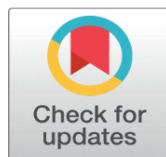
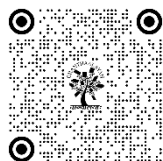


THE ROLE OF TECHNOLOGY IN REDUCING TAX EVASION IN INDIA

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ABSTRACT

Tax evasion remains a significant challenge in India, leading to substantial revenue losses and hindering economic development. However, the integration of technology into tax administration has played a crucial role in reducing tax evasion by enhancing transparency, improving compliance, and strengthening enforcement mechanisms. This paper explores the impact of technology on tax compliance in India, highlighting key digital initiatives such as the Goods and Services Tax Network (GSTN), e-filing systems, artificial intelligence (AI), big data analytics, blockchain, and automation. The implementation of GSTN has revolutionized indirect tax collection by automating invoice matching, introducing e-way bills for tracking goods movement, and ensuring seamless tax reporting. AI-driven analytics and big data processing enable tax authorities to detect fraudulent activities, such as false input tax credit claims and underreporting of income. The integration of Aadhaar and PAN has further enhanced transparency by linking financial transactions to a unified identification system. Moreover, Operation Clean Money (OCM), launched post-demonetization, effectively leveraged AI and data analytics to identify tax evaders by scrutinizing large cash deposits. Additionally, blockchain technology is being explored to prevent invoice fraud and ensure tamper-proof tax records. Automation in tax administration, including e-invoicing and real-time tax deduction mechanisms, has minimized human intervention and corruption, leading to higher compliance rates. These advancements have resulted in increased tax revenues, a broader taxpayer base, and reduced opportunities for fraud. Despite these successes, challenges such as cybersecurity risks, digital literacy gaps, and evolving evasion tactics persist. Continued investment in emerging technologies and stricter enforcement measures will be essential for further strengthening tax compliance. This study concludes that technology-driven tax administration has significantly curtailed tax evasion in India and will continue to play a transformative role in ensuring financial transparency and economic stability.

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Keywords: Role, Technology, Tax Evasion, India

1. INTRODUCTION

Tax evasion refers to the illegal act of deliberately avoiding paying taxes by misrepresenting financial information, underreporting income, inflating deductions, or hiding assets. It is a serious economic offense that leads to significant revenue losses for the government, reduces public funds for development, and creates an unfair burden on honest taxpayers. Tax evasion differs from **tax avoidance**, which involves using legal loopholes to minimize tax liability.

Types of Tax Evasion

- 1) Income Underreporting:** Taxpayers, including individuals and businesses, deliberately report lower income than they actually earn to reduce tax liability. This is common among cash-based businesses that do not maintain proper records.

- 2) **False Deductions and Expenses:** Some taxpayers inflate deductions, claim false business expenses, or misuse exemptions to reduce taxable income.
- 3) **Unreported Offshore Accounts:** Individuals and corporations hide wealth in offshore accounts or tax havens to avoid paying taxes on their earnings.
- 4) **Fake Invoicing and Input Tax Credit Fraud:** Businesses generate fake invoices to claim input tax credits fraudulently, leading to lower tax payments. This is common under the GST system.
- 5) **Smuggling and Black Market Transactions:** Selling goods and services without proper documentation, especially in high-tax industries like alcohol and tobacco, leads to tax evasion.
- 6) **Employment Tax Fraud:** Employers avoid payroll taxes by misclassifying employees as independent contractors or paying wages in cash.

Tax evasion undermines economic growth and tax fairness. Governments use **technology, AI, and strict legal measures** to curb such practices and improve tax compliance.

2. OBJECTIVE OF THE STUDY

This paper explores the impact of technology on tax compliance in India, highlighting key digital initiatives such as the Goods and Services Tax Network (GSTN), e-filing systems, artificial intelligence (AI), big data analytics, blockchain, and automation.

3. RESEARCH METHODOLOGY

This study is based on secondary sources of data such as articles, books, journals, research papers, websites and other sources.

4. THE ROLE OF TECHNOLOGY IN REDUCING TAX EVASION IN INDIA

Tax evasion has been a persistent challenge in India, leading to substantial revenue losses for the government and undermining the country's economic stability. The integration of technology in tax administration has played a significant role in curbing tax evasion by improving transparency, increasing compliance, and minimizing fraudulent activities. The Indian government has implemented various digital initiatives and leveraged advanced technologies such as artificial intelligence, blockchain, big data analytics, and automation to enhance tax enforcement. These technological advancements have transformed tax collection mechanisms, making it increasingly difficult for individuals and businesses to evade taxes.

One of the most notable initiatives aimed at reducing tax evasion in India is the implementation of the Goods and Services Tax (GST) system, which relies heavily on technology. The GST Network (GSTN) is a sophisticated IT infrastructure that facilitates seamless tax filing and data sharing between taxpayers and tax authorities. The system ensures that all transactions are recorded digitally, thereby reducing the scope for tax evasion. Through automated matching of invoices and real-time data validation, the GSTN minimizes fraudulent claims of input tax credits, a common method of tax evasion. Additionally, the e-way bill system tracks the movement of goods across states, ensuring that businesses do not evade taxes by underreporting their transactions. This technological intervention has significantly improved compliance rates and enhanced revenue collection for the government.

Another major technological advancement in tax administration is the digitization of income tax returns. The government has introduced an electronic filing (e-filing) system that allows taxpayers to submit their returns online, reducing the possibility of tax evasion through manual manipulation of records. The Income Tax Department has also implemented a faceless assessment system, which eliminates physical interactions between taxpayers and tax officials, thereby reducing the scope for corruption and manipulation. Through data analytics and artificial intelligence, the tax authorities can detect discrepancies in tax filings and identify cases of tax evasion more effectively. The integration of the Aadhaar system with the Permanent Account Number (PAN) has further enhanced transparency by linking taxpayers' financial transactions to a single identification number, making it difficult to hide income.

Big data analytics has emerged as a powerful tool in the fight against tax evasion in India. By analyzing large volumes of financial data, tax authorities can detect suspicious transactions and identify potential tax evaders. The use of data mining techniques enables the government to track unusual financial patterns, such as sudden spikes in income or discrepancies between reported income and actual spending. This analytical approach allows tax authorities to target high-risk taxpayers and conduct focused audits, thereby increasing the efficiency of tax enforcement. The integration of financial data from various sources, such as bank transactions, stock market investments, and property registrations, provides a comprehensive view of taxpayers' financial activities, reducing the scope for tax evasion.

Artificial intelligence and machine learning have also played a crucial role in strengthening tax compliance in India. AI-driven algorithms can analyze tax filings and identify patterns that indicate fraudulent activities. The Central Board of Direct Taxes (CBDT) has adopted AI-powered systems to detect tax evasion through automated risk assessment models. These models assess taxpayers based on multiple parameters, such as income patterns, spending behavior, and business transactions, to determine the likelihood of tax evasion. By leveraging AI, tax authorities can proactively identify tax evaders and take necessary enforcement actions. Additionally, chatbots and virtual assistants have been introduced to assist taxpayers in understanding tax regulations, thereby improving compliance and reducing errors in tax filings.

Blockchain technology has emerged as a promising solution for enhancing transparency and preventing tax fraud. The decentralized nature of blockchain ensures that all financial transactions are recorded in an immutable ledger, making it nearly impossible to alter or manipulate tax-related data. The Indian government has been exploring the integration of blockchain in tax administration to create a tamper-proof record of transactions. By implementing blockchain-based invoicing systems, authorities can track business transactions in real time and prevent the generation of fake invoices, a common method of tax evasion. The transparency offered by blockchain reduces opportunities for tax fraud and increases trust in the tax system.

Automation in tax administration has further streamlined compliance processes and reduced tax evasion. The introduction of automated tax deduction systems, such as the Tax Deducted at Source (TDS) mechanism, ensures that taxes are deducted at the source of income, minimizing the chances of evasion. Automated tax reconciliation tools enable businesses to cross-check their financial records with tax filings, reducing errors and discrepancies. The use of digital payment systems has also contributed to tax compliance by minimizing cash transactions, which are often used to evade taxes. The push towards a cashless economy through initiatives such as the Unified Payments Interface (UPI) and digital wallets has enhanced transparency in financial transactions, making it easier for tax authorities to track income and expenditure.

The impact of technology on tax compliance can be seen in the increased tax revenue collection and a reduction in the tax gap. The digitization of tax administration has led to a significant increase in the number of taxpayers and improved voluntary compliance. The introduction of e-invoicing under the GST regime has reduced tax evasion by ensuring that businesses report accurate sales data. Additionally, the use of AI-driven analytics has enabled tax authorities to identify tax evasion trends and take corrective measures in a timely manner. The integration of technology has not only enhanced tax collection but also improved the overall efficiency of the tax administration system.

Despite the significant advancements in technology-driven tax enforcement, challenges remain in ensuring full compliance. The adoption of digital tools requires a high level of digital literacy among taxpayers, which remains a barrier in certain regions. Cybersecurity concerns also pose a risk to tax administration systems, as sensitive financial data is vulnerable to cyberattacks. Moreover, tax evaders continuously adapt to new technologies, finding innovative ways to bypass tax regulations. Therefore, the government must continuously upgrade its technological infrastructure and implement stringent cybersecurity measures to counter emerging threats.

Case Study 1: Implementation of the Goods and Services Tax Network (GSTN) to Curb Tax Evasion

Before the introduction of the Goods and Services Tax (GST) in July 2017, India had a complex indirect tax system with multiple state and central taxes, leading to tax evasion through underreporting of sales, fraudulent claims of tax credits, and manipulation of invoices. The lack of a unified system made tax enforcement difficult, allowing businesses to avoid paying their fair share.

To address these challenges, the government introduced the Goods and Services Tax Network (GSTN), a robust digital platform designed to integrate indirect tax collection across the country. GSTN is a state-of-the-art IT system that facilitates seamless tax filing, data analysis, and real-time monitoring of transactions.

Role of Technology in Reducing Tax Evasion

GSTN leverages **automation, data analytics, and AI-driven algorithms** to ensure that businesses accurately report their tax liabilities. Some of the key technological interventions under GSTN include:

- **Invoice Matching System:** GSTN automates invoice matching between buyers and sellers to detect discrepancies in tax filings. This prevents fraudulent claims of Input Tax Credit (ITC), a common method used for tax evasion.
- **E-Way Bill System:** To track the movement of goods across states, the government introduced the e-way bill system. Every inter-state movement of goods above a certain value must be recorded electronically, reducing the chances of underreporting transactions.
- **AI-Powered Data Analytics:** The GSTN platform uses artificial intelligence to analyze tax returns and detect suspicious patterns. It flags businesses with mismatched invoices, sudden spikes in input tax credit claims, or repeated non-compliance.
- **E-Invoicing Mechanism:** To curb fake invoicing practices, the government introduced an e-invoicing system where businesses generate invoices directly through GSTN. This ensures that tax authorities receive real-time sales data, making manipulation difficult.

Impact on Tax Compliance

The introduction of GSTN led to a significant improvement in tax compliance. Several instances of tax evasion were uncovered, and businesses that previously operated in the informal economy were forced to register and pay taxes. For example, in 2021, a large-scale fake invoice racket was exposed, where businesses generated fraudulent invoices to claim fake ITC. Using AI-based detection tools, tax authorities identified irregularities and arrested individuals involved in tax fraud. Over ₹35,000 crores in fake ITC claims were identified and blocked, preventing revenue leakage.

Additionally, tax collections under GST have consistently increased, indicating improved compliance. The number of registered taxpayers also grew as businesses that previously operated outside the tax net were brought into the formal system.

Challenges and Future Scope

Despite its success, GSTN faces challenges such as technical glitches, tax evasion through shell companies, and cybersecurity risks. The government is continuously upgrading the system to improve its efficiency. In the future, further integration of blockchain technology could enhance transparency and prevent invoice manipulation.

Case Study 2: Operation Clean Money (OCM) – AI-Driven Tax Compliance Post-Demonetization

In November 2016, the Indian government demonetized ₹500 and ₹1,000 currency notes to curb black money, corruption, and tax evasion. This sudden move led to the deposit of large amounts of unaccounted cash into the banking system, exposing individuals and businesses that had been evading taxes. To analyze these cash deposits and identify tax evaders, the Income Tax Department launched Operation Clean Money (OCM) in 2017. This initiative used big data analytics, artificial intelligence, and machine learning to scrutinize suspicious financial activities and improve tax compliance.

Role of Technology in Reducing Tax Evasion

OCM was a **data-driven initiative** that relied on advanced technologies to detect tax evasion. Some key technological aspects of OCM included:

- **Big Data Analytics:** The Income Tax Department used advanced data analytics to examine over **18 lakh accounts that deposited large sums of cash post-demonetization**. These accounts were flagged for scrutiny based on unusual deposit patterns and inconsistencies with reported income.
- **Artificial Intelligence and Machine Learning:** AI-driven risk assessment models were employed to classify taxpayers into different risk categories. Individuals and businesses with disproportionate cash deposits compared to their past income declarations were identified for further investigation.
- **Integration of PAN, Aadhaar, and Bank Data:** By linking PAN (Permanent Account Number) with Aadhaar and bank accounts, tax authorities gained a comprehensive view of an individual's financial transactions, making it difficult to conceal income.

- **Automated Notices and Digital Verification:** Taxpayers flagged under OCM received automated notices via email and SMS, requiring them to explain their cash deposits. A digital verification system allowed them to respond online, eliminating the need for physical interactions with tax officers and reducing corruption.

Impact on Tax Compliance

The implementation of OCM had a **significant impact on tax compliance and revenue collection**.

- **Increased Tax Filings:** As a result of OCM, **over 91 lakh new taxpayers** were added to the system in 2017-18 alone, marking a sharp rise in tax compliance. Individuals and businesses that previously avoided filing tax returns were forced to enter the tax net.
- **Higher Tax Revenue Collection:** The government reported a substantial increase in direct tax collections post-OCM. In the financial year 2017-18, income tax collections grew by 18% compared to the previous year.
- **Detection of Black Money:** OCM helped identify over ₹4,900 crores of undisclosed income, leading to tax recoveries and legal action against tax evaders. Several high-profile cases were uncovered, including instances where businesses attempted to launder unaccounted money through multiple bank accounts.
- **Behavioral Change Among Taxpayers:** The fear of being detected by AI-driven surveillance encouraged voluntary tax compliance. Individuals became more cautious about depositing large sums of unaccounted cash, and businesses were more transparent in their financial reporting.

Challenges and Future Scope

Despite its success, OCM faced challenges such as false positives, where genuine taxpayers were wrongly flagged, and cybersecurity risks related to sensitive financial data. Additionally, some high-net-worth individuals found ways to evade scrutiny by breaking large cash deposits into smaller transactions. Going forward, the government aims to expand AI-driven compliance monitoring by integrating real-time tracking of digital transactions, international banking data, and blockchain-based financial records. This will further tighten tax enforcement and minimize evasion opportunities.

5. CONCLUSION

The integration of technology into India's tax administration has significantly reduced tax evasion by enhancing transparency, increasing compliance, and strengthening enforcement mechanisms. Digital initiatives such as the Goods and Services Tax Network (GSTN), e-filing systems, artificial intelligence (AI), big data analytics, blockchain, and automation have transformed the way taxes are collected and monitored. These advancements have minimized fraudulent activities, curbed underreporting of income, and ensured better tracking of financial transactions. The implementation of GSTN has streamlined tax collection by automating invoice matching, introducing e-way bills, and facilitating real-time tax monitoring. AI-driven analytics and machine learning have enabled tax authorities to detect suspicious transactions and prevent fraudulent claims of input tax credit. Similarly, Operation Clean Money (OCM) effectively leveraged AI to scrutinize large cash deposits post-demonetization, leading to better compliance and higher tax revenue. Additionally, blockchain technology is emerging as a promising tool to create tamper-proof tax records, further reducing tax fraud. While technology has significantly improved tax compliance, challenges such as cybersecurity risks, digital literacy barriers, and evolving evasion tactics remain. Tax evaders continuously adapt to new technologies, requiring constant updates in tax enforcement mechanisms. Therefore, the government must continue investing in advanced technologies, data security, and digital education to further strengthen tax administration.

CONFLICT OF INTERESTS

None.

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