CHAPTER 12

Evaluating GST's Effectiveness in Reducing Tax Cascading in Indian Manufacturing

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ABSTRACT

The introduction of the Goods and Services Tax (GST) in India on July 1, 2017 represented one of the most comprehensive indirect tax reforms in the country's post-independence history. The primary stated objective of this reform was the elimination of the cascading tax effect — the phenomenon of tax-on-tax — that characterized the fragmented pre-GST regime comprising Central Excise Duty, State Value Added Tax (VAT), Central Sales Tax (CST), and a host of other levies. This paper presents a rigorous empirical evaluation of whether GST has succeeded in reducing tax cascading within the Indian manufacturing sector. Using firm-level data from the Annual Survey of Industries (ASI), National Accounts Statistics, and GST Council filings spanning 2014–2023, the study employs a difference-in-differences (DiD) methodology supplemented by sector-level structural analysis. The findings reveal that GST has substantially reduced the effective tax burden on manufacturing inputs, with average input tax credit (ITC) utilization rates rising to 68% by 2022–23. Cascading-induced cost inflation in intermediate goods declined by an estimated 4.2 to 6.8 percentage points across key manufacturing sub-sectors. However, the paper also identifies persistent structural challenges, including ITC blockages in the real estate and construction supply chains, complexity arising from the dual GST structure, and compliance inefficiencies among MSMEs. The study contributes to the growing literature on consumption-based taxation in developing economies and offers policy recommendations for closing residual cascading gaps.

Keywords: GST; Tax cascading; Indian manufacturing; Input tax credit; Value added tax; Indirect taxation; Supply chain efficiency.

1.0 Introduction

The phenomenon of tax cascading — whereby taxes are levied on a tax base that already includes previously paid taxes — has long been recognized as a structural inefficiency in indirect taxation systems.

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In production economies like India, cascading effects distort relative prices, inflate cost structures, reduce export competitiveness, and impede the free flow of goods across supply chains. The pre-2017 Indian indirect tax architecture was widely acknowledged as one of the most cascade-prone systems among major emerging economies.

India operated under a complex, multi-layered indirect tax system prior to GST. At the central level, manufacturers were subject to Central Excise Duty (CENVAT) on goods produced, while service providers paid a separate Service Tax. At the state level, traders and manufacturers were subject to State Value Added Tax (VAT) at varying rates across 29 states and 7 union territories. Additionally, the Central Sales Tax (CST), levied on inter-state transactions, was not creditable against VAT liabilities — creating a hard cascading point at every inter-state supply chain node. Entry taxes, octroi, and other state levies further compounded the burden. The consequence was a significant wedge between statutory tax rates and the effective tax burden on manufactured goods. Studies conducted by the National Institute of Public Finance and Policy (NIPFP) and the Ministry of Finance estimated that the cascading effect added approximately 25–30% to the cost of manufactured goods when accounting for non-creditable taxes embedded at multiple production stages. For export-oriented manufacturers, this hidden tax burden eroded competitiveness relative to producers in countries with clean VAT or GST systems.

Against this backdrop, the Government of India, drawing upon recommendations of the Kelkar Task Force (2002), the Thirteenth Finance Commission (2009), and sustained advocacy from industry bodies including the Confederation of Indian Industry (CII) and the Federation of Indian Chambers of Commerce & Industry (FICCI), enacted the Constitution (One Hundred and First Amendment) Act, 2016, paving the way for a unified Goods and Services Tax. GST was designed on the destination-based, dual-structure principle: a Central GST (CGST) administered by the Union, a State GST (SGST) administered by individual states, and an Integrated GST (IGST) governing inter-state supplies. Critically, the seamless input tax credit (ITC) mechanism — allowing credit of taxes paid at every stage against the output tax liability — was intended to mathematically eliminate cascading.

Seven years after GST's implementation, this paper asks a fundamental empirical question: Has GST actually succeeded in reducing tax cascading in Indian manufacturing? The answer has significant implications for fiscal policy, industrial competitiveness, and the design of tax reform in other developing countries.

1.1 Research objectives

This paper pursues four specific objectives:

- To quantify the extent of tax cascading in the pre-GST manufacturing sector using archival data and input-output analysis.

- To assess post-GST changes in effective tax burdens, ITC utilization rates, and embedded tax costs across manufacturing sub-sectors.
- To identify structural impediments that limit GST's anti-cascading effectiveness.
- To offer evidence-based policy recommendations for strengthening the anti-cascading architecture of India's GST.

1.2 Structure of the paper

The remainder of the paper is organized as follows. Section 2 reviews the theoretical and empirical literature on tax cascading and VAT/GST systems. Section 3 describes the pre-GST tax architecture and its cascading mechanisms. Section 4 analyzes the GST design and its theoretical anti-cascading framework. Section 5 presents the data and methodology. Section 6 reports empirical results. Section 7 identifies structural limitations. Section 8 offers policy recommendations, and Section 9 concludes.

2.0 Literature Review

2.1 Tax Cascading: Theoretical Framework

The concept of tax cascading was formally analyzed by Diamond and Mirrlees (1971) in their seminal work on optimal taxation, which demonstrated that production efficiency requires the absence of taxes on intermediate inputs. A cascading tax system violates this production efficiency condition by imposing taxes on intermediate transactions, creating a wedge between social and private costs of production. The welfare costs of cascading have been modeled by Keen and Lockwood (2010), who show that cascade-prone tax systems create allocative distortions proportional to the number of production stages and the tax rate applied at each stage. For a supply chain with n production stages and a uniform ad valorem tax rate t, the final price inclusive of cascaded taxes can be expressed as P*(1+t)^n, compared to P*(1+nt) under a non-cascading tax that raises equivalent revenue. The difference represents the pure deadweight loss from cascading — a loss that grows non-linearly with production chain length, making complex manufactured goods disproportionately burdened.

Cnossen (2010) provides a comprehensive cross-country analysis of cascading in turnover tax and VAT systems, concluding that the move to destination-based VAT with full input credit — the model India adopted with GST — eliminates cascading at least in theory, subject to completeness of the ITC chain and exemption architecture.

2.2 VAT Reform and Manufacturing Outcomes: International Evidence

A substantial empirical literature documents the economic effects of VAT adoption and reform. Faber and Paetzold (2020) study the introduction of VAT in Ethiopia and find

significant reductions in effective tax burdens on formal sector manufacturers. Pomeranz (2015) provides quasi-experimental evidence from Chile that VAT's self-enforcing paper trail substantially reduces tax evasion while improving credit allocation in supply chains.

For India specifically, Aggarwal and Kumar (2012) analyzed the partial VAT reform of 2005 — when states progressively replaced sales tax with state VAT — and documented a 12–18% reduction in effective input costs for manufacturing firms in reforming states, relative to non-reforming states. This provides a valuable pre-GST baseline for assessing the incremental effects of full GST implementation.

Mukherjee (2015), writing prospectively before GST implementation, estimated that a well-designed GST could reduce the cascading tax burden in Indian manufacturing by 15–25% and generate a GDP growth dividend of 1.0–1.5 percentage points through improved resource allocation. The Reserve Bank of India's 2017 Annual Report similarly projected that a smooth GST transition could reduce the wholesale price index by 1.5–2% through the elimination of cascading costs.

2.3 Post-GST Studies

Post-2017 empirical literature on GST's effectiveness is still maturing, given the reform's recency and the disruption caused by the COVID-19 pandemic (2020–21). Rao and Tandon (2018) conducted an early assessment using CMIE Prowess firm-level data and found modest but statistically significant reductions in input costs for formal sector manufacturing firms in the first year of GST, with larger effects in sectors with longer intermediate goods supply chains.

Bhattacharya and Mukherjee (2021) use difference-in-differences analysis exploiting cross-sectoral variation in cascading exposure and find that sectors with high pre-GST cascading levels (chemicals, textiles, electronics) experienced significantly larger post-GST cost reductions than low-exposure sectors, consistent with GST's theoretical predictions. However, they flag persistent ITC blockages in construction-linked supply chains. Garg and Bhatt (2022) specifically examine MSME manufacturers and find limited anti-cascading benefits for firms below the GST registration threshold, who remain outside the ITC chain and effectively continue to bear cascaded taxes on their purchases from GST-registered suppliers — a structural exclusion this paper also examines.

3.0 The Pre-GST Tax Architecture and Cascading Mechanisms

3.1 Structure of Pre-GST indirect taxes

Prior to July 2017, Indian manufacturers operated under a complex overlay of central and state indirect taxes. The principal taxes affecting manufacturing were:

Table 1: Pre-GST Indirect Tax Structure in India (illustrative rates, 2016–17)

Tax	Administered By	Base	Rate Range	ITC Available?
Central Excise Duty (CENVAT)	Central Government	Manufacture of goods	12% (standard)	Partial (CENVAT credit)
Service Tax	Central Government	Services	14.5%	Yes (against CENVAT)
State VAT	State Governments	Sale of goods	5–15% (varies)	Within state only
Central Sales Tax (CST)	Central/State	Inter-state sales	2%	No — hard cascade
Entry Tax/Octroi	State/Local Bodies	Entry of goods	1–5%	No — hard cascade
Customs Duty	Central Government	Imports	Varies	Partial only

The cascading problem arose at several distinct nodes in this system. First, CST at 2% on inter-state purchases was non-creditable against state VAT liability, creating an automatic 2% cost addition at every inter-state supply chain transaction. For a manufacturer with three inter-state procurement stages, this alone created a 6% embedded cost layer before any state VAT was applied. Second, the CENVAT credit scheme — while theoretically eliminating cascading between excise and service tax — did not permit cross-utilization with state VAT. A manufacturer could not use CENVAT credit to offset state VAT liability or vice versa, leaving a structural cascade between the central and state tax systems. Third, entry taxes and octroi — essentially border taxes on goods entering a state or municipality — were uniformly non-creditable, adding between 1% and 5% to the cost of every inter-state or cross-municipal procurement without any possibility of recovery.

3.2 Estimating pre-GST cascading: Input-output analysis

To quantify the pre-GST cascading burden, this paper employs the NIPFP Input-Output table for 2014–15 (the most recent pre-reform year with complete data) combined with the effective rate structure documented in the Central Board of Excise and Customs' (CBEC) Tax Research Unit reports.

Table 2: Estimated Effective Cascading Burden by Sub-Sector, Pre-GST (2016–17)

Manufacturing Sub-Sector	Statutory Rate (%)	ECB — Pre-GST (%)	Cascading Multiplier
Textiles & Apparel	5.0	18.3	3.66x
Chemicals & Pharmaceuticals	12.0	22.8	1.90x
Auto Components	12.0	27.4	2.28x
Electronic Goods	12.0	24.1	2.01x
Food Processing	0–5.0	14.7	2.94x
Steel & Metal Products	12.0	29.6	2.47x
Plastics & Rubber	12.0	21.5	1.79x
Machinery & Equipment	12.0	25.8	2.15x

Using the methodology of Cascading Tax Index (CTI) developed by Due (1988) and adapted by Cnossen (2010), the paper estimates the Effective Cascading Burden (ECB) as the ratio of total cascaded tax embedded in the final product price to the statutory first-point tax rate. The data in Table 2 reveal the severity and heterogeneity of cascading across manufacturing sub-sectors. Sectors with longer supply chains and greater inter-state procurement exposure — notably Steel & Metal Products and Auto Components — exhibited the highest cascading multipliers. Textiles, despite lower statutory rates, showed a high cascading multiplier due to extensive multi-stage processing and high incidence of non-creditable entry taxes in the textile corridor states.

4.0 GST Design and Anti-Cascading Architecture

4.1 Structural design of Indian GST

The Indian GST is structured as a dual concurrent tax — CGST levied by the Centre and SGST levied by the State on intra-state supplies, and IGST levied by the Centre on inter-state supplies with subsequent apportionment to the destination state. This design preserves federal fiscal autonomy while creating a unified national market. Tax rates are determined by the GST Council (constituted under Article 279A) and organized into five principal slabs: 0%, 5%, 12%, 18%, and 28%, with a cess structure on sin goods and luxury items.

The critical anti-cascading mechanism is the seamless ITC chain. Under GST, a registered person can claim credit of the CGST paid on inputs against CGST output liability, SGST against SGST, and IGST against IGST/CGST/SGST in a specified order. Crucially, IGST paid on inter-state purchases is fully creditable — eliminating the CST cascade that was the single largest source of non-creditable taxes in the pre-GST regime.

The design elegantly addresses the cross-credit blockage of the previous system. A manufacturer paying IGST on inter-state raw material purchases can credit that IGST against the CGST and SGST payable on finished goods sold within their state — a cross-utilization impossible under the CENVAT/VAT structure. This mathematical property ensures that, in a fully compliant system with no exemptions, the tax burden on any manufactured good equals only the GST rate applicable to the final supply, with zero cascading on intermediate transactions.

4.2 Theoretical anti-cascading guarantee

The theoretical anti-cascading guarantee of the GST ITC mechanism can be demonstrated formally. Consider a three-stage supply chain: raw material supplier (Stage 1) → component manufacturer (Stage 2) → final goods manufacturer (Stage 3). Let the GST rate be r = 18%. Let the cost of raw materials be C1, and value additions at each stage be V2 and

V3. Under the pre-GST cascade regime, Stage 2 pays tax on (C1 + tax embedded in C1), effectively paying t×C1×(1+t) rather than t×C1. Under GST, Stage 2 pays 0.18×(C1+V2) but claims full credit of 0.18×C1 paid at Stage 1, leaving a net tax cost of 0.18×V2. Stage 3 similarly pays net 0.18×V3. Total tax = 0.18×(V1+V2+V3)

= 0.18 × total value added — precisely the VAT ideal with zero cascading.

This theoretical guarantee, however, is contingent on: (i) complete registration and compliance across the supply chain, (ii) no exempt supplies breaking the ITC chain, (iii) timely and accurate filing of returns enabling ITC matching, and (iv) no blocked credits under Section 17(5) of the CGST Act. The empirical sections assess the extent to which these conditions hold in practice.

5.0 Data and Methodology

5.1 Data sources

This study draws on multiple data sources to construct a comprehensive picture of cascading before and after GST. The primary data sources are:

- Annual Survey of Industries (ASI), 2013–14 to 2022–23: Provides firm-level data on production, material inputs, value added, and indirect tax payments for registered manufacturing units.
- GST Revenue Statistics, GST Council Secretariat (2017–18 to 2022–23): Provides aggregate ITC utilization, return filing rates, and tax collection data by sector.
- CMIE Prowess Database: Provides balance sheet and income statement data for approximately 8,500 listed and unlisted manufacturing firms, used to track input-to-output cost ratios before and after GST.
- National Accounts Statistics, MoSPI: Used for sectoral value-added and price deflator construction.
- NIPFP Working Papers and CBEC Tax Research Unit Reports: For pre-GST effective rate and cascading estimates.

5.2 Methodology

5.2.1 Difference-in-differences framework

The primary identification strategy employs a difference-in-differences (DiD) design. The treatment is the implementation of GST (July 2017). The key identifying variation is cross-sectoral heterogeneity in pre-GST cascading exposure — sectors more reliant on inter-state procurement and those with longer intermediate supply chains had higher CST and entry tax burdens and are therefore the ‘treated’ group in a high-cascading-exposure versus low-cascading-exposure comparison.

The estimating equation is:

$$ETB_{it} = \alpha + \beta_1 \cdot GST_t + \beta_2 \cdot CASC_i + \beta_3 \cdot (GST_t \times CASC_i) + \gamma X_{it} + \delta_i + \varepsilon_{it}$$

where ETB_{it} is the Effective Tax Burden of sector i in period t (measured as ratio of indirect taxes paid to gross output value); GST_t is a binary post-2017 indicator; $CASC_i$ is the sector-level pre-GST cascading exposure index; X_{it} are time-varying controls (capital intensity, export share, firm size distribution); δ_i are sector fixed effects; and ε_{it} is the error term. The coefficient of interest is β_3, capturing the differential reduction in ETB for high-cascading sectors post-GST relative to pre-GST.

5.2.2 ITC utilization rate analysis

Separately, we analyze ITC utilization rates — defined as the ratio of ITC claimed to total GST paid on inputs — as a direct measure of cascading elimination. A utilization rate of 100% would indicate zero cascading on creditable inputs. Rates below 100% reflect either blocked credits, compliance gaps, or exempt supply chains breaking the ITC chain.

5.2.3 Supply chain price pass-through analysis

The paper also conducts a price pass-through analysis using the Wholesale Price Index (WPI) decomposition for manufactured goods categories, examining whether the theoretical reduction in embedded taxes is reflected in relative price changes, controlling for factor input costs.

6.0 Empirical Results

Table 3: Effective Tax Burden Before and After GST by Sub-Sector (Pre: 2014–17 avg.; Post: 2019–22 avg.; 2018–19 Excluded as Transition Year)

Sub-Sector	Pre-GST ETB (%)	Post-GST ETB (%)	Change (pp)	% Reduction
Textiles & Apparel	18.3	11.4	−6.9	37.7%
Chemicals & Pharma	22.8	16.8	−6.0	26.3%
Auto Components	27.4	20.6	−6.8	24.8%
Electronic Goods	24.1	18.9	−5.2	21.6%
Food Processing	14.7	11.1	−3.6	24.5%
Steel & Metal Products	29.6	23.1	−6.5	22.0%
Plastics & Rubber	21.5	16.4	−5.1	23.7%
Machinery & Equipment	25.8	20.2	−5.6	21.7%
Average (All Manufacturing)	23.0	17.3	−5.7	24.8%

6.1 Effective tax burden: pre- and post-GST

Table 3 presents the central findings on changes in effective tax burdens across manufacturing sub-sectors before and after GST implementation, based on ASI and CMIE

Prowess data. The results in Table 3 demonstrate a statistically and economically significant reduction in effective tax burdens across all manufacturing sub-sectors following GST implementation. The average reduction of 5.7 percentage points represents a 24.8% decline from the pre-GST baseline — broadly consistent with NIPFP's pre-reform projections, though at the lower end of the projected 15–25% range. Textiles showed the largest absolute reduction (6.9 pp) reflecting the dismantlement of the extensive entry tax and CST burden in the textile supply chain.

6.2 ITC Utilization rates

Table 4 tracks ITC utilization rates across the post-GST period, providing a direct measure of cascading elimination at the tax system level.

Table 4: GST ITC Utilization Rates — Manufacturing Sector (2017–23)

Year	ITC Claimed (₹ Crore)	GST on Inputs (₹ Crore)	ITC Utilization Rate (%)
2017–18	5,28,000	9,87,000	53.5%
Year	ITC Claimed (₹ Crore)	GST on Inputs (₹ Crore)	ITC Utilization Rate (%)
2018–19	7,82,000	12,44,000	62.9%
2019–20	8,91,000	13,20,000	67.5%
2020–21	7,34,000	11,08,000	66.2%
2021–22	10,18,000	15,23,000	66.8%
2022–23	12,90,000	18,97,000	68.0%

ITC utilization rates have risen steadily from 53.5% in the first year of GST to 68.0% by 2022–23, reflecting progressive improvements in compliance infrastructure, e-invoicing adoption, and ITC matching systems. However, a utilization rate of 68% implies that approximately 32% of input taxes remain non-creditable or unclaimed — a significant residual cascading burden. Partial analysis of the unclaimed ITC indicates that approximately 15% represents genuinely blocked credits (Section 17(5) restrictions), 9% reflects MSME non-compliance or threshold exclusion, and the remaining 8% is attributed to matching failures, return filing delays, and fraud-related ITC restrictions.

6.3 DiD estimation results

The DiD regression results confirm that sectors with higher pre-GST cascading exposure experienced significantly larger post-GST ETB reductions. The estimated coefficient β_3 on the interaction term (GST × Cascading Exposure) is −0.089 (standard error 0.018, $p < 0.001$), indicating that a one standard deviation increase in pre-GST cascading exposure index is associated with an additional 8.9 percentage point reduction in ETB post-

GST. This finding is robust to alternative specifications including industry-time fixed effects, different control sets, and excluding the 2018–19 transition year. The parallel trends assumption — a key identifying assumption of the DiD design — is validated by event-study estimates showing no differential pre-trends between high- and low-cascading sectors in the 2013–2016 period, and a sharp post-2017 divergence consistent with the GST treatment effect.

7.0 Structural Limitations and Persistent Cascading

7.1 Blocked Credits Under Section 17(5)

Section 17(5) of the CGST Act, 2017 specifies a list of inputs and input services for which ITC is not available, regardless of whether those inputs are used in the course of business. The blocked credit categories include motor vehicles (for non-transport businesses), construction services, food and beverages, health and club memberships, and several other categories. For manufacturing firms that utilize construction services in factory construction or expansion, this creates a significant cascading point.

Analysis of balance sheet data for capital-intensive manufacturing sectors (chemicals, cement, metals) indicates that construction-linked blocked ITC represents approximately 3–7% of total capital expenditure in new plant establishment, an effective hidden tax on investment that the GST architecture explicitly preserves. This is a deliberate policy choice with revenue implications, but its existence means that GST does not fully eliminate cascading in the investment supply chain.

7.2 Exemption-Induced Chain Breaks

GST exemptions — of which there are over 100 categories — break the ITC chain at the point of exempt supply. A manufacturer who uses exempt agricultural commodities as inputs and then sells a GST-taxable processed food product cannot claim ITC on the embedded taxes in the exempt inputs, creating cascading at the agriculture-manufacturing interface. This is particularly significant for agro-processing industries including sugar, edible oils, and dairy, which collectively account for approximately 18% of Indian manufacturing output by value.

The dual-rate structure for pharma products — where active pharmaceutical ingredients (APIs) attract 18% GST while final drug formulations attract 5% — also creates an inverted duty structure that generates effective cascading for domestic drug manufacturers, as the ITC on inputs exceeds the output GST liability, leading to cash flow blockages equivalent to implicit cascading.

7.3 MSME Exclusion

Firms with annual turnover below ₹20 lakh (₹10 lakh in special category states) are not required to register under GST and cannot charge or claim GST. This creates a binary split: large formal sector manufacturers in fully integrated ITC chains, and small manufacturers whose purchases from unregistered suppliers carry embedded GST with no recoverability.

Given that MSMEs account for approximately 45% of manufacturing output and 80% of manufacturing employment in India, this structural exclusion represents the most significant limitation on GST's anti-cascading reach. Garg and Bhatt (2022) estimate that MSME manufacturers bear an average embedded tax burden 4.8 percentage points higher than formal sector manufacturers — a post-GST cascading gap that is entirely attributable to the threshold exclusion architecture.

7.4 Compliance and Technology Gaps

The ITC matching mechanism — which is the technological enforcement of the anti-cascading guarantee — depends on correct and timely filing of GSTR-1 (outward supply returns) by suppliers and GSTR-3B (summary returns) by recipients. Analysis of GST Council data indicates that as of 2022–23, approximately 78% of active taxpayers file GSTR-1 on time, leaving 22% of supply chain transactions in an unmatched state. Where supplier returns are not filed, recipients face the risk of ITC reversal under Rule 37 of the CGST Rules, effectively converting creditable taxes into cascading costs ex post.

The introduction of e-invoicing (mandatory for businesses with turnover above ₹5 crore as of October 2022) has substantially improved ITC matching for large and medium enterprises, reducing matching failures by approximately 60% in the e-invoicing perimeter. However, the ₹5 crore threshold leaves millions of small suppliers outside mandatory e-invoicing, sustaining matching risks for their customers.

8.0 Policy Recommendations

8.1 Rationalizing Blocked Credits

The blocked credit list under Section 17(5) should be reviewed with the objective of permitting ITC on inputs directly used in business operations, particularly construction services for factory and warehouse construction. A distinction between personal consumption and business investment use should guide this rationalization. Progressive unblocking of investment-related credits would reduce the cascading burden on capital formation in manufacturing and lower the effective cost of capacity expansion.

8.2 Addressing the Inverted Duty Structure

The GST Council should systematically identify and correct inverted duty structures in manufacturing supply chains — particularly in pharmaceuticals, textiles, and agro-processing — either by aligning input and output rates or by providing a refund mechanism for unutilized ITC in genuinely inverted situations. The existing refund mechanism for inverted duty structures is administratively complex and subject to significant delays, negating much of its intended benefit.

8.3 Expanding the ITC Chain to MSMEs

Two complementary reforms are recommended to reduce MSME cascading. First, the Composition Scheme (a simplified tax regime for small businesses) should be redesigned to allow B2B suppliers under the scheme to issue tax invoices to registered buyers, enabling those buyers to claim ITC — a reform that would bring composition dealers into the ITC chain without requiring them to comply with full GST returns. Second, the registration threshold should be differentiated by enterprise type: lower thresholds for B2B manufacturers (who are supply chain intermediaries) and higher thresholds for B2C retailers (where cascading concerns are less acute).

8.4 Universal E-Invoicing

The e-invoicing threshold should be progressively lowered to ₹1 crore turnover within two years and to ₹50 lakh within five years, with government-subsidized ERP solutions provided to small enterprises. Universal e-invoicing is the single most effective systemic measure for eliminating ITC matching failures and the compliance-related cascading that persists in the medium enterprise segment.

8.5 Strengthening the GST Council's Rate Rationalization Mandate

The GST rate structure, originally intended as a transitional architecture converging toward a single or dual-rate system, remains fragmented with over 1,200 goods and services classified across five rate categories. Rate rationalization — particularly the merging of the 12% and 18% slabs into a single 15% rate — would reduce classification disputes, eliminate rate-arbitrage-induced cascading (where goods are misclassified to access lower-rate inputs), and simplify compliance for manufacturers operating across multiple product categories.

9.0 Conclusion

This paper has presented empirical evidence that India's Goods and Services Tax has achieved a significant and economically meaningful reduction in tax cascading in the

manufacturing sector. The average effective tax burden on manufacturing declined by approximately 5.7 percentage points (24.8%) following GST implementation, with larger gains in sectors that were most exposed to cascading under the pre-GST regime. ITC utilization rates have risen from 53.5% in 2017–18 to 68.0% in 2022–23, demonstrating progressive improvement in the anti-cascading infrastructure.

At the same time, the paper documents substantial residual cascading arising from blocked credits in construction and investment supply chains, exemption-induced ITC chain breaks in agriculture and pharma, structural exclusion of MSMEs from the ITC system, and compliance gaps in the ITC matching mechanism. These factors collectively mean that the potential anti-cascading gains of a theoretically perfect GST system are being realized only partially — by our estimates, approximately 60–65% of the theoretical maximum gain.

The findings have implications beyond India. For other developing economies considering VAT or GST reforms, India's experience demonstrates both the substantial gains achievable from a unified destination-based tax with seamless ITC and the importance of complementary policies — e-invoicing, MSME integration, exemption minimization, and blocked credit rationalization — that determine how much of the theoretical gain is actually realized. Tax design is necessary but not sufficient; implementation architecture determines whether the paper's anti-cascading guarantee becomes economic reality.

Future research should focus on the distributional effects of cascading reduction — whether the benefits are concentrated in large formal sector firms or shared with MSMEs and workers — and on the dynamic investment effects of reduced input cost distortions, which may represent the most durable economic dividend of India's GST reform.

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