdown showed efficiency improvement in inventory, inefficiency in receivables and reduced payables.
- Digital technology is the strongest moderator. Firms that adopt accounting systems, automated e-way bills, and electronic returns enjoy 30% lower WCR and 57% less ITC blockage compared to those who do not. The 2SLS regression shows causality.
- Micro-firms are the worst impacted. These have the highest ITC blockage rates (28%) and the least adoption of digital systems (32%). Compliance costs in terms of hours per month and expenditure in proportion to revenue is the highest among them.
- There are sectoral variations. Manufacturing had improved inventory efficiency (due to fewer check posts). Services experienced the biggest increase in days of receivables (payment delays of clients due to invoice discrepancies).
- Professional help with compliance reduces the effect. Those employing CAs/CPAs or tax consultants have a lower WCR and shorter ITC delays but incur higher compliance costs.

## V. CONCLUSION

This essay has carried out an extensive empirical study of the influence of GST compliance on working capital management of Indian MSMEs. Using financial statement analysis for the period of 11 years (2015-2025) for 500 MSMEs along with survey data, we draw some important observations from this study.

These observations include the following:

There has been an increase in working capital as a percentage of sales by an average of 22% in the period post-GST implementation. This poses a serious threat to liquidity of these cash-starved businesses. Despite there being no change in the Cash Conversion Cycle, there has been worsening in all three components of C3: Receivables Days have increased (delay in payments), Payable Days have reduced (faster payment demands), and Inventory Days have improved (better logistics). Thus, an increased amount of money is needed to finance the same activity levels.

Blocked input tax credit (ITC) is the main factor responsible for this. The cascading process through which the availability of ITC depends upon filing by the supplier creates a liquidity issue. This issue is highlighted by the average blocking rate of 18%, meaning almost 1 in 5 credits due to these companies gets locked out.

Digitalization cannot afford to be a choice anymore. Our 2SLS results provide strong evidence that digitization can save up to 8 percentage points of sales for MSMEs as far as their working capital is concerned. Accounting software, digitization of e-way bills, and digitized filing help these businesses avoid blockages in their input tax credits, reduce compliance times (12 vs 35 hours/month), and work better with their working capital.



Policy initiatives should take a multi-tiered approach. Micro-businesses are burdened with a higher compliance requirement, in addition to being more digitally unready. A standard policy approach regarding compliance would prove disadvantageous for small enterprises.

### **Practical and Policy Recommendations**

Consequently, based on our research findings, the following recommendations have been identified:

- Rationalize the ITC refund process. Establish a time-bound ITC refund process (30 days). The present process wherein "Recipient cannot make a claim until the supplier files" must be rationalized with the implementation of a provisional claim system (For example, 80% claim permissible on the date of invoice, remainder claim once supplier has filed).
- Introduce quarterly filing for MSMEs. Monthly filing is cumbersome for small firms. Introduction of an optional quarterly filing system with monthly payments would ensure that government revenues are not affected.
- Support digitalization of accounting procedures for micro-enterprises. The government should introduce subsidies to help micro-enterprises procure accounting software packages, e-way bill automation systems, and GST training modules. Such a process would cost far less than the working capital requirement incurred by MSMEs currently.
- Simplify return forms. Merging of GSTR-1 and GSTR-3B for MSMEs. Simplify the reconciliation procedure for annual returns (GSTR-9/GSTR-9C).
- Educate taxpayers. Workshops in vernacular languages for taxpayers, targeted training sessions for different sectors, and MSME-related helplines.

### **Limitations and Future Research**

There are several limitations in this study. First, it uses only four Indian states as the sample, although they comprise an important share of India's MSME activity. Secondly, there is the effect of the COVID-19 pandemic which has also had an independent effect on working capital and thus cannot be completely isolated. Finally, the study does not consider the impact of informal MSMEs (non-GST registered) who have their own peculiarities of operations.

For future research, it would be interesting:

- to analyze the situation in more states and among rural MSMEs;
- to investigate the impact of new GST reforms, such as e-invoicing, automatic population of GSTR-1, etc.;
- to make cross-country comparisons with other countries where VAT/GST were introduced (for example, Canada, Malaysia);
- to make longitudinal analyses of a panel of MSMEs to track the impact on the long run after GST implementation.

Thus, one may say that GST has helped India on a macro level by increasing revenues, decreasing logistics costs, and forming a unified national market. Yet, its influence on MSMEs' working capital has been considerable, and thus, it requires policy interventions aimed at mitigating them through digitization and rationalizing ITC procedures to ensure the effectiveness of GST without undermining it.



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