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Role of digitalization in improving tax compliance in India

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Abstract
This research study discusses the revolutionary function of digitalization in improving tax compliance in India. Digital tax administration has transformed the manner in which taxes are collected, tracked, and reported. Digital programs like the Goods and Services Tax Network (GSTN), e-filing of income tax, and data analytics have largely enhanced transparency, minimized tax evasion, and increased taxpayer ease. This paper assesses the efficacy of these reforms, implementation challenges, and the larger implications for the Indian economy. It ends with strategic suggestions for improving digital tax regimes to foster greater compliance and better governance. Over the last few years, digitalization has revolutionized the tax administration landscape in India, providing tremendous force to increase tax compliance and curb evasion. As the Indian government makes efforts towards a Digital India, tax administrations have been considerably modernized, reducing the gap between taxpayers and the authorities while inducing transparency, efficiency, and accountability. This abstract seeks to understand how digital programs have altered tax compliance behaviour in India, particularly for individuals and enterprises. The digital revolution also redefines transparency and accountability. Taxpayers have direct access to their financial past and obligations, enhancing confidence in the tax system. This open approach rewards both taxpayers and tax authorities and creates a collaborative relationship.

Keywords: Tax compliance, digitalization, tax administration, GSTN, India, taxation system, e-filing.

1. Introduction
One essential way for countries to generate public funds for infrastructure improvements, human capital investments, and service provision for both residents and corporate entities is through taxation. Taxation is the practice of a taxing authority, usually a government, imposing a financial responsibility on its citizens.
The word "tax," which comes from the Latin word "Taxo," refers to a levy or other financial charge that a state or its financial equivalent imposes on a taxpayer; nonpayment is illegal.
Throughout history, taxes have been a fundamental component of governance. The idea of taxation is mentioned in ancient writings such as the Manusmriti, Arthashastra, and Shukranitisar, demonstrating its long history. In Manusamriti, Manu, the nation's great lawmaker, explains the tax policy as follows: "As the leech, calf, and bee take their nourishment little by little even the king must also collect moderate yearly taxes from his domain. In reference to King Dalip, Kalidas stated that taxes have to be collected in the same way that the sun replenishes the ground with rain a thousand times over.
A paradigm changes in public finance management; the digital transformation of tax systems has a profound impact on how governments interact with taxpayers. Countries all around the world are using digital technologies more and more to improve the effectiveness of tax collection, reduce chances of tax evasion, and promote greater accountability and transparency in their fiscal systems. This change is more than just a technological advancement; it is a thorough reorganization of the relationship between taxpayers and tax authorities, with significant ramifications for economic growth, governance, and trust.
Tax compliance is the basis of a nation’s fiscal health. In India, the evolution of the tax administration from manual to a digital system is driven by the need to expand tax bases, improve efficiency, and curb evasion. Digitalization has revolutionized India’s tax landscape over the past two decades and brought unprecedented transparency and accountability. Initiatives such as the digitalization of PAN and Adhaar links, electronic submission portals, and GST arrangements are examples of how technology is used to improve compliance and

tax governance. The paper investigates how digitalization contributes to improving tax compliance in India, identifies its mechanisms, and evaluates the remaining challenges.

Digitalization includes the integration of technology and digital tools to simplify once manually intensive processes. Efficiency savings are realized through automatic data entry, real-time validations, and error-free calculations. This results in quicker processing times, diminishing tax refund delays and making it easier for taxpayers.

2. Literature Review

- Research conducted by both national and international organizations highlights how digital innovation can improve the efficiency of the public sector.
- According to the OECD (2020), digital tax administration increases audit effectiveness and provides real-time visibility into financial transactions.
- According to Chattopadhyay (2022), emphasizes how GSTN is important for lowering leaks and enhancing the accuracy of invoice matching.
- According to PwC reports from 2023, automated solutions and user-friendly interfaces are essential for boosting voluntary compliance.
- According to the NIPFP (2023), digitization lowers administrative costs, freeing up authorities to concentrate more on enforcement rather than paperwork. Since the widespread use of digital technologies, the Ministry of Finance has provided empirical evidence demonstrating an increase in taxpayer registration and timely filing.

3. Objectives of the study

- To monitor the development of digital infrastructure in the tax environment of India.
- To examine how technology affects taxpayer attitudes and compliance.
- To evaluate the efficacy and performance of portals such as the e-Filing portal, TRACES, and GSTN.
- To take into account challenges with digital deployment.
- To provide useful suggestions for enhancing digital tax administration.

4. Limitations of the study

- Some of the findings may become out of date due to changes in legislation and technological improvements.
- There is no global comparison analysis in this study, which is exclusive to India.
- Reliance on secondary sources may lead to an inaccurate representation of the facts that exist on the ground.

5. Types of Taxes

Two major categories can be used to classify taxes. These are as follows:

a) Direct Tax

A direct tax is one in which the same individual is liable for both the tax's incidence and effect. It indicates that the individual is financially responsible in the same way as they are legally required to pay taxes. Direct taxes are "one which is demanded from the very persons who, it is intended or desired, should pay it," according to J. S. Mill.

Both the central and state governments impose direct taxes independently, including corporate taxes, land revenue taxes, capital gains taxes, security transaction taxes, and central and state direct taxes.

Tax on Personal Income: Originally proposed in India's 1860 union budget, personal income tax is levied in the following five categories under the 1961 Income Tax Act.

1. Income from Salary
2. Income from House Property
3. Income from Profit and Gain from Business or Profession
4. Income from Capital Gains
5. Income from Other Sources

b) Indirect Tax

Indirect taxes are those that affect and occur in different ways for different people. It suggests that although one person is legally required to pay taxes, the financial burden is actually placed on another.

Hartley claims that indirect taxes are those that are swiftly transferred as a result of consumer-to-consumer commercial competitiveness. Excise duty on Indian commodities, which made up a large portion of the country's imports from the United Kingdom, was the first indirect tax to be implemented in India in 1944. However, several federal and state taxes were eliminated in 2017 as a result of the GST. Excise duty, custom duty, and service tax are examples of central indirect taxes that were replaced by the GST. Entertainment tax, luxury tax, entry tax, and stamp duty are state indirect taxes that were replaced by the GST.

6. Digitalization of tax systems in India

6.1 Evolution and Key Elements of Digital Taxing Systems in India

India's taxation in the digital era started shaping up with the introduction of online filing of Income Tax Returns in the early 2000s. Over a period of time, infrastructure grew with the introduction of platforms such as TIN and CPC, enhancing back-end operations. A significant development came with the implementation of GST in 2017, ably backed by the technologically sound GSTN system, which processes billions of invoices and returns in real-time.

Major platforms are

- e-Filing Portal: For submission of income tax returns, refund claims, and access to historical information.
- GSTN: Enables registration, filing, invoice matching, and claims for tax credit.
- TRACES: Empowers management and verification of TDS.
- AIS (Annual Information Statement): Aggregates taxpayer transactions to assist in pre-filled returns.
- PAN-Aadhaar Linkage: Seeks to remove duplicate identities and monitor financial behaviour more effectively.

7. Tax Compliance

Tax compliance is the process by which individuals and organizations pay their taxes under tax laws, rules, and regulations. It comprises timely and accurate tax return filing, tax payment, and adequate record-keeping of earnings, outlays, and deductions. For a tax system to be both functional and balanced, tax compliance is crucial. It is useful in providing the government with the money it needs for social welfare programs, infrastructure, and public services. Depending on the authority, tax compliance also means adhering to various tax rules, such as corporate tax, income tax, goods and services tax, and other taxes.

Noncompliance brought on by carelessness or deliberate avoidance can lead to fines, legal issues, and damage to one's reputation. the various tools that governments employ to enforce tax compliance and reporting, including audit procedures, sanctions for non-compliance, and rewards for timely and correct reporting. By automating tax payments, reporting, and computation, the government has also increased its use of digital platforms and technology, which has simplified and improved compliance while lowering fraud and errors.

8. Flaws of the prior tax system before digitalization

Before the advent of digitalization, the tax system had a number of significant flaws
that continuously hampered equity, efficiency, and transparency. The following list
includes some of the most important issues:

a) **Errors and Manual Processing**
Tax filing and processing were primarily carried out manually, which led to human mistakes, slowness, and inefficiencies. The tax returns were submitted on paper, and computations were performed manually, with higher chances of fraud and errors.

b) **Lack of Transparency**
Taxpayers found it challenging to track their payments or look up tax records due to the absence of a centralized digital database. Conflicts between taxpayers and the authorities were typically the outcome of a lack of transparency.

c) **Complexity of Tax rules**
The tax rules were often complex, with many different forms, unclear guidelines, and complex procedures. This made it difficult for people and businesses to comply, particularly small and medium-sized enterprises that lacked the capacity to use the system.

d) **Tax Fraud and Evasion**
Manual systems facilitated underreporting of income or records manipulation by taxpayers, resulting to substantial tax fraud and evasion. The absence of real-time monitoring and cross-validation had led to such problems.

e) **Tax Collection Inefficiency**
The process of collection was time-consuming and expensive. Manual checking, constant paperwork, and slow processing usually led to inefficiency, frustrating many taxpayers and causing delays in government revenue collection.

f) **Non-Standardized Procedures**
Businesses that operated in numerous places were confused by the disparate tax laws and filing procedures in different states or regions. Inconsistent tax collection and compliance burdens were frequently the results of the lack of standardization.

g) **Restricted Reach**
Because manual methods had trouble keeping track of a large number of unregistered firms or revenue sources, the previous tax systems frequently fell short of capturing the entire spectrum of taxable entities, particularly in the informal sector.

9. Impact of digitalization on tax compliance

Digitalization has had a far-reaching impact on tax compliance in India:

a) **Increased Efficiency**
The most important contribution of digitalization is the added efficiency in tax procedures. Tax filing and reporting used to involve a lot of paperwork and human calculations, which resulted in inefficiencies, mistakes, and delays. Taxpayers can now use automated platforms to file their returns, compute taxes, and make payments online, which lowers administrative expenses and human error.

b) **Greater transparency**
Increased openness in tax compliance is another important advantage of the digitalization. Taxpayers found it challenging to monitor their payments or confirm tax records prior to the development of digital systems, and there were frequently inconsistencies between tax returns and real payments.
On the other hand, digital platforms offer real-time tracking of the submissions and transactions enabling taxpayers to view their records whenever they choose. Tax authorities may also readily access and keep an eye on these documents, which improves monitoring, lowers the possibility of fraud, and guarantees that taxpayers fulfil their responsibilities. More public trust in tax authorities results from more transparency, which also makes the system more egalitarian and lowers the rate of tax evasion.

c) **Increased Accuracy**
Errors have decreased and accuracy has increased dramatically with digitalization. Miscalculations were common with manual systems, particularly in intricate tax contexts with dynamic laws and regulations. These days, tax computations are automated by digital systems, assisting in the accuracy of tax returns. By removing the need for human involvement in the computation process, digital systems lessen the possibility of errors that can result in fines or disagreements. Additionally, automated systems aid in maintaining tax reporting consistency by avoiding disparities between departments or areas, which was frequently problematic in the days before digitalization.

d) **Quicker processing**
Tax returns and refunds can be processed more quickly because of digital systems. Returns are completed virtually instantly in a digital setting, and any inconsistencies can be reported for prompt scrutiny by tax authorities. By doing this, the delays brought on by manual processing are eliminated, enabling speedier settlement and quicker taxpayer refunds.

e) **Wider Tax Base**
Digital technologies are essential for expanding the tax base and boosting compliance.
Many people and companies in the unorganized sector were either ignorant of their tax responsibilities or had trouble accessing the system prior to digitization. These days, digital platforms combine information from multiple sources, such as financial organizations, electricity providers, and online retailers, allowing tax authorities to monitor a greater variety of revenue streams.
These advancements make it possible to monitor people in previously inaccessible sectors more successfully, which will promote compliance. Additionally, because

both people and corporations can now readily submit returns, make payments, and access information online, digitization has improved accessibility to the tax process.

f) **Decreased Tax Evasion**
Invoice matching under GST, integration of PAN-Aadhaar, and AIS have collectively reduced fraudulent claims and enhanced voluntary disclosures.

g) **Tax procedure simplification**
Another important effect of digitalization is the streamlining of tax procedures. Previously thought to be intricate and perplexing, tax rules are now easier to understand because to online resources that provide step-by-step instructions and user-friendly interfaces. This has simplified tax compliance, particularly for small businesses and individuals. Companies that might lack the funds to employ professionals or auditors. Digital platforms make the procedure easier for taxpayers by offering pre-filled forms, clear instructions, and even assistance tools.

h) **Auditing and fraud prevention**
With the advent of digitalization, auditing and fraud prevention have significantly improved. Tax authorities can conduct more complete and effective audits by utilizing data analytics and cross-referencing information from many databases. This lowers the possibility of fraud and noncompliance because the system can detect irregularities and
discrepancies in tax returns.
To put it briefly, digitization encourages proactive tax compliance and creates a strong, open tax environment.

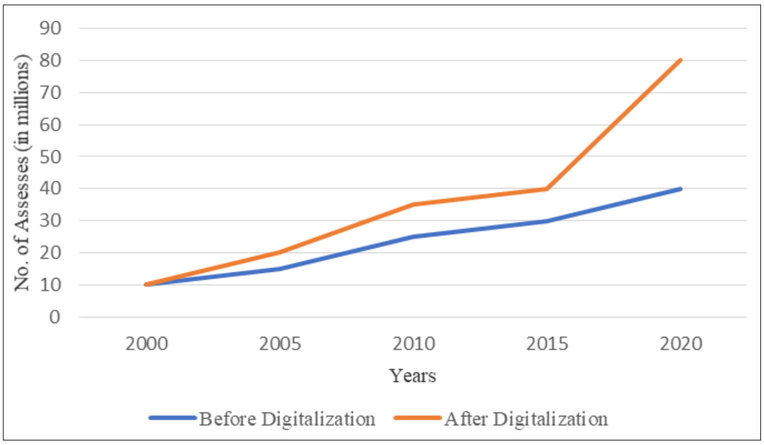

Diagram 1: Tax Assessee Transformation Before and After Digitalization

10. Digitalization and tax compliance during the covid-19 pandemic

During the COVID-19 pandemic, digitalization was essential to promoting tax compliance. Digital tools made it possible to administer taxes remotely, facilitate humanitarian efforts, increase transparency, and promote digital transformation. Although the digital divide and cyber threats are present, the work done during the pandemic has set the stage for a more resilient and effective tax system. Governments need to leverage these gains to create tax systems that are better suited to meet emerging challenges.

During the pandemic, tax departments were able to carry on with little interruption because to digital technologies. Without going to actual offices, taxpayers were able to file returns, pay taxes, and monitor their refunds through online filing portals. A number of nations improved or installed e-filing systems, guaranteeing smooth return processing and speedier evaluations. Electronic billing and real-time invoicing become commonplace, especially with the implementation of programs like India's Goods and Services Tax (GST) e-invoicing framework. In order to identify tax evasion and promote voluntary compliance, governments also employed data integration tools to connect taxpayer data from many databases, including bank accounts, Aadhaar (in India), PAN, and business registrations. The efficiency of audits and compliance checks was greatly increased in many areas by using artificial intelligence (AI) and data analytics to identify suspicious transactions.

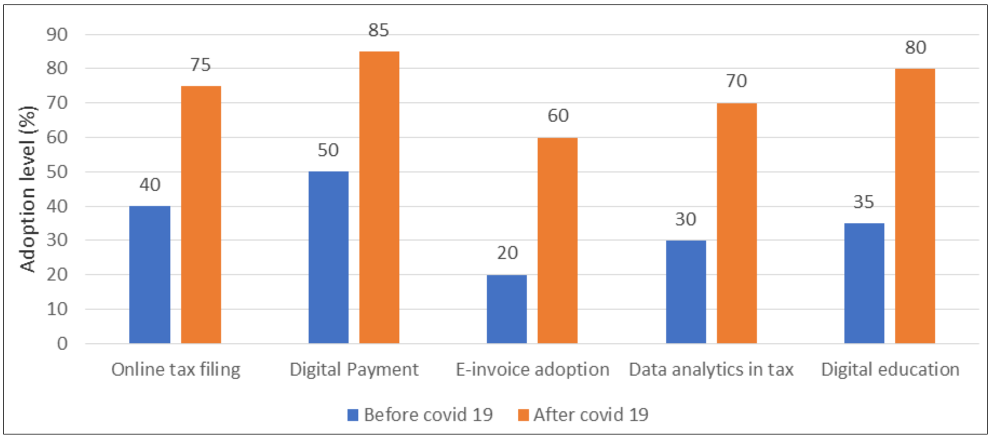

Diagram 2: Digitalization in Tax Systems: Before and After the Pandemic

11. Digital implementation challenges

a) Cybersecurity Concerns

One major obstacle brought forth by the digital revolution is cybersecurity. As tax systems depend more and more on technology, protecting private and sensitive financial information has become crucial. Cybersecurity attacks in this space not only threaten taxpayer confidence but also present risks of fiscal loss, legal exposures, and reputational harm to both companies and governments.

Tax systems manage vast volumes of sensitive data, such as bank records, income information, company earnings, and personal identifiers (such as Social Security numbers or Aadhaar IDs). This information is vulnerable to abuse in the event of a tax system compromise, including corporate espionage, identity theft, and illegal financial activities.

b) Lack of Technical Expertise

Tax professionals frequently lack knowledge of cutting-edge technologies like data analytics, blockchain, and artificial intelligence (AI). These abilities are becoming more and more important for handling contemporary, automated systems for tax compliance.

c) Continuous Upskilling Required

The fast-paced developments in tax technology necessitate continuous learning, which can overwhelm employees without formal training programs. Digital transformation may proceed slowly if staff members used to old tax procedures are reluctant to embrace digital tools.

d) Insufficient Legal Framework

The regulations about digital services and cross-border e-commerce remain unclear. For example, there are still issues with the Equalization Levy and how it affects global digital businesses.

e) Data Privacy Issues

To protect taxpayer confidentiality, data privacy laws must be synchronized with tax data-sharing rules, as tax compliance depends more on digital systems.

f) Complicated Filing Requirements

Despite the digitalization, most taxpayers encounter difficulties with recurrent or duplicate filings as a consequence of systems integration gaps (e.g., between GST and Income Tax Return systems). Due to unequal access to cutting-edge technology and integration among states, tax authorities in India have difficulty enforcing compliance.

12. Results and Discussion

Numerous significant findings regarding user experiences, transparency, governance, and demographic trends in India are revealed by the study on digital taxation. The results demonstrate that although digital taxation systems like the GSTN and the Income Tax e-filing site are becoming more widely accessible, population awareness and acceptance vary. The fact that a sizable portion of respondents knew nothing or very little about these platforms suggests that not every segment of society has been fully reached by digital outreach and education initiatives. This disparity is exacerbated by a lack of digital literacy, platform complexity, and infrastructure obstacles.

The way that users interacted with digital tax services also differed greatly. Despite the availability of digital platforms, several respondents indicated a lack of trust by preferring to rely on tax experts rather than handle their filings independently. Only a small percentage of users—usually freelancers and business owners with numerous compliance needs—engaged with these systems more regularly than the majority, who only used them once a year during tax season. Reactions to the use of digital tax platforms were not quite uniform. Some people had no prior familiarity with the systems, while others considered them to be quite user-friendly. This discrepancy draws attention to an important issue: the digital divide affects not just access but also technological usability and confidence.

The recent years have witnessed excellent progress:

- ITR submissions have increased by 35% since 2016.
- Over 1.4 crore GST registrations have been made, mostly by SMEs and unorganized enterprises.
- Better compliance, which contributed to a better tax-to-GDP ratio.
- NIPFP data shows that automation reduced the cost of compliance, freeing up funds for service excellence and innovation. However, to improve usability, taxpayer forums recommend that simpler interfaces and multilingual support be provided.
- Tier 2 and Tier 3 city penetration is lopsided, even though the digital migration has gone smoothly in large cities. This illustrates the necessity of specialized instruction, awareness-raising campaigns, and helpline assistance in order to achieve inclusive participation.

13. Conclusion

With major benefits including greater transparency, efficiency, and real-time reporting, the digitization of tax systems has completely changed how governments and corporations handle tax compliance.

A complex array of difficulties, such as skill shortages, legal and regulatory obstacles, server and internet infrastructure problems, and cybersecurity threats, have been brought about by this change. These difficulties are more noticeable in developing nations like India, where disparities in infrastructural development, digital literacy, and technical readiness erect further obstacles.

In order for digital tax systems to reach their full potential, stakeholders must work together to overcome these obstacles. Governments need to make investments in a strong technology infrastructure, simplify their legal systems, and establish uniform, transparent policies. On the other hand, both individuals and businesses must embrace innovation in tax compliance procedures and give digital literacy first priority.

To carry this momentum forward, the following are proposed recommendations:

- Enhance infrastructure in the underserved regions via public-private partnerships.
- Offer multilingual, user-friendly interfaces to support diverse populations.
- Implement sound grievance redressal mechanisms to foster trust.
- Incorporate stronger data privacy paradigms.
- Pursue further taxpayer education using webinars, workshops, and mobile apps.

By supporting these pillars, India can further reinforce its taxation system, facilitating sustainable fiscal development and a more equitable society.

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