

IMPACT OF E-INVOICING ON TAX COMPLIANCE AND REPORTING EFFICIENCY OF INDIAN BUSINESSES: AN EMPIRICAL STUDY

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“The Taxation, while necessary for the support of government, should be structured in such a way that it does not discourage enterprise or distort economic incentives.”

Milton Friedman

Abstract: This research paper examines the impact of e-invoicing on tax compliance and how efficiently it has supported the Indian businesses. The paper evaluates the transition of the invoicing system in India (for B2B businesses) from offline / non-standardized invoice generation to an electronic invoicing (e-invoicing) system linked to the central tax system. The study presents its findings using an analytical method on secondary data from various sources, including official government reports, international journals, and independent studies conducted by various organizations. The analysis of the transformation to the e-invoicing system has led to major reforms in the tax collection system. The new system increased tax collection by 30.87% at the time of its introduction. It has reduced the error rates by 38% and improved the detection of fake invoice cases and, thereafter, claims to fake input tax credit. It has also increased the credit facilities for MSMEs from 14% in 2020 to 20% in 2024 to boost the Indian economy and enhance the participation of taxpayers in the development of the nation. The e-invoicing system has significantly improved the taxation system; however, its long-term success depends on the adoption of advanced AI-driven technologies and further strengthening of digital frameworks.

INDEX TERMS – E-invoicing, GST, Tax Compliance, Fraud Detection, MSMEs, Digital Taxation.

1. INTRODUCTION

The President of India gave his assent to the One Hundred and First Amendment Act (101st Amendment Act), 2016 on 8th Sep 2016, and thereafter the Government of India issued a notification for the rollout of Goods and Services Tax. Under Article 279 (1), the GST Council was constituted as a joint forum for the Center and all the states. In the 35th meeting of the GST Council held on 21st June 2019, the Council decided to introduce the Electronic Invoicing System (E-Invoice) in a phase-wise manner in the country. During the 37th GST Council Meeting held on 20th September 2019, the e-invoice system was approved based on the recommendations of the sub-group constituted for the rollout of the e-invoice system for the taxpayers of India. The Institute of Chartered Accountants of India (ICAI) assisted the Government of India in the formulation of the e-invoice system, including the generation of e-invoices, viewing, downloading, backward and forward integration, system requirements, data format, mode of generation, monitoring, scale/management, data security, disaster management, etc.

E-invoicing is the process under which the invoices are generated using the sellers in a standardized format by accounting software, and are authenticated electronically by GSTN for further use, such as claiming Input Tax Credit (ITC), tax return filing, e-way bill creation, etc. The e-invoicing system across the globe consists of two important parts. The first one is the generation of an invoice in a standard format so that an invoice generated on one system can be read by another system. The second component is the requirement of reporting of e-invoices to a central system designated by the tax department, so that supplies can be reported in real time, eliminating many malpractices associated with any value-added tax. Indian GST is the value-added tax, which is levied on both goods and services without making a distinction between them, unlike what was the case with state VAT or Service Tax in the pre-GST era. Under the e-invoice system, invoices generated by the B2B are reported to the Government in real time through the Invoice Registration Portal (IRP) managed by GSTN. The authenticated invoices data is automatically transmitted to the GST system, facilitating seamless integration with return filing and e-way bill generation, reducing duplication and enhancing transparency in the transactions.

2. OBJECTIVE OF THE STUDY

The objective of the study on e-invoice generation and its impact on the Indian Tax System is as follows: -

- 2.1. To study the role of e-invoicing in improving the tax system under the GST framework.
- 2.2. To study the impact of the e-invoicing in reducing duplication, errors, and delays in reporting and tax filing.
- 2.3. To study the effectiveness of e-invoicing in reducing tax evasion and claiming fake Input Tax Credit (ITC).
- 2.4. To study the challenges faced by Indian businesses in the adoption of the e-invoice system and the digitization of the system.

3. HYPOTHESIS OF THE STUDY

The following hypotheses are formulated based on the objective of the study and data available for the adoption of a new electronic-based invoice system: -

3.1. Hypothesis 1 (H1): Impact on revenue generation.

“The adoption of the new electronic-based invoice generation system is positively related to the growth of Gross Goods and Service Tax (GST) collection in India.”

3.2. Hypothesis 2 (H2): Detection of Anti-Fraud Cases

“The real-time invoice authentication through the Invoice Registration Portal (IRP) significantly enhanced the detection of fraud invoice generation cases and reduction of fraud claims related to Input Tax Credit (ITC).”

3.3. Hypothesis 3 (H3): Improvement of the efficiency of the system.

“The new e-invoice system leads to the reduction in errors and improvement of the overall efficiency for the B2B businesses in India.”

3.4. Hypothesis 4 (H4): Opening the door for MSMEs

“The digitization of e-invoicing has improved the availability of credit facilities for the MSMEs sector by providing transaction histories for digital lending platforms.”

4. RESEARCH METHODOLOGY

The present research paper adopts a descriptive and analytical design by using secondary data, capturing the details of taxpayers regarding the implementation of the e-invoicing. The data was collected from various sources such as the Central Board of Indirect Taxes and Customs, GST Council Meetings and Minutes, Ministry of Finance documents, and various literature sources. The analytical study compares the before and after effects of the e-invoicing, and trends of the GST collection. The conceptual case-based analysis is used to explain the mechanism of the e-invoice and Input Tax Credit (ITC) through e-invoicing. The logical interpretation method is also used to evaluate the relationship between e-invoice and transparency in the system.

5. SCENARIO BEFORE E-INVOICE SYSTEM

Before the introduction of the e-invoice system in India, the process of filing taxes and claiming Input Tax Credit (ITC) was a multi-layered process. There was no centralized system for the generation of a standard format and verification of e-invoices. When the supplier made a sale, the invoices were generated either physically or through his own accounting software, or also in his own billing formats. The supplier used and maintained these invoices with himself until a specific period for filing taxes. At the end of the month, the supplier was required to file the statement of outward supply (Form No GSTR-1). This form contained all the details of sales, such as buyer details, tax amounts, quantity of supply, etc. Apart from this, the supplier had to file the summary form (GSTR-3B) for the total tax liability declared and payments made throughout the month.

On the buyer side, the system generated the details of the supplier through forms GSTR-2A and GSTR-2B based on the information uploaded by the supplier in form GSTR-1A and GSTR-3B. Based on these details, the buyer had to claim the Input Tax Credit (ITC) in the later months from the government.

Additionally, the movement of goods required a separate system called an electronic waybill for the transportation of goods across the country. This was additional work since the details were based on the same data filed by the supplier in GSTR-1 and GSTR-3B. This burden of double work was causing duplication and delay in the generation of invoices and the transportation of data. The following figure F1 gives the details of the data flow before the e-invoicing system in India.

6. LIMITATION OF SYSTEM BEFORE E-INVOICING

The pre-e-invoicing system has several limitations that were affecting both the revenue of the government and taxpayers. It was creating difficulties in the administration and management of the businesses. The following are the difficulties faced by businesses in the pre-e-invoicing era: -

- 6.1. Absence of a real-time management system:** - In the previous system, the invoices generated through forms such as GSTR-1 and GSTR-3B were filed independently by businesses later at the end of the month. This absence of real-time invoice generation and reporting created a gap between the real transaction and reporting. It gives a window for manipulation and non-reporting of the correct data.
- 6.2. Scalability and multiple forms for the same sales:** -During the pre-e-invoice period, the supplier was required to file the same information multiple times and through multiple forms. He was required to file GSTR-1 and GSTR-3B for the sales and separate GST EWB-01/02/03/04 for the transportation of goods. On the buyer side, it was required to file GSTR-2A and GSTR-2B to access the details of the supplier and claim the ICT. These multiple forms from a large number of businesses have increased the possibility of duplication, data manipulation, and typing errors, which lead to frequent mismatches during the compilation at the government end.
- 6.3. Fraudulent practices:** - The complex system was giving loopholes for the creation of fake invoices without the actual supply of goods or services. This further pushed the wrongful claim of input tax credit by the buyers. Since the verification mechanism was not real-time, the physical inspection and audits by the tax officers proved inefficient.
- 6.4. Data integrity and standard formats:** - The pre-e-invoice era lacked a standard format for the e-invoices and their verification at the government end. The government relied heavily on auditors and tax officers for post facto verifications of invoices. This practice has not only created the scope of heavy tax corruption but also revenue loss to the government.
- 6.5. Tracking of credit flow:** -The previous system was structurally weak and lacked the ability to track the complete flow of input tax credit across the supply chain. The credit flow was not traced from the supplier to the buyer and further in the line of sale. This led to the broken audit system and created opportunities for the fake and non-generation of transaction receipts.
- 6.6. Central system of verification:** - Due to a lack of a central system for the verification of invoices in real time, the old system treated all invoices equal and valid until the process of audit is complete. It was very difficult to identify the fake invoices and verify the genuine ones in real time. The absence of such a system was undermining the integrity of the tax system. (Source Opinium, Cebr Analysis Report).
- 6.7. Barriers in adopting the e-invoice system:** -The graph below G1 shows the percentage of various barriers in the adoption of the e-invoicing system. Business firms need support in the adoption of new systems, such as training resources, non-rigid rules and regulations, digital infrastructure, etc.

Graph G1: Major Barriers in adoption of e-invoice system



6.8. Analysis of G1 graph: - The above-illustrated G1 graph indicates the challenges faced by businesses across the globe. It shows that training of people and the complexity associated with the old system constitute about 85.80% of the barriers in the adoption of the new electronic voicing-based taxation system. Further rules & regulations also played a major role in the implementation of the new system (37.30%). The development of digital infrastructure, such as software costs, also implied about 37.20% as a barrier in the adoption of the new system. Overall, it implied that the success of the new system depends on addressing the various difficulties faced by the businesses and the combined efforts of both people and the government.

7. BENEFITS OF ADOPTING E-INVOICE SYSTEM

7.1. Handling of low value and high volume transactions: -The new e-invoice system is expected to handle low value and high volume transactions and invoices generated by various businesses in India. To study this trend, an analytical study was carried out for the distribution of invoices for the time period July 2018 to September 2018; post the implementation of the GST. The details of invoices generated during the same time period are placed in table T1 below.

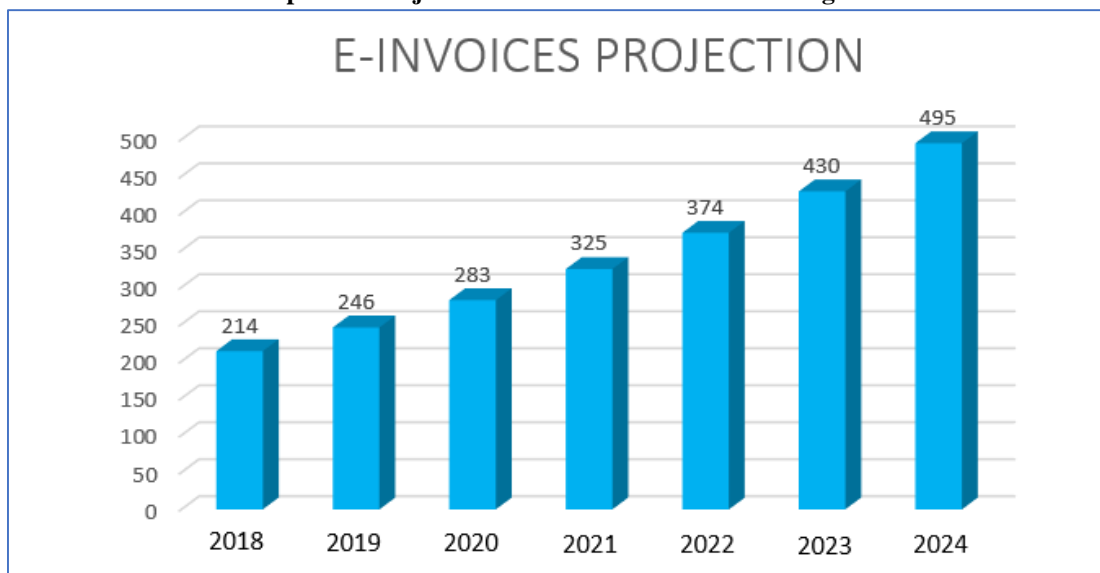
Table T1: Data for generation of low value Invoices

Invoice Value Range	No of Invoices Reported in GSTR-1			% of Total
	July 2018	August 2018	September 2018	
Less than Rs 1/-	144522	91303	73944	0.04
Rs 1 to Rs 5,000	70659111	67050677	84562050	40.77
Rs 5,000 to Rs 50,000	6,08,97,740	6,20,92,828	8,39,47,112	40.47
Rs 50,000 to Rs 1 Lakh	1,25,45,003	1,30,69,539	1,59,76,286	7.70
Rs 1 Lakh to Rs 10 Lakh	1,77,32,496	1,86,40,557	2,03,43,656	9.81
Rs 10 Lakh to Rs 50 Lakh	2120413	2344974	2324978	1.12
Rs 50 Lakh to Rs 1 Crore	115510	126537	120112	0.06
Rs 1 Crore to Rs 5 Crore	67248	74143	73422	0.04
Rs 5 Crore to Rs 10 Crore	6845	7823	7583	0.00
Rs 10 Crore to Rs 50 Crore	3138	3773	4099	0.00
Above Rs 50 Crore	209	275	331	0.00
Total	164292235	163502429	207433573	100.00

7.2. Analysis of T1 table: - The analytical study for the distribution of the invoices for the time period July 2018 to September 2018 is placed in table T1 which indicates that the high volume of low value transactions constitutes almost 88.94% of the invoices falling below ₹1,00,000/- value transactions. This was the result of two factors. One was the creation of multiple invoices in small amounts for high value transactions. Secondly, the size of Indian businesses was largely small. The data in table T1 further highlights the level of scalability required for the e-invoice System in India. A total of 53,52,28,237 invoices were reported in the Quarter July 2018 to September 2018. The details are given in table below.

7.3. Prediction for 06 years (2019-2024): - Based on the above data, the trend for the next 06 years in the generation of e-invoices is projected in graph G2 below. Considering the average e-invoices generation on a monthly basis at 17.84 Cr. invoices and taking the 15% CAGR, the projection for the next 6 years is as mentioned.

Graph G2: Projection for the number of e invoices generation



7.4. Analysis of G2graph: -The above graph indicates the upward trend in the generation of invoices over the next six years. It shows the projection of the potential for growth in the generation of e-invoices from 2019 to 2024. The above graph is illustrated for the demonstration of the speed of the process and scalability achieved under the new system.

7.5. Reduction in Frauds and Loss of Revenue in Input Tax Credit (ICT): -Before the introduction of the e-invoice system in India (w.e.f. 01 Oct 2020), the invoice related frauds and fake input tax credits were reported to be around ₹1.20 lakh Crore in revenue between 2017 and 2020. Fraudsters created shell companies and issued fake invoices without the actual movement of goods and services. However, post the introduction of the e-invoice system, transparency has been significantly increased in the system. The table T2 below shows the invoice related frauds and revenue saved by the government post

implementation of e-invoice in India. (Source: Consolidated reports via PIB, Parliamentary Q&A achieve, DG of GST Report, Replies of Parliament Questions in Lok Sabha and Rajya Sabha by Shri Pankaj Chaudhary, MoS Finance 2024.)

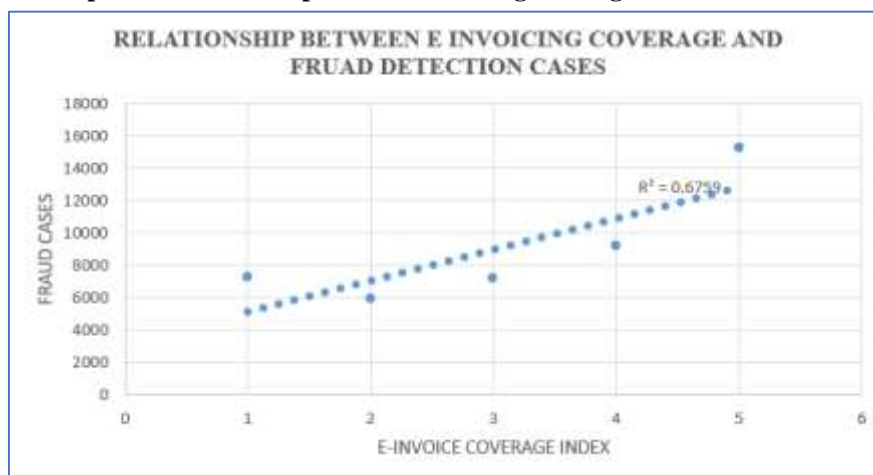
Table T2: Frauds and Loss of Revenue

Ser No	Financial Year	Invoice Fraud Cases	Voluntary / Deposit Recovery (In Cr)	Total Evasion Detected (In Cr)
1	2018-19	1620	11,810	19,319
2	2019-20	1027	7,900	21,739
3	2020-21	7,268	2,232	31,233
4	2021-22	5,966	2,027	28,022
5	2022-23	7,231	2,484	24,140
6	2023-24	9,190	3,413	36,374
7	2024-25	15,283	2,675	58,772
Total		44,938	32,541	2,19,599

7.6. Analysis of T2 table: -The above table T2 shows that after the introduction of the e-invoicing system in the year 2020-21, there is a significant increase in the detection and identification of fraud cases. In the pre-e-invoicing era, tax authorities had to prepare a long paper trail and manual audits to catch the fraudsters. However, after the new system, every B2B transaction has to be reported to the Invoice Registration Portal (IRP) instantly. The above data in the table shows a jump of 110.28% from FY 2020-21 to FY 2024-25 in the detection of fraud cases (Source – PIB Release ID 1559126, Rajya Sabha Question No 2595, GSTN Annual Reports & DGGI Special Drive reports).

7.7. Analysis of expansion of e-invoice system and fraud detection cases: - The scatter plot G3 below shows the significant positive relationship between the expansion of the e-invoice coverage and the detection of the fraud cases post implementation of the new system. The coefficient of determination (R^2), which measures the ‘goodness of fit’, shows the value of 0.6759. It shows that approximate 68% of the variance in fraud cases is directly linked to the expansion of the e-invoice system. The moderately strong indicator suggests the effectiveness of the digitization of the system.

Graph G3: Relationship between invoicing coverage and Fraud Detection Cases



7.8. Increase in GST Collection post implementation of E-Invoice System: -Since the implementation of the e-invoice system in India in 2020, GST collection has shown an upward trajectory by collecting over ₹86.59 lakh Cr. from FY 2020-21, until the introduction of e-invoicing in FY 2024-25. The details of the data are placed in table T3 below (Source Ministry of Finance Reports on GST and Open Government Data Portal (OGD)).

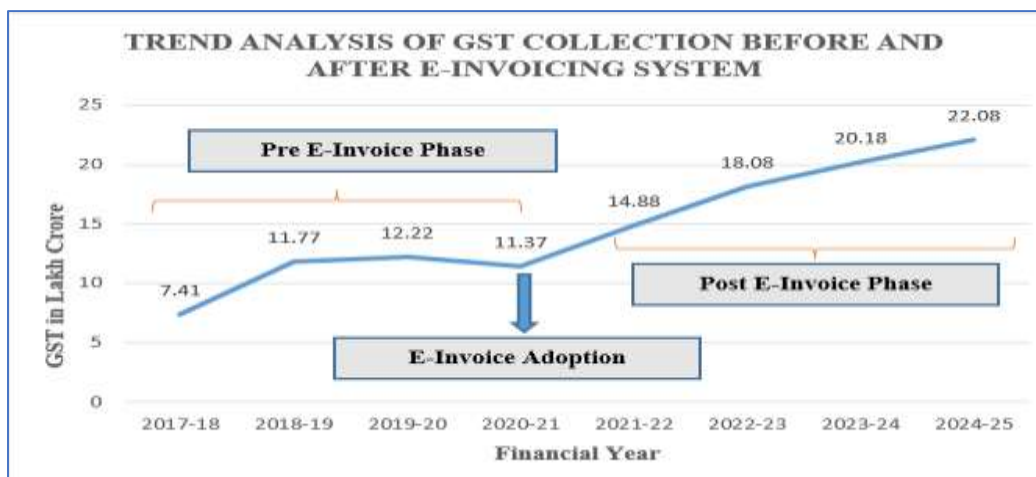
Table T3: Trend of GST collection Pre / Post implementation of e-invoice system

Ser No	Financial Year	GST Collection (In lakh crore)	Time Line of E-invoice system	Average Collection Pre /Post E-invoice
1	2017-18	7.41	Pre-E-Invoice Era	10.47
2	2018-19	11.77		
3	2019-20	12.22		
4	2020-21	11.37	E- invoice Adoption	18.81
5	2021-22	14.88	Post E- invoice Era	
6	2022-23	18.08		
7	2023-24	20.18		
8	2024-25	22.08		

7.9. Analysis of table T3: -The above table implies that the average GST collection has shown an upward trend post implementation of the e-invoice system in India. Before the adoption of the new system, the average GST collected was around ₹10.47 lakh crore. However, after the adoption of the new system, the tax collection revenue jumped to an average of ₹18.81 lakh crore. The average shows the 79.67% growth after the introduction of the new e-invoice system in 2020. For the financial year 2017-18, the GST data shown in the table is for a 09 month time period after the introduction of GST on 1st July 2017. For the three years from 2017 to 2020, the GST collection stagnated with an average monthly collection of ₹82,294 Cr. After the introduction of the e-invoicing system in October 2020, the revenue began to rise significantly. It is pertinent to mention that the tax collected by the government during FY 2020-21 was slightly lower than in the upcoming years due to COVID-19. However, in the later years, a growth percentage of 30.87% in the FY 2021-22, 21.51% in the FY 2022-23, 11.92% in the FY 2023-24, 9.42% in the FY 2024-25 was shown.

7.10. Trend Analysis of GST collection before and after the e-invoicing system in India: - The graph G4 below illustrates the trend of GST collection in three distinct phases. The pre-e-invoice phase, the e-invoice adoption phase, along with the COVID-19 phase and the post-e-invoice phase. During the pre- e-invoice phase (2017-2020), the growth is relatively stagnant (GST implemented in July 2017). A temporary decline was observed in the adoption of the e-invoice phase due to the COVID-19 outbreak. However, the post implementation phase (October 2020 – 2024) shows the upward trend in the collection of GST. The sustained growth in the GST collection shows the effectiveness of the new e-invoice system in supporting the economy of the country.

Graph G4: Trend Analysis of GST Collection before and after e-invoicing system



7.11. Business Process Automation: - After the introduction of the e-invoice system, the process of automation in India has been significantly increased. In the year 2025, a case study of a high-volume financial operation done by Genpact Madurai shows that the average invoice processing time has been reduced from 10.2 days to 4.1 days in India. It also indicates that error rates have dropped by 38% while 86.50% of businesses experienced fewer errors post implementation of the digital system.

7.12. MSME Credit and Financial Inclusion: - The inception of the e-invoice system has helped bridge the credit gap for Micro, Small and Medium Enterprises (MSMEs). Traditionally, these sectors were excluded from the formal credit facilities and faced significant losses over the years. Due to this, these sectors were not able to apply for loans and credit and further grow towards becoming the backbone of the Indian economy. The share of credit facilities in MSME has risen from 14% in 2020 to 20% in 2024. These MSMEs have been introduced to the Trade Receivables Discounting System (TReDS), which allows them to auction their trade receivables to financiers. The total financing on TReDS platforms increased from ₹950 Crores in 2018 to ₹2.33 lakh crores in 2025. (Source NITI Aayog Report on Enhancing Competitiveness of MSMEs in India, SIDBI & TransUnion CIBIL MSME Pulse Report in 2025).

7.13. Sustainable Green Accounting: - The e-invoicing system has replaced the traditional paper-based, intensive, physical data system used previously. The post audit of documents and printing of invoices in different formats required a large paper trail. This digital system has allowed businesses to save environmental costs with high precision for Environmental, Social and Governance (ESG) reporting. Research indicates a direct reduction of 63% of the carbon footprint of an invoice lifecycle. Another study shows that approximately 1,18,000 trees need to be cut down for every one billion paper invoices. At a global scale, paper invoices contribute approximately 10% of all trees cut down. One more study shows that e-invoices being smaller in size digitally constitute 30-50% less size and further save energy on a large scale globally.

8. DATA BASED EMPIRICAL ANALYSIS USING GOVERNMENT DATA

The study examines the impact of the introduction of e-invoicing on businesses in India. The data and information used in this case study is from the official sources, such as GSTN e-invoice statistics and performance brochure, Ministry of Finance (2023) Digital Transformation in India Taxation reports, PIB reports and journal IJARIRE, Genpact Madurai. India has successfully adopted the new e-invoicing system for over 11.30 lakh businesses, which has generated over 700 Cr. invoices up to 2024. The threshold limit summary of turnover for mandatory adoption of the e-invoice system is given in Table T4 below.

Table T4 : Threshold Limit for Mandatory Adoption of E-Invoice System In India

Ser No	Effective Date	Aggregated Annual Turnover (AATO)
1	1 st October 2020	500 Cr and above
2	1 st January 2021	100 Cr and above
3	1 st April 2021	50 Cr and above
4	1 st April 2022	20 Cr and above
5	1 st October 2022	10 Cr and above
6	1 st August 2023	5 Cr and above

8.1. Critical Research Findings: - The critical research findings mentioned in the table T5 below are based on the trend of e-invoices generation, errors detected, and invoice processing time, the audit compliance costs and carbon footprints of the businesses in India. The detailed findings are as follows: -

Table T5: Findings of the Impact of E-Invoice System on Indian Businesses

Ser No	Metrics	Pre-E-Invoice (Manual)	Remarks	Source
1	Data Entry Errors	90% reduction in errors rates to below 0.2%	Manual entry was the primary source of errors	GSTN report on e-invoicing: A digital blueprint for Indian Businesses (2025)
2	Payment Cycle	Reduction of an average 1.4 days globally	Average payment cycles time reduced due to digitization	Avalara e-invoice reports with Center for Economics and Business Research
3	Audit Cost	70% reduction in the audit compliance costs	12,000 (Avg Cost)	IJARIRE journal on impact of e invoice – case study of Genpact Madurai (2024)
4	Carbon Footprints	Reduction in paper consumption and 33% drop in India's emission capacity	Boost to India's ESG and digital India goals	PIB & Ministry of Finance Report – Milestones in GST Digitization and Green Transition Reports

9. FUTURE SCOPE OF E-INVOICE IN INDIA

The digital e-invoice system has transformed the Indian economy significantly. It has opened the gate of ease of doing business in India for both domestic and international firms. However, there are still some challenges ahead for our economy to include everything under this digitised umbrella. Some of the major future outlook of the e-invoice in India is as follows: -

9.1. AI-driven System: - The world is shifting towards AI-driven technologies at a very rapid pace. With the help of AI powered software, both government and firms will be able to forecast the financial trends, future GST liabilities and manage cash flow more effectively. The establishment of a smart network such as the GST Network will help in the scrutiny of documents and the compilation of data. Facilities like smart HSN Classification will automatically determine the correct HSN codes and eliminate sources of invoice rejection.

9.2. Expansion of Government Regulations: -The government is planning to expand the current regulations and their scope. It is planning to include various new regulations like B2C under the e invoice system, reducing of e-invoice reporting time and setting up a common unified digital trade platform for all types of taxes.

10. CONCLUSION

The introduction of the e-invoicing system in India began a new chapter in the Indian economy in 2020. It proved to be a positive tool introduced by the government to curb tax evasion and increase the taxpayers' contribution to the Indian economy. The statistical validation of H1 and H2 shows a moderately strong correlation $R^2 = 0.6759$ between the digitisation of e-invoices and the detection of fraud cases. The growth of 110.28% in the detection of fraud cases shows the effectiveness of the new e-invoice system. It has moved India towards a neutral and progressive tax system by removing the nexus of fake invoices and fraudsters. The study concludes that the impact of digitisation has resulted in an increase in the average collection of GST by 79.67% post FY 2020-21. This tool has proven to be a major catalyst for the formalisation of the Indian economy in the long run. It has boosted the economy through the automation of MSMEs by opening the door for the credit system for their growth. The country is moving towards an information-based system from manual paper trials and is bridging the traditional

tax system to a new technology-driven system. It has also pushed the goals of sustainable development through green accounting and reducing the carbon footprint by 63% in the invoice lifecycle of B2B commerce. Ultimately, e-invoice has laid down a system which will benefit the goal of 'Viksit Bharat' in the long run.

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