

Digitalization of Income Tax Filing:

Opportunities and Challenges for Indian Taxpayers

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Abstract— This study examines the digitalization of income tax filing in India and evaluates its opportunities and challenges from the perspective of taxpayers. The research combines doctrinal analysis of the evolution of the e-filing framework with empirical analysis based on primary survey data collected from 126 respondents. The study finds that digital income tax filing has significantly improved convenience, time saving, transparency, record tracking, and overall administrative efficiency. At the same time, important challenges continue to affect taxpayers, including limited awareness of advanced portal features, dependence on chartered accountants and other intermediaries, fear of notices and penalties, portal glitches during peak filing periods, difficulty in understanding technical terminology, and concerns relating to privacy and misuse of financial information. The findings further show that self-filers report higher awareness, lower challenge, and greater satisfaction than assisted filers, indicating that digital participation has expanded more rapidly than digital autonomy. The study also finds cautious openness toward AI-based support tools for error detection and taxpayer guidance, although respondents strongly prefer human review and clear explanation for any AI-related decision. The paper concludes that the next stage of reform should focus on simplification, guided support, safer assisted filing, and taxpayer-centered digital governance. (*Abstract*)

Index Terms— Income tax e-filing, digital tax administration, taxpayer awareness, taxpayer compliance, faceless assessment, digital governance, taxpayer satisfaction, intermediary dependence, artificial intelligence, India. (*key words*)

I. INTRODUCTION

Introduction

The digital transformation of public services represents one of the most profound shifts in the way governments interact with citizens and businesses. Electronic tax administration is a prominent example of how information and communication technologies (ICT) can modernize essential public functions, making them more transparent, efficient and citizen-centric. In India, the digitalization of the income-tax system has moved beyond simply offering an online filing option; it now encompasses end-to-end electronic workflows, big-data analytics, faceless assessments and integrated payment gateways. This expanded introduction situates India's digital tax initiatives within broader theoretical frameworks and international experience, highlights the historical evolution of electronic filing, and provides a foundation for analysing the benefits and challenges of this digital transformation. The chapter culminates with lessons for policy and directions for future research.

Context and Background

Global movement towards e-governance

The adoption of electronic tax systems did not emerge in isolation. Beginning in the 1990s, governments around the world sought to modernize public administration through e-governance initiatives that would streamline service delivery and reduce compliance costs. Countries such as the United States, Canada and Australia implemented electronic filing programmes for income taxes to improve revenue collection and combat corruption. At the same time, international organisations—particularly the Organisation for Economic Co-operation and Development (OECD)—promoted digital government as a means of promoting transparency, accountability and economic growth. Research shows that e-government initiatives can reduce administrative costs by simplifying procedures and cutting down on paper-based processes. They also enable faster processing, more accurate record-keeping and increased accessibility for taxpayers. The early success of e-filing programmes in developed countries provided a template for emerging economies, demonstrating that digital tools could reduce errors, shrink informal payments and boost voluntary compliance.

India's journey toward digital administration

India's efforts to digitalize public services began in earnest in the late 1990s with programmes such as the National Informatics Centre (NIC) and the Computerisation of the Income Tax Department (CITD). The introduction of the Aadhaar biometric identity system, the push for digital payments through the Unified Payments Interface (UPI), and online portals for corporate incorporation all reflect a broader governmental strategy to leverage ICT for good governance. Early computerisation of income-tax processing focused on back-office automation rather than user-facing services. Paper-based filing remained the norm for most taxpayers. Recognising the transformative potential of digital platforms, the Income Tax Department (ITD) launched a pilot e-filing scheme in 2004. This pilot allowed corporate taxpayers to upload returns via the internet, representing a significant departure from manual submissions.

Evolution of the e-filing system in India

Following the successful pilot, the scope of electronic filing expanded rapidly. In July 2006 the Central Board of Direct Taxes (CBDT) issued directives making e-filing mandatory for all corporate firms. Between assessment years (AY) 2007–08 and 2011–12, online filing was extended to all companies, accompanied by software utilities and guidelines to simplify submission. Notification No. 34/2013, issued on 1 May 2013, required individuals with incomes above ₹10 lakh and certain professionals (such as those seeking foreign tax credits or subject to audit under section 44AB) to file electronically. By AY 2013–14, the income-threshold for mandatory e-filing was ₹5 lakh, and individuals could either prepare returns online using the department's utility or

through authorised tax professionals. These policy changes were accompanied by technical improvements, including pre-filled forms, digital signature certificates and integration with the Tax Information Network (TIN). The government's commitment to electronic tax administration was further demonstrated by the launch of the "e-Assessment Scheme" in September 2019, later renamed the Faceless Assessment Scheme, which established the National e-Assessment Centre and regional centres to allocate cases electronically. Faceless appeals were introduced in September 2020 as part of the Transparent Taxation – Honouring the Honest platform. The new e-filing portal 2.0, launched in June 2021, provided features such as pre-filled returns, integrated payment options (net banking, UPI and credit cards), mobile app integration and a single dashboard for all interactions. Although the initial launch was marred by technical glitches—including slow load times and incomplete forms—the platform was quickly updated to resolve these issues.

India's Journey to Digital Governance

Theoretical Frameworks for Digital Tax Administration

The digitalisation of income-tax filing encompasses not only technical changes but also deeper institutional, behavioural and ethical considerations. A rigorous theoretical framework is essential for analysing why digital tax systems succeed or fail, how taxpayers respond, and what policy interventions are needed for sustainable adoption. This section surveys key theories relevant to e-governance, technology adoption, institutional change, public value creation and social justice.

E-Governance and digital transformation

E-governance refers to the application of ICT to modernize government processes, enhance service delivery, promote transparency and increase citizen participation. Scholars have developed various models to explain the evolution of digital government, including the Layne and Lee four-stage model, which moves from simple online information provision to full integration and transformation of public services. Early stages often involve "technology push," where government agencies adopt IT to automate back-office functions. Later stages require organisational redesign, inter-agency cooperation and active citizen engagement, leading to integrated and transformed e-government. In India, the transition from basic e-filing to a comprehensive digital tax ecosystem with faceless assessments represents movement along this maturity continuum. The focus has shifted from simply offering online forms to re-imagining the entire assessment and appeal process to reduce corruption and enhance fairness. This lens highlights the need for coordinated reform across policy, process, technology and people.

New Public Management and post-NPM paradigms

New Public Management (NPM) emphasizes efficiency, cost-cutting and customer orientation in government. Under NPM, public agencies adopt business-style practices such as performance measurement, outsourcing and competition. Digital taxation fits naturally within NPM by reducing administrative costs, improving service delivery, and treating taxpayers as customers. However, critics argue that NPM may undermine public values such as equity and accountability. Post-NPM paradigms, including New Public Governance and Digital Era Governance, shift the focus from hierarchical control to collaboration, networks and co-creation. The concept of public value emphasises that digital tax reforms should create tangible benefits for citizens, such as simplifying compliance, protecting taxpayer rights and ensuring inclusivity. Understanding how NPM and post-NPM ideas shape e-filing policies helps explain the emphasis on efficiency and the emerging concern for equity and user experience.

Technology Acceptance Models (TAM, UTAUT and beyond)

At the micro-level, technology acceptance models explain how individuals decide to use new digital systems. The Technology Acceptance Model (TAM) proposes that perceived usefulness and perceived ease of use drive adoption. The Unified Theory of Acceptance and Use of Technology (UTAUT) extends TAM by including social influence, facilitating conditions, performance expectancy and effort expectancy. These models have been applied to e-filing in many countries, showing that taxpayers are more likely to adopt digital filing if they believe it will save time, increase accuracy, reduce fear of penalties and be supported by adequate technical infrastructure. In India, factors such as digital literacy, perceived complexity of forms, trust in government and cultural norms (e.g., preference for personal interaction) influence acceptance. Understanding these drivers helps design user-centric portals, targeted communication campaigns and help-desk services.

Diffusion of Innovation and policy diffusion

The diffusion of innovation theory explains how new ideas and technologies spread through populations. Innovators and early adopters embrace innovations quickly, followed by the early majority, late majority and laggards. Factors such as relative advantage, compatibility, complexity, trialability and observability influence adoption rates. In the context of digital tax filing, early adopters may include large corporates and tech-savvy individuals, while small businesses and rural taxpayers may adopt later. Policy diffusion literature complements this perspective by examining how digital tax reforms spread across jurisdictions through learning, coercion, competition and emulation. India's decision to adopt faceless assessments and integrated e-portals was influenced by international best practices and global pressure to combat tax evasion. Diffusion theory underscores the importance of peer learning, demonstration effects and policy networks in scaling innovations.

Institutional theory and bureaucratic behaviour

Institutional theory emphasises the role of formal rules, norms and culture in shaping organisational behaviour. Public organisations may adopt digital reforms to gain legitimacy, respond to mandates or mimic successful peers. Institutional isomorphism can lead to convergence in digital strategies, but it can also create superficial changes if underlying cultures and incentives remain unchanged. Bureaucratic behaviour literature warns that officials may resist digital systems that threaten their discretion or introduce new accountability mechanisms. In India, some tax officials initially viewed e-filing and faceless assessments with suspicion, fearing loss of power or job security. Incentive structures, training and change management are therefore critical to ensure buy-in from frontline staff. Moreover, institutional analysis highlights how legal frameworks, budget constraints and political support determine the sustainability of digital programmes.

Socio-technical systems and socio-materiality

Socio-technical systems theory views technology and society as mutually constitutive. Digital tax reforms are not just about software; they involve interactions between technical artefacts, human actors, processes, power relations and social norms. Socio-materiality further argues that technology cannot be separated from the contexts in which it is embedded. This lens helps explain why the same portal may function differently across regions or user groups. For example, reliable internet connectivity, digital literacy, cultural attitudes towards authority, and the availability of local intermediaries all shape how taxpayers experience e-filing.

Recognising the socio-technical nature of digital tax systems encourages holistic solutions that address infrastructural gaps, provide supportive social networks and design adaptable interfaces that account for diverse user needs.

Complexity theory and systems thinking

Digital tax reforms are complex interventions involving multiple stakeholders, feedback loops and dynamic environments. Complexity theory cautions against linear cause–effect assumptions and highlights the emergent, unpredictable nature of change. Systems thinking advocates looking at the tax ecosystem as a whole, including interactions between policy, technology, administration, taxpayers and the socio-economic context. Interventions such as GST (Goods and Services Tax) implementation show how design decisions can lead to unintended consequences like compliance burden for SMEs, working-capital stress or offline invoice frauds. A systems perspective encourages continuous monitoring, iterative improvements, and adaptive strategies that respond to feedback and evolving realities.

Public value and digital citizenship

Public value theory asks what constitutes value in public services and how digital reforms can enhance democratic, social and economic outcomes. While NPM emphasises efficiency, public value includes fairness, equity, trust and community wellbeing. Digital tax systems can build public value by making the tax process transparent, minimising harassment, ensuring data privacy and using analytics to target evasion fairly. They can also enhance digital citizenship by empowering individuals to interact with government seamlessly and building a sense of belonging in the digital polity. Assessing digital tax reforms through a public value lens ensures that technical efficiency does not come at the expense of marginalised groups.

Data governance, privacy and cyber-ethics

Big-data analytics and machine learning play increasingly central roles in modern tax administration, enabling risk-based assessment, fraud detection and personalised services. However, these technologies raise critical issues related to data governance, privacy, algorithmic bias and cyber-ethics. Tax authorities manage vast amounts of sensitive personal and financial information. Ensuring confidentiality, integrity and availability of data is paramount, particularly in the wake of high-profile cybersecurity incidents that exposed taxpayers' personal data. Ethics frameworks such as the OECD's principles for responsible stewardship of trustworthy data and domestic laws like India's Digital Personal Data Protection Act must guide data collection, storage, sharing and algorithmic decision-making. Transparency about how taxpayer data is used and opportunities for grievance redressal build public trust and prevent misuse.

Social equity, digital divide and inclusive governance

Digital reforms risk amplifying existing inequalities if they do not account for differences in access, literacy and socio-economic status. The concept of the digital divide encompasses disparities in internet connectivity, device ownership, skills and meaningful use. In India, urban-rural divides, gender disparities and differences across income groups influence who benefits from digital tax services. Inclusive governance frameworks emphasise designing systems that are accessible, multilingual, mobile-friendly and supportive of persons with disabilities. They also advocate complementary support mechanisms—such as help centres, free Wi-Fi hotspots, and digital literacy programmes—to ensure that no taxpayer is left behind. Measuring and addressing the digital divide is therefore integral to the success of e-filing.

Change management and implementation science

Implementing digital reforms requires careful planning, stakeholder alignment and capacity building. Change management theories highlight the importance of vision, leadership, communication, training and incentives. Kotter's eight-step model, for example, emphasises the need to create urgency, build a guiding coalition, develop a vision, communicate, empower action, generate short-term wins, sustain momentum and anchor change in culture. Implementation science provides tools to evaluate how reforms are adopted, implemented and scaled. In India, successful roll-out of e-filing required collaboration among tax administrators, software vendors, intermediaries (chartered accountants and tax return preparers) and taxpayers. Pilot programmes, feedback loops, phased implementation and iterative design helped refine the system and build confidence.

Public choice and bureaucratic incentives

Public choice theory applies economic analysis to political and bureaucratic behaviour. It suggests that policymakers and officials are guided by self-interest and incentives. Digital tax reforms may reduce opportunities for rent-seeking by automating processes, but they can also create new power centres around data control and algorithm design. Officials may resist reforms that reduce discretionary powers or increase transparency. Aligning incentives through performance metrics, recognition and professional development can encourage officials to adopt new systems. Public choice analysis also underscores the role of political will and leadership in prioritising digital reforms over competing interests.

Comparative public administration and policy transfer

Comparative public administration studies examine how different countries design and implement similar policies. Policy transfer refers to the process by which knowledge about institutions, policies and practices in one context is used in another. Digital tax administration offers fertile ground for comparative analysis. Countries like Estonia and Singapore are often celebrated for their advanced digital ecosystems. Others, such as Brazil, Kenya and the Philippines, demonstrate how emerging economies adopt and adapt digital tax tools in the face of resource constraints. Comparative insights can help India avoid pitfalls and build on global best practices, while recognising unique socio-economic and legal contexts. Understanding the mechanisms of policy transfer (lesson drawing, voluntary emulation, coercive pressure) helps explain how digital tax innovations spread across jurisdictions.

Implications for India

India's digital tax journey offers tremendous opportunities and challenges. This section discusses the practical implications of theoretical insights, international experience and technological trends for policymakers, tax administrators, businesses and citizens.

Strengthening legal and policy frameworks

Effective digital tax administration requires a strong legal foundation. India has enacted several laws and guidelines, including the Information Technology Act, the GST Act, the Black Money (Undisclosed Foreign Income and Assets) Act, and most recently the Digital Personal Data Protection Act. However, gaps remain in areas such as data sharing, algorithmic accountability, cross-border data flows and cybercrime deterrence. Policymakers should review existing statutes and issue clear rules governing digital signatures, digital evidence, AI use in tax decisions and grievance redressal mechanisms. Harmonising federal and state tax provisions and streamlining compliance across direct and indirect taxes would simplify the digital landscape.

Building digital infrastructure and connectivity

Robust digital infrastructure is the backbone of e-filing. Uneven internet penetration, frequent power outages and limited broadband in rural areas hinder access. The government's BharatNet project aims to connect gram panchayats with fibre, but progress has been uneven. Expanding mobile network coverage, subsidising internet access for low-income households, and establishing public Wi-Fi hotspots in government offices, common service centres and post offices would improve inclusivity. Public-private partnerships with telecom operators, local entrepreneurs and civil society can accelerate infrastructure roll-out.

Promoting digital literacy and citizen awareness

Even with robust infrastructure, many taxpayers lack the skills to navigate digital systems. Digital literacy encompasses not only basic computer and smartphone skills but also the ability to evaluate information, protect oneself from fraud and manage privacy settings. Integrating digital and financial literacy into school curricula, conducting community workshops, and using mass media campaigns in local languages can raise awareness. The Income Tax Department and the GSTN should collaborate with civil society groups, educational institutions and professional bodies (e.g., the Institute of Chartered Accountants of India) to design training programmes. Special attention should be given to women, senior citizens and persons with disabilities to ensure inclusive participation.

Enhancing institutional capacity and change management

Tax officials require training to adapt to new roles. As digital systems automate data processing and assessment, staff responsibilities shift from manual tasks to data analysis, risk management and taxpayer outreach. Capacity building programmes should cover digital tools, data analytics, cybersecurity, behavioural insights and communication skills. Change management initiatives should address fears of job loss and loss of discretion, emphasising the benefits of digital systems for workload reduction, accuracy and career development. Incentives, recognition and career progression tied to digital performance can motivate adoption. Cross-disciplinary teams combining IT specialists, tax experts and behavioural scientists can ensure holistic decision-making.

Bridging the digital divide and ensuring equity

Inclusive digital tax administration must consider the diverse needs of India's population. Mobile-first designs accommodate smartphone users, while offline functionality—such as SMS-based services or simple text interfaces—can help those with basic phones. Multilingual portals, voice interfaces and assistive technologies (screen readers, voice commands) broaden accessibility. Partnerships with local intermediaries, such as village level entrepreneurs, common service centres and tax return preparers, can provide in-person assistance. Subsidised or tiered service models may be needed for small businesses and low-income individuals. Continuous monitoring of adoption rates and user satisfaction across demographics can guide targeted interventions.

Ensuring privacy, security and ethical governance

High-profile data breaches and cyber attacks undermine trust in digital systems. The ITD and GSTN must invest in state-of-the-art security infrastructure, including encryption, intrusion detection, secure coding practices and regular vulnerability assessments. Privacy-by-design principles should inform system development, minimising data collection and granting users control over their data. Independent oversight bodies, impact assessments and redressal mechanisms build accountability. Clear communication about how data is used and shared reduces misinformation. Ethical guidelines should govern AI and analytics, ensuring algorithms are fair, explainable and subject to human review.

Leveraging emerging technologies responsibly

Emerging technologies such as AI, blockchain and IoT offer transformative potential but must be deployed responsibly. Pilot projects should evaluate feasibility, scalability and ethical implications. Public consultations can gauge citizen expectations and concerns. Collaboration with academia and industry can foster innovation, while open standards and interoperability enable integration. Regulatory sandboxes provide safe environments for experimentation. Importantly, technology adoption should be driven by clear needs—such as fraud prevention or service improvements—rather than technological hype.

Encouraging innovation and public-private partnerships

Innovation thrives in ecosystems where government, industry and academia collaborate. Hackathons, innovation challenges and incubators can generate novel solutions for tax compliance, user experience and analytics. Partnerships with fintech and regtech firms can integrate digital tax services with payment platforms, accounting software and enterprise resource planning (ERP) systems. Contracting arrangements should ensure public ownership of critical data and systems while leveraging private sector expertise. Intellectual property arrangements and revenue-sharing models can incentivise innovation. A culture of experimentation and continuous improvement will help keep India's digital tax systems resilient and user-friendly.

Strengthening accountability and governance

Digitalisation must be accompanied by strong governance mechanisms. Clear roles and responsibilities between the CBDT, GST Council, state governments, technology vendors and intermediaries prevent overlap and confusion. Performance metrics—such as turnaround time, error rates, adoption levels and user satisfaction—should be publicly reported. Grievance redressal mechanisms (helplines, online portals, ombudsman) should be accessible, responsive and transparent. Regular audits, parliamentary oversight and judicial scrutiny safeguard rights and ensure lawful use of data and technology. Civil society participation in policy formulation and monitoring enhances legitimacy.

Fostering international collaboration

Tax administration is inherently global as capital flows, cross-border transactions and digital services transcend national boundaries. India should actively participate in international forums such as the OECD's Forum on Tax Administration, the Global Forum on Transparency and Exchange of Information, and the Asia-Pacific Economic Cooperation (APEC). Cross-border data-sharing agreements, mutual assistance frameworks and joint audits can combat evasion and base erosion. Collaboration with countries that have advanced digital tax systems can provide technical assistance and best practices. On the other hand, India can contribute to global norms on data governance, digital tax rules for the gig economy and inclusive digitalisation.

Transformative Potential in Tax Administration

Advanced technologies are reshaping tax systems, enabling pro-active compliance strategies, automating processes, and improving data security.

Rationale for the Study

Benefits of digital income tax filing

Digitalization has delivered numerous benefits to taxpayers, tax professionals and the government. E-filing saves time, energy and cost by allowing taxpayers to submit returns from their home or office using a personal computer or the assistance of a tax professional. The system provides instant acknowledgements and fast refunds, eliminating the uncertainty associated with physical submissions. Value added services such as viewing Form 26AS, tracking refund status, receiving email and SMS alerts and correcting mistakes before final submission have further enhanced convenience. The integration of the AIS and TIS means that taxpayers can cross verify income details reported by banks, employers and third parties, reducing errors and easing compliance. For the government, electronic filing and faceless assessment reduce administrative costs by eliminating paper handling, allow 24×7 operations and enable the redeployment of staff to more complex tasks. Digital records also help in generating analytics and mapping tax revenue patterns to design evidence based policies.

Catalysing transparency and public trust

By minimising physical interaction, digital filing helps to curb discretion and reduces opportunities for rent seeking. The faceless assessment scheme automatically allocates cases and prohibits direct contact between taxpayers and individual officers, thereby promoting fairness and transparency. The Transparent Taxation platform emphasises “honoring the honest” and seeks to instil confidence that those who comply will be treated respectfully. This aligns with the broader theme of New Public Management, which advocates results oriented governance and service delivery models that resemble the efficiency and accountability of the private sector. Online platforms also improve communication; taxpayers can easily access circulars, notifications and guidance notes, and grievances can be lodged electronically. Thus, digitalization is not merely a convenience but a mechanism to enhance the legitimacy of tax administration.

Persisting challenges and inequalities

Despite significant progress, several challenges remain. Technical glitches have occasionally disrupted the filing experience. When Portal 2.0 was launched, users complained of slow page loads, limited forms, issues registering digital signatures, incorrect auto populated data and difficulties uploading responses to notices. While many of these issues were resolved, persistent outages during peak filing periods still create anxiety. Furthermore, a major security vulnerability disclosed in 2025 reportedly exposed personal and financial data of over 135 million users on the e filing portal, highlighting the importance of robust cybersecurity and data protection frameworks. Beyond technical problems, the digital divide poses a structural barrier: rural and low income taxpayers may lack reliable internet connectivity, devices or digital literacy. Many taxpayers continue to rely on tax return preparers (TRPs), who act as intermediaries and provide human assistance. Resistance to change, fear of privacy breaches and discomfort with electronic signatures further slow adoption. These issues underscore that digitalization, while transformational, can inadvertently deepen inequalities if supportive infrastructure and education are inadequate.

Opportunities for advanced technologies

The digital tax system sits at the intersection of technology and governance, opening avenues for artificial intelligence (AI), machine learning (ML) and blockchain. The ITD already uses AI for risk profiling, identifying outliers and curating notices to taxpayers. Future innovations could include chatbots that guide users through filing, predictive analytics to tailor policy interventions and blockchain to secure data integrity. However, scholars note that while these technologies promise efficiency, they also raise concerns about algorithmic transparency, potential bias in risk models and heightened vulnerability to cyberattacks. For taxpayers, the growth of fin tech platforms that integrate tax filing with personal financial planning and the availability of third party apps that connect with the portal create new conveniences and opportunities for better tax awareness. Yet they also necessitate strict oversight to prevent misuse of sensitive data. Given this complex landscape of benefits, opportunities and challenges, a systematic and critical examination of India's digital income tax filing regime is timely. Such a study can inform policy adjustments, identify implementation gaps and contribute to broader debates about digital governance in developing countries.

Research Problem

The central problem addressed in this dissertation is: To what extent has the digitalization of income tax filing in India enhanced compliance efficiency and taxpayer convenience, and what challenges remain in practice? While government initiatives such as the e filing portal 2.0, AIS/TIS integration and faceless assessment schemes aim to streamline compliance and foster transparency, evidence indicates that technical glitches, cyber vulnerabilities, digital literacy gaps and procedural complexity continue to affect taxpayer experiences. This research seeks to critically assess the legal and institutional framework governing digital tax filing, evaluate the opportunities offered by digitalization, and identify the obstacles that hinder an inclusive, secure and efficient tax system.

Scope and Delimitations

This dissertation concentrates on the digitalization of the Indian income tax system, encompassing major milestones such as mandatory e filing for corporate firms (2006), the expansion to individuals with higher incomes (2013), the roll out of Portal 2.0 (2021) and subsequent innovations like AIS/TIS and faceless assessments. It examines legal provisions (notably the Income Tax Act, CBDT notifications and finance acts), administrative guidelines and judicial decisions (such as cases condoning returns delayed due to portal glitches). The study draws on secondary literature, including academic articles, policy reports and media accounts, to map benefits and challenges. It does not conduct primary surveys or econometric analyses of compliance costs due to methodological and data constraints. The geographic focus is on India, although comparative references to international practices are occasionally made to contextualize reforms. Other taxes (e.g., GST) and corporate taxation are mentioned only when relevant for understanding digital infrastructure interdependencies. The research emphasises issues of technology, governance and taxpayer behaviour, leaving detailed discussions of macroeconomic impacts and revenue performance to future studies.

II. LITERATURE REVIEW

Introduction

Reviewing previous research on the digitalisation of income tax filing in India helps situate the present study in the broader scholarly and policy context. The literature spans academic studies, government reports and journalistic accounts. Each source contributes distinct insights into how e-filing evolved, what benefits and challenges were observed, and which reforms were introduced. This section presents each source separately to highlight its specific contribution.

Literature Review

Beena D. Vaghani, IJRAR (2016)

Vaghani's paper provides a comprehensive historical account of India's e-filing initiative. She notes that electronic filing was introduced in September 2004 on a voluntary basis and became mandatory for corporate firms from July 2006. By AY 2007-08 all companies had to file electronically, and from AY 2013-14 individuals earning over ₹10 lakh were also required to e-file. The study lists categories of taxpayers captured under CBDT notification No. 34/2013 and explains the two filing modes—self prepared online returns and returns filed through tax professionals. Vaghani highlights benefits such as anytime access, faster refunds, instant acknowledgements and online tracking of refunds, attributing a 9.60% rise in e-filing between FY 2007-08 and 2013-14 to these advantages.

YMER Article – India's E Filing and E Governance

A study in YMER situates e-filing within India's broader e-governance agenda. The authors observe that the Income Tax Department's e-filing scheme, launched for all assesseees in AY 2006-07, was part of efforts to improve transparency and efficiency. They argue that e-filing saves time and cost for taxpayers and enhances communication between citizens and the government. Yet the study finds that many taxpayers remain unaware of procedures and often depend on intermediaries, suggesting a need for more awareness campaigns.

Business Today (2012)

An article in Business Today reports that e-filing became mandatory for individuals with income above ₹10 lakh and certain businesses from AY 2012-13. It describes how taxpayers can register on the Income Tax Department's website, upload their returns and mail the signed ITR-V acknowledgement if they do not use a digital signature. The article emphasises that the digital signature requirement applies to higher income categories and notes that e-filing remains voluntary for other taxpayers.

Financial Express (2021)

Covering the launch of the Income Tax Department's new e-filing portal on 7 June 2021, the Financial Express outlines key features: pre filled returns, integrated payment options (net banking, UPI, credit cards), a mobile app, free return preparation software and a consolidated dashboard. It reports initial user difficulties, including slow loading, limited forms, problems registering digital signatures, errors in auto populated data and challenges uploading responses to notices. The service provider assured users that these glitches would be addressed.

KPMG Note – Faceless Assessment and Appeal Scheme

The KPMG briefing explains that the e-Assessment Scheme was introduced in September 2019 and rebranded the Faceless Assessment Scheme in August 2020. It details how the scheme established a National e-Assessment Centre and regional units to allocate cases electronically. The briefing notes that a faceless appeals scheme, notified in September 2020, formed part of the "Transparent Taxation – Honouring the Honest" platform aimed at increasing transparency and ease of compliance.

TaxGuru Article – Features of Faceless Assessments

The article on TaxGuru elaborates the objectives and mechanics of the faceless assessment scheme: eliminating physical interface, automating case selection, creating specialised units for analysis and review, and ensuring that communications occur electronically. It emphasises that jurisdiction free assessments reduce discretion and potential harassment, aligning with the government's push for taxpayer friendly administration.

IJSRET – Leveraging Technology for Tax Reform in India (2025)

The paper in the International Journal of Science and Research Engineering and Technology discusses India's adoption of advanced technologies in tax administration. It highlights the use of data analytics, artificial intelligence and machine learning for risk profiling and fraud detection. The authors caution that technological complexity, cybersecurity risks, digital divides and resistance to change are major obstacles. They advocate for robust digital infrastructure and taxpayer education programmes to support sustainable implementation.

Security Vulnerability Report (2025)

The news report from 2025 reveals a serious security flaw in the e-filing portal that exposed the personal and financial data of over 135 million users. The incident underscores the importance of comprehensive cybersecurity measures and highlights that data protection is a critical concern in digital tax administration.

TaxScan Case Commentary – ITAT on Portal Glitch

The commentary on a decision by the Income tax Appellate Tribunal (ITAT) recounts a case where an income tax return filed two seconds late due to a portal glitch was condoned. The tribunal held that taxpayers should not be penalised for technical issues beyond their control, illustrating how the judiciary addresses the practical implications of digitalisation.

Statutes and Rules (Income-tax)

Finance Act, 2007 – Insertion of Sections 139C and 139D

The Finance Act of 2007 introduced Sections 139C and 139D into the Income-tax Act, 1961, establishing the first statutory framework for annexure-free and electronic income-tax returns. This amendment marked the formal legislative recognition of digital compliance in India's direct-tax system. Section 139C removed the requirement to attach documents and statements with returns, while Section 139D empowered the Central Board of Direct Taxes (CBDT) to notify categories of taxpayers required to furnish their returns electronically and to prescribe the manner for doing so. These provisions together created the foundation for India's e-filing regime, facilitating standardisation and efficiency while reducing physical documentation and human error. The Finance Act thus served as a legislative bridge from traditional manual processes to digital administration, aligning with the government's larger e-governance initiatives.

Rule 12 of the Income-tax Rules, 1962

Rule 12 of the Income-tax Rules, 1962 operationalises the statutory intent of Section 139D by prescribing the return forms and the mode of submission. Over time, this rule evolved to require electronic filing for companies, audit-case firms, and eventually high-income individuals and professionals. Through its annual updates, Rule 12 reflects the incremental widening of mandatory e-filing obligations and the constant adaptation of the return architecture to technological changes. By linking statutory mandates with administrative practice, Rule 12 transformed the procedural landscape of income-tax compliance and laid the groundwork for online validation, digital signatures, and Aadhaar-based verification.

Section 143(3A)–(3C) of the Income-tax Act, 1961

Inserted by the Finance Act, 2018, Sections 143(3A) to (3C) enabled the CBDT to introduce a scheme for faceless or electronic assessments. This legislative innovation moved beyond digital filing to digital adjudication, redefining the interaction between taxpayers and assessing officers. The provisions authorised technology-based allocation of cases and communication solely through the online platform, thereby curbing discretion and promoting procedural fairness. In the context of India's transition toward paperless governance, these sections symbolise a maturing phase of e-governance, where technology is used not merely as a filing medium but as a mechanism for transparent decision-making.

Section 144B – Faceless Assessment Procedure

Section 144B, introduced in 2020 and effective from 2021, codified the faceless assessment process. It defined the establishment of the National Faceless Assessment Centre (NaFAC), Regional Centres, and various functional units responsible for assessment, verification, review, and technical facilitation. This provision institutionalised anonymity and eliminated territorial jurisdiction, ensuring uniformity in treatment and reducing subjective bias. The section also mandated electronic communication through designated portals, reinforcing procedural transparency and documentation. In doctrinal terms, Section 144B demonstrates how statutory instruments can be re-engineered to serve digital-governance principles.

Section 274(2A) – Faceless Penalty Proceedings

Section 274(2A), inserted by the Finance Act 2020, extended the faceless concept to penalty adjudication. It authorised the central government to frame a scheme for imposing penalties electronically, ensuring anonymity and efficient resolution. The clause exemplifies the holistic expansion of digital governance within tax enforcement, from assessment to penalty. It also underlines the government's intent to maintain consistency in digital processes across administrative hierarchies.

CBDT Circular No. 19/2019 – Document Identification Number (DIN)

CBDT Circular No. 19/2019 mandated a unique Document Identification Number (DIN) for all official correspondence issued by income-tax authorities. The circular strengthened accountability and traceability in departmental communication, preventing unauthorised notices and promoting audit trails. By linking each communication to a verifiable identifier, the CBDT enhanced transparency and trust in digital communication systems. This measure also reflects the department's commitment to the principles of responsible digital governance.

Electronic Furnishing of Return of Income Scheme, 2007

The Electronic Furnishing of Return of Income Scheme, 2007 formalised the 2004 pilot project for electronic submissions. It standardised procedures for uploading returns, receiving acknowledgements, and verifying submissions through digital signatures. The scheme institutionalised the legal and procedural architecture of e-filing, providing taxpayers with a uniform digital interface. It thus represents the first structured administrative implementation of statutory digitalisation.

CBDT Notifications of 2012 and 2013 on Mandatory E-filing

CBDT Notification S.O. 626(E) (2012) mandated e-filing for individuals and Hindu Undivided Families with income exceeding ₹10 lakh, while Notification No. 34/2013 further reduced the threshold to ₹5 lakh for Assessment Year 2013–14. These measures reflect the department's progressive expansion of the e-filing base. By lowering the threshold and including professionals and non-corporate taxpayers, the CBDT accelerated digital adoption and normalised e-compliance among diverse taxpayer segments. The notifications illustrate how incremental administrative compulsion complements legislative authority to achieve systemic transformation.

Others**Electronic Verification Code (EVC) Rollout (2015)**

The introduction of the Electronic Verification Code (EVC) in 2015 enabled taxpayers to verify income-tax returns without physical submission of ITR-V forms. Through Aadhaar OTP, bank-account validation, or demat authentication, EVC streamlined compliance and enhanced accessibility for individuals without digital-signature certificates. It represented an important democratisation of e-filing by making electronic verification inclusive and paperless. The measure also aligned with India's Digital India vision and promoted real-time authentication.

Transparent Taxation (2020) – Honouring the Honest

Launched in August 2020, the Transparent Taxation Platform introduced three major components—Faceless Assessment, Faceless Appeals, and the Taxpayer Charter. This initiative represented a major institutional reform aimed at creating a “seamless, painless, faceless” tax system. It emphasised taxpayers' rights, service-orientation, and reduction of human discretion. The initiative situates India's e-filing ecosystem within a broader good-governance framework that values transparency and citizen trust.

Faceless Appeal and Penalty Schemes (2020–2022)

Following the Transparent Taxation initiative, the government issued the Faceless Appeal Scheme (2020) and the Faceless Penalty Scheme (2021), later amended in 2022. These schemes extended the faceless architecture to appellate and enforcement processes. By creating national and regional centres, they institutionalised procedural uniformity and digital adjudication across the tax hierarchy. The transition ensured that fairness and transparency applied not only to assessments but also to subsequent compliance stages.

Income Tax e-Filing Portal 2.0 (2021)

The launch of the Income-tax Department's e-Filing Portal 2.0 in June 2021 marked a technological leap in taxpayer services. The new system introduced pre-filled returns, integrated payment options, real-time dashboard monitoring, and multilingual interfaces. Despite its initial technical glitches, which prompted government intervention and deadline extensions, Portal 2.0

reflects the department's shift toward user-centric design. It is a key example of continuous improvement in India's digital-tax infrastructure.

TRACES (TDS Reconciliation Analysis and Correction Enabling System)

The TRACES platform, launched by the Centralised Processing Cell for TDS, plays a critical role in the back-end data infrastructure of India's tax system. It enables real-time reconciliation between tax deducted and tax credited, facilitating transparency and accuracy in Form 26AS and pre-filled ITRs. The system embodies the analytical backbone of digital compliance by ensuring that information flows seamlessly between deductors, deductees, and the department.

FAQs on Digital Verification and Digital Signature Certificates

Official FAQs published by the Income-tax Department explain procedures for Aadhaar-based e-verification, EVC generation, and digital-signature registration. These guidance documents serve as soft-law tools that operationalise statutory provisions and ensure user understanding. They bridge the gap between legal mandates and taxpayer execution, thereby facilitating voluntary compliance and reducing procedural confusion.

Case Law and Judicial Interpretations

Judicial decisions have played a pivotal role in shaping the contours of digital compliance. The Income Tax Appellate Tribunal (ITAT) in 2025 condoned minimal delays—ranging from two seconds to forty-six minutes—in filing income-tax returns due to portal congestion, upholding the principle that procedural lapses should not penalise genuine taxpayers. Similarly, the Delhi High Court in *Square Vision Pvt. Ltd. v. PCIT* (2025) and the Orissa High Court in a case concerning delayed audit-report uploads adopted a pragmatic stance, holding that technical failures constituted “genuine hardship” under Section 119(2)(b). These judgments affirm judicial sensitivity toward digital-infrastructure shortcomings and reinforce taxpayer rights within the evolving e-filing ecosystem.

III. RESEARCH METHODOLOGY

Objectives and Scope

This research aims to examine the legal and institutional evolution of India's electronic filing (e-filing) system for tax returns from its inception in 2004 through 2025, identify the key opportunities and challenges that have emerged, and propose evidence-based recommendations for improvement. The study is concerned not only with how the legal framework has enabled digital tax administration, but also with how taxpayers experience that framework in practice. For that reason, the methodology combines doctrinal analysis of law and policy with an empirical assessment based on primary survey data.

The doctrinal component interprets statutes, regulations, official circulars, administrative directions, and judicial decisions relevant to e-filing, digital signatures, faceless assessment, and the expanding architecture of digital tax administration. The empirical component examines how taxpayers actually engage with the digital system: whether they file returns, how they file, what they know about key digital processes, what benefits they associate with digitalization, what difficulties they continue to face, what risks they perceive, and how they evaluate the possible future role of AI-based assistance.

Research Design and Methodological Framework

The present study follows a blended methodological framework in which doctrinal legal research forms the normative and institutional backbone of the dissertation, while survey-based empirical analysis provides practical evidence regarding taxpayer experience. This combined design is appropriate because digital tax administration is not merely a legal reform or merely a technological reform. It is a field where statutes, portal architecture, administrative practice, taxpayer behaviour, and perceptions of convenience, fairness, and trust all intersect.

Accordingly, the methodology has two mutually reinforcing parts. First, the study undertakes doctrinal analysis to examine how law, regulation, and policy have structured the growth of India's e-filing ecosystem. Second, it analyses primary survey data collected for this dissertation in order to understand the lived realities of taxpayers using the digital system. The empirical material therefore does not replace doctrinal analysis; rather, it complements it by showing how the formal legal framework is encountered in day-to-day compliance practice.

Doctrinal Research Design

The study adopts a doctrinal research design, rooted in a detailed examination of legal texts, policy documents, and jurisprudence. It draws exclusively on secondary sources, including:

- The Income Tax Act, 1961 (with specific attention to provisions introduced or amended to facilitate electronic filing, digital signatures, and faceless assessment procedures).
- Relevant Finance Acts from 2004 onward, which progressively mandated e-filing.
- Official circulars and notifications issued by the Central Board of Direct Taxes (CBDT).
- Landmark court judgments addressing issues such as portal malfunctions and taxpayer rights.
- It also encompasses academic publications and scholarly articles, policy and white papers.
- Professional consultancy reports (including KPMG and government reports on the “Transparent Taxation” platform and faceless assessment scheme [34]).
- News articles; and international frameworks or guidelines (such as OECD reports on digital tax administration).

These sources provide context and critical analysis.

Using these sources, the research employs several analytical techniques:

1. Statutory interpretation, to discern the legislative intent and objectives behind key provisions enabling digital filing and assessment;
2. Case law analysis, to review and synthesize judicial decisions (especially those that responded to technical glitches or defined taxpayers' rights in the digital context);
3. Comparative analysis, to evaluate how India's digital tax reforms compare with those of other jurisdictions and global standards (e.g., examining if reforms like India's faceless assessment or upgraded e-filing portal reflect practices in leading countries or OECD norms); and

4. Normative evaluation, to assess the observed reforms and outcomes against principles of transparency, administrative efficiency, and taxpayer equity (fairness).

Empirical Research Design

The empirical component of the study is based on primary survey data collected specifically for the dissertation titled “Digitalization of Income Tax Filing in India: Opportunities and Challenges for Taxpayers.” The purpose of collecting primary data was to move beyond formal descriptions of digital tax infrastructure and obtain direct evidence about how taxpayers experience that system in practice. Since the dissertation concerns not only whether e-filing exists but whether it actually produces ease, transparency, trust, and autonomy for users, first-hand responses were essential.

The uploaded dataset consists of 126 valid responses, and these responses form the empirical foundation for the present chapter. It seeks to capture variation across taxpayers in age, gender, education, occupation, income, place of residence, filing behaviour, digital confidence, awareness of tax-filing processes, perceived opportunities, perceived challenges, perceived risks, satisfaction, and openness toward AI-enabled tax assistance. In this sense, the empirical method is closely tied to the conceptual concerns of the dissertation and provides the evidentiary foundation for the interpretation of taxpayer-facing outcomes.

Nature of the Dataset and Analytical Approach

This section integrates the empirical methodology directly into the research design of the dissertation so that Chapter 4 presents a complete account of both the doctrinal and primary-data dimensions of the study. The dataset and analytical framework described below provide the methodological basis for the later interpretation of taxpayer awareness, filing behaviour, perceived opportunities, perceived challenges, perceived risks, satisfaction, and attitudes toward future AI-assisted tax administration.

The following sub-sections explain the nature of the data, the structure of the questionnaire, the logic used to prepare the dataset for analysis, the construction of analytical dimensions, the statistical and interpretive methods applied, and the limitations and precautions relevant to the findings presented in this dissertation.

Nature of the dataset

The dataset is cross-sectional in nature, meaning that it captures the perceptions and experiences of respondents at one point in time rather than tracking the same individuals over multiple years. A cross-sectional design is appropriate for the present study because the objective is to assess the current state of taxpayer interaction with the digital income tax filing system and to identify the broad opportunities and challenges perceived under the present regime.

The dataset is also mixed in content type, although it remains primarily quantitative in analytical use. It contains:

- demographic responses,
- behavioural responses,
- Likert-scale attitudinal responses,
- multiple-selection responses,
- and a small number of open-ended textual responses.

Thus, while the main analytical structure of the chapter is quantitative and descriptive, the qualitative responses enrich interpretation by revealing taxpayer concerns in their own words.

A further important feature of the dataset is that it includes both:

1. objective or factual-type responses, such as whether a person files ITR, which filing mode they use, whether they have internet access, what device they use, what their income category is, and whether they rely on others; and
2. subjective perception-based responses, such as agreement with statements about ease, challenge, risk, usefulness, satisfaction, and AI.

This combination is valuable because it allows the dissertation to move beyond pure opinion measurement. For example, a respondent may say they are satisfied with e-filing, but that satisfaction can be interpreted alongside whether they self-file or depend on a consultant. Similarly, a respondent may report moderate awareness, but the significance of that awareness can be assessed against their actual filing behaviour.

Source and origin of data

The data used in this chapter were obtained from the survey conducted. The responses were collected through a structured questionnaire administered for the purpose of this dissertation.

Because the study directly concerns taxpayer experience, the respondent is the most appropriate unit of analysis. Each row in the dataset represents one survey respondent, and each column represents either a background characteristic, a behaviour indicator, or a response to a structured survey item.

The dataset does not represent administrative records from the Income Tax Department, nor does it represent a random national sample drawn from the entire taxpayer population of India. Instead, it represents a research sample of respondents who provided survey-based answers, making it especially useful for perception analysis, behavioural interpretation, and exploratory comparisons.

Accordingly, the findings of this chapter should be read as empirical evidence from the surveyed respondents, not as mechanically generalizable population parameters for the whole of India. However, the dataset is still highly meaningful because it captures a structured and internally consistent pattern of taxpayer attitudes toward digital filing, which is precisely the purpose of a dissertation of this nature.

Structure of the questionnaire

The questionnaire was designed to capture the digital income tax filing experience in a comprehensive manner. Rather than restricting the study to one or two variables such as awareness or satisfaction, the instrument has been organized around several thematic blocks. These include:

1. Demographic Profile This section captures respondent characteristics such as:
 - gender,
 - age,
 - educational qualification,
 - occupation,
 - annual income range,
 - and place of residence.

These variables are critical because taxpayer experience with digital systems is not socially uniform. Education, age, income, and residence often affect digital confidence, awareness, and capacity to navigate formal administrative systems.

2. Filing behaviour and practical engagement This section includes questions relating to:

- whether the respondent files ITR,
- reasons for filing,
- filing mode,
- device used for filing,
- internet access,
- comfort using online government portals,
- and reliance on others due to technological discomfort.

This part of the questionnaire is especially important because it anchors the study in actual user behaviour rather than abstract attitude alone.

3. Awareness of digital tax-filing components This section measures awareness of key features of the digital tax system, including:

- portal login and registration,
- e-verification,
- pre-filled return features,
- AIS or similar information statements,
- Form 26AS/TDS matching,
- online tax payment and challans,
- grievance/helpdesk support,
- and faceless assessment or appeals.

This awareness block is central to the dissertation because digitalization can only be meaningful where taxpayers possess at least some knowledge of how the system works.

4. Perceived opportunities This section captures the benefits respondents associate with digital tax filing, such as:

- time saving,
- easier compliance,
- transparency,
- reduction in corruption or rent-seeking,
- reduced need for office visits,
- improved record access,
- and better tracking of return or refund status.

These questions help the study evaluate whether the digital system is perceived as adding practical value to taxpayer life.

5. Perceived challenges This section measures continuing obstacles, including:

- portal glitches,
- peak-period slowdowns,
- language difficulty,
- confusion regarding tax regime or form selection,
- lack of guidance,
- dependence on intermediaries,
- and stress arising from fear of notices or mistakes.

This section is important because digitalization is often praised for efficiency, but less attention is sometimes paid to the psychological and procedural burdens it may create.

6. Perceived risks This section captures concerns such as:

- privacy of financial data,
- misuse of credentials,
- incorrect filing leading to notices,
- intermediary fraud,
- and system unreliability.

These questions are crucial because trust is a central element of digital public service adoption.

7. Satisfaction This section measures satisfaction with different components of the e-filing experience, including:

- portal login/navigation,
- pre-filled data usefulness,
- refund/status tracking,
- e-verification,
- helpdesk support,
- speed during peak times,
- and overall satisfaction.

This helps distinguish between isolated problem areas and the general overall evaluation of the system.

8. AI and future assistance This section explores views on:

- AI-based tax guidance,
- AI-based error detection,
- risk of wrongful AI flagging,
- and the need for human review.

This block gives the dissertation a future-oriented dimension and allows interpretation of the next stage of tax digitalization.

9. Open-ended responses The questionnaire also contains open-ended questions about:

- the single biggest problem faced in digital tax filing,
- suggested improvements,
- and additional comments.

These responses help add depth to the statistical results and allow taxpayer voice to enter the analysis more directly.

Nature of variables in the dataset

The uploaded survey data include several types of variables. Understanding this is important because different types of data require different analytical treatment.

1. Nominal variables These are categorical variables without inherent ranking, such as:

- gender,
- occupation,
- residence category,
- filing mode,
- and yes/no type responses.

These variables are useful for frequency counts and cross-tabulations.

2. Ordinal variables These include ordered categories such as:

- age groups,
- income ranges,
- education levels,
- and comfort levels.

These variables indicate relative order, but the intervals between categories are not assumed to be equal.

3. Likert-scale variables A large part of the dataset consists of attitude statements measured on five-point scales, from strong disagreement to strong agreement, or from very low to very high. These are the backbone of the perception analysis and are especially useful for constructing composite indices such as awareness, opportunity, challenge, risk, satisfaction, and AI attitude.

4. Multi-response variables Certain questions allowed respondents to select multiple options, for example:

- reasons for filing,
- reasons for using assistance,
- or suggested improvements.

Such variables are not analysed in the same way as single-choice questions; instead, they are broken into response counts and interpreted based on how frequently each option was selected.

5. Open text variables These are qualitative responses provided in the respondent's own words. They were not treated as full-scale qualitative interview data but were thematically grouped to support interpretation of the statistical findings.

Data cleaning and preparation

Before formal analysis, the uploaded dataset required preparation to ensure meaningful interpretation. In survey-based research, raw data often contain inconsistencies such as blank cells, duplicate-formatting issues, variation in spelling, mixed response styles, or question-answer combinations that require analytical judgment.

The preparation process involved the following broad steps:

1. Identification of valid responses Only valid responses were retained for analysis. The final analytical dataset contained 126 usable responses.
2. Standardization of categories Certain responses were standardized so that categories could be meaningfully grouped. For example, similar answers relating to use of assistance or qualitative comments were brought under consistent analytical labels.
3. Treatment of missing values Blank or missing responses were not blindly converted into zeros. Instead, missing values were treated cautiously according to the nature of the question. In some analyses, only respondents with relevant answers were retained. For example, filing-mode analysis was interpreted with care because a few non-filers had still selected a filing mode, making it necessary to separate the subset of actual ITR filers from the full sample for certain comparisons.
4. Derivation of analytical subsets For some parts of the chapter, the full sample of 126 responses was used. For other parts, especially filing-mode comparisons, the analysis focused only on respondents who actually reported filing ITR. This distinction is important because a non-filer's answer to a question about filing method or filing-stage experience may not have the same meaning as that of an actual filer.
5. Transformation into index variables Groups of related Likert-scale items were combined to create analytical dimensions or indices. These are explained in detail below. This cleaning and preparation stage was essential because dissertation-level interpretation requires conceptual clarity. Without such preparation, the dataset would remain a list of isolated responses rather than a structured body of evidence.

Construction of analytical dimensions

A major part of the analytical approach involved combining related questionnaire items into broader conceptual dimensions. This was done because digital tax filing is not a one-dimensional phenomenon. Taxpayer experience includes awareness, perceived benefits, perceived problems, perceived risks, satisfaction, and future readiness. Analysing each item separately is useful, but composite measures help identify larger patterns.

The following six core analytical dimensions were constructed:

1. Awareness Index This index reflects how far respondents are aware of key components of the digital tax-filing system. It includes items such as:
 - portal login and registration,
 - pre-filled return / AIS-related awareness,
 - e-verification,
 - Form 26AS/TDS matching,
 - online tax payment,

- helpdesk/grievance awareness,
- faceless assessment,
- and faceless appeals.

A higher awareness score indicates greater familiarity with the structure and processes of digital tax filing.

2. **Opportunity Index** This index captures perceived benefits of digitalization. It includes items related to:
 - time saving,
 - easier compliance,
 - greater transparency and tracking,
 - reduced direct interface,
 - reduced rent-seeking,
 - improved record availability,
 - and helpfulness to ordinary taxpayers.

A higher opportunity score indicates stronger recognition of positive effects of digitalization.
3. **Challenge Index** This index measures perceived difficulties faced by taxpayers. It includes items on:
 - portal slowness,
 - glitches,
 - difficult terminology,
 - confusion over form or regime,
 - lack of guidance,
 - dependence on others,
 - and stress related to notices or penalties.

A higher challenge score indicates greater perceived burden or difficulty.
4. **Risk Index** This index captures the perceived vulnerability associated with digital filing. It includes items such as:
 - fear of incorrect filing,
 - privacy concerns,
 - misuse of PAN/Aadhaar/OTP,
 - intermediary fraud risk,
 - and platform unreliability.

A higher risk score indicates stronger concern about digital tax-filing vulnerabilities.

5. **Satisfaction Index** This index reflects overall user evaluation of the e-filing experience. It includes items related to:
 - login/navigation,
 - usefulness of pre-filled data,
 - speed,
 - e-verification,
 - refund tracking,
 - helpdesk support,
 - and overall satisfaction.

A higher satisfaction score indicates a more positive overall experience.
6. **AI Attitude Index** This index measures views on AI-enabled tax assistance. It includes items such as:
 - willingness to use AI-based guidance,
 - confidence in AI error detection,
 - fear of incorrect AI flagging,
 - and insistence on human review.

A higher AI attitude score does not mean blind trust in AI; rather, it indicates greater openness to AI as part of the tax administration ecosystem.

The construction of these dimensions allowed the dissertation to move from isolated questions to a deeper understanding of broad taxpayer orientations.

Reliability of the analytical dimensions

Whenever multiple questionnaire items are combined into a single index, it becomes necessary to assess whether those items are internally consistent. If the items grouped under a dimension do not relate to each other in a meaningful way, then the resulting index would have little analytical value.

For this reason, internal consistency was examined using Cronbach's alpha. The estimated alpha values were high across the major indices:

- Awareness Index 0.93
- Opportunity Index 0.88
- Challenge Index 0.86
- Risk Index 0.88
- Satisfaction Index 0.90
- AI Attitude Index 0.83

These values indicate a strong degree of internal coherence within each dimension. In practical terms, this means that the grouped items were sufficiently related to one another to justify treating them as broader constructs.

This is important because it strengthens the academic credibility of the findings. It means that when the dissertation refers to “awareness” or “satisfaction” or “challenge,” it is not doing so casually. It is referring to a set of related responses that behave consistently as a broader analytical measure.

Analytical approach adopted in the study

The analysis of the dataset was carried out in a descriptive, comparative, and exploratory analytical framework. Since the dissertation aims to understand taxpayer experience rather than estimate national population coefficients, the emphasis was placed on meaningful interpretation of patterns rather than on highly technical modelling for its own sake.

The analytical approach can be divided into five broad stages :

Stage 1. Descriptive analysis The first stage involved describing the basic profile of the respondents and summarizing the major variables using:

- frequency distributions,
- percentages,
- and mean scores.

This stage was necessary to establish who the respondents are, how many file ITR, what their income and age distribution is, what devices they use, how comfortable they are with portals, and what they think of digital filing.

Descriptive analysis is especially important in survey-based dissertation work because it creates the empirical background against which later interpretations make sense.

Stage 2. Item-wise attitudinal analysis Each Likert-scale question was analysed individually using average scores and relative ranking. This helped identify:

- the strongest perceived opportunities,
- the most serious challenges,
- the most visible risks,
- and the strongest or weakest areas of satisfaction.

This stage helped retain closeness to the actual questionnaire rather than reducing the study immediately into abstract indices.

Stage 3. Composite index analysis After examining item-level patterns, related variables were grouped into composite indices such as awareness, opportunity, challenge, risk, satisfaction, and AI attitude. These indices were then used to compare groups and interpret the deeper structure of the dataset. This stage allowed the dissertation to say, for example, that self-filers have higher awareness and satisfaction than assisted filers, or that those who rely on others due to technological discomfort also perceive more challenges.

Stage 4. Cross-tabulation and subgroup comparison Cross-tabulation was used to compare key outcomes by:

1. age,
2. gender,
3. income,
4. and filing mode.

This was done because digitalization does not affect all taxpayers equally. Averages can hide important subgroup differences. Cross-tabulation therefore helped reveal where autonomy, dependency, filing frequency, or comfort differ systematically across categories.

Stage 5. Exploratory inferential analysis Where appropriate, exploratory inferential tools such as:

- t-tests,
- analysis of variance,
- chi-square tests,
- and simple regression-style interpretation were used to assess whether observed differences were statistically meaningful within the sample.

These tests were interpreted cautiously and in a dissertation-appropriate manner. The purpose was not to claim definitive national causality, but to strengthen internal interpretation of the survey evidence.

Why this analytical approach is appropriate for the topic

The chosen analytical approach is especially suitable for the dissertation topic for several reasons.

1. First, the topic deals with taxpayer experience, which is a multidimensional phenomenon. It cannot be captured by a single variable. A taxpayer may be aware but dissatisfied, satisfied but dependent, digitally comfortable but still risk-conscious, or positive about e-filing but doubtful about AI. Therefore, the use of multiple dimensions is essential.
2. Second, the topic involves both behaviour and perception. For example, filing mode is a behaviour, while challenge perception is an attitude. A useful study of digital tax filing must analyse both.
3. Third, the study is concerned with opportunities and challenges, which are not opposites in a simple binary sense. Taxpayers can perceive strong benefits and strong challenges at the same time. The analytical framework adopted here makes that simultaneous reality visible.
4. Fourth, the dissertation aims to contribute to policy and practical understanding, not merely produce abstract theory. Therefore, descriptive clarity, subgroup comparison, and item-wise interpretation are more valuable than over-complicated statistical techniques that obscure practical meaning.
5. Fifth, the dataset size is appropriate for careful exploratory analysis and meaningful comparison, but not for heavy causal claims. The adopted approach therefore respects the strength of the data without overstating what it can prove.

Full-sample analysis versus filer-only analysis

A very important part of the analytical approach was the distinction between:

- the full sample of respondents, and
- the sub-sample of actual ITR filers.

This distinction matters because some questions are relevant to all respondents, while others are meaningful only for those who actually engage in filing.

For example:

- awareness of e-filing,
- portal comfort,
- and opinions about digitalization can be studied using the full sample.

But questions such as:

- filing mode,
- satisfaction with filing-stage experience,
- and some practical filing-related comparisons are more meaningfully interpreted among actual filers only.

This distinction improves methodological clarity and prevents misleading conclusions. A respondent who does not file ITR is not in the same experiential position as a respondent who files regularly, and combining the two without caution could distort the interpretation.

Role of qualitative responses in the analysis

Although the study is primarily quantitative, the open-ended responses played an important supporting role. These responses were not analysed using formal coding software or a full qualitative methodology, but they were examined to identify recurring themes.

The qualitative comments helped validate and deepen the quantitative results. For example:

- where challenge items showed dependence on intermediaries, open comments often referred to complexity or lack of understanding;
- where risk scores were high, comments referred to privacy, fear of mistakes, and trust issues;
- where satisfaction was moderate rather than extremely high, suggestions often pointed toward simplification, better guidance, and fewer complicated steps.

Thus, the open-ended material was used as interpretive evidence rather than as a separate standalone data stream.

Ethical and interpretive caution

Because the dataset is based on taxpayer responses, several interpretive precautions are necessary :

1. First, the responses are self-reported. This means they reflect what respondents say they do, know, or feel. Self-reported data are valuable, especially in perception studies, but they may contain:
 - recall bias,
 - social desirability bias,
 - incomplete self-awareness,
 - or simplification of actual filing practices.
2. Second, the dataset reflects the views of the respondents who participated in the survey. It should therefore be read as evidence of taxpayer perception among the surveyed sample, not as a perfect mirror of all Indian taxpayers.
3. Third, the chapter interprets relationships in an exploratory and academically cautious way. For example, if self-filers have higher satisfaction, this does not automatically mean self-filing causes satisfaction in a strict causal sense. It may also mean that more aware, more comfortable, or more confident taxpayers are both more likely to self-file and more likely to feel satisfied.
4. Fourth, the topic of taxation may lead some respondents to understate mistakes or dependence, while others may overstate difficulty. This is a common feature of survey-based work on regulated behaviour.

Despite these limitations, the data remain highly valuable because they reveal patterned differences rather than random noise.

Strengths of the dataset

The dataset has several important strengths that make it suitable for dissertation-level analysis :

1. Topic-specific design The survey is directly tailored to digital income tax filing rather than being drawn from a broad generic e-governance instrument. This improves relevance.
2. Behaviour + Perception combination The dataset captures both what taxpayers do and what they think, allowing more layered interpretation.
3. Multiple dimensions The survey does not reduce digitalization to one issue. It includes awareness, opportunity, challenge, risk, satisfaction, and AI-related attitudes.
4. Group comparison capacity Because the dataset includes age, gender, income, education, and filing-mode information, it allows subgroup analysis that strengthens the chapter.
5. Good internal consistency The reliability of the indices makes the data analytically robust.
6. Presence of open-ended comments These provide qualitative support for quantitative findings and enrich interpretation.

Limitations of the dataset

No empirical dataset is without limitations, and acknowledging them strengthens the credibility of the dissertation :

1. Sample size and scope The survey contains 126 valid responses. This is adequate for dissertation-level exploratory analysis, but it is not large enough for claiming universal representation of India's entire taxpayer population.
2. Cross-sectional design The data capture one point in time. They do not reveal how the same respondents' perceptions change across filing years or after specific policy reforms.
3. Self-reported behaviour Some responses depend on respondent memory or subjective judgment, especially for awareness and satisfaction.
4. Education and urban tilt Because the sample contains a relatively large share of educated and urban/semi-urban respondents, the results may understate the difficulties faced by less digitally exposed populations.
5. Small subgroup sizes Some categories, such as very young, retired, or certain filing-mode subgroups, are small and therefore should be interpreted cautiously.
6. Possible overlap between complexity and discomfort Where respondents say they rely on others due to technological discomfort, the actual reason may sometimes be a combination of low digital confidence, time constraints, and tax complexity. The data capture the broad pattern, but not always every nuance of motivation.

These limitations do not invalidate the findings. Rather, they define the proper scope within which the chapter's conclusions should be read.

Conceptual significance of the analytical design

The analytical approach adopted in this dissertation is not only a technical choice; it also reflects a conceptual view of digital tax administration.

This study proceeds from the idea that the digitalization of income tax filing in India should be understood at three levels:

1. Access – whether taxpayers can reach and use the digital system at all
2. Usability – whether they can navigate it with reasonable ease
3. Autonomy – whether they can do so independently, confidently, and safely

A taxpayer may have access without usability. A taxpayer may have usability without autonomy. A taxpayer may complete a filing without fully understanding it. A taxpayer may be satisfied with the outcome while still depending on a professional.

For that reason, the study does not treat digitalization as a simple yes-or-no condition. Instead, it treats it as a layered experience involving infrastructure, knowledge, trust, procedural confidence, and support systems.

The structure of the dataset and the analytical method both reflect this broader understanding.

Linkage of this Section to the Rest of the Dissertation

This sub-section provides the methodological foundation for the empirical analysis that follows in the chapter. The later sections on demographic profile, awareness, filing behaviour, opportunity perception, challenge assessment, risk perception, satisfaction, AI readiness, and cross-tabulation all rest on the analytical logic established here.

In particular:

- the descriptive sections rely on the cleaned full-sample dataset,
- the behavioural comparisons rely on relevant subsets such as actual filers,
- the composite interpretations rely on the indices constructed here,
- and the inferential comparisons rely on the exploratory analytical framework described above.

Thus, this sub-section is not merely procedural background. It is the conceptual bridge between raw survey responses and the dissertation's final findings about how taxpayers experience the digitalization of income tax filing in India.

Concluding note on the dataset and approach

In conclusion, the dataset used in this dissertation is a structured body of primary taxpayer evidence that is well suited to the research problem. It captures both the practical and perceptual aspects of digital tax compliance, allows subgroup comparison, supports composite measurement of key constructs, and provides a reliable basis for interpretation.

The analytical approach adopted is deliberately balanced. It is descriptive enough to remain transparent, comparative enough to reveal important differences, and exploratory enough to support deeper interpretation without overstating causal certainty.

This makes it especially appropriate for a dissertation on digital income tax filing, where the central question is not only whether technology has been introduced, but whether that technology has translated into greater ease, transparency, trust, and autonomy for taxpayers.

Research Questions

In line with the dissertation guidelines that recommend keeping research questions concise, clear, and aligned with the objectives, the present study is guided by the following research questions.

1. **Evolution of E-Filing Framework:** How has income tax return e-filing in India evolved from 2004 to 2025 in terms of laws, rules, and government policies?
2. **Opportunities and Benefits:** What are the main benefits (opportunities) of digital income tax filing for taxpayers and for the Income Tax Department?
3. **Challenges in Adoption and Compliance:** What are the major problems faced by taxpayers in e-filing (such as portal glitches, lack of digital literacy, and dependence on others for filing), and how do these problems affect compliance?
4. **Effectiveness of Recent Reforms:** How effective have recent reforms like the faceless assessment system and the upgraded Income Tax e-filing portal (Portal 2.0) been in improving transparency, efficiency, and taxpayer convenience?
5. **Role of AI in Improving E-Filing:** How can Artificial Intelligence (AI) be used to improve the e-filing system (for example, better pre-filled returns, error detection, and taxpayer support), and what risks or concerns (such as privacy and incorrect automated decisions) should be addressed?
6. **Legal and Policy Recommendations:** What legal and policy improvements can be suggested to make digital income tax filing simpler, safer, and more accessible for all taxpayers?

Limitations and Ethical Considerations

Limitations

- Reliance on secondary sources: As a doctrinal and policy analysis, the study depends on publicly available legal texts, policy documents, and documented cases.
- No primary field evidence: The research does not include taxpayer surveys, interviews with tax professionals, or interviews with officials; therefore, taxpayer perceptions and administrative challenges are inferred indirectly from secondary reports.
- Limited measurement of subjective outcomes: Due to the absence of field data, the study cannot fully measure subjective satisfaction, lived user experience, or real compliance costs as experienced by taxpayers in different contexts.
- Constraints in generalisation: Findings are primarily interpretive and legal-analytical in nature; they may not capture operational variations across regions, taxpayer segments, or time periods.

Ethical Considerations

- Fair and contextual comparison: International case studies and frameworks are used cautiously, ensuring they are represented fairly and interpreted in context, without imposing normative bias that ignores local realities.
- Academic integrity: Ethical research practice is maintained through diligent citation, transparent reasoning, and clear attribution of data, arguments, and opinions to their original sources.
- Privacy and sensitivity: The analysis remains mindful of privacy and data protection concerns in digital tax systems and avoids using any confidential taxpayer data.
- Public-domain reliance: All references are limited to information available in the public domain, ensuring compliance with ethical standards and reducing risks associated with sensitive information handling.
- Impartiality in critique: Legal critiques and recommendations are presented objectively, aiming for balanced evaluation rather than selective or advocacy-driven interpretation.

Technical and Operational Challenges

In analyzing India's e-filing system, the study considers several technical and operational challenges that have a bearing on the effectiveness of digital tax administration. Portal performance and user experience have been significant concerns: for instance, the new Income Tax e-filing portal (often called "Portal 2.0") launched in June 2021 was initially plagued by numerous glitches and usability issues, drawing public criticism. These early malfunctions not only caused inconvenience (with taxpayers unable to file or access services timely) but also risked eroding trust in the system's reliability.

Digital divide is another challenge. Despite India's rapid growth in internet usage, disparities persist in digital access and literacy. Taxpayers in rural areas, small business owners, and senior citizens may lack reliable internet connectivity or the technical know-how to smoothly navigate online filing procedures. Studies have noted that a significant segment of low-income and rural populations faces hurdles in accessing the necessary digital infrastructure or skills for e-compliance. This divide means that the move to mandatory e-filing could inadvertently marginalize certain groups, unless adequate support systems are in place.

A further challenge lies in cybersecurity and data privacy. Handling millions of taxpayers' personal and financial information electronically demands robust security measures. There have been concerning incidents, such as security bugs exposing confidential taxpayer data on the e-filing portal, underscoring vulnerabilities in the system. Such breaches not only violate privacy but also undermine confidence in digital governance; hence, compliance with data protection laws like the Digital Personal Data Protection Act, 2023 is crucial in the design and operation of tax platforms.

Finally, integration and inter-agency coordination issues are considered: India's tax ecosystem involves multiple IT platforms (for example, the Income Tax Department's systems and the GST Network for indirect taxes), and lack of seamless interoperability or data sharing between these can lead to inefficiencies or inconsistent taxpayer experiences. Ensuring that various digital systems across departments communicate and complement each other remains an operational challenge and a necessary goal for holistic e-governance.

Legal and Policy Gaps

Beyond technical issues, the research identifies certain legal and policy gaps in the current framework governing digital tax administration. One such gap is the ambiguity regarding accountability for system failures or glitches: when the e-filing infrastructure falters (for example, if the portal is down near a filing deadline or yields erroneous computations), the law is not explicit about remedies or liability. Taxpayers may face penalties for non-compliance due to no fault of their own, and there is a need for clearer protocols (such as automatic deadline extensions or grievance redress mechanisms) to address these situations. Similarly, the transition to faceless and online assessments has introduced questions about dispute resolution and taxpayer rights: taxpayers might feel disadvantaged in a faceless system if they cannot directly explain their case to an assessing officer, and current law is still evolving to ensure that rights to be heard and to appeal are fully preserved in a digital environment. Additionally, a broader policy gap is the absence of a comprehensive digital taxation policy document that outlines a long-term vision for integrating emerging technologies and handling new types of digital economic activities. For instance, as crypto-assets, cross-border digital services, and AI-driven processes become relevant to taxation, India would benefit from a cohesive policy that addresses how these should be taxed or regulated, thereby avoiding a reactive, piecemeal approach. The identification of these gaps suggests that while significant progress has been made in digitizing tax administration, the legal framework is still catching up to the complexities of an entirely digital compliance regime.

Implications for Taxpayers and the Tax Administration

The shift to a digital tax filing and assessment system carries important implications for both taxpayers and the tax administration. From the taxpayer's perspective, increased digitalization can improve convenience and transparency—for example, online filing ensures one can submit returns at any time and provides instant acknowledgments and quicker refunds, as noted by prior studies. However, it also imposes new compliance demands: taxpayers must adapt to using software or portals, potentially bear costs for professional help or software subscriptions, and navigate technical issues when they arise. Taxpayers' perceptions of fairness may improve if the faceless processes reduce opportunities for corruption and discretionary behavior by officials, but if the systems are seen as too complex or error-prone, trust in the tax regime could be undermined.

On the administrative side, the Income Tax Department and related agencies face a transformational change in work processes. There is a need for substantial capacity building within the bureaucracy—tax officials and staff must be trained in operating new IT systems, data analytics, and cybersecurity protocols. The organizational culture must adapt to data-driven decision-making and remote assessments, which requires change management and continuous upskilling. Additionally, the administration might need to recruit or contract more IT professionals to maintain and upgrade the digital infrastructure. Governance structures may also need to evolve to include dedicated units for system oversight, user support, and inter-agency data coordination. In sum, while digitalization promises efficiency and better compliance monitoring for the tax administration, it demands investment in human and technological resources and a shift in traditional operational mindsets.

Research Gap

Existing literature on India's digitalisation of income tax administration has expanded in recent years, particularly after major reforms such as the Transparent Taxation platform, faceless assessment and appeals, and the launch of the upgraded e-filing portal (Portal 2.0). Many studies discuss these initiatives in terms of their policy intent, technological features, and broad governance objectives such as transparency, efficiency, and reduction of discretion. However, the literature remains fragmented, often focusing on individual reforms in isolation rather than explaining the overall evolution of e-filing as a connected legal and institutional process.

First, there is a gap in integrated doctrinal analysis that traces how statutory provisions, Finance Act amendments, rules, CBDT notifications, and judicial interpretations together shaped the move from voluntary e-filing to near-universal digital compliance. Several works acknowledge milestone events (such as mandatory e-filing for certain taxpayer categories and the introduction of digital verification methods), but comparatively fewer studies systematically map the legal timeline from 2004 onwards and examine the legislative rationale behind each phase. As a result, the legal foundations of e-filing reforms are often described descriptively rather than evaluated through structured statutory interpretation.

Second, while challenges such as portal glitches, complex user interfaces, and the digital divide are widely mentioned, a clear gap exists in analysing these issues through the lens of taxpayer rights and procedural fairness. Judicial decisions have increasingly addressed concerns like delayed filings due to system failures, the validity of returns affected by technical errors, and the need for reasonable accommodation when digital systems malfunction. Yet, these case law developments are not consistently incorporated into mainstream discussions of tax digitalisation, which tend to remain policy- or technology-centric. This creates an incomplete understanding of how courts and administrative guidance together shape accountability in a digital tax regime.

Third, the literature has limited focused discussion on a practical but widespread issue: dependence on intermediaries for e-filing due to low digital literacy. A significant segment of taxpayers, particularly senior citizens, rural taxpayers, and small earners, relies on other persons to file returns on their behalf. This reliance is not always voluntary; it often stems from lack of technical competence and limited awareness of applicable tax provisions. In such cases, intermediaries may provide help out of goodwill or may charge informal fees (often between ₹1000 to ₹2000) without disclosing such earnings. This raises concerns regarding transparency, exploitation risk, accountability for errors, and the broader compliance costs of digitisation. Despite its practical importance, this issue is under-explored in doctrinal and policy literature and is rarely linked to legal safeguards or administrative solutions.

Fourth, although recent policy discussions increasingly highlight emerging technologies, there remains a gap in evaluating the role of Artificial Intelligence (AI) in income tax administration in a legally grounded manner. AI-driven tools have potential applications in pre-filled returns, error detection, risk-based scrutiny selection, and taxpayer assistance; however, the literature does not sufficiently examine how such tools should be governed in light of privacy, data protection, transparency, and the risk of automated or biased decision-making. In the Indian context, where digital systems already influence compliance outcomes, a structured legal and policy discussion on AI adoption is still developing and requires further academic attention.

Therefore, this study addresses these gaps by providing a comprehensive doctrinal account of the evolution of e-filing from 2004 to 2025, integrating statutory developments, administrative guidance, and case law into a single analytical framework. It also brings a specific focus to the under-examined issue of intermediary dependence and informal compliance costs, while situating AI-related possibilities and concerns within the broader legal and institutional framework of digital taxation in India.

Conclusion

This chapter has set out a comprehensive research methodology for examining the digitalization of income tax filing in India. It combines doctrinal legal analysis with empirical survey-based inquiry in order to study the issue in both normative and practical terms. On the doctrinal side, the chapter explains how statutes, policy documents, circulars, and case law are used to trace and evaluate the evolution of India's digital tax framework. On the empirical side, it incorporates the full "Nature of the Dataset and Analytical Approach" material into Chapter 4 so that the methodology chapter contains a complete account of the survey design, dataset structure, variable types, data cleaning logic, analytical dimensions, reliability testing, and interpretive strategy.

The integrated methodology reflects the central insight of the dissertation: digital tax filing must be assessed not only by asking whether technology has been introduced, but also by asking whether that technology is legally sound, operationally reliable, administratively fair, and genuinely usable by taxpayers. By bringing together doctrinal analysis and structured taxpayer evidence, the methodology provides a strong foundation for the dissertation's later discussion of opportunities, challenges, risks, satisfaction, and the future role of AI in tax administration.

In this sense, the chapter is not merely procedural. It defines the lens through which the rest of the dissertation should be read. It recognises that digital governance in taxation is at once a matter of law, institutional design, technological infrastructure, behavioural adaptation, and citizen trust. That integrated understanding is what guides the analysis that follows.

IV. DATA ANALYSIS AND INTERPRETATION

Trends in e>Returns Filed Over Time

ITR-wise Receipts of Income Tax Returns

Table 1 — presents the number of e-return receipts across different ITR forms from FY 2011–12 through FY 2023–24. Each figure represents returns filed (both paper and electronic) in crores.

ITR-wise receipts (in crores) for FY 2011–12 to FY 2023–24.

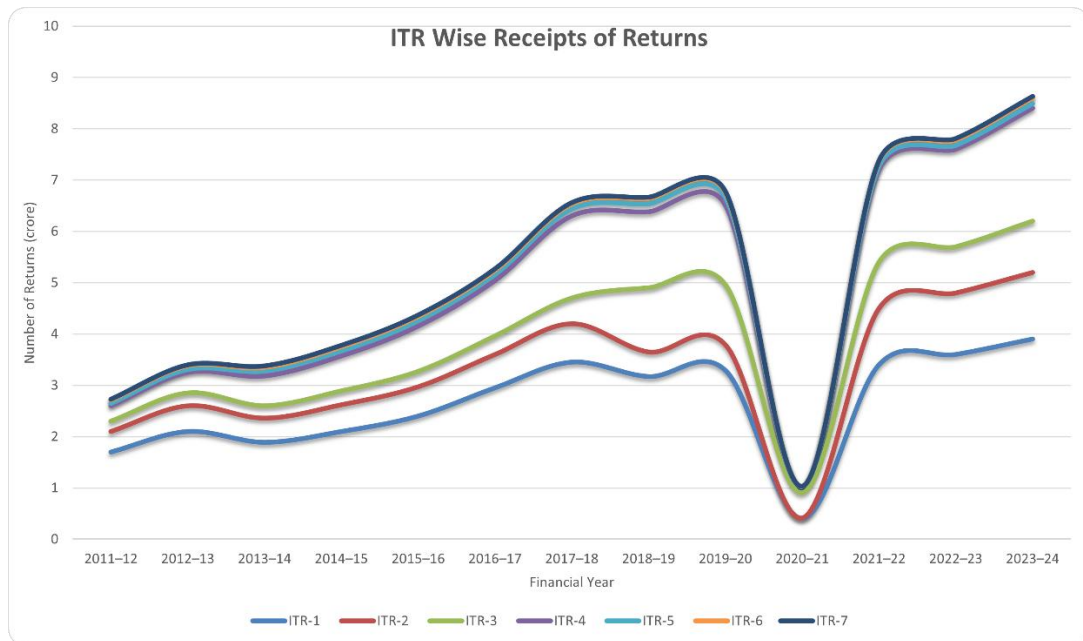
Year	ITR-1	ITR-2	ITR-3	ITR-4	ITR-5	ITR-6	ITR-7	Total
2011–12	1.70	0.40	0.20	0.30	0.05	0.06	0.02	2.73
2012–13	2.10	0.50	0.25	0.40	0.06	0.07	0.02	3.40
2013–14	1.89	0.47	0.24	0.58	0.10	0.07	0.03	3.79
2014–15	2.10	0.52	0.27	0.68	0.10	0.08	0.03	4.04
2015–16	2.40	0.57	0.30	0.88	0.11	0.08	0.03	4.63
2016–17	2.95	0.65	0.36	1.08	0.12	0.08	0.03	5.58
2017–18	3.45	0.75	0.50	1.60	0.14	0.09	0.03	6.87
2018–19	3.17	0.48	1.25	1.48	0.16	0.10	0.027	6.68
2019–20	3.29	0.50	1.17	1.55	0.15	0.093	0.026	6.77
2020–21	0.41	0.003	0.49	0.12	0.006	0.0036	0.0024	0.72
2021–22	3.40	1.10	0.90	1.80	0.07	0.09	0.02	7.30
2022–23	3.60	1.20	0.90	1.90	0.08	0.10	0.03	7.78

2023–24	3.90	1.30	1.00	2.20	0.09	0.11	0.03	8.52
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Source: Compiled from Income Tax Department / CBDT official data.

Line Chart

Figure 1 — visualises the trends in the table above.



Trends in ITR-wise receipts over FY 2011–12 to FY 2023–24.

Analysis(Pre and post-reform indicators)

The total number of income tax returns filed in India has shown a strong upward trend over the past decade. In FY 2013–14, about 3.80 crore returns (inclusive of revised returns) were filed, which grew to 8.61 crore returns in FY 2023–24. This represents more than a two-fold increase in e-filings. The trend was generally upward year-on-year, with only minor anomalies due to policy changes. Notably, filings dipped slightly in FY 2018–19 to 6.74 crore from 6.87 crore the previous year. This marginal decline was caused by a change in law that restricted taxpayers to filing returns for only the current assessment year from FY 2018–19 onward (previously, a belated return for the prior year was also permitted). Once this transition passed, the growth in filings resumed.

By FY 2020–21, total filings crossed 7.38 crore, and they continued to rise despite the pandemic. The COVID-19 period saw filing deadlines extended, which led to a slight shift in timing but not a sustained decrease in annual filings. For example, filings in FY 2021–22 were around 7.30 crore, a minor dip from the previous year's 7.39 crore. This could be due to the extended deadlines and disruptions of the pandemic, as observed for ITR-1 where filings peaked in 2020–21 and dipped slightly in 2021–22. Overall, however, the long-term trajectory is upward, reflecting increasing tax compliance and adoption of e-filing. The annual growth in e-returns can be attributed to factors such as expanding the tax base, ease of online filing, and governmental initiatives encouraging compliance. For instance, the jump from 5.58 crore returns in FY 2016–17 to 6.87 crore in FY 2017–18 coincided with demonetization and subsequent efforts to formalize the economy. Another notable surge occurred in the latest year: FY 2023–24 saw about 10.7% growth in filings over FY 2022–23, indicating robust compliance momentum in the post-pandemic recovery period.

In examining the composition of returns by taxpayer category, individuals account for the vast majority of filings. In FY 2023–24, of the 8.61 crore returns filed, over 8.13 crore were by individuals – roughly 94% of all returns. This dominance has persisted throughout the decade, with individual filers consistently contributing between 85–95% of total return volumes. Other categories like Hindu Undivided Families (HUFs), firms, companies, and trusts/AOPs each constitute only a few percentage points of the total count. For example, companies filed about 11.46 lakh returns in FY 2023–24 (around 1.3% of total) and firms about 16.5 lakh (1.9%). These proportions underline that growth in e-returns is largely driven by individual taxpayer compliance. Within the individual category, an interesting pattern occurred around 2017–2019: the number of individual returns filed dropped from 6.45 crore in FY 2017–18 to 6.33 crore in FY 2018–19 due to the aforementioned policy change limiting belated prior-year filings. After this adjustment, individual filings resumed growth, reaching 7.33 crore in FY 2022–23 and 8.14 crore in FY 2023–24 – clear evidence of widening tax participation.

Overall, the trend in e-returns reflects improving compliance and integration of technology. Taxpayer awareness campaigns, simplification of e-filing processes, and the government's push for digital transactions have all contributed to steady growth. The data indicates that India's taxpayers have increasingly embraced electronic filing, making it the norm. As of the latest year, effectively all income tax returns are filed electronically, with negligible exceptions. The traditional paper-based filing has dwindled to only a tiny fraction of cases (primarily super-senior citizens and certain exceptions), underscoring the success of the e-filing initiative.

Table 2 — Pre- and post-reform indicators (selected official points)

Indicator	Pre-reform / baseline	Post-reform/ Later point	What it suggests
E-filed ITRs (FY 2018–19)	6.68 crore e-filed	–	Digitisation was already dominant before faceless reforms and Portal 2.0.
Peak daily capacity	Record referenced: 49 lakh (2019)	72.42 lakh ITRs in one day (31 Jul 2022)	System scaled to a very high compliance load.
Faceless appeal launch	–	Faceless appeals launched 25 Sept 2020	Procedural redesign to reduce physical interface.
Portal 2.0 transition reliability	–	Govt acknowledged portal was “fraught” with glitches; meetings convened; more than 2,000 issues reported	Reliability became a legal-compliance issue, not only an IT issue.

Source: Official statements and releases (as referenced in the dissertation Bibliography).

Taxpayers By Salary Group

Assessment Year	₹ 5 Lakh	₹ 5-10 Lakh	₹ 10-20 Lakh	₹ 20-50 Lakh	≥ ₹ 50 Lakh
2018-19	34,954,159	14,754,245	4,000,080	1,244,701	307,034
2019-20	40,577,567	16,121,015	4,687,429	1,473,398	367,188
2020-21	23,356,773	14,578,367	3,256,419	937,972	299,102
2021-22	34,690,963	20,533,272	5,664,482	1,836,031	432,700
2022-23	34,349,480	24,064,698	7,083,491	2,328,251	613,690
2023-24	35,478,043	27,549,777	8,655,060	3,036,277	742,129

Assessment Year-wise Taxpayers by Income Bracket

Source: Compiled from Income Tax Department / CBDT official data.

Perhaps the most revealing profile factor is the income distribution of taxpayers. Income tax return data is categorized by total income ranges, and it shows a highly skewed distribution. The vast majority of individual tax filers report lower or moderate incomes, while a tiny fraction report very high incomes. According to statistics (Assessment Year 2021–22 data), over three-fourths of individual filers had incomes up to ₹5 lakh. This lowest slab (often below the taxable threshold or in the 5% tax bracket) consistently comprises about 77–80% of individual returns. For AY 2021–22, approximately 4.43 crore individual returns (out of 5.97 crore total individual returns) fell into this “up to ₹5 lakh” category. This reflects India’s income pyramid – many filers are low- or middle-income earners (some file to claim refunds of TDS or to report modest incomes even if below the taxable limit, because filing is mandatory in certain cases or beneficial for documentation). The next income range of ₹5–10 lakh constitutes the second-largest group of taxpayers. Around 16% of individual filers have incomes in this range. For AY 2021–22, about 98 lakh returns were in the ₹5–10 lakh bracket, making it roughly one-sixth of individual filers. This group has grown over the years (both in absolute count and as a share), indicating an increasing number of middle-class Indians moving into higher income brackets or at least declaring higher incomes (partly due to better compliance). As we move to higher income ranges, the counts drop off sharply. Approximately 6% of filers have incomes between ₹10–20 lakh, and around 2–3% are in the ₹20–50 lakh band. For instance, AY 2021–22 saw about 36.8 lakh returns in ₹10–20L range and 14.6 lakh in ₹20–50L. The ₹50 lakh to ₹1 crore range is minuscule – only about 0.4% of filers (around 2.4 lakh returns in AY 2021–22) fell in this bracket. The ultra-rich segment (above ₹1 crore) is even smaller: roughly 0.2% of individual filers. In AY 2021–22, just about 1.14 lakh returns reported income over ₹1 crore. This tiny elite group, however, contributes a disproportionately large share of total tax revenue. These figures highlight that India’s tax base, while expanding, is primarily composed of low and middle-income earners, with relatively few high-income taxpayers. It underscores why raising the tax-GDP ratio is challenging – there are simply not many high earners, and compliance among those who are may still not be 100%. On the positive side, the growth in the lowest income category filings (from 1.22 crore in 2011–12 to 4.43 crore in 2021–22) indicates widening of the tax net at the base. Many more people with modest incomes are filing returns, possibly due to requirements like filing to claim refunds or to reconcile TDS, or because of increased awareness. Over time, as the economy grows, one would expect some of these filers to move into higher brackets, gradually fattening the middle of the pyramid. In summary, the taxpayer profile in India’s e-filing system is characterized by a dominant share of working-age, male, lower/middle-income individuals. Efforts to broaden this profile are ongoing: policies encouraging female workforce participation and entrepreneurship should increase women filers, and economic growth coupled with better enforcement should bring more high-income individuals into the tax net. The data-driven approach of the Income Tax Department (such as pre-filled information and data matching through the Annual Information Statement) may also help identify non-compliant high earners, thereby improving the income distribution of declared filings. But currently, the profile reflects India’s socio-economic realities – a young, male-skewed, low-to-mid income taxpayer base gradually evolving year by year.

Demographic Profile of Respondents

The demographic profile of respondents is an important foundation for the analysis of any survey-based dissertation, especially in a study dealing with the digitalization of income tax filing. Taxpayer experience with a digital public platform is rarely uniform. It is shaped by age, education, income, occupation, location, and social exposure to formal administrative systems. Therefore, before interpreting awareness, opportunity, challenge, risk, satisfaction, and filing behaviour, it is necessary to understand who the respondents are. The present study is based on 126 valid responses, and the respondent profile shows that the sample is composed largely of adult, educated, working, and economically active individuals. This gives the study a meaningful base for analysing digital tax compliance, because the respondents are not casual observers of taxation but, in a large number of cases, individuals for whom tax filing is a real or recurring administrative responsibility. At the same time, the demographic distribution also reveals certain concentrations within the sample. These concentrations do not weaken the study, but they shape how the findings should be read. For example, a sample with a high proportion of urban, educated, and salaried respondents is likely to show a different pattern

of digital experience than a sample dominated by rural informal workers or very young first-time earners. Therefore, the present subsection does not merely list numbers. It interprets what the demographic structure means for the later findings of the dissertation. For analytical clarity, the demographic profile is discussed under the following heads:

1. Gender distribution
2. Age distribution
3. Educational qualification
4. Occupational profile
5. Place of residence
6. Annual income range
7. Overall demographic interpretation and relevance to the study

Gender distribution of respondents

Out of the total 126 respondents, 99 respondents (78.6%) were male and 27 respondents (21.4%) were female.

This indicates that the sample is clearly male-dominated. Such a pattern is not unusual in tax-related survey research, especially in contexts where income tax return filing responsibility is still more directly assumed by men within households, workplaces, or self-employment arrangements. In many Indian contexts, even when women are employed or financially active, the operational responsibility for tax matters may still be handled by male family members, CAs, employers, or office-level financial staff. Therefore, the male skew in the sample is not unexpected.

However, the gender profile is analytically important for several reasons :

1. First, a male-dominated sample may reflect the continuing social reality that direct engagement with income tax processes is still gendered. Tax filing is not merely a legal act; it is also a form of financial administration. Where one gender is more directly exposed to filing processes, that group may also develop higher familiarity, higher confidence, or greater tolerance for procedural complexity.
2. Second, the gender distribution becomes important when the dissertation later examines self-filing autonomy, risk perception, and reliance on intermediaries. A digital tax system can be broadly accessible yet still uneven in terms of who feels sufficiently confident to use it independently.
3. Third, the lower proportion of female respondents does not make gender analysis impossible; rather, it makes it more necessary to interpret differences carefully. If later sections show that women are less likely to self-file or more likely to perceive digital risk, those findings need to be read in the context of this unequal representation as well as the broader social organization of financial decision-making.

From a research perspective, the gender distribution suggests that the sample may be strongest in capturing the experience of the currently dominant direct taxpayer segment, but it also points toward an important future research need: more focused study of women's independent experience with e-filing, digital tax confidence, and trust in assisted compliance.

Thus, the gender profile already hints at one of the broader themes of the dissertation: digitalization may improve service delivery overall, but it does not automatically erase deeper capability or participation inequalities.

Age distribution of respondents

The age distribution of the respondents is as follows:

- Above 60 years: 6 respondents (4.8%)
- 46–60 years: 57 respondents (45.2%)
- 36–45 years: 30 respondents (23.8%)
- 26–35 years: 25 respondents (19.8%)
- 18–25 years: 7 respondents (5.6%)
- Below 18 years: 1 respondent (0.8%)

This age profile shows that the sample is overwhelmingly concentrated in the adult working-age population, particularly in the 36–60 age bracket. In fact, if the 36–45 and 46–60 categories are combined, they account for 87 respondents, or 69.0% of the total sample. If the 26–35 group is added, then respondents aged 26–60 account for 112 respondents, or 88.9% of the entire sample.

This is a very significant feature of the dataset. It means that the survey is not dominated by very young individuals who may be digitally comfortable but not yet deeply involved in taxation. Instead, it is dominated by the age groups that are most likely to have:

- stable or recurring income,
- actual tax liability,
- formal employment,
- a history of filing returns,
- and repeated interaction with the income tax system.

This makes the dataset particularly relevant for the dissertation topic. The digitalization of tax filing is most meaningful when studied among individuals who actually live under filing obligations, not merely among digitally literate observers.

The dominance of the 46–60 age category deserves special attention. This group alone accounts for nearly half the sample. This suggests that a substantial proportion of respondents are mature earners, likely with long exposure to earlier filing systems as well as more recent digital filing mechanisms. Their perceptions may therefore capture not only current experience but also a comparative perspective between older, more manual systems and newer digital systems.

At the same time, the age profile has an important interpretive implication. A sample dominated by respondents in their late working years may reveal more about:

- adaptation to digital change,
- continued dependence on professionals,
- confidence gaps,
- and perceptions of stress or procedural seriousness.

It may reveal slightly less about the behaviour of very young “digital-native” first-time taxpayers. This is not a weakness; rather, it reflects the fact that taxation is primarily a phenomenon of economically active adulthood.

The smaller size of the 18–25 category is also understandable. Many individuals in this age group may still be students, early earners, interns, or financially dependent, and may not yet file returns regularly. Likewise, the low number of respondents above 60

may reflect the narrower size of the retired population in the sample and possibly lower direct participation in online survey response.

Overall, the age profile suggests that the study captures the digital tax experience of those most likely to be seriously affected by filing requirements. It also creates a strong basis for later analysis of how digital comfort, filing autonomy, and reliance on others vary with age.

Educational qualification of respondents

The educational profile of the respondents is as follows:

- Doctorate: 25 respondents (19.8%)
- Postgraduate: 72 respondents (57.1%)
- Graduate: 18 respondents (14.3%)
- 12th: 3 respondents (2.4%)
- Up to 10th: 4 respondents (3.2%)
- Other (CA): 3 respondents (2.4%)
- Other unspecified: 1 respondent (0.8%)

This educational distribution shows that the sample is highly educated. If postgraduate and doctorate respondents are taken together, they account for 97 respondents, or 77.0% of the sample. If graduates are added, then respondents with at least graduate-level education account for 115 respondents, or 91.3% of the sample.

This is one of the most important structural features of the dataset.

A highly educated sample has both advantages and implications for interpretation.

First, it strengthens the seriousness of the study.

Since digital tax filing involves reading instructions, understanding tax categories, navigating online forms, checking pre-filled information, using OTP-based verification, and often responding to structured administrative language, a more educated sample is likely to provide more informed judgments about system design and usability.

Second, it changes the meaning of reported challenges.

If a highly educated sample still reports:

- confusion,
- dependence on intermediaries,
- moderate awareness only,
- portal stress,
- and concern regarding notices or mistakes, then those findings become especially important. They suggest that the challenges of digital tax filing are not limited to lack of literacy alone. Even individuals with high formal education may find the tax system procedurally demanding.

Third, it indicates that formal education and tax confidence are not identical.

A respondent may be highly educated in a general sense and yet still not be fully comfortable with tax filing. This is a crucial distinction for the dissertation. The skills needed for digital taxation are not only educational; they are also administrative, procedural, and technical. A person may have a postgraduate or doctoral degree and still depend on a CA because tax law, portal logic, and filing consequences feel too specialized or high-stakes.

The presence of a small number of respondents with lower formal education is also valuable because it prevents the sample from becoming completely homogeneous. However, the clear educational concentration means that the chapter's later findings should be read with the understanding that the sample may be somewhat more digitally and cognitively equipped than the broader population.

In interpretive terms, this educational profile sets a high benchmark. If strong guidance needs are found even within this sample, then one can reasonably infer that the support needs may be even greater among less educated taxpayer groups outside the survey sample.

Occupational profile of respondents

The occupational distribution of the respondents is as follows:

- Salaried: 95 respondents (75.4%)
- Professional: 13 respondents (10.3%)
- Business: 6 respondents (4.8%)
- Retired: 4 respondents (3.2%)
- Student: 3 respondents (2.4%)
- Other categories combined: 5 respondents (4.0%)

The “other” category includes a small number of self-employed respondents, homemakers, and one social worker.

The most striking feature of this distribution is the dominance of the salaried class, which alone accounts for more than three-fourths of the sample. This is highly relevant to the dissertation because salaried taxpayers form one of the most visible and structured user groups in India's income tax filing ecosystem.

Salaried taxpayers often have:

- Form 16-based filing,
- TDS already deducted,
- somewhat more standardized income patterns,
- employer-linked documentation,
- and a stronger routine of yearly filing where applicable.

As a result, they are often seen as one of the most “digitally manageable” taxpayer groups. If a sample dominated by salaried respondents still shows significant dependence on assistance, concern over notices, or moderate awareness of deeper portal features, that becomes analytically important. It suggests that the system is not entirely frictionless even for relatively structured taxpayers.

The presence of professionals and business respondents is also significant, though in smaller numbers. These categories may have more complex filing needs, including multiple income streams, deductions, or more active tax planning. Their responses may therefore bring out dimensions of complexity that are not as visible in routine salaried filings.

The small number of retired respondents introduces a useful contrast, especially because retired taxpayers may have different relationships to digital systems, income structure, and filing frequency. Similarly, the presence of a few students likely reflects either early earners, financially aware youth, or respondents participating despite limited direct tax liability.

The occupational structure suggests that the findings of the study are especially strong for interpreting the experience of:

- salaried taxpayers,
- educated urban professionals,
- and formal-sector earners.

It is less weighted toward informal-sector workers, micro-enterprise taxpayers, agricultural earners, or those with highly irregular incomes. This should be kept in mind when interpreting the broader applicability of the findings.

At the same time, the occupational profile gives the study strong value because salaried individuals are among the most frequent users of India's digital tax architecture, and thus their experience offers an important window into the practical performance of e-filing systems.

Place of residence of respondents

The residential distribution of the respondents is as follows:

- Urban/Metro: 78 respondents (61.9%)
- Semi-urban: 30 respondents (23.8%)
- Rural: 18 respondents (14.3%)

This shows that the sample has a clear urban-majority character, with nearly two-thirds of respondents coming from urban or metro areas. If semi-urban respondents are added, then 108 respondents, or 85.7% of the sample, belong to urban or semi-urban locations. Only 14.3% are from rural areas.

This residential pattern has major implications for interpretation.

First, it helps explain why basic internet access problems may not emerge as the dominant barrier.

Urban and semi-urban respondents are more likely to have:

- regular internet connectivity,
- access to smartphones and computers,
- better exposure to online government services,
- and greater familiarity with formal documentation systems.

Thus, the study is likely to capture challenges related more to usability, confidence, support, and trust, rather than pure infrastructural deprivation.

Second, it suggests that the findings may represent the experience of the “connected taxpayer” more strongly than that of the deeply infrastructure-constrained taxpayer.

This does not mean rural taxpayers are absent. It means they are comparatively fewer in the sample. Therefore, the study is stronger in analysing digital tax experience among those who already have at least some degree of digital access.

Third, the urban skew is substantively relevant to the topic itself.

Digital income tax filing in India has expanded most visibly in urban and semi-urban formal-sector environments, where taxable income, documentation, and internet access are more common. Therefore, a strong urban/semi-urban sample is not inappropriate for the research problem. In fact, it reflects the actual concentration of many direct taxpayers in more formalized geographic spaces.

However, from a policy perspective, the residential profile also highlights an important limitation and a future need. If taxpayers in urban and semi-urban contexts still report dependence on assistance, confusion, and concern about portal complexity, then the challenges of rural taxpayers could be even more substantial. Rural digital taxation may involve an added layer of:

- lower device access,
- weaker digital literacy,
- greater dependence on common service points,
- and limited availability of trusted professional help.

Thus, the residential distribution supports the dissertation's analysis, but it also points toward an important broader issue: the digitalization of tax filing should not be evaluated only by urban adoption levels. It must eventually be assessed in terms of geographical inclusion as well.

Annual income range of respondents

The annual income profile of the respondents is as follows:

- Below Rs. 3 lakh: 15 respondents (11.9%)
- Rs. 3 lakh–Rs. 12 lakh: 38 respondents (30.2%)
- Rs. 12 lakh–Rs. 20 lakh: 23 respondents (18.3%)
- Rs. 20 lakh–Rs. 30 lakh: 17 respondents (13.5%)
- Rs. 30 lakh–Rs. 40 lakh: 11 respondents (8.7%)
- Rs. 40 lakh–Rs. 50 lakh: 8 respondents (6.3%)
- Above Rs. 50 lakh: 14 respondents (11.1%)

This distribution indicates that the sample includes a wide range of income categories, from respondents below Rs. 3 lakh to respondents earning above Rs. 50 lakh. The largest group falls in the Rs. 3 lakh–Rs. 12 lakh category, which can broadly be treated as the lower-to-middle formal income segment of the taxpayer base. This is followed by the Rs. 12 lakh–Rs. 20 lakh and Rs. 20 lakh–Rs. 30 lakh groups, suggesting that the sample includes a meaningful representation of middle- and upper-middle-income earners as well.

The income distribution is significant for several reasons.

First, it supports the relevance of the sample to income tax filing.

A large portion of the respondents fall within or above income bands where filing is structurally likely to matter. This strengthens the study because respondents in these categories are more likely to have practical filing experience rather than hypothetical opinion.

Second, the presence of a Below Rs. 3 lakh group is useful analytically.

This category helps capture the perspective of respondents who may:

- file for refund reasons,
- file for record purposes,
- be close to or below threshold levels,
- or remain outside regular filing despite awareness of the system.

Their inclusion makes it possible to compare how digitalization is viewed not only by high-liability taxpayers but also by lower-income individuals.

Third, the spread across higher income bands adds depth to the study.

Respondents in the Rs. 20 lakh and above categories may have:

- more complex tax computations,
- more investments or deductions,
- more frequent use of professionals,
- greater risk sensitivity,
- and stronger reliance on tax records for financial or legal purposes.

Therefore, the income spread enhances the chapter's ability to interpret not only access but also complexity management within digital tax filing.

Fourth, the distribution avoids being overly narrow.

Had the sample been concentrated only in one income class, the study would have captured only one layer of taxpayer experience. Instead, the current spread allows a more nuanced analysis of whether opportunity, challenge, or dependence varies across income groups.

One especially important implication is that assisted filing does not necessarily mean the same thing across all income bands. In lower-income groups, assistance may reflect lower confidence or lower familiarity. In higher-income groups, it may reflect rational outsourcing due to complexity, risk exposure, or opportunity cost of time. This makes the income profile especially valuable for later analysis.

Overall, the income distribution makes the sample suitable for studying digital tax filing as an issue that affects not only one narrow taxpayer class, but a broader range of formal income earners.

Integrated interpretation of the demographic profile

When the demographic variables are read together, a clear picture emerges.

The sample is predominantly:

- male,
- middle-aged to older working-age,
- highly educated,
- salaried,
- urban/semi-urban,
- and spread across middle to upper income categories.

This means the study is especially well positioned to analyse the digital tax-filing experience of what may be called the formal, educated, active taxpayer segment. These are the respondents most likely to:

- have exposure to annual filing responsibilities,
- encounter digital tax interfaces directly or indirectly,
- compare past and current filing systems,
- and form informed opinions about the opportunities and challenges of digitalization.

This demographic structure has three major implications :

1. The sample is strong for analysing actual taxpayer experience Because the respondents are mostly adults with real or likely filing responsibilities, the findings of the chapter are grounded in practical engagement rather than abstract awareness. This is a major strength.
2. The sample likely underrepresents the most digitally excluded groups Since the respondents are mostly educated and urban/semi-urban, the study may not fully capture the most severe challenges that could be faced by:

- low-literacy populations,
- remote rural taxpayers,
- extremely low-income earners,
- or those with very limited internet access.

This does not reduce the value of the study, but it should be acknowledged when interpreting generalizability.

3. Any reported challenge within this sample is analytically important This is perhaps the most important conclusion.

When a relatively educated, urban, salaried sample still reports:

- moderate awareness rather than full awareness,
- dependence on others,
- concern over mistakes and notices,
- need for support,
- and sensitivity to portal performance, then those findings cannot be dismissed as merely the result of low literacy or lack of exposure. They suggest that the digital filing system itself still contains areas of complexity or strain that affect even comparatively advantaged users.

This gives the later findings of the dissertation additional strength. It means that if the system is not fully self-explanatory even for this sample, then the case for improving taxpayer guidance, support, simplification, and trust becomes even stronger.

Relevance of demographic profile to the dissertation theme

The title of the dissertation is “Digitalization of Income Tax Filing in India: Opportunities and Challenges for Taxpayers.” The phrase “for taxpayers” is crucial. It means the study is not only about technology adoption in the abstract. It is about which taxpayers benefit, which taxpayers struggle, and which taxpayers remain dependent despite the availability of digital systems.

The demographic profile directly contributes to this theme in the following ways:

1. **Gender** Helps assess whether digital tax autonomy may still be unevenly distributed.
2. **Age:** Helps reveal whether digitalization is easier for younger users or more challenging for older working-age and retired taxpayers.
3. **Education:** Helps examine whether formal education translates into tax-filing confidence or whether specialized guidance remains necessary.
4. **Occupation:** Helps distinguish between salaried standard filings and potentially more complex professional/business filings.
5. **Residence:** Helps indicate whether the sample is operating in relatively connected spaces or infrastructure-constrained environments.
6. **Income:** Helps identify whether filing behaviour and digital interpretation vary by economic stakes and complexity.

Thus, the demographic profile is not merely descriptive background. It is the basis for understanding how opportunities and challenges may be distributed across taxpayers.

Methodological significance of the demographic structure

From a methodological perspective, the demographic profile also justifies the analytical choices made later in the chapter.

Because the sample contains enough variation across:

- age groups,
- gender,
- income categories,
- and filing modes, it becomes possible to carry out meaningful subgroup comparisons.

For instance:

- differences in self-filing by gender can be examined,
- reliance on others by age can be interpreted,
- opportunity perception by income can be assessed,
- and awareness by filing mode can be studied.

At the same time, because certain categories are comparatively dominant, such as salaried and postgraduate respondents, later interpretations must avoid overgeneralizing from small minority groups. Thus, the demographic profile supports both analysis and interpretive caution.

Concluding interpretation of the demographic profile

In conclusion, the demographic profile of the respondents provides a strong and meaningful base for the study. The sample is composed largely of respondents who are educationally capable, economically active, and likely to have genuine interaction with the income tax filing process. This makes the dataset highly relevant for analysing the digitalization of tax filing.

At the same time, the demographic structure also reveals that the study is centered more on the experience of the formal-sector taxpayer than the most marginalized or digitally excluded population. Therefore, the findings should be read as a strong picture of how digital filing is experienced by relatively connected taxpayers, while also recognizing that the challenges identified here may be even more severe in less advantaged groups outside the sample.

Most importantly, the demographic profile establishes an interpretive baseline for the rest of the chapter: if opportunities are strongly recognized by this group, that supports the case that digitalization has delivered real value. But if challenges remain visible even within this group, that strongly indicates that the digital income tax system still requires simplification, support, and inclusive design.

Filing Status and Basic Compliance Behaviour

The question of whether taxpayers actually file returns, why they file, how regularly they file, which form they use, when they file, and how they verify their return is central to any study on the digitalization of income tax filing. Digitalization cannot be meaningfully assessed in abstraction from actual taxpayer behaviour. A system may be technologically sophisticated, but its true significance lies in whether taxpayers use it, how they use it, whether they engage with it confidently, and whether filing has become a routine and manageable part of compliance.

For this reason, the present subsection examines the behavioural side of the digital tax experience. While earlier parts of the chapter and later analytical sections discuss awareness, opportunity, challenge, risk, and satisfaction, this subsection focuses specifically on the most basic and observable compliance-related questions:

1. Do respondents file income tax returns or not?
2. If they do not file, what are their reasons?
3. If they do file, how regular is their filing behaviour across years?
4. What forms do they usually file?
5. Why do they file?
6. When do they normally file?
7. How do they verify their returns?

These questions are important because they reveal the depth of taxpayer participation in the digital tax system. They also help distinguish between:

- taxpayers who are structurally outside the filing net,
- taxpayers who file only occasionally,
- taxpayers who file consistently,
- and taxpayers who appear to have converted tax filing into a regular digital habit.

This distinction matters greatly in a dissertation on digitalization. The existence of a digital platform does not automatically mean that taxpayers have adopted digital compliance in a stable or confident way. Filing status and basic compliance behaviour therefore provide the foundational behavioural evidence upon which later interpretations of opportunity and challenge can be built.

Whether respondents file ITR

Out of the total 126 respondents, 102 respondents (81.0%) reported that they file Income Tax Return (ITR), while 24 respondents (19.0%) reported that they do not file.

This is a very important starting point. It means that a large majority of the sample consists of respondents who are not merely aware of taxation in theory, but are directly connected to actual tax compliance. From the perspective of the dissertation, this strengthens the relevance of the data because the opinions expressed later in the chapter are coming, in substantial part, from individuals who have practical exposure to the filing ecosystem.

An 81 percent filing rate within the sample suggests that the study is not dominated by non-taxpayers or by respondents entirely outside the formal compliance system. Instead, it reflects the views of a population in which tax filing is a normal and recurring activity for most respondents. This makes later discussions of digital opportunity, digital stress, and reliance on intermediaries more meaningful, because they emerge from a respondent base with real filing behaviour rather than hypothetical or second-hand views.

At the same time, the fact that nearly one-fifth of respondents do not file is also analytically useful. A study of digital tax filing should not ignore those who remain outside regular filing, because non-filing itself may reveal something about threshold effects, awareness, relevance, or structural exclusion. In this case, however, the reasons for non-filing, discussed below, show that non-filing is not primarily an act of avoidance in this dataset. Rather, it is mostly linked to perceived non-applicability.

Reasons for not filing ITR

Among the 24 respondents who reported that they do not file ITR, the reasons are heavily concentrated in one category.

The leading reason is income below taxable limit, reported by 20 respondents, which accounts for 83.3% of non-filers. A small number reported being not aware/not required. One respondent indicated not earning at all, and one gave a response equivalent to “No” without elaboration.

This pattern is highly significant. It indicates that in the present sample, non-filing is largely linked to income position rather than active tax resistance. In other words, most respondents who do not file are not refusing the digital system; they appear to consider themselves outside the effective obligation or practical need to file.

This finding matters because it shapes the interpretation of digitalization. If non-filing had been driven mainly by distrust, complexity, or opposition to the digital system, that would have suggested a more severe adoption problem. But the current pattern suggests something more limited and more legally understandable: many non-filers likely perceive that filing is unnecessary because their income does not cross the taxable or meaningful threshold for them.

However, even this result has an interpretive nuance. In India, some individuals with income below taxable limits may still choose to file returns for reasons such as refund claims, formal financial record, visa purposes, or future creditworthiness. Therefore, the fact that most below-threshold respondents in this sample do not file may also indicate that digitalization has not yet turned return filing into a universal financial habit across low-income groups. Filing still appears to be viewed primarily through a legal-liability lens rather than as a broader documentation or formalization tool for all.

This distinction is relevant for policy. Digitalization can simplify filing, but simplification alone does not create motivation. Where taxpayers do not perceive a direct reason to file, they may remain outside the system even if the platform itself is available.

Filing as a behavioural foundation of digital tax participation

The high proportion of filers in the sample allows an important substantive conclusion: the later findings of the chapter are based largely on respondents who are already inside the filing ecosystem. This gives the study a stronger behavioural base than many general perception surveys.

It also means that the digital tax system, for most respondents, is not a distant policy abstraction. It is an annual or recurring interface through which they interact with the state.

This distinction is conceptually important for the dissertation. Digital public services are often evaluated at the level of availability or policy rollout, but the more meaningful question is whether citizens have actually incorporated those services into their practical administrative lives. In this dataset, the answer appears to be yes for a substantial majority. This makes the study especially useful for interpreting lived compliance behaviour rather than nominal awareness alone.

Filing continuity across years

A very important aspect of basic compliance behaviour is not only whether respondents file, but how regularly they file. One-time filing and habitual filing are very different behavioural patterns. A taxpayer who filed once for a special reason does not have the same relationship to digital taxation as a taxpayer who has filed year after year and thereby converted compliance into a stable routine.

The survey asked respondents for which years they had filed ITR. Looking at the filing pattern among actual filers, the data show a clear increase in filing continuity toward recent years.

Among the 102 respondents who stated that they file ITR, the number who reported filing in each year is as follows:

- 2018–19: 75 respondents
- 2019–20: 76 respondents
- 2020–21: 81 respondents
- 2021–22: 86 respondents
- 2022–23: 90 respondents
- 2023–24: 96 respondents

This pattern is highly revealing. It shows that filing participation is strongest in the most recent years, especially 2022–23 and 2023–24. This could mean several things:

1. First, some respondents may be newer entrants to tax filing, having started in recent years due to rising income, more formal employment, or greater familiarity with digital processes.
2. Second, it may indicate increasing normalization of e-filing over time. As the digital tax system becomes more established and more integrated into routine compliance, more respondents may have come into regular filing.

3. Third, it may also reflect better recall and stronger salience of recent filings. But the trend is too clear to dismiss as memory alone. The increasing counts toward recent years strongly suggest that filing is now more widespread and more regular than in earlier years among this surveyed group. The data become even more insightful when filing continuity is examined at the individual level.

Among the 102 actual filers:

- 70 respondents filed for all six listed years
- 6 respondents filed in five years
- 5 respondents filed in four years
- 4 respondents filed in three years
- 5 respondents filed in two years
- 12 respondents filed in only one year

This means that 68.6% of actual filers have filed continuously across all six listed years. This is a very strong indicator of habitual compliance.

In addition:

- 83.3% of filers filed for the last three years together
- 94.1% of filers filed in the most recent year listed, i.e. 2023–24

These figures are extremely important for the dissertation because they show that the digital filing experience in the sample is not based mainly on first-time or occasional filers. A substantial majority of the filing population in this survey consists of repeated, continuing users of the tax system.

This has two key implications :

1. First, when respondents report satisfaction, challenge, or dependence, they are often doing so from the standpoint of repeated experience rather than isolated exposure. That makes their perceptions more credible as reflections of system performance.
2. Second, continuity of filing suggests that digitalization has succeeded, at least for many respondents, in turning return filing into a repeatable annual behaviour. This is a sign of administrative stabilization. A digital tax system is most successful not when it generates one-time adoption, but when it becomes a stable part of yearly compliance life.

At the same time, the existence of respondents who filed in only one or two years is also meaningful. It suggests that not all taxpayers have the same degree of continuity. Some may enter the filing system only when required, when a refund is due, or when employment or income conditions change. This reinforces the idea that digital compliance behaviour is not fully homogeneous even within the filer group.

Recent filing as an indicator of current digital integration

The especially high filing figure for 2023–24 deserves separate interpretation. Among actual filers, 96 out of 102 reported filing for that year, which amounts to 94.1%. Even when considered as a percentage of the full sample, that still accounts for 76.2% of all respondents.

This shows that the digital tax system is not merely a legacy habit for older taxpayers who filed long ago; it remains actively relevant in the present. The current-year filing prevalence indicates that the respondents are engaged with a live and recent digital tax environment.

This is important for the dissertation because it means the survey does not merely capture outdated impressions of earlier filing systems. The behavioural evidence is current enough to support a contemporary interpretation of digitalization.

Which ITR form respondents usually file

The survey also asked respondents which ITR form they usually file. Among the 102 actual filers, the distribution is as follows:

- ITR-1: 55 respondents (53.9%)
- ITR-2: 13 respondents (12.7%)
- ITR-3: 5 respondents (4.9%)
- ITR-4: 2 respondents (2.0%)
- Don't know: 26 respondents (25.5%)
- Not applicable: 1 respondent (1.0%)

This distribution is rich in interpretive significance.

The dominance of ITR-1 is fully consistent with the broader demographic structure of the sample, especially the high proportion of salaried respondents. ITR-1 is typically associated with relatively straightforward filing situations, and its prevalence suggests that a large part of the sample belongs to the comparatively standard filing segment of the taxpayer population.

The presence of ITR-2, ITR-3, and ITR-4, though smaller in number, indicates that the sample also includes taxpayers with more complex filing profiles, such as multiple income sources, business or professional income, or other non-standard situations.

However, perhaps the most striking finding here is that one-fourth of actual filers do not know which ITR form they usually file. This is a very important result and should not be treated as a minor curiosity.

It suggests that for many taxpayers, filing is experienced as an outcome rather than a fully understood process. A taxpayer may successfully file every year, but still not know the form category under which the return is filed. This is especially likely where a CA, consultant, employer account office, or family member handles the filing.

This finding provides a powerful behavioural illustration of one of the dissertation's core themes: digital access is not the same as digital autonomy. A taxpayer may comply, may even comply regularly, and may still not fully understand the procedural identity of their own filing.

From a taxpayer empowerment perspective, this is significant. The digital tax system may have improved speed and submission convenience, but procedural comprehension remains partial for a sizable segment of respondents.

Main reasons for filing ITR

The survey asked respondents to indicate the main reason for filing ITR, with the option to select up to two reasons. Among the 102 actual filers, the following pattern emerges:

- Mandatory/legal compliance: 97 respondents (95.1%)
- Refund claim: 61 respondents (59.8%)

- TDS adjustment/records: 37 respondents (36.3%)
- Loan/visa purposes: 11 respondents (10.8%)
- Carry forward loss: 1 respondent (1.0%)
- Other reasons: 8 respondents (7.8%)

Because respondents could select more than one option, these percentages do not add up to 100. Instead, they show the relative prominence of each motivation within the filer group.

The results are highly instructive.

- **Mandatory/legal compliance** The overwhelming dominance of mandatory/legal compliance shows that filing is still fundamentally understood as a legal duty. This is an important baseline finding. Digitalization has not changed the normative core of tax filing: respondents still primarily file because they see it as something they are required to do. This suggests that digitalization has modernized the method of compliance more than the underlying motivation for compliance. The act of filing may be digital, but the strongest driver remains legal obligation.
- **Refund claim** The second most common reason is refund claim, cited by nearly three-fifths of filers. This is highly significant because it shows that taxpayers do not file only out of duty. They also file to secure a financial benefit that depends on successful digital processing. This reflects one of the strongest practical gains of digitalization. Refund-oriented filing gives taxpayers a direct and tangible reason to engage with the tax system. In this sense, digital filing is not only about revenue collection; it is also about returning money efficiently to taxpayers where appropriate. The importance of refund claims also reinforces later survey findings on the value of transparency and status tracking. When taxpayers file partly to claim refunds, the ability to track processing and status online becomes especially meaningful.
- **TDS adjustment and records** A substantial proportion of respondents also cited TDS adjustment/records. This suggests that filing is used not only for final tax settlement, but also for reconciling deductions already made and for maintaining formal financial documentation. This is important from a compliance-behaviour perspective because it shows that tax filing is increasingly embedded in a larger ecosystem of formal finance, salary processing, and documented income history.
- **Loan/visa purposes** A smaller but still notable share of respondents cited loan or visa purposes. This highlights a broader modern function of the ITR: it serves as a document of financial identity. Even when tax liability is not the only concern, return filing may be used as proof of income, stability, or formal financial standing.
- **Carry forward loss** The very low share for carry-forward loss is unsurprising given the occupational and income structure of the sample, which is heavily salaried and therefore less dominated by business-loss reporting or capital-loss optimization concerns.
- **Other reasons** The “other” responses are relatively few, but they are conceptually interesting. Some reflect civic duty, rule-following, or general responsibility. Even though these are numerically small, they suggest that for a minority of respondents, filing also has a moral or citizenship dimension beyond mere compulsion or instrumental benefit.

Behavioural meaning of filing motivation

The distribution of filing reasons reveals that tax filing in the digital era is motivated by a combination of:

- legal obligation,
- financial recovery (refund),
- record maintenance,
- and to a lesser extent, broader formal documentation needs.

This mixed motivational structure is important. It suggests that the digitalization of tax filing has widened the practical relevance of the return. Filing is not only an exercise in statutory obedience. It is also a way to:

- correct deductions,
- claim money back,
- preserve financial records,
- and strengthen one's documented status in formal systems.

This is a major opportunity dimension of digitalization. The more efficiently the system processes returns, the more valuable filing becomes for taxpayers themselves.

At the same time, the continued dominance of “mandatory/legal compliance” shows that digitalization has not transformed filing into a fully voluntary or intrinsically attractive activity. It remains, above all, a required process that taxpayers complete because they must.

When respondents usually file

The survey also asked respondents when they usually file their return. Among the 102 actual filers, the distribution is as follows:

- 1 month before due date: 68 respondents (66.7%)
- 1 week before due date: 29 respondents (28.4%)
- 2–3 days before due date: 4 respondents (3.9%)
- After due date: 1 respondent (1.0%)

This is one of the most interesting behavioural findings in the dataset.

A strong majority of respondents report filing one month before the due date, while another large segment files one week before. Very few wait until the final two or three days, and almost none report filing after the due date.

This pattern suggests that the surveyed taxpayers are not, on average, habitual procrastinators in tax compliance. Instead, most appear to file within a reasonably early or orderly timeframe.

This has several possible interpretations :

1. First, it may reflect a relatively disciplined sample, especially given the dominance of salaried and educated respondents.
2. Second, it may indicate that many respondents rely on organized filing channels such as CAs, consultants, or employer/account offices, which may structure the timing of filing in a more systematic way.
3. Third, it may reflect awareness of peak-period portal stress. If taxpayers know that the system may slow down near the deadline, filing earlier becomes a rational behavioural adaptation.

4. Fourth, it may also indicate that digitalization has made earlier filing easier by improving access to online submission, verification, and status tracking. At a deeper level, filing timing is a useful indicator of compliance culture. Filing one month or one week before due date suggests that return submission has become normalized as a planned administrative act rather than an emergency response. This is an important sign of digital stabilization.

However, the presence of nearly one-third filing only one week before the due date also means that deadline pressure remains relevant. Since later sections of the survey show dissatisfaction with peak-period portal speed, this timing pattern becomes important: a large number of taxpayers are still engaging the system during relatively high-pressure windows.

Timing behaviour and digital maturity

The timing pattern also reveals something about the maturity of digital filing in the sample. In early stages of digitalization, taxpayers may hesitate, delay, or remain uncertain. But where filing becomes habitual and better understood, taxpayers may begin to integrate it into yearly routines.

The fact that two-thirds of filers report filing a month before the due date suggests that for many respondents, filing has entered the realm of predictable annual compliance behaviour. This indicates a measure of digital maturity at the behavioural level.

Yet, because a large share still uses assisted filing, this maturity may not always be individual. In many cases it may be managed maturity, where the taxpayer's filing is regular because the consultant, employer, or adviser manages it. This again reinforces the distinction between system-level compliance and personal-level autonomy.

How respondents verify their return

The survey further asked respondents how they usually verify their return. Among the 102 actual filers, the responses are as follows:

- Aadhaar OTP: 79 respondents (77.5%)
- Netbanking/EVC: 8 respondents (7.8%)
- Someone else does it: 8 respondents (7.8%)
- Don't know: 4 respondents (3.9%)
- ITR-V sent by post: 2 respondents (2.0%)
- DSC: 1 respondent (1.0%)

This distribution is very revealing.

The overwhelming dominance of Aadhaar OTP shows that verification has become highly integrated with India's broader digital identity infrastructure. This indicates that the final step of return completion is, for most respondents, now strongly dependent on a digital authentication ecosystem.

From the perspective of opportunity, this is a major convenience gain. Aadhaar OTP verification simplifies and accelerates the filing process. It avoids the need for physical dispatch of ITR-V in most cases and helps complete the return cycle online.

From the perspective of challenge, however, this also introduces certain dependencies:

- access to the registered mobile number,
- confidence in using OTP-based verification,
- correct linkage of identity credentials,
- and safe handling of sensitive authentication steps.

The fact that 7.8% of respondents said "someone else does it," and 3.9% said they do not know how verification is done, is extremely important. This means that a notable minority of filers do not personally control or fully understand even the final act that legally validates their return.

This again underscores one of the dissertation's central behavioural insights: digital tax compliance can be complete at the system level while still remaining partially outsourced at the user level.

The very small proportion using ITR-V by post suggests that physical verification has become marginal in this sample, which is consistent with the broader transition toward end-to-end digital filing. The minimal use of DSC is also expected in a sample not dominated by entities or professional segments where DSC use is more common.

Verification behaviour as an indicator of procedural ownership

Verification is not just a technical last step; it is the act that confirms taxpayer ownership of the return. Therefore, how respondents verify their returns tells us something deeper about procedural control.

Where taxpayers themselves use Aadhaar OTP or EVC, verification can be seen as a sign of direct engagement. But where someone else does the verification, or the taxpayer does not know the method, procedural ownership becomes diluted.

This matters because digital filing systems often assume that the taxpayer is the active user. In reality, for a portion of respondents, the digital interface is mediated. The return exists in the taxpayer's name, but not always under the taxpayer's full operational command.

This has implications for both autonomy and risk. It helps explain why credential misuse, privacy, and intermediary issues become central concerns later in the chapter.

Basic compliance behaviour as a whole: what the pattern shows

When the filing-status and basic-behaviour variables are read together, a clear behavioural picture emerges.

The sample consists largely of actual filers. Most of these filers are not occasional; they are regular filers, with a strong proportion showing six-year continuity. Most file for reasons of legal compliance, but many also file for refund claims and record-related reasons. Most appear to follow reasonably disciplined timing and submit before the final deadline window. Aadhaar OTP dominates verification behaviour, showing a strong integration between tax filing and India's digital identity-based validation system.

These are all signs that the digital tax system has become deeply embedded in taxpayer behaviour.

Yet the same behavioural profile also contains signs of limited procedural autonomy:

- many do not know their ITR form,
- some do not know how their return is verified,
- and later sections show that many do not file independently.

Thus, basic compliance behaviour in this study reveals a dual reality.

On the one hand, digital filing is normalized, routinized, and recent. On the other hand, the normalization of filing does not always mean the normalization of independent taxpayer control.

This is one of the most important behavioural findings of the dissertation.

Relevance of this subsection to the dissertation theme

The dissertation is concerned with the opportunities and challenges for taxpayers arising from the digitalization of income tax filing in India. The present subsection contributes to that theme in a direct way.

Opportunity side :

The behavioural evidence shows that digitalization has helped establish return filing as a repeatable and current compliance practice. High recent filing rates, strong continuity among filers, and the dominance of online verification methods all suggest that the system is functioning as a real digital public service rather than a merely nominal reform.

Challenge side :

At the same time, the same behavioural data show that many taxpayers do not fully understand or control the procedural details of their filing. Not knowing the ITR form, not personally handling verification, or relying on managed filing channels suggests that the digital system is not yet equally empowering for all users.

Thus, even before later sections on awareness, satisfaction, and risk, the basic compliance behaviour already supports the broader conclusion that digitalization has increased reach and routine, but not always full taxpayer independence.

Methodological relevance of this subsection to later analysis

This subsection also provides the behavioural foundation for later interpretations in the chapter.

For example:

- the high share of actual filers justifies deeper analysis of satisfaction and challenge,
- the continuity of filing explains why respondents can meaningfully evaluate portal experience,
- the large “don't know” share in ITR form choice helps interpret awareness gaps,
- the verification pattern helps interpret OTP-sharing and security concerns,
- and the strong role of refund claim helps explain why tracking and transparency are valued later.
- In this sense, filing status and basic compliance behaviour are not isolated descriptive facts. They are the behavioural baseline for the entire empirical argument of the dissertation.

Concluding interpretation of filing status and basic compliance behaviour

In conclusion, the filing-status and compliance-behaviour profile of the respondents reveals that the sample is strongly grounded in practical tax participation. A large majority of respondents file returns, and most of those filers do so regularly and recently. Legal compliance is the dominant motivation, but financial and documentation-related reasons such as refunds and TDS adjustment also play an important role. Filing behaviour is relatively disciplined in timing, and Aadhaar-based digital verification has become the dominant mode of finalizing returns.

These patterns show that digital tax filing is no longer a peripheral phenomenon for the surveyed respondents. It is an established part of their annual compliance life.

At the same time, the behavioural results also reveal that digital participation is not identical to digital mastery. A notable share of taxpayers do not know the form they file, do not fully control verification, or operate through mediated rather than independent filing structures. This means that the digitalization of tax filing in India has been successful in expanding and stabilizing compliance behaviour, but not equally successful in making all taxpayers fully self-sufficient within the system.

That conclusion becomes the bridge to the next analytical sections of the chapter, which examine how awareness, portal comfort, opportunity perception, challenge perception, risk, and satisfaction interact with these behavioural patterns.

Digital Readiness: Devices, Internet, and Portal Comfort

The digitalization of income tax filing cannot be understood only by studying whether taxpayers file returns online. It must also be understood in terms of digital readiness. Digital readiness refers to the practical and psychological conditions that make digital filing possible and manageable. These conditions include whether the taxpayer has access to an appropriate device, whether internet access is stable enough for form filling and verification, and whether the taxpayer feels comfortable using online government portals. In a digital public service context, readiness is not merely a background condition; it is one of the key determinants of whether digitalization translates into autonomy or merely shifts dependence from physical offices to digital intermediaries.

This subsection is therefore concerned with the foundational technological environment within which digital filing takes place.

It asks three basic but extremely important questions:

1. What kind of devices do respondents have available for e-filing?
2. How reliable is their internet access?
3. How comfortable are they using online government portals?

These three dimensions together provide a practical base for understanding why some taxpayers appear relatively independent and confident in digital filing, while others remain dependent, hesitant, or only partially engaged. This is important because digitalization is often presented in policy discourse as a matter of platform rollout, but for taxpayers the actual experience begins much earlier — with whether they have the hardware, connectivity, and confidence needed to use the system in the first place.

In the present dataset, digital readiness appears broadly present, but not evenly deep. Most respondents have access to at least one usable device and regular internet connectivity. However, digital comfort is distributed more unevenly. This suggests that the primary challenge for many respondents is not total exclusion from the digital environment, but rather incomplete confidence and incomplete procedural ease within it.

Conceptual meaning of digital readiness in the context of tax filing

For an ordinary taxpayer, digital readiness in tax administration is not the same as general smartphone usage or social media familiarity. Filing an income tax return requires a more demanding type of digital engagement. It often involves:

- logging into a secure government portal,
- navigating form structures,
- reading compliance-related instructions,
- reviewing pre-filled information,

- matching tax data with one's own records,
- making decisions about forms, regimes, deductions, and declarations,
- using OTP-based or banking-based verification,
- and sometimes saving, revising, or downloading compliance documents.

Thus, a taxpayer may be “digitally active” in daily life and still not be fully ready for self-managed tax filing. This is why digital readiness in the present study is treated as a layered construct rather than a simple yes-or-no condition.

The dataset suggests that digital readiness in this context operates at three levels:

1. First, hardware readiness — whether the respondent has access to a laptop, desktop, smartphone, or multiple devices suitable for filing.
2. Second, connectivity readiness — whether the respondent has regular and reliable internet access, which is especially important for login, verification, upload, and last-date filing.
3. Third, interface readiness — whether the respondent feels comfortable using online government portals, which is perhaps the most important of the three because even a well-connected taxpayer may still hesitate if the interface feels official, technical, or intimidating.

This three-layer approach is useful because it helps explain why taxpayers with similar incomes or education levels may still differ sharply in their actual filing experience. A person may possess a smartphone but prefer not to use it for tax filing. A person may have internet access but still feel anxious when uploading data. A person may have both hardware and internet but continue to rely on a CA because the official portal feels too consequential to handle alone.

Device availability for e-filing

The first dimension of digital readiness concerns the physical device through which respondents access digital tax services. The survey asked about device availability for e-filing, and the responses show the following pattern:

- Laptop/Desktop: 73 respondents
- Smartphone only: 16 respondents
- Both smartphone and computer: 34 respondents
- Missing response: 3 respondents

If calculated as a percentage of the full sample of 126 respondents, this means:

- 57.9% primarily reported laptop/desktop access
- 12.7% reported smartphone-only access
- 27.0% reported access to both
- 2.4% did not provide a device response

This device pattern is highly significant. It shows that the dominant mode of digital readiness in the sample is not smartphone-only dependency. Rather, the majority of respondents are either computer-based users or have access to both a computer and a smartphone. This is a strong indicator that the sample is relatively well-equipped for administrative digital tasks.

This matters because tax filing is qualitatively different from many other forms of digital interaction. A smartphone may be sufficient for checking messages or completing simple service requests, but tax filing often becomes more manageable on a larger screen, especially when the taxpayer must review pre-filled fields, compare values, enter multiple deductions, or check supporting information such as AIS or Form 26AS. Thus, the relatively high prevalence of laptop or desktop access likely contributes positively to the overall usability of the tax-filing process in this sample.

The existence of a sizeable “both device” group is also notable. Having access to both smartphone and computer may provide taxpayers with flexibility. For example, a respondent may use a computer for actual data entry and a mobile phone for OTP-based authentication. This dual-device environment may reduce friction and increase convenience. In practice, this kind of multi-device readiness is often highly useful in digital tax filing, since login, bank validation, Aadhaar-based verification, and document access may occur across devices.

At the same time, the smartphone-only group, though smaller, remains analytically important. Even though this group constitutes only 12.7% of respondents, their digital experience may be more constrained. Smartphone-only tax filing can be workable, but it can also be more tiring, more error-prone, and less comfortable for reading lengthy instructions or reviewing complex returns. Therefore, the presence of a smartphone-only subgroup suggests that not all respondents enter the portal on equally favourable terms.

This is reflected in the broader index results. Respondents with access to both devices had the highest average Awareness Index (3.76) and a strong Opportunity Index (4.31). Smartphone-only respondents, by contrast, showed a lower Opportunity Index (3.50) and a lower Satisfaction Index (3.42) compared with laptop/desktop users and dual-device users. Although device type does not produce equally strong statistical differences on every dimension, the descriptive pattern suggests that the practical quality of digital filing is related to the type of device through which the taxpayer interacts with the system.

This supports an important interpretive point: digital readiness should not be equated simply with “having some device.” The nature of the device matters. A taxpayer with only a smartphone may be digitally connected, but not equally enabled for a form-intensive, legally sensitive administrative process like tax filing.

What device availability reveals about the sample

The device profile reveals three broader things about the respondent pool :

1. First, the sample is relatively digitally equipped, especially compared with populations that are heavily dependent on shared or public access points. This aligns with the earlier demographic finding that the respondents are largely urban/semi-urban, educated, and salaried.
2. Second, because device access is relatively strong, many of the difficulties reported later in the chapter cannot be explained simply by absence of hardware. If respondents still report dependence on others, fear of mistakes, or discomfort with filing, those difficulties are likely to arise more from interpretive, procedural, or confidence-based issues than from a complete lack of devices.
3. Third, the device distribution suggests that digital tax reform in this respondent group has moved beyond the stage of basic physical access. The key policy question is no longer only whether taxpayers have a device. It is whether that device setup allows them to participate independently and confidently.

This distinction is very important for the dissertation. Digital readiness at the hardware level is a necessary condition for digital filing, but it is not a sufficient condition for digital autonomy.

Internet availability

The second dimension of digital readiness is internet availability. The survey results show the following pattern:

- Regular and reliable internet: 110 respondents
- Sometimes unstable internet: 13 respondents
- Rare access: 3 respondents

As percentages of the full sample:

- 87.3% reported regular and reliable internet
- 10.3% reported that internet is sometimes unstable
- 2.4% reported rare access

This is one of the strongest readiness findings in the dataset. It shows that internet connectivity, at least at a broad self-reported level, is not a major exclusionary barrier for most respondents. The overwhelming majority appear to operate in a relatively connected environment.

This has two important implications :

1. First, it helps explain why the study's challenge profile is not dominated by total inability to access the portal. Since most respondents have regular internet access, later complaints about difficulty are more likely to relate to portal structure, support systems, language, or fear of mistakes, rather than an inability to get online at all.
2. Second, the high rate of regular and reliable internet reinforces the idea that the sample is drawn from a relatively connected segment of taxpayers. This is consistent with the urban-majority character of the respondent pool. It also means that where respondents still express difficulty, that difficulty deserves serious attention because it persists despite basic digital infrastructure being present.

However, the smaller subgroup with unstable or rare internet access should not be ignored. Even if they are numerically few, they represent an important reminder that digital public services still depend on infrastructural reliability. For tax filing, internet instability can be especially stressful because the process often involves:

- repeated login,
- OTP receipt,
- page loading,
- portal navigation,
- upload validation,
- and final submission or verification.

A taxpayer may be willing to file independently but still become dependent on others if the network environment is unreliable. In this sense, internet instability can indirectly increase reliance on intermediaries even where awareness is not particularly low.

This is also reflected in the index results. Respondents with regular and reliable internet show:

- an Awareness Index of 3.56
- an Opportunity Index of 4.15
- a Satisfaction Index of 3.83

By contrast, those with sometimes unstable internet show:

- an Awareness Index of 2.54
- an Opportunity Index of 3.71
- a Satisfaction Index of 3.36

The differences in awareness and opportunity are statistically meaningful, and satisfaction also trends lower in the less stable internet group. This indicates that connectivity quality does not merely affect convenience; it may also shape how useful and understandable the system feels to the taxpayer.

A particularly important interpretive point emerges here: the impact of internet quality appears stronger on awareness and perceived usefulness than on challenge and risk scores. This suggests that unreliable internet reduces the taxpayer's sense of command over the digital process, even if it does not radically change all other perceptions.

Why connectivity matters differently in tax filing than in everyday internet use

It is worth emphasizing that internet availability in tax filing must be interpreted differently from internet availability in general digital life. Many people can use unstable internet for casual browsing or social communication, but tax filing requires a more reliable connection because the consequences of interruption are greater.

An unstable connection during tax filing can affect:

- login continuity,
- OTP timing,
- data submission,
- payment confirmation,
- and verification completion.

Moreover, taxpayers often experience these steps not as isolated technical events but as high-stakes moments. A person who is already anxious about incorrect filing or notices may find instability particularly stressful. Thus, even a relatively small group with unstable internet access can face disproportionately large anxiety or dependency effects.

In a digital governance context, this means that connectivity is not merely a background service. It is part of the compliance environment itself.

Comfort using online government portals

The third and arguably most important dimension of digital readiness is the respondent's comfort using online government portals. This goes beyond devices and internet. It speaks directly to the taxpayer's interface-level confidence.

The survey shows the following distribution:

- Very high comfort: 17 respondents
- High comfort: 34 respondents

- Moderate comfort: 63 respondents
- Low comfort: 8 respondents
- Very low comfort: 4 respondents

As percentages of the full sample:

- 13.5% reported very high comfort
- 27.0% reported high comfort
- 50.0% reported moderate comfort
- 6.3% reported low comfort
- 3.2% reported very low comfort

This distribution is extremely revealing. It shows that the sample is not dominated by either complete discomfort or complete mastery. Instead, the largest group occupies the middle ground of moderate comfort.

This is one of the most important digital readiness findings in the entire dataset.

Moderate comfort means that many taxpayers are not digitally excluded, but neither are they fully confident. They can likely navigate certain online tasks, but may still hesitate when dealing with high-consequence processes such as tax filing. This is exactly the kind of respondent who may be able to log in, check a status, or complete basic portal steps, yet still prefer assistance when the process becomes more technical or when the risk of error feels high.

Therefore, the comfort distribution strongly supports one of the dissertation's broader arguments: digital readiness is not simply about access. It is also about confidence threshold. A taxpayer may be technologically present but psychologically partial in their readiness.

The relatively smaller high and very high comfort groups are also important. Together, they account for 51 respondents, or 40.5% of the sample. This means a substantial minority of respondents do feel strongly comfortable with online government systems. This group is likely to form the core of self-filers, repeat digital users, and those who experience the portal more as a convenience than as a burden.

By contrast, the low and very low comfort categories together account for 12 respondents, or 9.5% of the sample. This is a minority, but not a trivial one. These respondents likely represent the group most vulnerable to technological dependence, avoidance, or anxiety in digital compliance.

Portal comfort as a dividing line in taxpayer experience

Portal comfort turns out to be one of the strongest dividing variables in the entire dataset.

The mean scores by comfort level show the following pattern:

1. Very low comfort:
 - Awareness 2.66,
 - Opportunity 2.82,
 - Satisfaction 3.00
2. Low comfort:
 - Awareness 3.11,
 - Opportunity 3.52,
 - Satisfaction 3.73
3. Moderate comfort:
 - Awareness 3.09,
 - Opportunity 3.92,
 - Satisfaction 3.59
4. High comfort:
 - Awareness 3.87,
 - Opportunity 4.43,
 - Satisfaction 4.03
5. Very high comfort:
 - Awareness 4.25,
 - Opportunity 4.54,
 - Satisfaction 4.14

The statistical relationship is especially strong for:

- Awareness
- Opportunity perception
- Satisfaction

These differences are not trivial. They show that taxpayers who feel more comfortable with online government portals are not merely calmer; they are also more informed, more positive about the system's value, and more satisfied with the experience.

This is a major analytical result. It implies that the success of digital tax filing is highly connected to broader portal literacy. The e-filing system does not operate in a vacuum. It sits within a larger citizen-government digital relationship. Taxpayers who are already comfortable with online government interaction are better positioned to benefit from digital tax filing.

At the same time, an equally interesting pattern is that portal comfort does not produce equally strong differences in challenge and risk scores. The differences there are weaker and not statistically strong. This suggests that even more comfortable taxpayers still recognize real risks and systemic challenges. In other words, high comfort improves awareness and satisfaction, but it does not make the system appear risk-free.

This is a subtle but important finding. It means that some of the challenges in the digital tax system are systemic, not merely user-side. Even digitally confident taxpayers may worry about notices, privacy, portal speed, or official complexity. Therefore, the burden of improvement cannot be placed only on taxpayers becoming more digitally skilled; the system itself must also become more intelligible and support-rich.

Digital readiness and self-filing tendency

Although the most formal and strongest relationships appear between portal comfort and awareness/opportunity/satisfaction, digital readiness also shows a descriptive relationship with self-filing.

Among actual filers:

- respondents with very high portal comfort show the strongest self-filing tendency
- respondents with moderate comfort are more likely to remain in assisted modes
- respondents with very low comfort are least likely to self-file

The descriptive pattern suggests that digital comfort improves the likelihood that the taxpayer will act as an independent user rather than a dependent participant. However, the relationship is not perfect, which is itself revealing. Some highly comfortable respondents still use consultants or other helpers. This means that self-filing is influenced not only by comfort, but also by:

- time constraints,
- perceived complexity,
- financial stakes,
- habit,
- and trust in professional assistance.

Thus, digital readiness improves the possibility of autonomy, but it does not automatically produce autonomy. This is why the dissertation repeatedly distinguishes between readiness, access, and actual self-managed compliance.

Device, internet, and comfort together: a layered picture of readiness

When the three digital readiness variables are read together, the dataset reveals a layered picture.

At the basic infrastructure level, the sample appears fairly strong:

- most respondents have access to a computer or multiple devices,
- most have regular and reliable internet,
- and only a very small minority report rare internet access.

At the confidence level, however, the picture is more mixed:

- only a minority report very high comfort,
- the largest group reports only moderate comfort,
- and almost one in ten report low or very low comfort.

This means that the main barrier in this sample is not absolute digital exclusion. It is partial readiness. Respondents are sufficiently connected to participate in a digital system, but not always sufficiently comfortable to manage it independently.

This is a critical finding because it helps explain why a relatively connected and educated sample can still show:

- high dependence on CAs or consultants,
- meaningful concern about errors and notices,
- demand for better support,
- and only moderate awareness of deeper portal features.

In short, digital readiness in this sample is strong enough to sustain online filing, but not always strong enough to guarantee autonomous filing.

The difference between access and confidence

One of the most important theoretical insights from this subsection is the distinction between access and confidence.

A respondent may have:

- a laptop,
- stable internet,
- and a smartphone for OTP,

and yet still hesitate to complete tax filing independently because:

- the portal feels too official,
- the language feels technical,
- the consequences of error feel severe,
- or the taxpayer simply does not trust their own interpretation of the process.

This distinction is fundamental to the dissertation topic. If digitalization is evaluated only in terms of access, then the present sample might appear highly ready. But if it is evaluated in terms of confidence-based manageability, then the picture is more mixed.

This is why the digitalization of tax filing cannot be assessed only by portal availability, login counts, or filing volume. It must also be assessed by asking whether taxpayers feel sufficiently confident to navigate the system without excessive dependence on others.

The current dataset strongly suggests that this second question remains open.

Why moderate comfort matters more than extreme categories

The dominance of the moderate comfort category deserves special emphasis. In many studies, attention tends to focus on the extremes — the highly skilled user and the digitally excluded user. But in practical governance, the middle group is often more important.

A taxpayer with moderate comfort is not disconnected. They are likely capable of basic online activity. They may even be able to log into the tax portal, download statements, or view status updates. But when faced with:

- multiple schedules,
- deduction interpretation,
- AIS mismatch,
- regime choices,
- or the final act of submission,

they may prefer help.

This makes the moderate comfort taxpayer the key policy subject of digital tax reform. If the system can be improved enough to convert moderate-comfort users into confident independent users, the impact of digitalization would deepen dramatically. In contrast, if moderate-comfort users remain dependent, then the system may continue to show high digital usage with only partial taxpayer empowerment.

Thus, the moderate-comfort majority in the sample is not a neutral finding. It is arguably the most important target group for future simplification and guided support reforms.

Digital readiness and dependence on others

The survey also separately asked whether respondents had ever relied on someone else because they were not technologically comfortable. The responses were almost evenly split:

- Yes: 66 respondents
- No: 60 respondents

This means that 52.4% of the full sample have at some point relied on another person due to technological discomfort.

This is a powerful finding when read together with the digital readiness variables. The sample is not materially cut off from devices or the internet. Yet more than half have relied on someone else because they were not technologically comfortable.

This confirms that digital dependence in tax filing is not simply a matter of physical access. It is a matter of comfort, interpretive confidence, and perceived risk.

In other words, the taxpayer may be digitally present but still not digitally sovereign.

This is one of the most important conclusions of this subsection and of the dissertation more broadly.

Implications of digital readiness for later sections of the chapter

The findings of this subsection form the basis for interpreting much of the later analysis in the chapter.

The relatively high device and internet readiness help explain why the respondents can meaningfully evaluate:

- portal functions,
- verification systems,
- AIS awareness,
- opportunity items,
- and satisfaction.

At the same time, the uneven comfort profile helps explain why:

- awareness is only moderate overall,
- self-filing is not dominant,
- guidance deficits are strongly felt,
- and support systems matter so much.

In other words, digital readiness helps explain both the opportunity side and the challenge side of the study.

Where readiness is strong, taxpayers appreciate time-saving and transparency. Where readiness is partial, taxpayers experience stress, dependence, and uncertainty.

Thus, digital readiness is not a peripheral background variable. It is one of the central mechanisms through which digitalization becomes either empowering or merely manageable.

Concluding interpretation of digital readiness

In conclusion, the survey data show that respondents are, on the whole, relatively well positioned in terms of basic digital access. Most have suitable devices, most have regular internet, and only a very small minority face severe infrastructural constraints. This means that the surveyed taxpayers are not operating in a context of deep digital exclusion.

However, the more important finding is that confidence and comfort are much more unevenly distributed than devices and internet. The largest group of respondents reports only moderate comfort using online government portals, and more than half have at some point relied on someone else because of technological discomfort.

This leads to a major conclusion for the dissertation: the challenge in digital income tax filing is not primarily the absence of digital infrastructure among the surveyed respondents. Rather, it is the gap between being digitally connected and being digitally self-sufficient.

The digitalization of income tax filing in India, at least for this sample, appears to have crossed the stage of simple access. It has not yet fully crossed the stage of universal user confidence. That unresolved gap becomes crucial in understanding why taxpayers may simultaneously appreciate the efficiency of e-filing and still remain dependent on intermediaries, anxious about mistakes, or only moderately satisfied with the overall system.

Awareness of Key E-Filing Components

Awareness is one of the most fundamental dimensions in any study of digital taxation. A taxpayer cannot meaningfully benefit from the digitalization of income tax filing unless they know, at least to some degree, how the digital system works. Digital readiness in terms of device access and internet connectivity may create the possibility of participation, but awareness determines whether that participation becomes informed, confident, and independent. For this reason, awareness is not a secondary variable in the present study; it is one of the core determinants of whether digital tax filing becomes an opportunity or remains a source of dependence and uncertainty.

In the context of income tax filing, awareness should not be understood narrowly as mere recognition that the portal exists. It is a deeper and more functional concept. A taxpayer may know that returns are filed online and still lack awareness of how registration works, how e-verification is completed, how pre-filled return data should be interpreted, how Form 26AS or TDS records should be matched, how online tax payment is made, how grievance or complaint features work, or what faceless assessment and appeal mechanisms mean in practice. Therefore, awareness in this dissertation is treated as a multi-layered construct, covering not just familiarity with filing but familiarity with the broader architecture of digital tax administration.

This subsection examines that awareness in detail. It first considers respondents' self-reported understanding of basic income-tax provisions applicable to them. It then analyses awareness of specific digital filing components such as login and registration, e-verification, pre-filled returns and AIS, Form 26AS and TDS matching, online challan payment, faceless assessment and e-

proceedings, faceless appeals, and helpdesk or grievance services. The purpose is not only to identify whether awareness is high or low, but also to understand what type of awareness taxpayers possess. As the results show, respondents are relatively more aware of front-end filing functions and relatively less aware of deeper remedial, defensive, or post-filing features.

This distinction is crucial. The official Income Tax Department portal is not merely a return-upload platform; it includes AIS, help resources, e-Proceedings, grievance services, and online appeal-related functions. AIS is intended to provide a broader information view and support taxpayer feedback, the portal has a dedicated help section, e-Nivaran grievance functionality, and e-Proceedings for responding to notices, while Form 35 can be filed online for appeals. In other words, the present system expects taxpayers not only to file digitally, but also to interact with a wider digital compliance environment when issues arise.

The survey evidence shows that this broader awareness remains incomplete. Taxpayers are more confident about the filing-entry parts of the system than about the resolution, response, and appellate parts. This means that digitalization has progressed further at the level of routine transaction than at the level of full taxpayer comprehension.

Overall level of awareness in the sample

The overall Awareness Index constructed from the eight e-filing awareness items has an average value of 3.45 out of 5. This places the sample, on average, in the range of moderate awareness rather than either low awareness or very high awareness.

This is one of the most important baseline findings in the entire chapter. The respondents are not unaware of the digital tax system. Nor can they be described as uniformly or deeply informed. Their awareness is substantial enough to indicate exposure, but incomplete enough to leave room for dependence, confusion, and support needs.

This moderate level of awareness is especially significant when read alongside the earlier demographic profile. The sample is largely:

- educated,
- salaried,
- urban or semi-urban,
- and concentrated in the active working-age population.

In such a sample, one might expect awareness to be very high across all dimensions of digital filing. The fact that it is only moderate overall is analytically important. It suggests that digital tax awareness is not simply a function of education or internet access. It depends on repeated procedural familiarity, confidence in dealing with tax-specific terminology, and actual need to engage with different components of the filing ecosystem.

In other words, a taxpayer may be socially and digitally well-placed and still not fully understand the tax portal in a functional sense. This is why awareness is such a strong explanatory factor in the study: it helps account for why some taxpayers file confidently while others rely on CAs, consultants, or family support.

Self-reported understanding of basic income-tax provisions

Before looking at the specific digital components, the survey asked respondents a broader question: whether they understand the basic income-tax provisions applicable to them, such as deductions, TDS, and tax regimes.

The responses show the following pattern:

- Not at all: 9 respondents
- Slightly: 20 respondents
- Moderately: 41 respondents
- Well: 35 respondents
- Very well: 21 respondents

If these categories are arranged on a five-point scale from 1 to 5, the average score is approximately 3.31. This indicates that respondents, on average, place themselves a little above the midpoint in terms of understanding their own applicable tax provisions.

This finding is extremely important because awareness of digital filing cannot be separated from awareness of tax substance. A taxpayer may know how to log in, but if they do not understand the tax provisions relevant to them, their digital interaction remains shallow. For example, knowledge of deductions, TDS, and regime selection is essential for using pre-filled data properly, checking whether the portal's information aligns with one's own tax position, and deciding whether to trust or question an auto-populated entry.

The distribution also reveals a meaningful internal divide:

- around 44.4% of respondents rate themselves as understanding their tax provisions well or very well
- around 23.0% fall in the slightly or not at all range
- the largest single group, 32.5%, remains in the moderate category

This shows that many respondents possess only partial tax understanding. That matters because digital tax filing is not simply a technical upload exercise; it is a compliance decision-making process. Taxpayers who are only moderately clear on tax provisions are more likely to depend on guided help, pre-fill cues, employers, or professional intermediaries.

Thus, even before examining the portal-specific items, the study reveals that the cognitive base for independent filing is uneven.

Awareness of e-filing portal login and registration

The first specific awareness item concerns e-filing portal login and registration. This item has an average score of approximately 3.69, making it one of the stronger awareness components in the survey.

The distribution is as follows:

- Score 1 (Not aware): 11 respondents
- Score 2 (Slightly aware): 12 respondents
- Score 3 (Somewhat aware): 22 respondents
- Score 4 (Aware): 41 respondents
- Score 5 (Fully aware): 40 respondents

This means that 81 respondents, or 64.3% of the total sample, can be placed in the aware or fully aware category for login and registration. Only 18.3% fall into the lower awareness band of 1 or 2.

This is a relatively positive result and is consistent with the fact that a large majority of the respondents actually file returns. Login and registration are among the most visible and unavoidable entry points into the digital tax system. A taxpayer who files repeatedly is naturally more likely to recognize the mechanics of portal access.

However, even here the result should not be overstated. Nearly one-fifth of respondents still remain in the low-awareness band, and another 17.5% are only “somewhat aware.” This means that even the most basic and front-facing component of the digital tax system is not universally understood at a high level.

From a behavioural perspective, this supports the earlier finding that many taxpayers rely on assistance. A taxpayer may successfully file through a consultant or office system and still not have a strong procedural understanding of their own login environment.

Awareness of e-verification methods

Among all the digital awareness items, the strongest score is for e-verification methods such as Aadhaar OTP, EVC, or net banking. The average score for this item is 4.00, which is the highest in the awareness block.

The distribution is as follows:

- Score 1: 5 respondents
- Score 2: 7 respondents
- Score 3: 24 respondents
- Score 4: 37 respondents
- Score 5: 53 respondents

This means that 90 respondents, or 71.4%, are in the aware or fully aware category for e-verification. Only 9.5% fall into the low-awareness band.

This is a highly significant result. It suggests that respondents are more aware of the final validation step of digital filing than of almost any other feature. There are several reasons why this may be so :

1. First, e-verification is a highly visible step in the filing process. It is not optional in practical terms for completing the filing cycle.
2. Second, Aadhaar OTP and related verification modes are widely used in Indian digital governance beyond tax systems, which may increase familiarity.
3. Third, for many taxpayers, verification may be the step they personally perform even when another person helps prepare the return. This could especially increase awareness of verification relative to deeper tax-form logic.

The high awareness of e-verification is also consistent with the broader national architecture of the e-filing system, where portal help materials prominently cover e-verification methods and completion steps. The portal's help section specifically treats e-verification as a major service area, which helps explain why taxpayers are more likely to recognize it than more specialized features.

From the perspective of the dissertation, this item is important because it shows that awareness is strongest at the points where digital filing is most operationally immediate.

Awareness of pre-filled ITR and AIS

Awareness of pre-filled ITR / AIS (Annual Information Statement) has an average score of 3.62, placing it in the upper-middle range of the awareness block.

The distribution is:

- Score 1: 14 respondents
- Score 2: 11 respondents
- Score 3: 27 respondents
- Score 4: 31 respondents
- Score 5: 43 respondents

This means that 58.7% of respondents are in the aware or fully aware category, while 19.8% remain in the low-awareness band and 21.4% are only somewhat aware.

This is a very important finding because AIS and pre-filled return information represent one of the most significant shifts in digital tax administration. AIS is designed to provide a broader view of taxpayer-related information and supports feedback from the taxpayer, while pre-filing can make return preparation easier but also requires users to understand what the auto-populated data mean and whether they are complete or correct.

The survey shows that awareness of this feature is present, but not universally strong. That is analytically significant because AIS is one of the places where the opportunity and challenge of digitalization meet most directly. It can reduce manual effort, but it can also create anxiety if the taxpayer does not fully understand what the reported data imply.

Thus, moderate awareness of AIS/pre-filled return features suggests that taxpayers may be using a more data-rich system without always being fully comfortable interpreting that data. This helps explain later findings on challenge, dependence, and the desire for guidance.

Awareness of Form 26AS / TDS viewing and matching

Awareness of Form 26AS / TDS viewing and matching is lower, with an average score of 3.44.

The distribution is:

- Score 1: 17 respondents
- Score 2: 18 respondents
- Score 3: 23 respondents
- Score 4: 29 respondents
- Score 5: 39 respondents

This means that only 54.0% of respondents fall into the aware or fully aware category, while 27.8% fall into the low-awareness category.

This result is especially important because Form 26AS/TDS matching is one of the most practical and compliance-relevant tasks in modern filing. It is where many taxpayers must reconcile what they believe has happened to their tax with what the system shows. Awareness at this level requires more than simple portal familiarity. It requires a degree of procedural and documentary understanding.

The lower score here compared with e-verification or login is analytically meaningful. It suggests that respondents are less confident about the reconciliation layer of digital filing than about the submission layer. In practical terms, taxpayers may know

how to get into the portal and complete a filing step, but be less sure about how to verify whether the tax data reflected there actually align with their records.

This awareness gap matters because data-matching issues are exactly the kinds of situations that generate dependence on professionals, fear of notice, and confusion over whether the return is “safe” to file.

Awareness of online tax payment and challans

Awareness of online tax payment and challans has an average score of 3.62, equal to the AIS/pre-filled return item.

The distribution is:

- Score 1: 14 respondents
- Score 2: 9 respondents
- Score 3: 27 respondents
- Score 4: 37 respondents
- Score 5: 39 respondents

This means that 60.3% of respondents are aware or fully aware, while 18.3% are in the low-awareness band.

This result suggests that online tax payment is relatively well recognized within the sample. This is understandable because payment and challan generation are among the more visible practical tasks in tax compliance, especially where self-assessment tax, advance tax, or correction needs arise.

At the same time, this awareness is not as high as awareness of e-verification. That difference is also meaningful. E-verification is common even in standard salaried filings. Online payment and challans may be less directly encountered by those whose taxes are largely handled through TDS. Thus, awareness of challan-related features may depend more strongly on filing complexity and individual tax circumstances.

Still, the fact that three-fifths of respondents are clearly aware of this component shows that the digital payment dimension of tax filing is reasonably embedded in taxpayer consciousness.

Awareness of helpdesk, grievance, and complaint features

Awareness of helpdesk / grievance / complaint features is distinctly lower, with an average score of 3.29.

The distribution is:

- Score 1: 16 respondents
- Score 2: 19 respondents
- Score 3: 34 respondents
- Score 4: 27 respondents
- Score 5: 30 respondents

This means that:

- 45.2% are aware or fully aware
- 27.8% are in the low-awareness band
- 27.0% are only somewhat aware

This is one of the most important awareness findings in the entire subsection. It shows that while a fair number of respondents know something about helpdesk or grievance mechanisms, awareness is substantially weaker than for entry-level filing features.

This matters greatly because grievance and support systems are crucial when things go wrong. The official e-filing environment includes a one-stop help section and an e-Nivaran grievance module through which registered and even unregistered users can raise grievances relating to e-filing, CPC-ITR, CPC-TDS, or the Assessing Officer. The portal's help resources also explicitly categorize grievance-related support as part of the user environment.

The survey result therefore indicates a significant awareness gap: support facilities exist, but many taxpayers do not appear to treat them as a familiar part of their compliance toolkit. In practical terms, this may increase dependence on external intermediaries, because a taxpayer who does not know how to seek official help is more likely to seek private help instead.

This awareness pattern is also consistent with later satisfaction findings, where helpdesk and support-related components are weaker than core filing mechanics. In other words, lower awareness of support systems may be one reason why those systems do not play a stronger confidence-building role for taxpayers.

Awareness of faceless assessment and e-Proceedings

Awareness of faceless assessment / e-Proceedings is lower still, with an average score of 3.05.

The distribution is:

- Score 1: 30 respondents
- Score 2: 16 respondents
- Score 3: 21 respondents
- Score 4: 36 respondents
- Score 5: 23 respondents

This means that:

- 46.8% are aware or fully aware
- 36.5% are in the low-awareness band
- 16.7% are somewhat aware

This is a major result. It shows that awareness drops quite sharply once the questionnaire moves from routine filing functions to post-filing response and proceeding functions.

The official e-Proceedings service is available to registered users for viewing and responding to notices, defective return communications, prima facie adjustments, rectification-related issues, clarification requests, and communications from tax authorities. The portal also allows an authorized representative to be added or withdrawn for response purposes.

Given the breadth of what e-Proceedings can cover, low-to-moderate awareness here is highly consequential. It suggests that many taxpayers do not possess a strong understanding of how the system continues after filing when a notice, mismatch, or clarification issue arises.

This supports a broader interpretive argument: respondents are more aware of how to enter the digital tax system than how to defend themselves within it. That is a very important distinction in a compliance environment where consequences matter.

Awareness of faceless appeals

The lowest awareness item in the entire block is faceless appeals, with an average score of 2.87.

The distribution is:

- Score 1: 32 respondents
- Score 2: 18 respondents
- Score 3: 31 respondents
- Score 4: 25 respondents
- Score 5: 20 respondents

This means that:

- only 35.7% are aware or fully aware
- 39.7% fall into the low-awareness band
- 24.6% are only somewhat aware

This is a very striking result. It shows that awareness of the most formal remedial layer of the digital tax system is relatively weak even in a sample that is otherwise educated and moderately connected.

The official e-filing system does support online appeal filing through Form 35, and the portal's own help resources explain how an aggrieved taxpayer can file such an appeal online. Historical and current portal materials also reflect the electronic nature of appeal-related processes.

The survey result therefore suggests that the existence of a digital appellate mechanism does not automatically translate into broad taxpayer awareness of that mechanism. This has strong implications for taxpayer confidence and procedural fairness. A taxpayer who is unaware of appeal pathways may feel more vulnerable when faced with adverse action, adjustment, or dispute.

From the dissertation's standpoint, this item is extremely important because it reveals the outer edge of digital tax awareness: taxpayers know the system most where it is routine, and least where it is formally adversarial or remedial.

Ranking the awareness items: a tiered interpretation

When the awareness items are ranked by mean score, a clear three-tier structure emerges.

Tier 1: Stronger operational awareness

- e-Verification methods = 4.00
- e-Filing portal login & registration = 3.69
- Pre-filled ITR / AIS = 3.62
- Online tax payment & challans = 3.62

Tier 2: Moderate but weaker awareness

- Form 26AS / TDS viewing & matching = 3.44
- Helpdesk / grievance / complaint features = 3.29

Tier 3: Weakest awareness

- Faceless assessment / e-Proceedings = 3.05
- Faceless appeals = 2.87

This tiered structure allows a very important conceptual interpretation:

- Respondents are most aware of transactional and visible features — the parts of the portal they are most likely to encounter in ordinary annual filing.
- They are less aware of reconciliation and support features — the parts that become relevant when the taxpayer must interpret, correct, or seek assistance.
- They are least aware of post-filing and remedial features — the parts that matter when a dispute, notice, or appeal arises.

This is exactly the pattern one would expect in a digital public service that has become widely used for routine filing but is not yet equally understood in its deeper legal-administrative dimensions.

Why this awareness pattern matters for taxpayer autonomy

The awareness pattern revealed by the data is not merely descriptive. It has major implications for autonomy.

A taxpayer with strong awareness of:

- login,
- verification,
- and basic filing steps

may still remain dependent if they lack awareness of:

- AIS interpretation,
- Form 26AS matching,
- grievance channels,
- notice response,
- and appeal mechanisms.

In other words, routine operational awareness is enough for participation, but not always enough for self-protected participation.

This helps explain why digital tax systems can achieve high filing numbers while still producing high dependence on consultants and advisors. The taxpayer knows enough to enter the system or to cooperate with it, but not always enough to fully control their position within it.

This distinction is central to the dissertation's argument. The digitalization of income tax filing has succeeded in making online compliance widespread, but widespread use does not automatically mean full empowerment.

Awareness and the logic of "assisted digital" compliance

The present results also support the idea that much of the tax-filing ecosystem in India remains assisted digital rather than purely self-service digital.

If awareness were uniformly high across all components, one might expect stronger self-filing and weaker dependence on others. But the survey shows moderate overall awareness and particularly low awareness in advanced or remedial areas. This is exactly the kind of profile that leads taxpayers to use:

- CAs,
- consultants,
- office accounts staff,
- or relatives with more procedural familiarity.

In such a system, digitalization does not eliminate the intermediary. It changes the intermediary's role. The consultant no longer simply fills paper forms; they often interpret the digital environment for the taxpayer.

This is why awareness remains one of the strongest explanatory variables in the study. It links the formal availability of digital services to the actual distribution of user control.

Why moderate awareness is still a challenge in a relatively advantaged sample

A particularly important interpretive point is that this awareness profile emerges from a sample that is already relatively advantaged in several ways:

- high educational attainment,
- strong urban and semi-urban representation,
- high levels of regular internet access,
- and a large share of salaried respondents.

If even this group shows only moderate overall awareness and weak awareness of grievance, proceedings, and appeals, then the system likely requires more structured guidance than is often assumed.

This suggests that awareness deficits in digital taxation are not merely a matter of literacy or access. They may also reflect:

- complexity of tax concepts,
- fragmentation of user knowledge,
- official language barriers,
- low visibility of certain portal functions,
- and the tendency of taxpayers to focus only on the part of the system that is immediately necessary.

Therefore, awareness-building in tax digitalization must go beyond simple “how to file” campaigns. It must also address:

- how to interpret pre-filled data,
- how to respond if something goes wrong,
- and how to seek formal redress.

Link between awareness and later chapter findings

The awareness results in this subsection lay the groundwork for many of the later findings in the chapter.

They help explain:

- why self-filers tend to be more satisfied,
- why those relying on others often report lower confidence,
- why support deficits matter,
- why fear of notices remains high,
- and why AI-based guidance is seen as potentially useful.

A taxpayer who lacks full awareness of tax processes is likely to experience the system as useful but stressful. A taxpayer with stronger awareness is more likely to experience the same system as manageable and efficient.

Thus, awareness is not only a descriptive measure; it is one of the core mechanisms through which digitalization becomes either empowering or dependent.

Concluding interpretation of awareness of key e-filing components

In conclusion, the study shows that awareness of key e-filing components among respondents is moderate overall but unevenly distributed across functions.

Respondents are relatively well aware of:

- e-verification,
- portal login and registration,
- pre-filled return features,
- and online payment/challan systems.

They are less aware of:

- Form 26AS/TDS matching,
- helpdesk and grievance systems,
- faceless assessment and e-Proceedings,
- and especially faceless appeals.

This pattern reveals an important structural truth about digital tax filing in India: taxpayers are more familiar with the parts of the system that help them submit, but less familiar with the parts that help them question, correct, respond, or contest. The official portal already contains the architecture for many of these deeper interactions — including AIS feedback, grievance routes, e-Proceedings, help resources, and online appeal mechanisms — but awareness of those features is still relatively limited among the surveyed respondents.

This leads to one of the central conclusions of the dissertation: digitalization has succeeded more strongly at the level of transactional access than at the level of full taxpayer comprehension. Taxpayers know enough to use the system, but not always enough to feel fully secure, independent, or procedurally empowered within it.

That awareness gap becomes crucial for interpreting the next parts of the chapter, especially those dealing with filing mode, dependence on others, challenge perception, and satisfaction.

Filing Mode and Continued Dependence on Intermediaries

One of the most important questions in a dissertation on the digitalization of income tax filing is whether taxpayers actually use the system independently, or whether they continue to rely on intermediaries even in an online environment. Digitalization is often discussed as though it naturally increases user autonomy. In theory, once filing becomes online, the taxpayer should be able to log

in, review information, prepare the return, verify it electronically, and complete compliance without having to physically depend on another person. However, the practical reality is often more complex. A digital system may eliminate paper, reduce office visits, and speed up filing, yet still leave the taxpayer dependent on a Chartered Accountant, tax consultant, employer account office, colleague, or family member.

This distinction is critical. It is the difference between digital access and digital autonomy. A taxpayer may be successfully included in the digital system in the sense that their return is filed online, but that does not necessarily mean they themselves understand, manage, or control the filing process. Therefore, filing mode is not just a behavioural variable; it is one of the strongest indicators of how deeply digitalization has been internalized at the user level.

This subsection examines that issue in detail. It studies:

1. the distribution of filing modes among actual filers,
2. the extent to which self-filing remains limited,
3. the dominance of CAs and consultants,
4. the role of informal assistance from colleagues or relatives,
5. dependence caused by technological discomfort,
6. the reasons respondents rely on others,
7. and the broader interpretive meaning of assisted digital compliance.

The findings of this subsection are central to the overall dissertation argument. They show that the digitalization of income tax filing in India has clearly expanded online compliance, but it has not fully displaced the human intermediary. In many cases, the intermediary remains the bridge through which the taxpayer experiences the digital system.

Filing mode among actual ITR filers

Among the 102 respondents who reported that they file income tax returns, the filing-mode distribution is as follows:

- Self (I file myself): 29 respondents (28.4%)
- Through CA / Tax consultant: 56 respondents (54.9%)
- Through a friend / relative: 9 respondents (8.8%)
- Through a colleague: 5 respondents (4.9%)
- Through employer / account office: 3 respondents (2.9%)

This distribution is one of the most important behavioural findings in the entire study.:

1. The first and most obvious conclusion is that self-filing is not the dominant mode. Less than one-third of actual filers report that they file their own returns directly. In contrast, more than two-thirds rely on some form of assistance, whether formal or informal.
2. The second major conclusion is that professional assistance dominates assisted filing. More than half of all filers use a CA or tax consultant, making this by far the largest filing mode. This shows that digital tax compliance, even in a strongly digitized system, remains heavily mediated by trained or semi-trained specialists.
3. The third conclusion is that assisted filing is not limited to formal paid professionals. A notable minority of respondents also rely on:
 - friends or relatives,
 - colleagues,
 - or employer account offices.

This indicates that assistance exists on a spectrum. At one end are formal professionals; at the other are informal social support networks. Together, they form a wider ecosystem of mediated digital compliance.

This result is analytically rich because it challenges a simplistic narrative that digitalization automatically produces self-service. In the present dataset, digitalization has succeeded in moving filing online, but it has not converted most taxpayers into independent digital operators.

Why filing mode matters in a study on digitalization

At first glance, filing mode may appear to be only a procedural choice. But in fact, it is much more than that.

Filing mode reveals:

- how much control the taxpayer retains over the process,
- how much of the tax system they actually understand,
- how confident they are in digital interaction,
- and whether the digital state is interacting with the citizen directly or indirectly.

A system with high online filing rates but low self-filing rates is still a successful digital compliance system in one sense, but it is not necessarily a fully citizen-empowering system. Such a system may be digitally efficient from the administrative side while remaining cognitively or procedurally dependent from the taxpayer's side.

Therefore, in this dissertation, filing mode is treated as one of the most important indicators of the depth of digital inclusion.

If most taxpayers self-file, digitalization can be said to have significantly democratized compliance. If most taxpayers still use intermediaries, digitalization may have improved access and efficiency without fully improving independence.

The present data align more closely with the second situation.

The dominance of Chartered Accountants and tax consultants

The most striking feature of the filing-mode distribution is the clear dominance of CAs and tax consultants, who account for 54.9% of actual filers.

This finding deserves extended interpretation because it reveals how the digital tax ecosystem is functioning in practice:

1. First, it shows that expertise remains central. Income tax filing is not experienced by many respondents as a purely technical upload task. It continues to be treated as a legal-financial task requiring expertise. Even when the portal is online and pre-filled data are available, many taxpayers still appear to believe that professional assistance is necessary or at least safer.
2. Second, it suggests that digitalization has not eliminated interpretive complexity. If the main problem were only physical submission, online filing should have sharply reduced the need for professionals. But the continued dominance of CAs and consultants indicates that the real issue is not just submission — it is:

- understanding which form applies,
 - handling deductions,
 - ensuring TDS and data matching,
 - avoiding mistakes,
 - dealing with notices,
 - and managing the perceived consequences of error.
3. Third, it reveals a shift in the role of professionals. In a paper-based system, a tax consultant may have been necessary for form preparation, submission logistics, and office interaction. In a digital system, their role becomes less about paperwork and more about interpretation, compliance assurance, and risk reduction. They become the user-facing operators of a technically digital but substantively complex system.
 4. Fourth, it implies a parallel service economy around tax digitalization. The digital public service does not eliminate private service providers. Rather, it creates a structured demand for them in new forms. This is an important point for the dissertation because it means that digital state capacity and intermediary ecosystems can grow together.

Thus, the dominance of CAs and consultants in the sample should not be read simply as a failure of e-filing. It should be read as evidence that online filing has become mainstream, but mainstream in a way that still relies heavily on expert mediation.

Self-filing: present, but not yet dominant

Only 29 out of 102 actual filers, or 28.4%, reported that they file their returns themselves.

This is a very important proportion. It is large enough to show that self-filing is clearly possible and already meaningful within the sample. But it is also small enough to show that self-filing remains a minority mode rather than the norm.

This means the digital tax ecosystem has created a visible self-service pathway, but that pathway has not yet become the dominant behavioural pattern.

This is especially significant when read alongside the demographic structure of the sample:

- high educational attainment,
- high urban and semi-urban representation,
- high internet access,
- and a large salaried base.

One might expect such a sample to show much stronger self-filing rates. The fact that even here self-filing remains below one-third suggests that the barriers to independent digital filing are not merely infrastructural or educational. They are also procedural, interpretive, and psychological.

Self-filing in this context should therefore be treated as a stronger indicator of autonomy than filing itself. Filing tells us that the respondent is within the digital system. Self-filing tells us that the respondent is operating within it with a relatively high degree of direct control.

Thus, the self-filing share is one of the clearest measures of how far digitalization has translated into user-level independence.

Informal assistance: friends, relatives, colleagues, and employer offices

Although CAs and consultants dominate, the survey also shows meaningful use of non-professional assistance:

- Friend / relative: 9 respondents (8.8%)
- Colleague: 5 respondents (4.9%)
- Employer / account office: 3 respondents (2.9%)

These smaller categories are analytically valuable because they reveal that the taxpayer's digital support network is broader than the formal professional sector alone :

1. Friends and relatives When respondents rely on friends or relatives, this may indicate:
 - trust-based informal dependence,
 - household sharing of compliance responsibility,
 - or lack of confidence in handling the process personally.

This type of assistance suggests that digital filing is not always individualized. In some cases, it becomes a household or social task rather than an independent taxpayer action.

2. Colleagues Reliance on colleagues may be common in salaried environments where:
 - office peers help each other,
 - one person becomes informally known as “the one who knows filing,”
 - or tax matters are discussed within workplace circles.

This kind of assistance indicates that practical compliance often emerges through social learning rather than direct institutional guidance.

3. Employer / account office Where filing is handled through employer or account office channels, the taxpayer's interaction with the digital system may be even more indirect. Such taxpayers may receive the result of compliance without fully engaging with the mechanics of the process themselves.

Together, these categories show that digital tax filing is embedded in social and organizational support structures, not only in state portals and professional service markets.

This is important because it reveals that digitalization does not simply connect the state and taxpayer one-to-one. Often, there is a third party in between — formal or informal — who translates, performs, or manages the interaction.

Continued dependence due to technological discomfort

The survey asked a direct question about whether respondents had relied on someone else because they were not technologically comfortable. The responses were:

- Yes: 66 respondents
- No: 60 respondents

This means that 52.4% of the full sample have at some point relied on another person because of technological discomfort.

This is one of the strongest and most revealing findings in the study.

The significance of this result lies in the fact that the sample is not drawn from a deeply disconnected population. As earlier sections showed:

- most respondents have suitable devices,
- most have regular internet access,
- and the sample is heavily educated and urban/semi-urban.

Yet, despite these advantages, more than half report having depended on another person because they did not feel technologically comfortable enough.

This shows very clearly that dependence in digital tax filing is not simply a matter of lacking hardware or internet. It is also a matter of:

- confidence,
- fear of error,
- perceived complexity,
- and discomfort with official digital interfaces.

In the context of this dissertation, this result is especially important because it shifts the discussion from “digital access” to “digital confidence.” A taxpayer may be digitally connected and still not digitally self-sufficient.

This is exactly why the present study repeatedly distinguishes between:

- being online,
- being able to complete the task,
- and being confident enough to do it independently.

The survey shows that these are not the same thing.

Filing mode as an indicator of digital autonomy

Taken together, the filing-mode distribution and technological dependence responses allow a deeper conceptual conclusion: filing mode is best understood as a scale of digital autonomy.

- At one end of the scale is the self-filer, who directly handles the return and is more likely to know the process.
- At the middle of the scale is the assisted but aware taxpayer, who understands something about the process but still prefers professional or social support.
- At the more dependent end is the outsourced filer, who relies on another person not only for execution but often for interpretation as well.

This layered understanding is important because it shows that the digitalization of tax filing is not a binary outcome. It is not simply a question of whether the return is online or not. Rather, it is a question of how much of the online process the taxpayer actually owns.

Thus, in this dissertation, digital autonomy is not measured merely by access to the portal. It is most clearly reflected in whether the taxpayer files independently, understands their form and process, and can complete filing without feeling compelled to outsource control.

Reasons for using others: what dependence actually means

The survey also explored why respondents rely on others for filing. The reasons identified in the data include:

- not understanding the tax provisions applicable to oneself,
- fear of making mistakes or receiving notices,
- lack of time,
- the portal feeling complicated,
- and lack of digital literacy or technological comfort.

These reasons are extremely important because they show that dependence is multi-causal :

1. Not understanding tax provisions This is perhaps the most significant reason conceptually. It shows that filing dependence is not only about using a computer. It is about tax comprehension. A taxpayer may know how to use a portal in general and still feel unable to decide:
 - which deductions apply,
 - how to interpret TDS,
 - whether the old or new regime is better,
 - or whether pre-filled data should be trusted.
2. Fear of mistakes or notices This is another major driver. Tax filing is a high-consequence activity. The risk of error, demand, or notice gives professional assistance a strong psychological value. Even a digitally literate person may rationally outsource the task if they believe the cost of a mistake is high.
3. Lack of time This introduces another important dimension: dependence is not always a symptom of inability. For some respondents, especially those with demanding jobs or more complex finances, using a CA may be a time-saving decision rather than an indicator of exclusion.
4. Portal complexity This is a direct system-design issue. Where the portal is perceived as complicated, taxpayers may choose assistance not because they reject digitalization, but because the digital interface itself is not sufficiently self-explanatory.
5. Lack of digital literacy or comfort This reason directly supports the findings of the digital-readiness section. Even where access exists, confidence does not always exist.

These reasons show that reliance on others is not a single phenomenon. It may reflect:

- genuine inability,
- low confidence,
- rational outsourcing,
- legal anxiety,
- or interface complexity.

This distinction is very important for interpreting assisted filing. Not all assisted filing indicates exclusion. But a substantial part of it clearly indicates that digitalization has not yet removed the need for explanatory human support.

Self-filers versus assisted filers: differences in awareness and experience

A major strength of the dataset is that it allows direct comparison between self-filers and assisted filers on the composite indices.

When filing mode is collapsed into a binary distinction — Self versus Assisted — the following pattern emerges among actual filers:

Group	Awareness	Opportunity	Challenge	Risk	Satisfaction	AI attitude
Assisted	3.21	4.08	3.67	3.66	3.69	3.66
Self	4.20	4.44	3.21	3.44	4.11	3.77

This is one of the strongest analytical tables in the dissertation.

It shows that self-filers:

- have much higher awareness
- perceive more opportunity
- experience less challenge
- perceive slightly lower risk
- and report higher satisfaction

This is extremely important. It means self-filing is not only a behavioural difference; it is also associated with a different subjective experience of the digital system.

Self-filers do not merely do the task themselves. They also:

- understand the system better,
- find it more beneficial,
- and feel more satisfied with it.

Assisted filers, by contrast, still perceive the opportunities quite strongly, but they also experience more challenge and somewhat more risk.

This suggests that direct use of the system is associated with a more empowering experience, while assisted use is associated with a more mediated and somewhat more uncertain experience.

This is exactly what one would expect if awareness and comfort strengthen autonomy.

What the self-versus-assisted comparison reveals

The self-versus-assisted comparison supports several major conclusions :

1. First, awareness and autonomy are closely linked. The large gap in awareness between self and assisted filers shows that digital autonomy is strongly associated with procedural knowledge.
2. Second, opportunity perception rises with control. Self-filers perceive more benefit in the digital system, which suggests that direct engagement allows the taxpayer to experience the time-saving and convenience benefits more fully.
3. Third, challenge perception is lower when the taxpayer is more in command. Assisted filers appear to feel more challenge overall, which may reflect dependence, uncertainty, or the sense that the system is difficult unless mediated.
4. Fourth, satisfaction is higher when the taxpayer can act independently. This is one of the clearest indications that the deepest gains of digitalization are not merely speed and submission, but the ability to navigate compliance on one's own terms.

Thus, filing mode becomes one of the strongest explanatory bridges between awareness, digital readiness, and satisfaction.

Assisted filing is not always a sign of exclusion

Although assisted filing clearly indicates lower autonomy in many cases, it is also important not to interpret all assistance as a sign of weakness or failure.

In some cases, especially among middle- and higher-income groups, assisted filing may be a rational decision based on:

- complexity of tax matters,
- multiple income sources,
- desire to minimize risk,
- and opportunity cost of time.

A taxpayer who could technically self-file may still choose a professional because:

- the filing is complex,
- the cost of professional help is low relative to the stakes,
- or the taxpayer prefers certainty.

This means assisted filing has at least two meanings in the dataset:

1. Dependence due to limited confidence or comfort
2. Deliberate outsourcing due to complexity or convenience

This distinction is important for the dissertation because it prevents an overly simplistic reading of assisted filing as pure exclusion. Instead, the correct interpretation is that assisted filing combines:

- a support function,
- a risk-management function,
- and in some cases an exclusion-compensation function.

The problem from a public-policy perspective is not that assistance exists. The problem is when assistance is necessary because the taxpayer does not feel able to navigate the official system with confidence.

Filing mode and taxpayer empowerment

From the point of view of digital governance, the key issue is not whether intermediaries should disappear completely. In complex systems such as taxation, intermediaries may always remain important. The more relevant question is whether taxpayers can:

- choose assistance voluntarily,
- or whether they feel compelled to use it because the system is too difficult to manage alone.

The present survey suggests that for many respondents the second condition still remains relevant. The direct question on technological dependence confirms that more than half have relied on someone else due to discomfort. This means assistance is not always purely elective.

Therefore, the filing-mode findings reveal a critical tension within digitalization:

- The system has become more efficient and widely usable.
- But it has not become universally self-manageable.

This is the central meaning of the filing-mode evidence.

Filing mode as evidence of “assisted digital compliance”

The concept that best fits the findings of this subsection is assisted digital compliance.

The system is digital in the sense that:

- returns are filed online,
- verification is electronic,
- records are digitally stored,
- and taxpayer-state interaction is increasingly portal-based.

But the system is assisted in the sense that:

- taxpayers frequently rely on professionals,
- many use social support networks,
- many report technological discomfort,
- and not all understand the procedural details of what is being filed on their behalf.

This concept is extremely useful for the dissertation because it captures the real intermediate stage of digital public service maturity. The system is not paper-based anymore, but it is also not yet a fully self-service regime for all users.

Thus, assisted digital compliance becomes the correct description of how a large part of the sample experiences tax filing.

Implications of intermediary dependence for opportunity and challenge

The continued importance of intermediaries affects both sides of the dissertation theme:

1. On the opportunity side Intermediaries can help taxpayers:
 - avoid mistakes,
 - save time,
 - manage complexity,
 - understand notices,
 - and ensure smoother submission.

In this sense, they can extend the practical usability of digitalization.

2. On the challenge side Intermediary dependence may also:
 - reduce taxpayer learning,
 - weaken independent awareness,
 - increase cost,
 - create privacy and OTP-sharing risks,
 - and leave taxpayers less certain about what exactly has been filed in their name.

Therefore, intermediaries both support and complicate the digital tax experience. They make the system work for many taxpayers, but they also reveal that the system is not fully self-explanatory.

This dual role should be highlighted in the dissertation because it prevents simplistic conclusions. Intermediaries are neither purely a problem nor purely a solution. They are part of the current operating reality of digital tax compliance.

Link with the broader chapter argument

This subsection connects directly with several earlier and later chapter findings:

- The moderate awareness profile helps explain why assisted filing remains dominant.
- The digital-readiness results show that access exists, but comfort is uneven, which helps explain technological dependence.
- The later challenge results, especially those relating to fear of notices and lack of guidance, fit closely with the reasons taxpayers give for using intermediaries.
- The later satisfaction results show that self-filers tend to be more satisfied, reinforcing the importance of autonomy.
- The later AI support findings also gain meaning here, because demand for guided assistance can be partly understood as demand for a safer way to reduce dependence.

Thus, filing mode is not an isolated behavioural fact. It is one of the strongest organizing variables in the entire dissertation.

Concluding interpretation of filing mode and continued dependence on intermediaries

In conclusion, the evidence from the survey shows that the digitalization of income tax filing in India has not eliminated intermediary dependence. Among actual filers, fewer than one-third file their returns themselves, while the majority rely on CAs, consultants, friends, relatives, colleagues, or employer offices. More than half of all respondents report having relied on someone else because they were not technologically comfortable.

This means that the digital tax system has become mainstream as a method of filing, but not yet mainstream as a fully independent taxpayer practice.

The dominance of professional assistance indicates that taxpayers continue to value expertise, certainty, and support in a high-stakes compliance environment. At the same time, the gap between self-filers and assisted filers in awareness, challenge, and satisfaction shows that greater independence is associated with a more empowered experience of digital filing.

The key conclusion, therefore, is that the Indian e-filing system has achieved widespread digital participation, but only partial digital autonomy. The filing is online, but for many taxpayers, the understanding and execution of that filing remain mediated by others.

This is one of the strongest empirical supports for the broader dissertation argument: digitalization has undoubtedly created opportunities for taxpayers, but those opportunities are not equally realized unless the system also reduces the need for interpretive dependence and makes independent compliance more practical, more understandable, and less intimidating.

Perceived Opportunities of Digitalization

A central objective of this dissertation is to examine not only the challenges faced by taxpayers in a digital income tax environment, but also the opportunities that digitalization has created. This is important because the transformation of income tax filing in India should not be viewed only through the lens of technical transition. It represents a broader restructuring of the taxpayer's relationship with the state. Where tax administration was once associated with paper forms, physical visits, procedural delay, and dependence on manual interface, digitalization has introduced an entirely different set of possibilities. It has brought filing into the domain of online access, electronic verification, centralized records, status tracking, pre-filled information, and increasingly integrated tax-data systems.

However, the mere existence of digital infrastructure does not automatically prove that taxpayers perceive it as beneficial. For this reason, the present study directly measures respondents' perceptions of the positive effects of digitalization. The focus here is on the opportunity side of digital tax filing — that is, the ways in which taxpayers believe the digital system has improved compliance, simplified procedures, saved time, increased transparency, reduced unnecessary interface, and made filing more manageable.

The evidence from the survey shows that respondents view the opportunity dimension of digitalization very positively overall. The composite Opportunity Index has an average value of 4.08 out of 5, which is one of the strongest scores in the entire study. This indicates that, despite the challenges and risks discussed elsewhere in the chapter, taxpayers generally see digital filing as a meaningful improvement over older and more cumbersome modes of compliance.

This finding is very important for the dissertation because it prevents an overly pessimistic reading of digital tax reform. The data do not show widespread rejection of e-filing. On the contrary, they show that respondents clearly recognize substantial benefits in the system. Yet, as the analysis below demonstrates, these benefits are not all of the same kind. Some opportunities are perceived more strongly than others. Taxpayers value digitalization most where it improves efficiency, visibility, and procedural convenience, and somewhat less where it is expected to deepen substantive tax understanding.

This subsection therefore analyses the opportunity dimension in detail. It examines the major positive items individually, interprets their relative strength, and then draws out the broader meaning of the opportunity pattern in the context of digital tax administration.

Overall opportunity perception in the sample

The most immediate conclusion from the survey is that digitalization is viewed as a net positive development by most respondents. The average Opportunity Index score of 4.08 indicates broad agreement with the statements describing positive outcomes of e-filing.

This is analytically significant because the same respondents who report challenges, dependence on intermediaries, and fear of notices still rate the opportunity side strongly. This means that taxpayers are not experiencing digitalization in a purely negative or purely frustrated way. Rather, they are distinguishing between:

- the structural benefits of the digital system, and
- the practical difficulties that still remain within it.

This distinction is central to the dissertation. It shows that taxpayers can simultaneously appreciate the system and still seek improvements in it. In other words, digitalization is not being rejected; it is being accepted critically.

A score above 4.0 on the opportunity scale also suggests that respondents are not simply tolerating digital filing because it is compulsory. They are actually recognizing value in it. That value is especially visible in time-saving, transparency, and reduction in process burden.

This is important because digital public services are often considered successful only when citizens perceive them as materially better than previous arrangements. The present data strongly support that conclusion in relation to income tax filing.

Opportunity Item 1: E-filing saves time compared to manual processes

The strongest opportunity item in the survey is the statement that e-filing saves time compared to manual processes, with a mean score of 4.29 out of 5.

This is the single most strongly endorsed positive feature of digital filing in the dataset, and rightly so. Time saving is one of the most visible and immediate advantages of any digital administrative reform. In the context of income tax filing, this benefit can operate at multiple levels :

1. First, digital filing reduces the need for physical travel. Under earlier and more manual systems, tax-related compliance often involved multiple offline steps, including obtaining forms, visiting offices, dealing with clerical processes, or physically dispatching documents. The digital environment compresses much of this activity into an online session.
2. Second, digital filing reduces waiting and procedural repetition. A taxpayer who can log in, view information, file the return, and verify it electronically experiences a much shorter administrative path than in a traditional paper-based environment.
3. Third, digital filing reduces coordination time. Where information is pre-filled, acknowledgement is automatic, and status is visible online, the taxpayer spends less time assembling and repeatedly confirming procedural steps.
4. Fourth, time saving also includes transactional predictability. A digital system often allows taxpayers to complete steps at a time of their convenience instead of being restricted by office hours, queues, or travel limitations. This is especially relevant for salaried respondents, who form the largest occupational category in the sample and are likely to value flexibility around work schedules.

The very high score on this item therefore reflects more than general approval. It reflects the real administrative value of digitalization. In many public systems, citizens may be slow to appreciate reform unless it affects daily effort in a visible way. Here, the respondents clearly perceive such a visible gain.

From the perspective of the dissertation, this item shows that the strongest opportunity created by digitalization is not necessarily legal sophistication or deeper tax knowledge. It is efficiency in compliance performance. Taxpayers are first and foremost experiencing digitalization as a way of saving time.

Opportunity Item 2: Online records improve transparency and tracking

The second strongest opportunity item is the statement that online records improve transparency and tracking (such as refund/status), with a mean score of 4.28.

This item is almost equal in strength to the time-saving item and is one of the clearest markers of how digitalization changes the taxpayer's experience of state administration. Transparency and tracking are major themes in digital governance because they reduce uncertainty. When a taxpayer can see that a return has been filed, verified, processed, or linked to refund status, the filing process becomes more visible and therefore more trustworthy.

The strength of this item indicates that taxpayers value the digital system not only because it allows submission, but because it creates a retrievable record. This is a crucial distinction. Filing a return is one event; being able to track and confirm what happened after filing is what transforms the event into an administratively reliable experience.

This opportunity can be interpreted at several levels :

1. First, it increases procedural transparency. Taxpayers are less dependent on verbal assurances or physical office communication when the portal itself provides a visible trail of action.
2. Second, it enhances record permanence. Taxpayers can refer back to filed returns, acknowledgements, and status information when needed, which strengthens the formalization of their financial history.
3. Third, it improves user confidence. A filing system that allows tracking and record access reduces the sense that the taxpayer is submitting documents into an invisible process.
4. Fourth, it makes filing more useful beyond the act of compliance itself. Since returns also serve as financial records for refunds, loans, visa documentation, and proof of income, digital record visibility increases the practical value of filing for taxpayers.

This item is especially relevant in light of the reasons respondents gave for filing ITR. Since refund claim is one of the major filing motivations in the dataset, it is natural that status tracking and transparency would be seen as a major opportunity. Taxpayers who file partly in order to recover excess deduction or maintain documented financial records have a direct stake in seeing the process move visibly.

Therefore, this high score strongly supports the argument that digitalization improves not just the submission mechanism, but the information environment of compliance.

Opportunity Item 3: Digital filing makes compliance easier for small taxpayers

The third strongest opportunity item is the statement that digital filing makes compliance easier for small taxpayers, with a mean score of 4.13.

This is a very significant result because it indicates that respondents do not view digital tax filing as something beneficial only to highly sophisticated users or large taxpayers. Instead, there is broad agreement that digital filing lowers the compliance burden for ordinary or smaller taxpayers as well.

This item should be interpreted carefully. It does not necessarily mean that all small taxpayers fully understand or independently manage the system. Rather, it suggests that respondents believe the digital format itself has made compliance more manageable in principle. This may be due to:

- easier access,
- pre-filled information,
- fewer physical visits,
- simpler submission flow,
- online verification,
- and easier document retrieval.

The relevance of this result is substantial because one of the major justifications for tax digitalization is inclusion. A digital public service is expected not only to serve experts efficiently but also to reduce friction for routine users. The strong score on this item suggests that respondents generally recognize such an effect.

At the same time, the score is slightly lower than time saving and transparency. This difference is meaningful. It implies that while respondents believe the system helps smaller taxpayers, they are somewhat less emphatic about this than about the general efficiency gains. This may reflect awareness that not all small taxpayers possess equal confidence or support, especially where digital literacy, tax understanding, or local assistance varies.

Thus, the finding supports a balanced conclusion: digitalization is widely seen as helping ordinary taxpayers, but the benefit is perceived somewhat more strongly at the level of process convenience than at the level of full taxpayer empowerment.

Opportunity Item 4: Online filing reduces direct personal interface

Another important opportunity item in the questionnaire concerns the view that digital filing reduces the need for direct personal interface. Although this item scores somewhat lower than the top three, it still falls clearly in the positive range and contributes to the overall high opportunity index.

This item has deep significance in the context of public administration. A reduction in face-to-face interface can create multiple gains:

- less travel,
- less delay,
- fewer repeated visits,
- reduced dependence on discretionary office-level behaviour,
- and greater standardization of process.

For taxpayers, the importance of reduced personal interface lies not only in convenience, but also in the feeling that the system becomes more rule-based and less personally contingent. A digital portal treats users through structured workflows and automated validations rather than through informal or inconsistent office interaction. This can be especially meaningful in domains like tax administration, where many citizens historically associated compliance with complexity, clerical dependence, and anxiety.

The positive evaluation of reduced interface therefore indicates that respondents recognize one of the classic benefits of digital governance: the movement from person-bound procedure to system-bound procedure.

However, this opportunity must be interpreted carefully. Reduced personal interface is beneficial only when the digital interface itself is clear enough. If the system becomes too opaque, taxpayers may miss the human interface even while appreciating the convenience. This is why the opportunity is real but remains linked to the need for better support and guidance.

Opportunity Item 5: Digitalization reduces rent-seeking or bribery opportunities

Another important positive item in the survey concerns the perception that digital filing reduces opportunities for rent-seeking, bribery, or unnecessary informal intervention.

Although this item is not the highest-scoring opportunity statement, it still receives broad agreement and should be treated as an important institutional benefit of digitalization.

This result is highly relevant in the wider governance context. One of the long-standing promises of digital public administration is that it can reduce the discretionary space in which informal payments, influence, or unnecessary dependence may arise. When filing becomes standardized, timestamped, electronically acknowledged, and tracked through a portal, there is less room for certain forms of informal mediation that thrive in opaque or paper-heavy processes.

For taxpayers, the importance of this opportunity lies in the creation of a more impersonal and rule-based compliance environment. Even if respondents have not personally encountered bribery, the perception that the system is cleaner and more accountable is itself a significant form of institutional trust.

The positive score on this item therefore supports the broader claim that digitalization has administrative value beyond convenience. It also improves the perceived integrity of the tax process.

From a dissertation perspective, this is important because it shows that respondents do not see e-filing merely as a technological shortcut. They also see it as a governance reform.

Opportunity Item 6: Digital filing reduces errors through validations and pre-fill

The survey also includes an item indicating that digital filing helps reduce errors through validations, pre-filled data, and system guidance. This item is positively rated and contributes substantially to the overall opportunity score.

This is a very important perceived benefit because tax filing is a domain in which errors can be costly. If digital systems help reduce basic mistakes by:

- validating incomplete entries,
- auto-filling known data,
- flagging inconsistencies,
- and structuring submission flow,

then digitalization improves both taxpayer convenience and compliance accuracy.

This opportunity is especially significant for salaried and relatively standard filers, where pre-filled data and structured return formats can meaningfully reduce manual effort. It is also linked to AIS, TDS reflection, and online computation logic. Even if respondents do not fully understand every element of the tax system, the existence of automatic checks can still make the process feel safer.

At the same time, the opportunity here is not unlimited. Pre-filled or validated systems are only as helpful as the taxpayer's ability to interpret them and trust them. Therefore, the positive score on this item should be read alongside the later challenge results on AIS/26AS matching and fear of notices. Taxpayers recognize that digital validation can reduce mistakes, but they do not therefore feel completely free from filing risk.

This makes the finding especially interesting. It shows that respondents believe the system can help prevent errors, even while they remain cautious about the consequences of any error that survives the process.

Opportunity Item 7: Digital filing helps understand one's tax position

One of the more moderate opportunity items is the statement that the portal helps taxpayers understand their own tax position better. This item still receives positive agreement, but it is weaker than the more operational benefits such as time saving and transparency.

This difference is deeply revealing. It suggests that taxpayers experience digitalization more strongly as an administrative convenience reform than as an educational reform. The portal may make filing easier, but that does not necessarily mean it makes tax law or one's own tax position substantially easier to understand.

This is a crucial insight. Many digital government systems succeed at process simplification without fully succeeding at conceptual simplification. A taxpayer may be able to file faster, verify electronically, and track status, but still not feel fully clear about:

- deductions,
- tax regime choice,
- the meaning of auto-filled values,
- the treatment of TDS,
- or the implications of certain disclosures.

The comparatively lower score on this item therefore identifies one of the unfinished tasks of digitalization. The system is effective as a transaction platform, but not yet equally effective as a taxpayer education platform.

This helps explain why dependence on intermediaries remains high. If the portal does not fully deepen taxpayer understanding, then convenience in filing may coexist with ongoing reliance on human explanation.

The ranking of opportunities: what taxpayers value most

When the opportunity items are read together, a clear ranking pattern emerges.

The strongest benefits are:

1. Time saving
2. Transparency and tracking
3. Ease of compliance for small taxpayers

The next layer includes:

- reduced errors,

- reduced direct interface,
- and reduced rent-seeking opportunities.

The comparatively weaker but still positive opportunity is:

- improved understanding of one's tax position.

This ranking is highly informative because it tells us how taxpayers themselves prioritize the value of digitalization.

They value it first as a system that:

- saves time,
- makes processes visible,
- and reduces administrative burden.

They value it next as a system that:

- standardizes compliance,
- reduces procedural uncertainty,
- and limits informal friction.

They value it somewhat less as a system that teaches or explains tax to them in a deep way.

This ranking is very important for the dissertation because it reveals that digital tax reform, in taxpayer eyes, is strongest at the level of service delivery and somewhat weaker at the level of tax comprehension.

This does not mean the system fails educationally. It simply means that taxpayers derive their strongest sense of benefit from operational improvements rather than from enhanced substantive tax literacy.

Opportunity perception across groups

The Opportunity Index also varies across different respondent groups, and these differences add depth to the interpretation.

Respondents with higher portal comfort report stronger opportunity scores. Those with very high comfort show an Opportunity Index around 4.54, while those with very low comfort show a much lower score around 2.82. This is a very large difference and indicates that the more comfortable a respondent is with online government systems, the more strongly they perceive the benefits of digital filing.

Similarly, self-filers have a higher Opportunity Index (4.44) than assisted filers (4.08). This suggests that direct engagement with the system allows taxpayers to experience its benefits more fully. A person who files independently is more likely to appreciate time-saving, transparency, and convenience because those gains are directly felt rather than mediated through another person.

Opportunity perception also varies by income, with stronger scores in some middle- and upper-income groups than in the lowest-income group. This may reflect the fact that taxpayers with more complex financial lives, higher refund relevance, or stronger need for documented records derive more visible utility from a digital filing system.

These subgroup patterns are important because they show that opportunity is not a universal constant. The benefits of digitalization are widely recognized, but they are recognized more strongly by those who are better able to engage the system confidently and directly.

Why strong opportunity perception matters despite challenges

A major contribution of this subsection is that it prevents the chapter from slipping into a challenge-only interpretation of digital tax filing.

The same respondents who report:

- fear of mistakes,
- dependence on consultants,
- moderate awareness,
- and portal stress

also report a strong opportunity index above 4.0. This means that the digital system is not being evaluated merely in terms of its irritations. Taxpayers are recognizing substantial structural benefits even while they remain critical of certain operational and interpretive problems.

This is a very important dissertation insight. It suggests that the correct policy response is not to question digitalization itself, but to improve and humanize its implementation. The opportunity foundation is already strong. What remains is to reduce the support, confidence, and interpretation gaps that prevent these opportunities from being equally realized.

In other words, the study does not show that digital filing is fundamentally flawed. It shows that it is fundamentally useful, but uneven in how fully taxpayers can personally exploit that usefulness.

Opportunity as perceived modernization of state-citizen interaction

The positive opportunity findings can also be interpreted at a broader governance level. Taxpayers appear to see digital filing as part of a wider modernization of state-citizen interaction. The benefits they identify — speed, transparency, traceability, reduced interface, reduced rent-seeking — are all hallmarks of a more modern administrative regime.

This means that respondents are not simply reacting to one portal. They are responding to a change in how the state behaves toward them as a taxpayer:

- more online,
- more trackable,
- more standardized,
- and less dependent on physical process.

This perception matters because it suggests that digital tax reform can contribute to institutional legitimacy. A taxpayer who feels that the filing process is faster, cleaner, and more transparent may develop a more positive attitude toward the tax administration itself, even if not all procedural problems have been solved.

Thus, the opportunity dimension is not only about convenience. It is also about the perceived modernization of fiscal citizenship.

Limits of the opportunity perception

Even though the opportunity findings are strong, they should not be interpreted without qualification :

1. First, a strong opportunity score does not mean that all respondents experience those benefits equally. As noted above, stronger opportunity perception is associated with higher comfort and self-filing.
2. Second, the opportunity score does not mean that the digital system is free of friction. On the contrary, the same sample also reports real challenge and risk scores. Thus, the system may be beneficial overall while still remaining stressful in specific ways.
3. Third, the fact that the educational/understanding-related opportunity is weaker than the efficiency-related opportunities suggests that the positive effects of digitalization are still somewhat surface-transactional rather than fully transformative at the level of taxpayer competence.

These limits are important because they help keep the interpretation balanced. The dissertation should therefore present digitalization as a strong opportunity-generating reform, but not as one that has fully completed the work of citizen empowerment.

Link between opportunity and later policy recommendations

The opportunity findings also have direct implications for the policy recommendations that will come later in the dissertation.

Because taxpayers already strongly recognize:

- time saving,
- transparency,
- and easier compliance,

future reform should not focus on re-justifying digitalization. Instead, it should focus on:

- preserving these gains,
- extending them to more users,
- and reducing the obstacles that prevent moderate-comfort or assisted taxpayers from fully experiencing them.

The weaker score on understanding one's tax position also suggests that the next stage of reform should involve more:

- guided explanations,
- simpler language,
- embedded help,
- and taxpayer education support.

Similarly, the strong perceived opportunity from transparency and tracking indicates that features such as refund status, AIS visibility, and process records should be further strengthened and made even more intelligible.

Thus, the opportunity findings point not toward basic rollout, but toward second-generation refinement of digital tax administration.

Concluding interpretation of perceived opportunities

In conclusion, the survey data show that taxpayers perceive the digitalization of income tax filing as a strongly opportunity-generating reform. The average Opportunity Index of 4.08 confirms that the respondents broadly and positively recognize the benefits of e-filing.

The most strongly perceived opportunities are:

- saving time,
- improving transparency and record tracking,
- and making compliance easier for ordinary taxpayers.

Other positively recognized opportunities include:

- reduced direct interface,
- reduced rent-seeking potential,
- and lower risk of simple procedural errors through digital validations and pre-filled information.

The comparatively weaker opportunity is the portal's ability to improve taxpayers' deeper understanding of their own tax position. This suggests that digitalization has been strongest as a service-delivery improvement and somewhat weaker as a citizen-learning improvement.

Overall, the findings support a clear and balanced conclusion: the digitalization of income tax filing in India has generated real and visible benefits for taxpayers, especially in efficiency, transparency, and procedural convenience. These opportunities are widely recognized across the sample, even by respondents who continue to face challenges and rely on assistance. The digital system is therefore not being resisted; it is being valued. The more pressing issue is not whether digitalization creates opportunities, but whether all taxpayers are equally able to convert those opportunities into independent and confident compliance.

That insight becomes especially important in the next subsection, where the analysis turns from opportunity to the more difficult question of perceived challenges in the e-filing system.

Perceived Challenges in the E-Filing System

While the previous subsection established that taxpayers recognize substantial opportunities in the digitalization of income tax filing, a balanced dissertation analysis must also examine the challenge side of the same experience. Digital public systems often produce a double effect: they simplify some parts of the administrative journey while creating new forms of complexity in others. Income tax filing is a particularly important example of this. Filing has become faster, more trackable, and less paper-based, yet taxpayers may still feel burdened by technological glitches, platform instability, technical language, uncertainty over tax forms and regimes, data-matching difficulties, dependence on intermediaries, and fear of adverse consequences such as notices or penalties.

The present survey data show that respondents do not reject the digital filing system, but they do experience it as challenging in meaningful ways. The composite Challenge Index for the sample is 3.55 out of 5, which indicates a moderately high level of perceived difficulty. This is an important result because it means that digital tax filing is not experienced as a seamless or fully intuitive process. Even in a sample that is relatively educated, largely salaried, and mostly urban or semi-urban, challenge perception remains clearly above the neutral midpoint.

This finding is central to the dissertation. It shows that digitalization has not eliminated taxpayer burden; rather, it has transformed the nature of that burden. Under earlier filing systems, the burden may have been more physical and procedural — paper forms, office visits, repeated submissions, and manual follow-up. In the digital environment, the burden appears in a different form: it becomes a mix of portal performance issues, interpretive uncertainty, dependency on guided help, and anxiety about making a costly mistake in an officially sensitive process.

Thus, this subsection does not treat challenge as the opposite of opportunity in a simplistic sense. Instead, it treats challenge as the residual friction within an otherwise useful system. Taxpayers may value digitalization overall, but still experience it as stressful, technically imperfect, and not always self-explanatory.

For analytical clarity, this subsection examines the challenge dimension in detail by discussing:

1. the overall challenge index,
2. the meaning of challenge in a digital tax environment,
3. the specific challenge items and their relative intensity,
4. the ranking of these challenges,
5. the relationship between challenge and taxpayer dependence,
6. and the broader interpretive significance of these findings.

Overall level of challenge perceived by respondents

The overall Challenge Index in the survey is 3.55 out of 5. This indicates that respondents, on average, lean toward agreeing that the e-filing system contains important difficulties.

This result is analytically rich. It neither shows extreme distress nor casual ease. Instead, it suggests that taxpayers experience the system as workable but demanding. This is exactly the kind of profile one might expect in a mature but not fully citizen-optimized digital administrative system.

A challenge score of this kind is especially meaningful when compared with the Opportunity Index of 4.08. The coexistence of these two results shows that respondents are making a nuanced judgment:

- they broadly accept and appreciate the benefits of digitalization,
- but they do not experience the system as frictionless.

This is a critical insight for the dissertation because it avoids both extremes. The data do not support the claim that the digital tax system is failing. Nor do they support the claim that online filing has solved all taxpayer-side problems. What the data support is a more precise conclusion: the digital system is useful, but still effortful.

This interpretation becomes even more important when the sample profile is recalled. These are not respondents drawn mainly from highly disconnected or low-literacy populations. Most are educated, urban or semi-urban, and reasonably equipped in terms of digital access. Therefore, if this sample still reports a moderately high challenge score, the issue cannot be dismissed as a marginal problem confined only to the digitally excluded. It points to a more structural reality: the tax-filing process remains demanding even for relatively advantaged users.

What “challenge” means in the context of digital tax filing

It is important to clarify what challenge means in the present study. It does not simply refer to total inability to use the portal. Nor does it mean that respondents are fundamentally opposed to digital tax filing. Rather, challenge in this dissertation refers to the practical and psychological burdens that remain within the digital process.

These burdens may be:

- technical, such as glitches, login issues, upload failures, or slow performance;
- interpretive, such as confusion about forms, regimes, or tax-related language;
- data-related, such as difficulty matching AIS or Form 26AS with one's own income records;
- support-related, such as feeling insufficiently guided within the portal;
- or regulatory-emotional, such as fear of notices, penalties, or incorrect filing.

This is a very important distinction. The challenge profile in the survey shows that the difficulty of digital tax filing is not just technological. In fact, some of the strongest challenge items are not hardware or connectivity problems at all. They are stress, uncertainty, and guidance-related issues. This suggests that digital taxation should be analysed not merely as a software issue, but as a compliance experience shaped by law, interface design, support systems, and perceived consequences.

Challenge Item 1: Fear of notices and penalties makes the process stressful

The strongest challenge item in the entire block is the statement that fear of notices and penalties makes the process stressful, with a mean score of 3.79 out of 5.

This is one of the most important findings in the whole dissertation. It shows that the biggest challenge for many taxpayers is not necessarily technological malfunction, but compliance anxiety.

This result is deeply significant because it reveals the emotional dimension of digital tax filing. The taxpayer may be able to access the portal, fill out the form, and verify the return, but still feel that the process is stressful because any mistake may lead to an official response. In tax administration, the consequences of error are not trivial. A perceived mismatch, wrong claim, omission, or filing error may generate worry about notices, demands, or scrutiny. Therefore, even where the portal improves procedural efficiency, the taxpayer may continue to experience the process as high-stakes.

This challenge is especially important because it helps explain several other behavioural findings in the survey:

- why many respondents use CAs and consultants,
- why many rely on others because of technological discomfort,
- why awareness matters so much,
- and why respondents support guidance-oriented AI but insist on human review.

In other words, fear of notices is not an isolated concern. It is the psychological background against which many other behaviours become rational. A taxpayer may outsource filing not because the portal is impossible to use, but because the emotional cost of filing wrongly feels too high.

From the dissertation's perspective, this is a crucial interpretive point: digitalization has reduced physical burden, but it has not necessarily reduced regulatory stress. In fact, by making filing easier but more data-linked and traceable, digitalization may even sharpen the taxpayer's awareness that incorrect filing can be noticed more easily.

Thus, the strongest challenge in the study is not “I cannot use the portal.” It is “I do not feel fully safe in getting it wrong.”

Challenge Item 2: Lack of guidance/support increases dependency on intermediaries

The second strongest challenge item is the statement that lack of guidance/support increases dependency on intermediaries, with a mean score of 3.73.

This item is one of the clearest bridges between challenge perception and actual taxpayer behaviour. In earlier sections of the chapter, the filing-mode analysis showed that:

- only 28.4% of actual filers file themselves,
- while 54.9% use a CA or tax consultant,
- and many others rely on friends, relatives, colleagues, or employer office support.

The strong score on this challenge item shows that respondents themselves perceive a connection between insufficient support and continued intermediary dependence.

This is extremely important because it means that taxpayers do not see their dependence on professionals or helpers as entirely voluntary or purely convenience-based. Many view it as partly the result of insufficient support within the official digital environment itself.

This challenge can be interpreted at multiple levels:

1. First, it suggests that the portal is not always sufficiently self-explanatory. A taxpayer may be able to navigate basic screens, but still feel unsupported in making decisions about tax treatment, deductions, or corrections.
2. Second, it indicates that digital public services require more than an upload facility. They also require embedded guidance, contextual help, plain-language explanation, and visible escalation channels.
3. Third, it shows that support is not a peripheral issue. In the taxpayer's view, support quality directly shapes whether the system becomes autonomous or dependent.

This finding is especially valuable for the dissertation because it converts dependence from a purely behavioural fact into a system-design issue. The persistence of intermediaries is not simply a matter of taxpayer habit; it is partly a matter of the portal not yet functioning as a fully guided citizen interface.

Challenge Item 3: Slow portal during peak days affects the ability to file

The next major challenge item is the statement that slow portal during peak days affects my ability to file, with a mean score of 3.69.

This is a very important operational finding. It indicates that respondents perceive portal speed and performance under deadline pressure as a real difficulty. In digital governance, a platform may function adequately under normal use but become frustrating or stressful during high-demand periods. Tax filing is particularly sensitive to this because taxpayer activity is naturally clustered around statutory due dates.

This challenge is significant for several reasons :

1. First, it affects not only convenience but confidence. A portal that slows down during filing season may create uncertainty, repetition of effort, and increased anxiety, especially where deadlines carry legal consequences.
2. Second, it creates unequal effects across taxpayer groups. A digitally confident taxpayer may manage a slow portal with patience, but a moderately comfortable or already anxious taxpayer may be pushed toward assistance or avoidance.
3. Third, it weakens one of the strongest perceived opportunities of digitalization — namely, time saving. If the system becomes slow during the very period when people most need to use it, the efficiency advantage is partly undermined.

The importance of this result is also amplified by the behavioural finding that many taxpayers tend to file:

- one month before the due date, or
- one week before the due date.

Since a substantial share still files relatively close to deadline, peak-period performance is not a minor technical issue.

It is part of the real user experience of compliance.

Thus, this challenge item shows that digitalization's value depends not only on portal existence, but also on its stress-tested reliability.

Challenge Item 4: Portal glitches create filing difficulties

Closely related to the previous item is the statement that portal glitches (login, OTP, upload failures) create filing difficulties, which has a mean score of 3.66.

This confirms that taxpayers perceive the digital filing environment as vulnerable to technical disruption at the transactional level.

The significance of this item lies in the fact that glitches affect some of the most sensitive parts of the process:

- login,
- OTP validation,
- upload completion,
- and sometimes submission flow.

These are not trivial inconveniences. They occur at moments when taxpayers are already engaged in a legally consequential activity. Therefore, even a relatively short disruption may feel disproportionately serious.

This challenge also interacts with other dimensions of the study:

- It reinforces technological dependence, because users facing glitches may prefer consultants or office staff.
- It contributes to fear of error, because disrupted filing may create uncertainty over whether a step has been completed properly.
- It lowers the practical value of digital readiness, because even a well-connected user can be frustrated by system-side malfunction.

The mean score here is only slightly lower than the slow-portal item, indicating that respondents view performance friction and procedural glitching as important parts of the challenge landscape.

From the perspective of the dissertation, this suggests that a digital tax platform must be evaluated not only on policy features or functional design, but also on its operational smoothness in live use.

Challenge Item 5: Language and terms are difficult for an average taxpayer

The challenge item stating that the language/terms used are difficult for an average taxpayer has a mean score of 3.48.

This is a very important interpretive result because it shifts the analysis from technical challenge to cognitive and linguistic challenge. Tax filing is not just about navigating buttons and forms. It is also about understanding the language in which the system

speaks to the user. Where that language is legal, technical, abbreviated, or insufficiently plain, taxpayers may feel that the portal is functionally difficult even if it is technically accessible.

The score here is somewhat lower than the strongest items, but still clearly above neutrality. This suggests that respondents do experience the wording and terminology of the system as an obstacle, though perhaps not the single biggest obstacle.

This challenge is especially relevant because the sample is highly educated overall. If even such a sample reports difficulty with language and terms, then the issue becomes more serious from a public-policy standpoint. It suggests that the problem is not simply a lack of literacy among users. It may also be that the system continues to communicate in forms of language that are not optimally adapted to citizen use.

This result helps explain why digital filing is often appreciated for convenience but not equally appreciated for clarity. A taxpayer may complete the process, but still not feel that the system has been written for them in an intuitive or genuinely citizen-facing language.

In that sense, linguistic difficulty is one of the clearest examples of how a system may be digitally modern yet still conceptually bureaucratic.

Challenge Item 6: Difficulty choosing the correct ITR form or regime

The statement “I find it difficult to choose the correct ITR form/regime” has a mean score of 3.27.

This score is lower than the major stress and support-related challenges, but it still lies above the neutral midpoint. That means a significant portion of respondents experience form or regime selection as a real area of uncertainty.

This is an important issue because choosing the correct form or regime is one of the most meaningful decision points in filing. A taxpayer who is unsure whether they are in the right ITR category or whether the old or new regime is preferable may not feel comfortable filing independently, even if the rest of the portal seems manageable.

This challenge is especially relevant in light of an earlier behavioural finding: a substantial number of actual filers — 25.5% — reported that they do not know which ITR form they usually file. That behavioural fact aligns strongly with the present challenge score. It suggests that form selection is not simply a one-time knowledge issue. It is part of a broader pattern in which taxpayers may comply regularly without fully owning the procedural logic of their filing.

Therefore, this challenge item should be interpreted not just as confusion over a form number, but as an indicator of procedural dependency. Where the taxpayer is not confident about the formal architecture of their own return, professional assistance becomes more likely.

Challenge Item 7: Difficulty matching AIS or Form 26AS with income

The final challenge item in the block is the statement that “I face difficulty in matching AIS/26AS with my income”, with a mean score of 3.25.

This is the lowest of the seven challenge items, but it is still above the neutral point. Therefore, it remains an important part of the challenge profile.

This result is analytically important because AIS and Form 26AS represent one of the most data-intensive and modernized parts of digital tax administration. They are intended to improve transparency, reduce omission, and support more accurate filing. However, their usefulness depends on the taxpayer's ability to interpret and reconcile that information.

A score above 3.0 here suggests that taxpayers do experience some difficulty in this reconciliation process. This is consistent with the earlier awareness findings, where awareness of Form 26AS/TDS matching was notably weaker than awareness of login or e-verification.

This challenge is not necessarily experienced by every taxpayer every year. But for those who encounter it, it can be highly consequential because it affects:

- confidence in data accuracy,
- decision-making about whether to trust pre-filled information,
- and the sense of whether the filed return will later be treated as correct.

Therefore, even though this item is not the strongest challenge in the survey, it is conceptually very significant. It shows how digitalization can create not only efficiency gains but also a new layer of data reconciliation burden.

Ranking the challenges: what troubles taxpayers most

When the seven challenge items are ranked by mean score, the order is as follows:

1. Fear of notices/penalties makes the process stressful – 3.79
2. Lack of guidance/support increases dependency on intermediaries – 3.73
3. Slow portal during peak days affects my ability to file – 3.69
4. Portal glitches (login, OTP, upload failures) create filing difficulties – 3.66
5. The language/terms used are difficult for an average taxpayer – 3.48
6. I find it difficult to choose the correct ITR form/regime – 3.27
7. I face difficulty in matching AIS/26AS with my income – 3.25

This ranking is extremely valuable because it shows that the major challenges are not concentrated only in one domain :

- The strongest challenge is emotional-regulatory (fear of notices).
- The second strongest is support-related (lack of guidance).
- The next two are operational-technical (slow portal and glitches).
- The remaining three are interpretive (language, form choice, data matching).

This means the challenge environment of digital tax filing is multi-dimensional. It cannot be solved by technical improvement alone, nor by taxpayer education alone.

The system requires attention at all three levels:

- emotional confidence,
- interface support,
- and operational reliability.

This is one of the strongest analytical insights in the chapter.

Challenge as “stress within a useful system”

A very important interpretive conclusion emerges when the challenge findings are read together with the opportunity findings.

Taxpayers strongly appreciate:

- time saving,
- transparency,
- record access,
- and easier compliance.

At the same time, they also report:

- fear of notices,
- need for more guidance,
- and technical friction.

This means the e-filing system is best understood not as a failed system, but as a useful system that still generates stress.

This framing is essential for the dissertation because it prevents two common mistakes:

- treating digitalization as automatically successful just because usage is high, or
- treating it as deeply unsuccessful just because users report friction.

The survey data point to a more accurate middle position. The digital filing system has clearly improved administration, but it has not yet fully become a calm, self-explanatory, low-anxiety citizen experience.

Thus, the correct analytical category is not “failure,” but incomplete ease.

Challenge perception across different taxpayer groups

The challenge findings also vary across respondent groups, and those differences are important for interpretation.

Self-filers versus assisted filers

Earlier analysis showed that self-filers have a lower average Challenge Index (3.21) than assisted filers (3.67). This is a significant and meaningful difference.

This suggests that taxpayers who directly engage with the system and understand it better experience fewer difficulties overall. By contrast, assisted filers — even when successfully completing compliance — tend to perceive more challenge.

This result reinforces the argument that challenge is closely linked to autonomy and awareness. A system feels less burdensome when the taxpayer feels more in command of it.

- Those who relied on others due to technological discomfort Respondents who reported having relied on someone else because they were not technologically comfortable also show a higher Challenge Index than those who had not relied on others. This is exactly what one would expect, but it is nevertheless important. It shows that challenge is not abstract. It is behaviourally connected to actual dependence.
- Portal comfort Respondents with very high portal comfort tend to report lower challenge than those with lower levels of comfort, though the differences are not as dramatic as in awareness or opportunity. This suggests that some challenges are indeed user-side, but others are system-side and affect even more comfortable users.

This is a very useful distinction. It implies that increasing user capability will help, but it will not by itself eliminate all challenge, because some of the difficulty lies in the structure and performance of the system itself.

Why challenge remains high even in an educated and connected sample

One of the most striking aspects of the challenge findings is that they emerge from a sample that is:

- highly educated,
- relatively connected,
- and dominated by salaried, urban, and semi-urban respondents.

This matters greatly. If the sample had been dominated by respondents with very low internet access or low formal education, it might be tempting to explain the challenge score primarily through digital exclusion. But the present sample does not support such a simple interpretation.

Instead, the findings suggest that the challenge of digital income tax filing is partly built into the nature of the system itself:

- it is legally consequential,
- conceptually technical,
- operationally sensitive to deadlines,
- and not yet fully guidance-rich from the citizen's point of view.

Therefore, the dissertation makes a strong argument that taxpayer difficulty is not merely a deficit of the user. It is also a design and support question for the system.

Implications of challenge perception for digital tax reform

The challenge findings point toward several clear reform implications :

1. First, portal performance and reliability matter deeply. Time-saving benefits are weakened when the system slows down or glitches during high-demand periods.
2. Second, guidance and support are not optional extras. The strong score on lack of guidance shows that support quality directly affects autonomy.
3. Third, plain language and simpler explanatory design are necessary. The language challenge indicates that digital systems must communicate in a more citizen-facing manner.
4. Fourth, confidence-building mechanisms are crucial. Fear of notices and penalties is the highest challenge, which means the system must do more to reassure users that they can file correctly and understand what to do if something goes wrong.
5. Fifth, data reconciliation support matters. Even if AIS/26AS matching is not the top challenge, it remains part of the larger uncertainty structure of digital filing.

Thus, the challenge findings do not suggest reversing digitalization. They suggest improving it in a more human-centered way.

Concluding interpretation of perceived challenges

In conclusion, the survey data show that taxpayers experience the digital income tax filing system as meaningfully challenging, even while recognizing its overall benefits. The average Challenge Index of 3.55 indicates that difficulty remains a real part of the digital filing experience.

The strongest challenges are:

- fear of notices and penalties,

- lack of guidance and support,
- portal slowness during peak days,
- and technical glitches.

Additional but still significant difficulties include:

- technical or legal language,
- choosing the correct form or regime,
- and matching AIS or Form 26AS with one's own income.

These findings reveal that the burden of tax filing in a digital environment is no longer primarily physical. It is now a mix of stress, uncertainty, technical friction, and interpretive burden.

Most importantly, the findings show that digitalization has improved compliance mechanics without fully eliminating taxpayer-side difficulty. The system is more efficient, but not yet fully intuitive. It is more accessible, but not always fully confidence-building. It reduces some forms of burden, but introduces or leaves intact others.

This means that the next phase of digital tax reform must focus not only on keeping the system online and efficient, but also on making it more understandable, more supportive, and less intimidating for ordinary taxpayers.

That conclusion naturally leads into the next major dimension of the analysis: the risk perception associated with digital filing, especially in relation to privacy, misuse, wrong filing consequences, and intermediary dependence.

Risk Perception: Privacy, Misuse, and Filing Vulnerability

Any serious study of the digitalization of income tax filing must examine not only efficiency, convenience, and ease of access, but also the sense of risk experienced by taxpayers. Digital systems do not merely remove old forms of inconvenience; they also create new forms of vulnerability. When compliance moves online, the taxpayer no longer deals only with forms, offices, and physical submission. The taxpayer now deals with login credentials, Aadhaar-linked verification, OTP validation, pre-filled information, digital records, online status visibility, third-party data reporting, and platform-based interactions that may be secure in principle but still feel risky in practice. In such an environment, the taxpayer's perception of safety becomes a major determinant of whether digital filing is experienced as empowering or anxiety-producing.

This subsection therefore examines the risk dimension of digital income tax filing. The purpose is not to suggest that the digital system is inherently unsafe, but to understand how taxpayers perceive its vulnerabilities. These perceptions matter because they directly affect:

- willingness to self-file,
- comfort with sharing information,
- trust in intermediaries,
- confidence in the portal,
- and the emotional quality of compliance.

The survey results show that respondents carry a moderately high level of risk perception regarding digital filing. The composite Risk Index for the sample is 3.59 out of 5, which places it clearly above the neutral midpoint. This is a highly significant finding. It indicates that digital tax filing is not experienced merely as a convenient service. It is also experienced as a domain where mistakes, misuse, privacy concerns, and technical uncertainty carry real consequences.

This risk profile must be interpreted carefully. A moderately high risk score does not mean respondents reject the digital system. On the contrary, earlier sections showed that respondents strongly recognize the opportunities created by e-filing and generally report positive overall satisfaction. The risk findings therefore reveal something more subtle and more important: taxpayers may appreciate digitalization while still feeling vulnerable within it.

That coexistence of appreciation and caution is one of the defining features of the digital tax-filing experience captured in this dissertation.

The meaning of risk in digital tax filing

In the context of this study, risk perception refers to the respondent's sense that digital income tax filing exposes them to possible harm, uncertainty, or loss. This harm may be:

- procedural,
- financial,
- informational,
- or reputational.

Unlike "challenge," which refers more broadly to difficulty or friction, "risk" refers to the possibility that something may go wrong in a way that has consequences. A challenge may be annoying or inconvenient. A risk feels dangerous, uncertain, or potentially damaging.

In digital tax filing, that risk can take several forms:

1. Privacy risk – concern that personal and financial data may not remain secure.
2. Credential misuse risk – fear that PAN, Aadhaar, OTP, or other access-related information may be misused.
3. Compliance error risk – worry that incorrect filing may trigger penalty, notice, or other official consequences.
4. System reliability risk – fear that the portal may not function properly when needed.
5. Intermediary risk – fear that the persons helping with filing may commit errors, misuse data, or misreport information.

The importance of risk is especially high in tax administration because tax filing is not a casual digital action. It is a legally significant act linked to official scrutiny, financial settlement, and identity-linked records. Therefore, even moderate uncertainty can have a powerful effect on taxpayer psychology.

A taxpayer may not need to feel "afraid" of the portal in a dramatic sense. It is enough that they feel:

- slightly unsure,
- not fully in control,
- or dependent on another person in a process involving sensitive information.

That kind of uncertainty is exactly what the present risk findings help uncover.

Overall level of risk perception in the sample

The survey's overall Risk Index is 3.59 out of 5. This places risk perception in the moderate-to-high range. It is stronger than a neutral response and indicates that the respondent group as a whole does perceive real vulnerability in the digital filing process.

This result is very important for the overall argument of the dissertation. It means that even though taxpayers generally recognize the opportunities of digital filing, they do not treat it as a risk-free environment. In fact, their perception of risk is relatively strong.

This is analytically meaningful for several reasons :

1. First, it confirms that digital tax filing must be studied not only as a usability issue, but also as a trust issue.
2. Second, it helps explain why self-filing remains limited. Where perceived risk is high, outsourcing the filing process to a CA, consultant, or other trusted person may appear rational.
3. Third, it shows that digital success cannot be measured only by filing volume or portal adoption. A system may be widely used and still feel vulnerable.
4. Fourth, because the sample is largely educated, salaried, and urban/semi-urban, the relatively high risk score cannot be easily dismissed as a by-product of complete digital unfamiliarity. It suggests that digital tax filing creates perceived vulnerabilities even among relatively connected users.

In this sense, risk is not a marginal variable in the study. It is one of the hidden costs of digital compliance.

Risk Item 1: Worry about incorrect filing leading to penalty or notice

The strongest risk item in the entire block is the statement:

“I worry about incorrect filing leading to penalty/notice” Mean score: 3.72

The item distribution is as follows:

- Score 1: 6 respondents
- Score 2: 9 respondents
- Score 3: 35 respondents
- Score 4: 39 respondents
- Score 5: 36 respondents

This means that 75 respondents selected agree or strongly agree, compared with only 15 respondents in the disagree range.

This is the highest risk item in the study, and it is one of the most important findings in the dissertation overall.

It shows that the central perceived risk of digital tax filing is not simply external fraud or technical malfunction. The biggest perceived risk is the taxpayer's own filing turning out to be wrong and attracting official consequences.

This is highly significant because it reflects the seriousness with which taxpayers approach compliance. Filing is not experienced merely as data entry. It is experienced as a formal act with possible consequences. The taxpayer may worry that:

- a deduction has been wrongly claimed,
- a regime has been selected incorrectly,
- a mismatch has not been noticed,
- a figure has been misreported,
- or a filing has been completed in a technically invalid or incomplete way.

What makes this especially important is that the perceived risk is not only about actual errors. It is also about uncertainty. A taxpayer may not know whether something is wrong, and that uncertainty itself becomes a risk.

This result strongly connects with earlier findings:

- fear of notices/penalties was also the strongest challenge item,
- awareness of forms, appeals, and deeper processes was only moderate,
- and dependence on CAs and consultants remained high.

Together, these patterns suggest that risk of incorrect filing is one of the main reasons taxpayers do not always trust themselves fully within the system.

Thus, the most intense perceived risk in digital filing is not simply about hacking or privacy. It is about getting compliance wrong in a digital environment that feels consequential.

Risk Item 2: Misuse of PAN, Aadhaar, or OTP

The second strongest risk item is:

“I worry that someone may misuse my PAN/Aadhaar/OTP” Mean score: 3.624

The item distribution is:

- Score 1: 8 respondents
- Score 2: 13 respondents
- Score 3: 31 respondents
- Score 4: 39 respondents
- Score 5: 34 respondents

This means that 73 respondents selected agree or strongly agree, while 21 respondents selected disagree or strongly disagree.

This is an extremely important result because it reveals a core feature of digital tax vulnerability: credential-based risk.

Digital filing depends heavily on personal identity-linked information, including:

- PAN,
- Aadhaar-linked processes,
- OTP-based verification,
- mobile-linked authentication,
- and account-level access to sensitive records.

For taxpayers, these are not neutral technical components. They are sensitive personal identifiers and verification tools. The fear that they may be misused is therefore rational and structurally linked to the very design of digital identity-based compliance systems.

This result is especially significant when considered alongside the behavioural findings that:

- many taxpayers rely on others for filing,
- many do not self-file,
- and a notable share allow others to participate in the verification or filing process.

Where filing is mediated, the taxpayer may worry not only about unknown external misuse but also about whether the person helping them is handling identity-linked information safely.

This risk is therefore both:

- external, in the sense of fraud or unauthorized access,
- and proximate, in the sense of credential exposure during assisted filing.

The strong score on this item confirms that digital tax filing is perceived not only as a compliance act, but also as an identity-sensitive digital transaction.

Risk Item 3: Using intermediaries increases the risk of fraud or misreporting

The next major risk item is:

“Using intermediaries increases the risk of fraud/misreporting” Mean score: 3.60

The distribution is:

- Score 1: 7 respondents
- Score 2: 9 respondents
- Score 3: 40 respondents
- Score 4: 40 respondents
- Score 5: 29 respondents

This means that 69 respondents selected agree or strongly agree, while only 16 respondents selected disagree or strongly disagree.

This is an especially revealing finding because it captures a deep contradiction in the digital tax-filing ecosystem.

On the one hand, the survey has already shown that taxpayers rely heavily on intermediaries:

- CAs and tax consultants are the largest filing mode,
- and many respondents have relied on someone else due to technological discomfort.

On the other hand, the same taxpayers also believe that intermediaries themselves create a risk of fraud or misreporting.

This is one of the most important tension points in the dissertation. It shows that assistance is both:

- a solution to taxpayer uncertainty,
- and a source of taxpayer vulnerability.

This is conceptually powerful. The intermediary reduces the risk of self-error for the taxpayer, but may create a different risk — the risk that the filer:

- enters something incorrectly,
- handles credentials carelessly,
- files without adequate explanation,
- or acts in a way the taxpayer does not fully understand.

Thus, the role of the intermediary is fundamentally ambivalent. Intermediaries make digital filing possible for many respondents, but they also weaken direct control.

This result strongly supports the dissertation’s broader argument that digitalization has not fully created direct taxpayer-state interaction. Instead, for many taxpayers, the state is still reached through a third-party operator. That structure necessarily creates a layer of trust risk.

Risk Item 4: Privacy of personal and financial data online

The fourth risk item is:

“I worry about privacy of my personal/financial data online” Mean score: 3.544

The distribution is:

- Score 1: 6 respondents
- Score 2: 17 respondents
- Score 3: 32 respondents
- Score 4: 43 respondents
- Score 5: 27 respondents

This means that 70 respondents selected agree or strongly agree, while 23 respondents selected disagree or strongly disagree.

This is another highly significant result. It indicates that a large proportion of respondents are concerned about the privacy of their tax-related information in the digital environment.

This concern is understandable because income tax filing involves highly sensitive data, including:

- income details,
- bank-linked information,
- tax deductions,
- refund-related data,
- identity-linked information,
- and sometimes investment or transaction-related reporting.

The risk here is not necessarily tied to a specific visible incident. It is more structural and anticipatory. Taxpayers may worry that:

- their data are too exposed online,
- information can be accessed or leaked,
- or digital storage and transmission create forms of vulnerability that were less visible in older systems.

From an administrative perspective, privacy concern is especially important because trust in public digital systems depends not only on functionality, but also on the user’s belief that personal data are treated safely.

This item's score shows that respondents do not take digital privacy for granted. Even where they continue to use the system, they retain a meaningful level of caution.

This is especially important because privacy concern can coexist with continued filing. That is, a taxpayer may continue using the digital system because filing is necessary or useful, even while remaining uneasy about the exposure of personal information. This creates a form of compliance without full comfort, which is a key theme in the study.

Risk Item 5: The system is not reliable during peak filing periods

The fifth risk item is:

"I feel the system is not reliable during peak filing periods" Mean score: 3.456

The distribution is:

- Score 1: 11 respondents
- Score 2: 8 respondents
- Score 3: 42 respondents
- Score 4: 41 respondents
- Score 5: 23 respondents

This means that 64 respondents selected agree or strongly agree, while 19 respondents selected disagree or strongly disagree.

This is the lowest of the five risk items, but it still remains clearly above the neutral midpoint. Therefore, it is still a substantial concern.

This result connects strongly with the challenge findings on slow portal performance and glitches. However, the wording here frames the issue not just as a challenge, but as a risk of unreliability. This is important because it shows that taxpayers do not see peak-period slowness merely as inconvenience. They see it as a vulnerability in the system.

A system that becomes unreliable during deadline pressure affects the taxpayer's sense of procedural security. It may create fear that:

- submission may fail,
- a return may not be uploaded properly,
- verification may not complete,
- or time may run out.

In tax administration, reliability is a form of trust. If the portal behaves unpredictably at the most critical moment, the taxpayer's confidence in the system is weakened, even if the system functions well in ordinary times.

This item therefore captures an important truth about digital public infrastructure: the user evaluates not only the existence of the system, but the dependability of the system under stress.

Ranking of perceived risks

When the risk items are ranked by mean score, the order is as follows:

1. Incorrect filing leading to penalty/notice – 3.72
2. Misuse of PAN/Aadhaar/OTP – 3.624
3. Using intermediaries increases fraud/misreporting risk – 3.60
4. Privacy of personal/financial data online – 3.544
5. System not reliable during peak filing periods – 3.456

This ranking is very useful because it reveals the internal structure of taxpayer anxiety in the digital environment.

The strongest risks are:

- compliance consequence risk,
- identity misuse risk,
- and intermediary trust risk.

Only after these come:

- broader privacy risk,
- and system reliability risk.

This is important because it shows that taxpayers are most worried about risks that affect their immediate personal exposure:

- "Will I get into trouble if something is wrong?"
- "Can my credentials be misused?"
- "Can the person helping me create a problem?"

These are highly personal, highly proximate risks. Broader platform reliability and privacy concerns are still significant, but they rank slightly lower than the risks of direct consequence and direct misuse.

Thus, the risk profile in the survey is best described as person-centred vulnerability, not merely technical vulnerability.

The coexistence of dependence and mistrust

One of the most analytically rich aspects of the risk findings is the coexistence of two conditions:

1. taxpayers rely heavily on others for filing,
2. and taxpayers simultaneously see intermediaries as a source of fraud or misreporting risk.

This coexistence reveals a structurally important feature of the digital tax-filing ecosystem. Taxpayers are not simply making a comfortable choice between self-filing and assistance. Many are choosing between:

- the risk of filing incorrectly on their own,
- and the risk of entrusting the filing to someone else.

This is why the role of the intermediary becomes so central to understanding risk. The consultant or helper does not merely assist; they become the site at which one type of risk is exchanged for another.

A taxpayer may think:

- "I may make a mistake if I do it myself," but also,
- "I may lose control if someone else does it."

This is a very important insight for the dissertation because it shows that digital risk is not purely technological. It is relational. It depends on how digital processes are socially organized.

Risk perception across taxpayer groups

The survey data also indicate meaningful differences in risk perception across different groups :

1. Gender Female respondents show a higher average Risk Index than male respondents.
 - Female: approximately 3.90
 - Male: approximately 3.50

This is a very important subgroup result. It suggests that women in the sample experience the digital tax environment with greater caution or perceived vulnerability than men. This does not necessarily mean women reject the system more strongly, but it does suggest that the trust and control dimension of digital tax filing may not be distributed equally.

The reasons may include:

- lower direct engagement with filing processes,
- greater dependence on others,
- greater concern about data misuse,
- or simply a more risk-conscious evaluation of identity-linked digital systems.

This is an important dissertation point because it shows that digitalization may be broadly available while still being uneven in subjective security.

2. Self-filers versus assisted filers Self-filers show a lower average Risk Index than assisted filers.
 - Self-filers: approximately 3.44
 - Assisted filers: approximately 3.66

This is a very revealing pattern. It suggests that taxpayers who are more in control of the process feel somewhat less vulnerable overall. By contrast, those who depend on assistance experience more risk.

This is perfectly consistent with the logic of digital autonomy. Greater knowledge and direct engagement reduce uncertainty, while mediated filing introduces trust and control issues.

3. Those who relied on others due to technological discomfort Respondents who reported relying on someone else because of technological discomfort show a higher Risk Index than those who had not done so.
 - Relied on others: Yes – approximately 3.70
 - Relied on others: No – approximately 3.47

This strengthens the interpretation that risk is closely tied to confidence. Where taxpayers do not feel technologically comfortable, they not only become more dependent — they also feel more vulnerable.

4. Portal comfort The variation in risk by portal comfort is less linear than awareness or opportunity, but respondents with only moderate or lower comfort generally tend to carry substantial risk perceptions. Interestingly, even some high-comfort users continue to perceive non-trivial risk, suggesting that not all risk is eliminated by user capability. Some risks are systemic or structural rather than purely user-side. This is an important nuance. Increasing digital comfort may reduce some forms of risk, but not all. The system itself must also be trusted, understandable, and robust.

Why risk remains high even in a digitally ready sample

One of the most important interpretive points in this subsection is that these risks are being reported by a sample that is already relatively strong in terms of:

- education,
- device availability,
- internet access,
- and urban or semi-urban location.

This matters because it suggests that risk perception is not simply a symptom of digital exclusion. Even connected and comparatively informed taxpayers remain cautious.

There are several reasons why this may be so :

1. First, taxation is intrinsically high-stakes. A taxpayer may be digitally confident in everyday life but still risk-averse in a compliance context.
2. Second, the digital tax system combines multiple sensitive layers:
 - identity-linked verification,
 - financial disclosure,
 - data matching,
 - and legal consequence.
3. Third, the taxpayer may not fully control the process even when the system is online, because assistance is often involved.
4. Fourth, the official or legal character of the portal may make minor uncertainty feel more consequential than it would in other digital systems.

Thus, digital risk in tax filing should not be mistaken for general technophobia. It is more specific and more rationally grounded than that. It reflects the unique seriousness of the tax domain.

Risk as a hidden cost of digital compliance

The risk findings also support a broader conceptual interpretation: digital filing may reduce visible transaction costs while increasing or preserving certain hidden psychological costs.

Earlier sections showed that respondents strongly value time saving and transparency. Those are the visible gains. But the present subsection shows that taxpayers also carry invisible burdens:

- fear of filing wrongly,
- caution about misuse,
- uncertainty about the reliability of others,
- and concern about privacy and system stability.

These are costs in a different sense. They are not measured in time alone, but in:

- emotional caution,
- trust deficit,

- and defensive behaviour.

A taxpayer who files successfully but remains worried about the process is still benefiting from digitalization — but not without burden. That is why risk perception is such a necessary companion to opportunity analysis in this dissertation.

Relationship between risk and taxpayer behaviour

The risk findings help explain several behavioural outcomes in the dataset :

1. Why self-filing remains limited Where the risks of error and credential misuse feel high, taxpayers may prefer professional help.
2. Why CAs and consultants remain important Taxpayers may see experts as reducing one kind of risk — filing error — even if they introduce another — intermediary dependency.
3. Why support and guidance matter If the taxpayer feels vulnerable, then explanatory help is not merely convenient; it becomes confidence-building.
4. Why AI support is approached cautiously Respondents support AI-based error detection and guidance, but worry about wrongful flagging and insist on human review. This makes sense in a risk-sensitive environment.

Thus, risk is not an isolated psychological variable. It shapes actual filing decisions, support preferences, and trust relationships.

Policy implications of the risk findings

The risk findings point toward several important policy implications for digital tax administration :

1. Build confidence, not only functionality A portal that works technically is not enough. The taxpayer must also feel safe using it. Clear explanations, visible confirmations, guided validation, and supportive messaging matter.
2. Reduce the fear of “getting it wrong” Since incorrect filing risk is the strongest concern, the system should do more to reassure users. This may include:
 - clearer warnings and explanations,
 - guided error checks,
 - better summaries before submission,
 - and plain-language descriptions of what steps reduce filing mistakes.
3. Protect identity-linked interactions Because misuse of PAN/Aadhaar/OTP is a major concern, the system must visibly encourage safe practices and reduce the need to share credentials during assisted filing.
4. Make assisted filing safer Since intermediaries remain central, digital tax reform must also consider how to reduce fraud or misreporting risk in assisted environments. The issue is not simply eliminating intermediaries, but making taxpayer control and informed consent stronger.
5. Improve reliability during peak periods If taxpayers perceive the system as unreliable during filing peaks, then deadline season becomes a trust problem, not just a traffic problem.
6. Strengthen privacy communication Even when technical protections exist, users need to feel that their data are handled safely. Perceived privacy matters as much as actual backend protection for sustaining trust.

Thus, the risk subsection clearly shows that digital tax reform must operate not only at the level of technology design, but also at the level of trust design.

Concluding interpretation of risk perception

In conclusion, the survey results show that taxpayers perceive the digital income tax filing system as meaningfully vulnerable, even while continuing to use it and appreciate its benefits. The overall Risk Index of 3.59 confirms that respondents carry significant concern about the digital environment of tax compliance.

The strongest perceived risks are:

- incorrect filing leading to penalty or notice,
- misuse of PAN/Aadhaar/OTP,
- and fraud or misreporting risk associated with intermediaries.

Additional but still important concerns include:

- privacy of personal and financial data online,
- and the reliability of the system during peak filing periods.

These findings reveal that digital filing is not experienced only as a matter of convenience. It is also experienced as a domain of consequence, trust, and vulnerability. A taxpayer may find the system efficient and still feel exposed within it.

Most importantly, the findings show that the risks of digital tax filing are not only technical. They are also:

- procedural,
- relational,
- and psychological.

This means that the next stage of reform in digital tax administration must focus not merely on keeping the system online and efficient, but on making it feel safer, clearer, and more controllable for ordinary taxpayers.

That conclusion becomes especially important in the next subsection, which turns from risk to a broader evaluative question: how satisfied taxpayers are with the e-filing system as a whole.

Satisfaction with the E-Filing System

Satisfaction occupies a central place in any evaluation of digital public services because it reflects the user's overall judgment after combining experience, expectation, benefit, difficulty, and trust. In the context of income tax filing, satisfaction is especially important because filing is not a casual consumer activity. It is a legally significant and often recurring interaction between the taxpayer and the state. Therefore, when taxpayers say they are satisfied or dissatisfied with the e-filing system, they are not only commenting on website design; they are commenting on the quality of a digital compliance relationship.

In the present study, satisfaction has been treated as a distinct analytical dimension, separate from awareness, opportunity, challenge, and risk. This distinction is necessary because a taxpayer may recognize opportunities in the digital system without being fully satisfied, just as a taxpayer may remain satisfied overall despite reporting certain challenges or risks. Satisfaction is therefore a summary evaluation, not a simple mirror image of either opportunity or challenge alone.

The survey results show that respondents are moderately to strongly satisfied with the e-filing system overall. The composite Satisfaction Index is 3.77 out of 5, indicating that the general assessment of the system is positive, even though it is not uniformly excellent. This is an important finding for the dissertation because it confirms that digital income tax filing is not being experienced as a failed administrative reform. On the contrary, the majority of respondents appear to regard it as a workable and broadly beneficial system.

At the same time, the pattern within the satisfaction items reveals that satisfaction is unevenly distributed across functions. Taxpayers are most satisfied with the more direct and routine parts of filing, such as login, navigation, e-verification, and pre-filled data usefulness. They are less satisfied with areas involving waiting, follow-up, stress, or support, such as peak-time speed and helpdesk or grievance handling. This internal pattern is highly significant because it shows that the digital system performs best where the user experience is structured and linear, and less strongly where users need clarification, escalation, or service recovery.

Thus, this subsection analyses satisfaction not merely as a number, but as a structured outcome of the taxpayer's digital experience. It examines:

1. the overall level of satisfaction,
2. the meaning of satisfaction in a tax-filing context,
3. the specific satisfaction items and their ranking,
4. the relationship between satisfaction and filing autonomy,
5. the role of awareness, portal comfort, and internet stability in shaping satisfaction,
6. and the broader interpretation of what satisfaction means in a digitally transformed tax administration.

Overall level of satisfaction in the sample

The composite Satisfaction Index for the sample is 3.77 out of 5. This indicates that the respondents, on average, lean clearly toward a positive evaluation of the e-filing system.

This result is important for several reasons :

1. First, it confirms that digital filing is not merely tolerated because it is compulsory. If taxpayers were using the portal only out of obligation and without perceiving service value, the satisfaction score would likely remain low or only marginally above neutral. Instead, the score approaches the "satisfied" zone, suggesting that respondents recognize genuine utility and functioning in the system.
2. Second, the satisfaction score must be interpreted alongside the earlier Opportunity Index of 4.08, the Challenge Index of 3.55, and the Risk Index of 3.59. Read together, these figures show that taxpayers generally regard the system as beneficial and reasonably satisfactory, but not free of friction or concern. Satisfaction here is therefore not blind approval. It is a qualified positive judgment.
3. Third, the satisfaction level becomes especially meaningful given the composition of the sample. The respondents are largely adult, educated, salaried, and digitally connected. This is the segment most likely to have repeated interaction with the tax system and enough experience to judge its functioning realistically. Therefore, the satisfaction score reflects not superficial first impressions, but a broader assessment grounded in actual filing exposure.

From the perspective of the dissertation, the overall satisfaction finding supports an important middle-position conclusion: the digitalization of tax filing in India is broadly working from the taxpayer's point of view, but it is not yet producing an effortlessly smooth experience in every area.

Satisfaction as a distinct evaluative category

It is necessary to clarify what satisfaction means in the present study. Satisfaction is not identical to:

- awareness,
- digital comfort,
- opportunity perception,
- low risk,
- or absence of challenge.

A taxpayer may be highly aware but still dissatisfied if the system performs poorly under pressure. A taxpayer may perceive many opportunities and still remain worried about privacy or notices. A taxpayer may face some challenges and yet remain satisfied overall because the system still saves time and works better than previous methods.

In that sense, satisfaction is a summary outcome of trade-offs. It reflects the net balance between what the taxpayer gains and what the taxpayer must endure.

This makes satisfaction especially valuable as an analytical variable. It reveals how taxpayers finally judge the digital system after factoring in:

- ease,
- benefit,
- stress,
- dependence,
- and reliability.

In the context of tax administration, this is especially important because users do not approach the portal with the mindset of ordinary consumer preference alone. They approach it with the seriousness of legal compliance. Therefore, a moderately high satisfaction score in such a domain should be taken seriously as evidence of genuine service value.

Satisfaction Item 1: Ease of login and navigation

The strongest satisfaction item in the dataset is:

"Ease of login/navigation" Mean score: 3.99

This is the highest-rated satisfaction component in the study. It indicates that respondents are broadly comfortable with the portal's basic entry and navigation structure.

This result is significant because the first contact point of any digital system is often decisive. If taxpayers struggle at the stage of login and movement through the portal, the rest of the filing experience is already weakened. The fact that this item scores so highly suggests that the platform performs reasonably well at the most visible and routine interaction layer.

This finding is also consistent with earlier awareness data, where awareness of login and registration was among the stronger components. It suggests that the system has become familiar enough at the entry level for many users to find it navigable.

However, the score should not be over-interpreted as evidence that the entire filing experience is equally smooth. What it does show is that the front-end interaction layer is one of the system's better-performing areas. This matters because a strong front-end is essential to creating confidence, especially for repeat users.

From a policy standpoint, this is encouraging. It means the portal is not failing at the most basic level of access. The deeper issues seem to arise later in the compliance journey, not primarily at the point of entry.

Satisfaction Item 2: Overall satisfaction with the e-filing system

Another very strong item is:

“Overall satisfaction with the e-filing system” Mean score: 3.90

This is analytically important because it is the broadest evaluative item in the block. It captures the respondent's general judgment after mentally combining all the specific features of the system.

A score close to 4.0 indicates that respondents broadly view the e-filing system positively. This supports the larger conclusion that the digitalization of income tax filing, despite all its stresses and limitations, is not being experienced as an unsatisfactory reform overall.

At the same time, the fact that the overall satisfaction score is slightly lower than the very best item scores suggests that respondents are making a balanced judgment. They are not saying the system is perfect. Rather, they appear to be saying that the system works reasonably well as a whole, even though some specific functions are clearly weaker than others.

This is precisely the kind of mature satisfaction profile one expects in a real public-administration context. Taxpayers are neither romanticizing nor rejecting the system. They are acknowledging it as useful and reasonably functional.

Satisfaction Item 3: E-verification process

The item:

“Satisfaction with the e-verification process” Mean score: 3.90

is also among the strongest in the satisfaction block.

This is a very important finding because e-verification is one of the most critical stages in digital return filing. It is the point at which the digital act of return preparation is formally completed and authenticated. If this stage is perceived positively, it suggests that taxpayers find the final completion process reasonably convenient and trustworthy.

The high satisfaction score here is consistent with two earlier findings:

- awareness of e-verification was the strongest awareness item,
- and Aadhaar OTP was the dominant verification mode used by respondents.

These connections are meaningful. When a process is both familiar and widely used, satisfaction tends to improve — especially if it is relatively quick and does not require additional physical follow-up.

This finding also supports the broader argument that the Indian e-filing system has successfully normalized one of the most crucial digital transitions in tax compliance: the shift from physical return validation toward electronic completion. The existence of portal-based verification options, and their apparent acceptance among users, is one of the strongest service-level successes reflected in the dataset.

Satisfaction Item 4: Usefulness of pre-filled data

The next high-performing satisfaction item is:

“Usefulness of pre-filled data” Mean score: 3.89

This result shows that respondents generally appreciate the pre-filled data environment of the digital filing system. This is an important opportunity-to-satisfaction bridge. Earlier sections showed moderate awareness of pre-filled return features and AIS-related functions; the present result shows that once encountered, pre-filled information is generally evaluated positively.

This suggests that taxpayers perceive value in the reduction of manual entry and in the system's ability to bring certain information into the filing process automatically. Pre-filled data can reduce effort, speed up filing, and lower the probability of omission in more standard cases.

However, the score is not at the absolute top of the block, which is also meaningful. It suggests that pre-filled data are appreciated, but perhaps not without reservations. Taxpayers may find the feature useful while still wanting to verify whether the data are complete, accurate, or appropriately categorized.

Thus, the satisfaction with pre-filled data reflects a practical benefit, but not necessarily complete interpretive trust. This is a subtle but important point: digital convenience is being recognized even where deeper confidence in underlying tax interpretation may remain incomplete.

Satisfaction Item 5: Refund/status tracking

The item:

“Satisfaction with refund tracking/status updates” Mean score: 3.80

also lies in the positive range, though slightly below the top four items.

This indicates that respondents generally find the online tracking and status environment useful and reasonably satisfactory. This is consistent with earlier opportunity findings, where online records and transparency were among the strongest perceived benefits of digitalization.

The slightly lower score compared with login and verification may reflect the fact that tracking is not always an immediate experience. Taxpayers may file and verify quickly, but status updates and refund movement can still depend on backend processes. Therefore, satisfaction here reflects not only interface clarity but also how predictable or visible the post-filing journey feels.

A score of 3.80 suggests that respondents do value the digital visibility of refund and status information. However, the score also hints that this area may not feel as seamless as the filing and verification stages. This is understandable. Post-filing tracking is often experienced over time rather than in one sitting, and therefore it may be more exposed to uncertainty, processing expectations, or mismatch anxiety.

Even so, the overall positive score confirms that one of the major opportunities of digitalization — better post-filing visibility — is translating into reasonably strong user satisfaction.

Satisfaction Item 6: Helpdesk and grievance support

The item:

“Satisfaction with helpdesk/grievance support” Mean score: 3.56
is noticeably weaker than the higher-performing items discussed above.

This is a very important finding because it reveals that the digital filing system is rated more strongly for direct transactional functions than for support and recovery functions.

In a digital tax environment, helpdesk and grievance support play a vital role. They are especially important when:

- something goes wrong,
- the taxpayer does not understand an issue,
- a mismatch appears,
- clarification is needed,
- or the user is uncertain how to proceed.

The lower score here therefore suggests that respondents are less confident about the support layer of the system than about the core filing mechanism.

This result aligns closely with earlier findings:

- awareness of grievance and help features was only moderate,
- lack of guidance/support was one of the strongest challenge items,
- and reliance on intermediaries remained high.

Taken together, these findings suggest that helpdesk and grievance systems may exist, but they are not yet functioning as a sufficiently strong confidence anchor for taxpayers.

This is a critical point for the dissertation. A digital tax platform is not fully mature merely because filing is possible. It becomes truly citizen-centered only when users also feel adequately supported when they need help.

Thus, the comparatively weaker score on this item identifies one of the clearest gaps in the current system.

Satisfaction Item 7: Speed of the portal during peak times

The weakest satisfaction item in the entire block is:

“Speed of the portal during peak times” Mean score: 3.36

This is one of the most important dissatisfaction signals in the study.

While the score is not deeply negative, it is clearly weaker than all the other satisfaction items. This indicates that respondents experience peak-period portal performance as one of the least satisfactory aspects of the digital tax system.

This result is significant for several reasons:

1. First, it matches the earlier challenge findings, where slow portal performance during peak days was one of the stronger problems reported by respondents.
2. Second, it shows that the system's greatest weakness is not necessarily in ordinary interface design, but in performance under pressure.
3. Third, this item matters because filing behaviour in the sample is still time-sensitive. Many respondents report filing:
 - one month before the due date,
 - or one week before the due date.

That means peak-period performance is not a marginal technical detail. It is part of the actual lived experience of a large share of filers.

From a digital-governance standpoint, this finding is especially important because a portal is judged not only by how it functions under ideal conditions, but by how it behaves when demand is highest. A weak score here implies that trust in the system is partly weakened by the fear that the portal may not support taxpayers reliably when deadlines are near.

Thus, this item captures a very practical but highly consequential form of dissatisfaction.

Ranking the satisfaction items

When the satisfaction items are ranked from highest to lowest mean score, the order is:

1. Ease of login/navigation – 3.99
2. Overall satisfaction with the e-filing system – 3.90
3. E-verification process – 3.90
4. Usefulness of pre-filled data – 3.89
5. Refund/status tracking – 3.80
6. Helpdesk/grievance support – 3.56
7. Speed of portal during peak times – 3.36

This ranking reveals a very clear structure.

The highest satisfaction is concentrated in:

- entry,
- completion,
- and structured filing support.
- The weakest satisfaction is concentrated in:
- support,
- escalation,
- and performance under load.

This means that the system is most satisfying where the taxpayer moves through a relatively controlled and linear workflow. It is less satisfying where the system must respond dynamically to stress, confusion, or user difficulty.

This is a very useful conclusion because it suggests that the digital filing system is not fundamentally weak in its core architecture. Its weaker areas lie in the assistance and resilience layer, not the basic filing layer.

Satisfaction and self-filing autonomy

One of the strongest analytical findings in the broader dataset is the difference in satisfaction between self-filers and assisted filers.

Among actual filers:

- Self-filers have a Satisfaction Index of approximately 4.11
- Assisted filers have a Satisfaction Index of approximately 3.69

This is a meaningful gap and supports one of the central arguments of the dissertation: greater autonomy is associated with greater satisfaction.

This does not necessarily mean that self-filing mechanically causes satisfaction in a narrow causal sense. Rather, it suggests that taxpayers who:

- understand the system better,
- are more aware,
- and are more comfortable using it

also tend to experience it more positively.

This is a crucial point. It means that the deepest benefits of digitalization may not lie only in putting the filing process online. They lie in enabling the taxpayer to become an active and informed operator of that process.

Where filing remains mediated through others, the taxpayer may still obtain a successful compliance outcome, but the sense of control, clarity, and confidence may be weaker. That difference shows up clearly in satisfaction.

Thus, self-filing is not only a behavioural mode. It is also a marker of a more empowering digital experience.

Satisfaction and portal comfort

Satisfaction also varies strongly with the respondent's comfort using online government portals.

The Satisfaction Index by portal comfort level is approximately:

- Very low comfort – 3.00
- Low comfort – 3.73
- Moderate comfort – 3.59
- High comfort – 4.03
- Very high comfort – 4.14

This is one of the clearest gradients in the dataset.

It shows that satisfaction rises sharply with digital confidence. Taxpayers who are highly comfortable with online government portals are much more likely to be satisfied with the e-filing system than those with very low comfort.

This is extremely important because it indicates that satisfaction is not only a judgment on the system itself. It is also shaped by the taxpayer's own ability to engage that system with ease.

However, it is equally important to note that even respondents with high or very high comfort do not report perfect satisfaction. That means the system still contains friction that is visible even to confident users. Thus, satisfaction depends on both:

- user capability
- and system performance

This dual dependence is a key insight for the dissertation. Improving satisfaction requires not only educating users, but also improving support, reliability, and clarity within the system.

Satisfaction and internet stability

Internet stability also affects satisfaction in meaningful ways.

Respondents with regular and reliable internet show a Satisfaction Index of approximately 3.83, while those with sometimes unstable internet show a lower index of around 3.36.

This is a notable difference. It suggests that even where digital readiness is broadly present, the reliability of internet access still shapes the taxpayer's final evaluation of the filing experience.

This is especially relevant because tax filing is a multi-step digital process involving:

- login,
- navigation,
- data review,
- upload,
- and verification.

If any of these are interrupted by unstable internet, the experience may become more stressful and less satisfactory, even if the taxpayer eventually completes the filing.

This reinforces an important point made earlier in the chapter: digital satisfaction is not produced by portal design alone. It also depends on the wider digital environment within which the portal is used.

Satisfaction and awareness

One of the strongest multivariate-style insights from the broader analysis is that satisfaction is closely related to awareness.

Respondents with higher awareness tend to report higher satisfaction. In exploratory modelling conducted on the dataset, Awareness Index and Opportunity Index emerged as the strongest positive predictors of satisfaction.

This result is very important. It means that taxpayers are more satisfied not only when the system works, but when they understand it.

In practical terms, this implies that satisfaction improves when taxpayers:

- know how the portal functions,
- understand key components such as e-verification and pre-filled data,
- and feel less uncertain about what is happening within the system.

This is one of the strongest arguments for taxpayer education and embedded guidance. If awareness drives satisfaction, then improving user understanding is not only an educational goal — it is also a service-quality goal.

Satisfaction despite risk and challenge

A very important aspect of the study is that respondents report:

- meaningful challenges,
- meaningful risks,

- and still a generally positive satisfaction score.

This coexistence may appear contradictory at first, but in fact it reveals something deeper about public digital services.

A taxpayer may be satisfied even while recognizing risks and challenges if:

- the system is still significantly better than older alternatives,
- the benefits of time saving and transparency are strong,
- and filing can still be completed with reasonable success.

This is exactly what seems to be happening in the present dataset. Respondents are not saying, “There are no problems.” They are saying, in effect, “There are problems, but the system is still useful enough and effective enough that I am broadly satisfied.”

This interpretation is crucial because it prevents simplistic reading of satisfaction as total approval. Here, satisfaction means net positive evaluation under conditions of continuing friction.

This is an especially realistic way to understand taxpayer experience in a digitally transforming administrative system.

Satisfaction as a measure of system maturity

The satisfaction profile also allows a broader institutional interpretation. A digital tax system that receives strong satisfaction on:

- login,
- verification,
- and pre-filled data

but weaker satisfaction on:

- helpdesk,
- grievance support,
- and peak-period speed

can be described as a maturing but not fully mature system.

That is, the system appears to have achieved reasonable success in its core transaction functions, but still needs improvement in:

- user support,
- exception handling,
- and load resilience.

This is a very valuable framing for the dissertation because it avoids both exaggerated criticism and exaggerated praise. The system is not at the stage of experimental rollout. It is already functioning at scale and generating substantial taxpayer satisfaction. But it is also not at the stage where all dimensions of user experience are equally strong.

This helps position the study's recommendations more constructively. The goal is not to replace the digital system. The goal is to improve its weaker layers so that the strong transactional foundation can translate into a more fully satisfactory taxpayer experience.

What satisfaction reveals about taxpayer expectations

The satisfaction findings also reveal something about what taxpayers now expect from a digital tax system.

Respondents appear to expect:

- smooth entry,
- reliable completion,
- useful pre-filled assistance,
- visible post-filing tracking,
- adequate help when needed,
- and stability during high-demand periods.

This shows that the taxpayer's expectation has evolved. Once digitalization becomes normalized, citizens no longer judge the system merely by whether it exists. They judge it by whether it performs as a proper digital service.

That shift in expectation is itself a sign of digital maturity at the citizen level. It means the digital tax portal is now being judged by standards of usability, reliability, and support — not merely by the novelty of being online.

This is a subtle but important point for the dissertation. Taxpayer dissatisfaction with support or speed should not be read only as complaint. It is also a sign that users now expect more from the system because the system has already become part of routine compliance.

Policy implications of the satisfaction findings

The satisfaction results suggest several clear implications :

1. First, the system should preserve and strengthen its high-performing core functions — especially login, e-verification, and pre-filled data usability. These are visible areas of success.
2. Second, the system should improve the support layer, because helpdesk and grievance satisfaction remain comparatively weak. Support should be easier to access, more responsive, and better integrated into the filing flow.
3. Third, the system must improve peak-time resilience, since this is the weakest satisfaction area. Taxpayers need to feel that the portal will remain dependable when statutory deadlines approach.
4. Fourth, improving awareness and guidance is likely to improve satisfaction further, since awareness and satisfaction are strongly linked in the data.
5. Fifth, greater taxpayer autonomy should be treated as a satisfaction-enhancing goal. The stronger satisfaction among self-filers suggests that reform should not only streamline filing, but also help more taxpayers become independent users.

Thus, the satisfaction findings point to a clear policy direction: maintain the strengths, strengthen the support, and reduce the conditions under which filing feels stressful or dependent.

Concluding interpretation of satisfaction with the e-filing system

In conclusion, the survey data show that taxpayers are broadly satisfied with the digital income tax filing system. The overall Satisfaction Index of 3.77 indicates a positive evaluation of the platform, even though it is not free from criticism.

The strongest areas of satisfaction are:

- ease of login and navigation,

- overall system experience,
- e-verification,
- and usefulness of pre-filled data.

The weaker areas of satisfaction are:

- helpdesk and grievance support,
- and especially portal speed during peak filing periods.

This pattern reveals that the digital tax system performs best in routine transactional functions, but less strongly in support-intensive and stress-intensive functions.

Most importantly, the findings show that satisfaction is closely associated with:

- awareness,
- digital comfort,
- reliable internet access,
- and self-filing autonomy.

This means that taxpayer satisfaction is not just a product of portal design. It is also a product of how far the taxpayer feels able to understand and manage the system independently.

The overall conclusion, therefore, is that the digitalization of income tax filing in India has produced a generally satisfactory taxpayer experience, but that experience remains uneven in depth. The system is appreciated, widely used, and broadly accepted — yet it still requires improvement in support, resilience, and citizen-facing clarity if it is to become fully confidence-building for all taxpayers.

This conclusion naturally leads to the next phase of analysis: how these findings come together in comparative interpretation across age, gender, income, and filing mode, and how they relate to the broader research objectives of the dissertation.

AI, Chatbots, and Future Direction of Digital Tax Assistance

The digitalization of income tax filing in India has already moved beyond the simple question of whether tax returns can be filed online. The more important question now is what kind of digital assistance taxpayers need in order to file correctly, confidently, and independently. In this context, AI, chatbots, guided assistance tools, and large language model-based support systems represent the next likely phase in the evolution of taxpayer-facing services. Their importance lies not merely in technological novelty, but in their potential to address one of the clearest findings of the present study: taxpayers broadly appreciate the online filing system, yet many still experience uncertainty, dependence, and stress within it.

This subsection examines how respondents view that next phase of digital assistance. It analyses:

- actual usage of AI/help tools and LLM-type systems,
- perceived usefulness of such tools,
- support for AI-based error detection and guidance,
- concern about AI-based wrongful flagging or automated harm,
- insistence on human oversight,
- and the broader future direction of taxpayer-centric digital support.

The significance of this subsection lies in the fact that AI is not being studied here as an abstract technology trend. It is being studied as a possible response to concrete weaknesses already identified in the survey, namely:

- moderate awareness,
- dependence on intermediaries,
- fear of mistakes and notices,
- difficulty with language and tax interpretation,
- and weaker satisfaction with support functions.

Thus, the question is not simply whether taxpayers are interested in AI. The real question is whether AI and related assistance systems can serve as a bridge between digital access and digital confidence.

Why AI and chatbot assistance matter in digital tax administration

Tax administration is an especially important domain for AI-enabled support because it combines three difficult features at once

1. First, it is rule-intensive. Tax filing involves forms, categories, deductions, thresholds, validations, timelines, and identity-linked authentication.
2. Second, it is high-stakes. An error may lead to notice, refund delay, mismatch, or anxiety about formal consequences.
3. Third, it is repetitive but not always intuitive. Many taxpayers file every year, but that does not mean they fully understand the legal and procedural logic of the process.

In such a domain, AI and chatbot systems are appealing because they appear capable of doing what static FAQs and manuals often fail to do well: offer interactive explanation, immediate clarification, step-by-step guidance, and user-specific assistance at scale. The Income Tax Department's own portal already reflects this broader direction by providing assisted filing, chatbot support, user manuals, grievance flows, e-Proceedings support, and co-browsing help.

However, the survey makes clear that taxpayer demand is not for automation alone. Rather, it is for trusted assistance. Respondents are not mainly asking for the tax system to become more machine-driven in a coercive sense. They are implicitly asking for the system to become more explainable, less intimidating, and less dependent on external intermediaries.

This is why the AI subsection is so important for the dissertation. It is not about replacing humans with machines. It is about whether digital filing can become more intelligible and more confidently manageable through better digital support.

Present usage of AI/help features on tax portals or tax websites

The first important finding from the survey is that actual use of AI or chatbot-style help remains very limited.

When respondents were asked whether they had used any AI/help feature (chatbot/help assistant) on the portal or tax websites, the responses were:

- No: 105 respondents (83.3%)
- Yes: 14 respondents (11.1%)

- Not sure: 7 respondents (5.6%)

This is a very significant result. It shows that, at present, AI-style support remains far from mainstream in the taxpayer experience represented by the survey.

There are several possible reasons for this low usage :

1. First, many taxpayers may not yet be fully aware that such features exist.
2. Second, some may have seen help options but not interpreted them as “AI” or “chatbot” tools in any strong sense.
3. Third, respondents who already rely on CAs, tax consultants, or colleagues may simply not need to explore portal-based guidance tools.
4. Fourth, some taxpayers may still prefer human help over digital assistance for a legally consequential task like tax filing.

This low-usage result should therefore not be misread as rejection of AI. Rather, it indicates a gap between availability and uptake. The support architecture may exist, but it has not yet become deeply embedded in user habit.

That interpretation is especially plausible because the official portal does in fact provide assisted filing resources, chatbot support, and structured help material.

Present usage of LLM-type tools such as ChatGPT, Gemini, or Copilot for ITR help

The survey also asked respondents whether they had used AI tools / LLMs (such as ChatGPT, Gemini, Copilot, etc.) for help in filing ITR. The results are similarly low:

- No: 103 respondents (81.7%)
- Yes: 12 respondents (9.5%)
- Not sure: 11 respondents (8.7%)

This finding is highly important because it distinguishes between two kinds of AI usage:

1. portal-based help tools or chat assistants, and
2. general-purpose AI systems used independently by taxpayers.

In both cases, actual usage remains limited. This suggests that, for most respondents, AI has not yet become a normal or trusted part of tax compliance behaviour.

The low use of general-purpose LLM tools is especially revealing because it implies that taxpayers have not yet widely shifted from human intermediaries or static advice channels toward conversational AI for tax decision support. In the present sample, the dominant alternatives to self-filing remain:

- CAs and consultants,
- family or social assistance,
- and existing human channels of interpretation.

This again shows that the future of AI in tax filing cannot be understood simply as a technology diffusion problem. It is also a trust and behaviour problem. Taxpayers do not adopt AI support merely because it exists. They adopt it when it appears sufficiently reliable, understandable, and safe for a high-stakes task.

Responses on usefulness of AI tools

The survey also included a follow-up question on whether AI tools were useful in filing ITR. The full-sample responses were:

- Not Applicable: 73 respondents (57.9%)
- No: 26 respondents (20.6%)
- Not sure: 17 respondents (13.5%)
- Yes: 10 respondents (7.9%)

This result must be interpreted carefully. Because a very large share marked “Not Applicable,” the item cannot be read as a simple success/failure verdict on AI usefulness. Instead, it tells us something more important: most respondents are not yet at the stage of having a settled experience-based evaluation of AI support.

That itself is an important dissertation finding. AI in tax-filing support is still, for most respondents, a potential future aid rather than an already normalized compliance tool.

Thus, the low “Yes” count should not be taken to mean taxpayers reject AI utility. It more accurately means that a mature market of actual taxpayer use has not yet formed within the sample.

Overall AI attitude in the sample

Although actual use is low, the attitude toward AI-based support is noticeably more positive than actual adoption. The composite AI Attitude Index in the survey is approximately 3.65 out of 5.

This is a very significant result. It indicates that respondents are not hostile to AI or chatbot-style assistance in principle. Rather, they are moderately open to it.

This distinction between low use and moderately positive attitude is one of the most important insights in this subsection. It suggests that the current state of AI in tax filing is an awareness-adoption gap, not necessarily a legitimacy gap.

In other words:

- taxpayers are not using AI much,
- but they are not rejecting the idea of it.

That gap creates important room for future design and policy innovation.

It suggests that if AI systems are introduced or improved in a way that addresses taxpayer concerns — especially clarity, trust, and human oversight — adoption could increase.

AI Item 1: AI-based error detection could reduce mistakes in filing

The first attitudinal AI statement was:

“AI-based error detection could reduce mistakes in filing” Mean score: 3.61

The response distribution was:

- Strongly disagree (1): 6 respondents (4.8%)
- Disagree (2): 6 respondents (4.8%)
- Neutral (3): 45 respondents (35.7%)
- Agree (4): 43 respondents (34.1%)

- Strongly agree (5): 26 respondents (20.6%)

This means that 54.7% of respondents selected agree or strongly agree, while only 9.6% selected disagree or strongly disagree.

This is a very important result because it directly connects AI support with one of the strongest anxieties in the survey: fear of mistakes leading to notices or penalties.

Taxpayers appear to believe that AI-based error detection could be useful precisely because the cost of filing wrongly feels high. This gives AI support a very concrete role in the tax environment. It is not being imagined primarily as a futuristic luxury. It is being imagined as a possible mistake-prevention tool.

This is especially significant in a context where:

- self-filing is limited,
- fear of mistakes is strong,
- and many taxpayers rely on professionals to reduce error risk.

If AI-based error detection were trusted, it could potentially serve as a confidence bridge for taxpayers who currently avoid independent filing because they fear technical or compliance mistakes.

However, the very large neutral group is equally revealing. Many respondents are not yet ready to strongly endorse AI error detection. This suggests cautious openness rather than complete trust.

Thus, the result indicates that taxpayers are willing to consider AI as a supporting layer, but they are not yet uniformly convinced of its reliability.

AI Item 2: AI-based guidance could help non-expert taxpayers understand deductions and regimes

The second attitudinal statement was:

“AI-based guidance could help non-expert taxpayers understand deductions/regimes” Mean score: 3.65

The response distribution was:

- Strongly disagree (1): 4 respondents (3.2%)
- Disagree (2): 11 respondents (8.7%)
- Neutral (3): 44 respondents (34.9%)
- Agree (4): 33 respondents (26.2%)
- Strongly agree (5): 34 respondents (27.0%)

This means that 53.2% of respondents selected agree or strongly agree, while only 11.9% selected disagree or strongly disagree. This is one of the most important AI findings in the entire study because it identifies the role respondents most naturally assign to AI: explanatory guidance for non-experts.

This aligns very closely with the broader challenge structure of the survey. Respondents repeatedly signal difficulty around:

- understanding tax provisions,
- form/regime choice,
- technical language,
- and lack of guidance.

Therefore, it is logical that they would view AI more favourably as a teaching and guidance tool than as an autonomous decision-maker.

This finding supports a central dissertation interpretation: the strongest future role for AI in digital tax filing may lie not in replacing human judgment, but in making the system more understandable to ordinary taxpayers.

This could include:

- explaining the difference between regimes,
- clarifying what deductions mean,
- guiding users to the correct form,
- interpreting prompts in plain language,
- and helping taxpayers understand the implications of the data visible to them.

In short, respondents appear more willing to trust AI as an assistant-explainer than as a compliance authority.

AI Item 3: Concern that AI may wrongly flag returns and cause harassment

The third AI attitudinal statement was:

“I am concerned AI may wrongly flag my return and cause harassment” Mean score: 3.56

The response distribution was:

- Strongly disagree (1): 6 respondents (4.8%)
- Disagree (2): 8 respondents (6.3%)
- Neutral (3): 50 respondents (39.7%)
- Agree (4): 33 respondents (26.2%)
- Strongly agree (5): 29 respondents (23.0%)

This means that 49.2% of respondents selected agree or strongly agree, while 11.1% selected disagree or strongly disagree.

This is a crucial balancing result. It shows that taxpayers do not see AI as a uniformly benign support mechanism. They also recognize the risk that AI could be wrong in a way that harms the taxpayer.

This concern is consistent with the broader risk environment identified earlier in the chapter:

- fear of notices,
- fear of incorrect filing,
- concern over intermediary misreporting,
- and caution about digital vulnerability.

In such an environment, any AI system that appears to “flag,” “score,” or “judge” returns without adequate explanation may be perceived as a threat rather than a help.

This is why the wording “cause harassment” is particularly revealing. Respondents are not only worried about technical inaccuracy. They are worried about the consequences of inaccuracy in an official setting. That means AI is being judged not only on whether it can compute, but on whether it can be trusted not to trigger harmful administrative action unfairly.

This finding is critically important for future tax-policy design. It indicates that any use of AI in compliance screening, anomaly detection, or taxpayer nudging must be:

- transparent,
- explainable,
- reviewable,
- and proportionate.

Otherwise, AI may deepen rather than reduce taxpayer stress.

AI Item 4: Any AI decision should have human review and clear explanation

The strongest AI-related attitudinal item in the survey was:

“Any AI decision should have human review and clear explanation” Mean score: 3.79

The response distribution was:

- Strongly disagree (1): 4 respondents (3.2%)
- Disagree (2): 8 respondents (6.3%)
- Neutral (3): 33 respondents (26.2%)
- Agree (4): 46 respondents (36.5%)
- Strongly agree (5): 35 respondents (27.8%)

This means that 64.3% of respondents selected agree or strongly agree, while only 9.5% selected disagree or strongly disagree.

This is arguably the single most important result in the AI subsection. It gives the clearest normative message of the survey: taxpayers are willing to accept AI-assisted systems, but they do not want AI to operate without human accountability and explanation.

This finding should be treated as a major dissertation-level conclusion.

It shows that respondents are not anti-technology. Nor are they insisting on a purely human, non-digital return to older modes. What they want is a digital support model in which:

- AI can assist,
- AI can guide,
- AI can detect possible issues,
- but human review remains available,
- and the basis of any AI-related conclusion is understandable.

This aligns strongly with the general logic of procedural fairness. In tax administration, where state action can affect money, records, and compliance standing, taxpayers expect not just correctness but explainability.

Thus, the survey supports a human-in-the-loop model of future tax assistance.

Ranking the AI-related attitudes

When the four attitudinal AI items are ranked by mean score, the order is:

1. Any AI decision should have human review and clear explanation – 3.79
2. AI-based guidance could help non-expert taxpayers understand deductions/regimes – 3.65
3. AI-based error detection could reduce mistakes in filing – 3.61
4. I am concerned AI may wrongly flag my return and cause harassment – 3.56

This ranking is extremely informative.

It shows that respondents' strongest preference is not simply “use AI more.” Their strongest preference is: if AI is used, it must remain accountable and explainable.

The next strongest preferences are:

- AI as a teacher,
- AI as a checker.

The least weakly endorsed, but still important, response is concern about AI-led harm.

Thus, the overall pattern suggests the following taxpayer model of desirable AI:

- AI should guide
- AI should help detect mistakes
- AI should not act like an opaque authority
- AI should not produce unreviewable consequences

This is a very mature and policy-relevant attitude profile. It shows that respondents are not thinking about AI in crude pro- or anti-technology terms. They are differentiating between supportive and potentially coercive uses.

The gap between actual use and future openness

One of the most important insights in this subsection is the large gap between:

- current use, which is low, and
- future openness, which is noticeably stronger.

This gap should be interpreted carefully.

It does not mean respondents are inconsistent. Rather, it suggests that the current taxpayer ecosystem has not yet normalized AI use, even though the underlying demand for better digital assistance is already present.

There are several reasons why this gap may exist :

1. First, taxpayers may not yet have been exposed to high-quality, trusted AI tools in the filing context.
2. Second, existing portal-based help tools may not be visible enough, intuitive enough, or perceived as “AI” in a strong sense.
3. Third, taxpayers may still be relying on familiar human assistance channels because tax compliance is too serious to experiment with casually.
4. Fourth, the trust model for AI in taxation is still emerging. Taxpayers may be open in principle, but waiting for more reliability, explanation, and institutional endorsement.

Thus, the gap between use and openness should be read as a future policy opportunity rather than as a failure of adoption.

AI in relation to the broader findings of the study

The AI findings make much more sense when read alongside the other major results of the dissertation :

1. Link with awareness Awareness is only moderate overall, especially for deeper and post-filing features. AI guidance could help fill that gap by making explanations more interactive and context-specific.
2. Link with challenge One of the strongest challenges is lack of guidance and support. AI assistance is precisely the kind of intervention taxpayers seem willing to consider in this domain.
3. Link with risk Taxpayers are worried about filing wrongly and about official consequences. AI error detection is attractive because it appears capable of reducing such risk. But the fear of wrongful AI flagging shows that support and coercion must be kept distinct.
4. Link with filing mode Since self-filing remains limited, AI may potentially reduce dependency for some taxpayers — not by eliminating professionals entirely, but by helping moderate-comfort users move toward greater independence.
5. Link with satisfaction Because helpdesk and support functions are among the weaker parts of the current satisfaction profile, AI-enabled assistance could become one pathway for strengthening the support layer of the tax system.

Thus, AI in the present study is best understood not as an isolated technological question, but as a possible answer to several already visible weaknesses in the current digital filing environment.

AI and the concept of “assisted autonomy”

A useful concept for interpreting the results of this subsection is assisted autonomy.

The survey shows that many taxpayers do not yet feel fully autonomous in digital filing. At the same time, they do not appear to want full automation without explanation. The desirable middle path suggested by the data is one where technology helps the taxpayer become more independent without stripping away human accountability.

This is what assisted autonomy means:

- the taxpayer remains the central decision-maker,
- AI provides guidance, explanation, and error alerts,
- human review remains available when necessary,
- and the system helps the user act more confidently without requiring total expert dependence.

This is, arguably, the most promising future direction of digital tax assistance in India.

It would allow the system to move beyond a binary choice between:

- full professional dependence, and
- unsupported self-filing.

Instead, taxpayers could receive digital help that is:

- scalable,
- interactive,
- plain-language,
- multilingual,
- and still tied to accountable human supervision.

Future directions for digital tax assistance emerging from the data

The survey findings point toward several clear future directions for AI, chatbot, and guided-support systems in digital tax administration:

1. AI as a plain-language explainer Respondents clearly support AI for helping non-experts understand deductions, regimes, and filing logic. Therefore, one of the best uses of AI would be to translate tax language into clearer taxpayer-facing explanations.
2. AI as a pre-submission error checker Because fear of mistakes is one of the strongest anxieties in the dataset, AI could be especially valuable in reviewing forms for obvious inconsistencies, omissions, or logic errors before submission.
3. AI as a navigation assistant Given moderate awareness of deeper portal functions, AI could help users locate:
 1. grievance pathways,
 2. e-Proceedings sections,
 3. refund status tools,
 4. AIS feedback options,
 5. or form-selection guidance.
4. AI as a bridge for moderate-comfort users The largest digital comfort group in the sample is “moderate comfort,” not “very high comfort.” These users may be the ideal audience for AI guidance because they are digitally present but not fully confident.
5. Human review for consequential outputs Where AI influences screening, recommendations, or taxpayer-facing warnings, respondents clearly want human review and clear explanation. This should be treated as a design principle, not merely an optional safeguard.
6. Better integration with existing help architecture The current portal already provides chatbot support, assisted filing, grievance systems, and co-browsing. Future AI enhancement should strengthen these existing pathways rather than replacing them.

AI and the future of taxpayer-state interaction

The findings in this subsection also suggest something broader about the future of the taxpayer-state relationship.

If digitalization was the first major shift — moving filing from paper-based or office-bound processes to portal-based filing — then AI-enabled assistance may represent the second major shift: moving from static digital systems to interactive digital systems.

In such a future, the taxpayer would no longer simply upload information into a portal. Instead, the taxpayer could interact with a system that:

- explains what is required,
- warns about common errors,
- guides the user through decisions,
- and helps escalate to human support when necessary.

This would be a major transformation in digital public service design. It would make the system feel less like a form repository and more like a guided administrative environment.

However, the survey makes equally clear that this future must remain bounded by procedural fairness. Taxpayers do not want AI to become a hidden evaluator acting without explanation. They want AI to become a visible assistant working under accountable rules.

That distinction should be central to any policy recommendations arising from this dissertation.

Concluding interpretation of AI, chatbots, and the future direction of digital tax assistance

In conclusion, the findings of this subsection show a very important dual reality.

On the one hand, actual use of AI, chatbot, and LLM-based support in tax filing remains low. Most respondents have not yet used such tools on the tax portal or through general AI systems.

On the other hand, respondents are noticeably more open to AI than their current use levels might suggest. They support:

- AI-based guidance for non-experts,
- AI-based error detection,
- and future digital support that reduces confusion and filing mistakes.

At the same time, they remain cautious about:

- wrongful AI flagging,
- unreviewed AI decisions,
- and the possibility of automated harm in a legally sensitive domain.

The strongest message from the survey is therefore not “use more AI” in a simplistic sense. It is: use AI in a way that increases taxpayer clarity, reduces preventable error, and preserves human accountability.

This leads to a clear dissertation-level conclusion: the future direction of digital tax assistance in India should be based on assistive, explainable, human-supervised AI, not opaque automation. If designed properly, AI and chatbot tools could become an important bridge between digital access and genuine taxpayer confidence. If designed poorly, they could deepen distrust and perceived vulnerability.

Thus, AI is best understood not as a replacement for taxpayer judgment or human oversight, but as a potentially powerful tool for reducing one of the central weaknesses revealed by the study: the gap between being able to file online and feeling fully capable of doing so independently.

Open-Ended Responses: Qualitative Themes

The quantitative parts of the survey provide a strong structured picture of taxpayer perception regarding digital income tax filing in India. However, no matter how useful Likert-scale responses and grouped indices may be, they cannot fully capture the texture of taxpayer experience in the respondents' own words. For that reason, the open-ended questions in the survey are especially valuable. They allow taxpayers to express concerns, frustrations, suggestions, and observations without being limited to predefined answer choices. In a dissertation on digital tax filing, this is particularly important because users may experience the system in ways that are not fully exhausted by fixed categories such as awareness, risk, or satisfaction.

The qualitative material in the present study comes from three open-ended prompts:

1. “What is the single biggest problem you face in e-filing?”
2. “What improvements would you suggest to make e-filing easier for ordinary taxpayers (especially non-tech users)?”
3. “Any additional comments (including portal glitches, intermediary issues, or privacy concerns)?”

The responses to these questions are not large enough to constitute a full qualitative interview study, but they are more than sufficient to provide a meaningful thematic layer to the quantitative findings. In fact, one of their greatest strengths is that they validate, refine, and humanize the structured findings already presented earlier in the chapter.

The open-ended responses reveal three broad truths:

- many respondents do not experience the system as completely broken and explicitly state that they face no major problem;
- among those who do identify difficulties, the most prominent concerns are lack of knowledge, procedural complexity, technical issues, and dependence on others;
- the most common recommendations are for simplification, guidance, plain language, and greater automation or pre-filled support.

Thus, the qualitative material broadly confirms the quantitative structure of the chapter: digital filing is widely accepted and broadly beneficial, but it is still not fully intuitive, fully confidence-building, or equally manageable for all taxpayers.

Nature and scope of the qualitative responses

Before discussing themes, it is useful to note the response volume to each open-ended question.

Out of the total 126 respondents:

- 50 respondents provided a usable answer to the question on the single biggest problem in e-filing.
- 46 respondents provided a usable answer to the question on suggested improvements.
- 38 respondents provided a usable answer to the question on additional comments.

This means that the qualitative material represents:

- 39.7% of the sample for the “biggest problem” item,
- 36.5% of the sample for the “improvements” item,
- and 30.2% of the sample for the “additional comments” item.

These rates are meaningful. They show that a substantial minority of the respondents chose to elaborate beyond the structured questionnaire. At the same time, it must be remembered that open-ended responses usually attract more participation from respondents who either:

- have a stronger opinion,
- have faced a memorable problem,
- or wish to suggest an improvement.

Therefore, this subsection does not treat the qualitative material as statistically representative in the same way as the full closed-ended survey. Rather, it treats the responses as interpretive evidence that helps explain how taxpayers frame their own experience of digital tax filing.

Another important point is that many open-ended responses were brief, sometimes consisting of single words such as “No,” “None,” “NA,” or short phrases such as “Basic knowledge,” “Technical glitches,” or “Keep it simple.” Even such short responses are valuable because they still indicate what respondents spontaneously treat as the key issue.

The thematic analysis below groups similar qualitative responses together and interprets them in relation to the wider quantitative findings of the chapter.

Qualitative themes from the question: “What is the single biggest problem you face in e-filing?”

This question produced 50 usable responses. These responses can be grouped into six major themes:

1. No major problem / no specific complaint
2. Lack of knowledge, awareness, and understanding
3. Procedural complexity and form-related confusion
4. Technical, portal, and internet-related problems
5. Dependence on others or intermediaries
6. Third-party misuse / unauthorized transaction concern

Each of these is discussed below.

Theme 1: No major problem or no specific complaint

Out of the 50 usable responses to the “biggest problem” question, 16 responses (32.0%) were effectively in the category of no major problem, including responses such as:

- “No”
- “No problem”
- “No problem faced”
- “Till date no problem faced”
- “None”
- “NA”

This is a very important finding. It shows that, even in the open-ended portion where respondents had the freedom to complain or describe difficulty in their own words, a substantial share did not report a serious issue. This qualitatively reinforces the broader quantitative conclusion that the digital tax system is not being experienced as a general failure.

From a dissertation perspective, this theme matters because it helps balance the interpretation. A study focused only on challenges could easily give the impression that taxpayers are uniformly burdened by the portal. The open-ended responses do not support such a conclusion. A meaningful share of respondents appear to consider the system broadly acceptable, manageable, or at least not problematic enough to identify one dominant issue.

However, this should not be interpreted too simplistically. A “no problem” response may mean different things:

- genuinely smooth filing experience,
- filing through a CA and therefore not personally confronting the portal,
- limited engagement with only simpler cases,
- or lack of desire to elaborate in writing.

Even so, the fact that so many respondents did not identify a major problem is an important qualitative check against an overly negative reading of the digital tax environment.

Theme 2: Lack of knowledge, awareness, and understanding

The second major theme is lack of knowledge, awareness, or understanding, which appeared in 9 of the 50 responses (18.0%). Responses in this category included statements such as:

- “Basic knowledge”
- “Awareness about IT”
- “Lack of knowledge”
- “To understand sections”
- “Tax rules are not simple for a common man”
- “Understanding some terminology is bit difficult.”
- “Description of tax codes e.g. 80CCD etc.”
- “The biggest problem I am facing while filling Tax is lack of knowledge, because of this I prefer a CA to fill my Tax.”

This theme is one of the most important in the entire qualitative analysis because it directly confirms a major argument of the dissertation: the challenge in digital tax filing is not merely technological. It is also cognitive and interpretive.

Several aspects of this theme deserve emphasis :

1. First, taxpayers are not only saying “the portal is difficult.” They are saying that tax itself is difficult to understand. This distinction is critical. A taxpayer may be able to navigate a website in general but still find it difficult to understand:
 - deductions,
 - sections,
 - codes,
 - tax categories,
 - or how certain provisions apply.
2. Second, the problem of knowledge is directly linked to dependence. The most revealing response in this group explicitly says that lack of knowledge is the reason the respondent prefers a CA. This shows that the knowledge gap is not abstract; it has direct behavioural consequences.

3. Third, language and tax terminology remain barriers. Responses referring to “80CCD,” “sections,” and “terminology” show that the digital environment has not fully translated technical tax content into language that feels easy for ordinary users. This qualitative theme strongly reinforces the earlier quantitative findings:
 - moderate rather than very high awareness,
 - lower confidence in deeper or post-filing components,
 - and weaker belief that the portal helps taxpayers understand their tax position more fully.

Thus, the open-ended responses strongly support the conclusion that one of the biggest remaining barriers in digital tax filing is not only access to the portal, but understanding what one is doing inside the portal.

Theme 3: Procedural complexity and form-related confusion

A third major theme was procedural complexity, appearing in 10 of the 50 responses (20.0%). Responses in this cluster included:

- “Selection ITR”
- “Frequently changes in ITR form”
- “File document”
- “Calculation”
- “ITR”
- “I tried once but found it complicated.”
- “Complexity computation”
- “Too many pages and too many fields, complicated forms”
- “Which ITR form we have to select to file”
- “paperwork very very entangled”

This is one of the strongest qualitative themes and has several layers of meaning:

1. Form choice as a source of uncertainty Some respondents specifically pointed to “Selection ITR” or “Which ITR form we have to select to file.” This directly confirms the earlier structured finding that many respondents do not know which ITR form they usually file and that choosing the correct form/regime is a meaningful challenge.
2. Complexity of computation and documentation Responses such as “Calculation,” “Complexity computation,” and “paperwork very very entangled” indicate that taxpayers perceive filing not as a simple one-screen activity, but as a process involving layered data, multiple fields, and potentially complicated logic.
3. Too many pages and fields The response “Too many pages and too many fields, complicated forms” is especially revealing because it captures a classic digital-governance problem: a process may be online, yet still feel like a digital reproduction of bureaucratic complexity rather than a truly simplified citizen-facing service.

This theme shows that the problem for many taxpayers is not only a lack of awareness in the abstract, but the practical design of the filing journey itself. Even where the portal is accessible, the taxpayer may still feel that the process is over-detailed, over-layered, or overly fragmented.

This strongly supports the dissertation's broader argument that digitalization has simplified some parts of compliance without fully simplifying the user's decision-making burden.

Theme 4: Technical, portal, and internet-related problems

A fourth major theme was technical and operational difficulty, also appearing in 10 of the 50 responses (20.0%). Responses in this category included:

- “Technical glitches”
- “Technical glitch”
- “Tech Glitches”
- “Login”
- “Peak hr site generally not work”
- “Website crashes during peak filling times”
- “Network issue”
- “Speed of Internet Sometimes”
- “Time taken”
- “More Time”

This theme confirms that even in an otherwise digitally functional system, technical friction remains a salient part of taxpayer memory.

Several aspects of this theme deserve emphasis :

1. Peak-time instability is especially visible Responses like “Peak hr site generally not work” and “Website crashes during peak filling times” directly validate the earlier quantitative finding that taxpayers are least satisfied with the speed of the portal during peak filing periods.
2. Internet and portal performance are experienced together Responses referring to both “network issue” and “technical glitches” suggest that taxpayers do not sharply distinguish between:
 - poor internet,
 - portal instability,
 - and process interruption.

From the user's perspective, all of these are experienced as part of the same problem: the filing process does not move smoothly when it is needed.

3. Time burden remains despite digitalization Responses such as “Time taken” and “More Time” are especially interesting because they complicate the strong quantitative finding that e-filing saves time overall. The qualitative responses suggest that, while taxpayers do perceive the system as time-saving in general, some still experience particular moments or cases where filing becomes time-consuming due to technical or procedural obstacles.

Thus, the qualitative material does not contradict the overall opportunity finding on time saving. Rather, it shows that the time-saving benefit is not universal in every user's experience and may be offset in practice by technical interruptions or process complexity.

Theme 5: Dependence on others and intermediary-related issues

A fifth qualitative theme is dependence on others or intermediaries, visible in 4 of the 50 responses (8.0%). Responses in this category included:

- “My CA fills so can't say”
- “Habit of trusting CA”
- “I don't do it myself. Done by a family member.”
- “Making my banker and tax consultant talk with each other”

Although this theme is numerically smaller than the knowledge, complexity, or technical themes, it is analytically very important.

1. First, it reveals that for some taxpayers, the biggest “problem” is not a feature of the portal itself but the fact that they are not personally in charge of the process.
2. Second, responses like “Habit of trusting CA” show that dependence is not always experienced as inability alone. It may also reflect long-standing behavioural patterns and comfort with outsourcing.
3. Third, “My CA fills so can't say” is especially revealing because it implies a certain distance between the taxpayer and the digital system. In such cases, the taxpayer is a participant in digital compliance, but not necessarily its operator.

This theme directly supports one of the major conclusions of the dissertation: digitalization has not eliminated the intermediary. The open-ended responses confirm that many taxpayers experience the e-filing system through other people rather than through direct and independent use.

Theme 6: Unauthorized transactions and third-party misuse

A smaller but highly significant theme emerged in 1 response (2.0%), which referred to:

- “The unauthorized transactions made by third party and Income Tax department not responding to those third parties.”

Although numerically small, this response is highly important because it touches on a serious issue of third-party misuse and taxpayer protection. It reflects a fear that the taxpayer may be burdened by issues not created by their own conduct but by misuse or unauthorized actions linked to their identity or tax records.

This concern strongly resonates with the earlier quantitative findings on:

- worry about PAN/Aadhaar/OTP misuse,
- intermediary fraud or misreporting risk,
- and fear of incorrect filing consequences.

Thus, even isolated qualitative remarks like this are valuable because they expose the deeper trust issues that can sit beneath statistical averages.

Qualitative themes from the question: “What improvements would you suggest to make e-filing easier for ordinary taxpayers (especially non-tech users)?”

This question generated 46 usable responses. These responses can be grouped into seven major themes:

1. No suggestion / no improvement stated
2. Simplification and shorter forms
3. Guidance, awareness, demonstration, and process flow
4. Plain language and easier terminology
5. Automation, pre-fill, and system-based calculation
6. Portal performance / internet / mobile usability
7. Specific form or technical stability suggestions

These themes are highly valuable because they show not only what taxpayers dislike, but what they positively want from the future of digital tax filing.

Theme 1: No suggestion or no specific improvement

Out of 46 usable improvement responses, 15 responses (32.6%) were effectively “no suggestion” responses, including:

- “None”
- “No”
- “No problem”
- “No idea”
- “NA”

This again reinforces the earlier observation that a significant subset of respondents do not appear to view the system as urgently broken. They may have no specific reform suggestion either because:

- they are broadly satisfied,
- they are not directly handling the filing themselves,
- or they simply do not feel confident proposing changes.

This is important because it prevents the qualitative section from being read only as a list of complaints. Even in the improvement question, a meaningful portion of respondents did not identify a concrete reform need.

Theme 2: Simplification and shorter forms

The strongest qualitative improvement theme was simplification, appearing in 14 of the 46 responses (30.4%). Examples included:

- “Reduce form for filing”
- “Keep it simple”
- “The ITR forms should be simple”

- “Less form filling”
- “Form size”
- “Make a process easy”
- “Make it as simple as total earnings and total saving based”
- “Keep it simple for general public”
- “Minimal number of pages and easy filing process like ITR 1”
- “Simplify and shorten it so that it is understandable”

This theme is one of the most powerful qualitative findings in the study.

It shows that respondents are not simply asking for more technology. They are asking for less complexity. This is a vital insight. Often, digital reform assumes that putting a process online is itself a form of simplification. The qualitative responses show that taxpayers do not fully agree. For them, true simplification means:

- fewer pages,
- fewer fields,
- fewer confusing choices,
- and a return structure that feels closer to common-sense reporting.
- This theme also aligns directly with the earlier challenge findings on:
 - complicated forms,
 - difficulty choosing ITR form or regime,
 - and language or terminology problems.

Therefore, the simplification theme is not a separate issue. It is the qualitative expression of the chapter's broader quantitative pattern.

Theme 3: Guidance, awareness, demonstration, and process flow

A second major improvement theme was guidance and taxpayer education, appearing in 8 of the 46 responses (17.4%). Responses included:

- “Guideline”
- “There should be process in flowchart”
- “demonstration”
- “Awareness”
- “Clear guidelines and smooth navigation”
- “Educate and make it mandatory”
- “Awareness about the subject – knowledge campaign arranged in the offices”
- “Everness” (clearly intended as awareness)

This theme is highly significant because it confirms that taxpayers are not only seeking a simpler system; they are also seeking a better learning environment within or around that system.

A process flowchart, demonstration, awareness campaign, or clear guideline is valuable because many taxpayers appear to need more than just access. They need to understand:

- where to begin,
- what sequence to follow,
- how to choose the form,
- what a section means,
- and what to check before submitting.

This theme strongly supports one of the main conclusions of the dissertation: digitalization requires not only software, but guided comprehension.

In practical policy terms, this suggests that taxpayer support should be:

- more visible,
- more structured,
- more process-oriented,
- and more educational.

Theme 4: Plain language and easier terminology

Another important improvement theme was plain language, appearing in 2 of the 46 responses (4.3%) in a direct form, though it is also implied in several simplification responses. Examples included:

- “Easy language because everyone not understand the legal language”
- “Terminology should be easy to understand.”

Although numerically smaller than simplification or guidance, this theme is substantively important. It supports the earlier challenge result that respondents find portal language and tax terminology difficult for ordinary users.

What this suggests is that even where taxpayers are willing to use the system, they do not always feel that the system speaks in a user-friendly language. This is especially problematic in a high-stakes field like taxation, where small misunderstandings may have large perceived consequences.

Thus, the qualitative responses make clear that linguistic simplification should be treated as a serious design issue, not merely a stylistic preference.

Theme 5: Automation, pre-fill, and system-based calculation

A further theme was automation and stronger pre-filled computation, appearing in 3 of the 46 responses (6.5%). Examples included:

- “Most of the data must be prefilled from AIS and 26AS and there should be provision to reject any information not belongs to assessee but wrongly reflected in AIS.”
- “Auto assessment by system, calculate tax to be paid and send to taxpayers.”
- “Should be automated based on PAN and deductions.”

This theme is highly significant because it points toward the next stage of digital tax evolution. Respondents are not only asking for simpler forms; some are asking for the system itself to do more of the work.

This reflects a desire for:

- stronger data integration,
- less manual entry,
- easier review,
- and less taxpayer-side computation burden.

At the same time, the first quote in particular is very sophisticated. It not only asks for more pre-filled data; it also asks for a mechanism to reject incorrectly reflected information. This shows that taxpayers understand that automation is useful only if it remains contestable and correctable.

This is exactly the kind of nuance that also appears in the AI findings. Taxpayers want more help from the system, but not in a way that makes them powerless against wrong data or wrong inference.

Thus, this theme anticipates both the AI discussion and the future direction of taxpayer-centric digital assistance.

Theme 6: Portal performance, internet, and mobile usability

A smaller but important improvement theme concerned performance and usability, appearing in 3 of the 46 responses (6.5%). Responses included:

- “Slowness of internet should be improved”
- “Improved portal glitches”
- “Smart phone use”

This theme confirms that some respondents see the technical environment itself as still needing improvement. It is especially notable that one response explicitly mentions smartphone use, which suggests that mobile experience remains a practical concern for at least some users.

Since the structured data showed that a minority of respondents rely mainly on smartphones, the mobile usability issue should not be ignored. A portal optimized mainly for desktop-style interaction may still be less comfortable for smartphone-only or smartphone-dominant users.

Theme 7: Form stability and timely changes

One specific response suggested:

- “ITR form should be modified at least 6 month before end of assessment year.”

Although this is only 1 response, it points to an important stability issue. Taxpayers do not only want simpler forms; they also want predictability. Frequent changes in form structure, filing utilities, or process expectations can increase uncertainty, especially for ordinary users and repeated filers.

Thus, even isolated comments of this kind indicate that taxpayers value not only simplification but also stability in the compliance environment.

Qualitative themes from the question: “Any additional comments (including portal glitches, intermediary issues, or privacy concerns)?”

This question generated 38 usable responses. These responses are especially useful because they allowed respondents to raise concerns or observations that may not have fit neatly into the earlier prompts.

The responses can be grouped into the following themes:

1. No additional issue / no further comment
2. Privacy and security concern
3. Need for simplification
4. Internet or portal performance
5. Intermediary issue
6. Automation suggestion
7. Third-party misuse and taxpayer protection
8. Policy suggestion on rebates

Theme 1: No additional issue or no further comment

Out of the 38 usable responses, 26 responses (68.4%) were effectively in the category of no further issue, including:

- “None”
- “No”
- “NA”
- “Thanks”

This very high share indicates that many respondents did not feel the need to add further concerns beyond what they had already said or selected elsewhere in the questionnaire.

Again, this is important because it suggests that the system is not generating a vast reservoir of unstructured dissatisfaction in the sample. Many respondents either had nothing further to add or felt that the earlier questions had already captured their main views.

Theme 2: Privacy and security concern

A key additional theme was privacy and security, appearing in 3 responses (7.9% of this response set). Examples included:

- “Privacy concern”
- “Security of personal information”
- “Privacy issue is always on top because of less awareness about the taxation.”

This theme is highly valuable because it confirms that privacy concern is not only a closed-ended survey artifact. Respondents also raise it spontaneously when given space to comment freely.

The third response is particularly rich because it links privacy concern with lack of awareness. This suggests that privacy anxiety may increase where taxpayers do not fully understand how the system works, what data are being shared, or how digital filing credentials are handled.

Thus, the qualitative data support the earlier argument that digital trust is shaped not only by formal security, but by perceived understanding and control.

Theme 3: Need for simplification

Another important additional theme was further simplification, appearing in 3 responses (7.9%). Examples included:

- “Portal is very complex and difficult to understand by a layman. It must be simplified to fewer pages to fill data.”
- “Simplify the process further”
- “ITR to be simplified otherwise its a additional financial burden/tax”

These responses are especially important because they go beyond the generic appeal to simplicity and make a deeper point: for some taxpayers, complexity itself becomes a form of burden, almost like an indirect extra cost.

The phrase “additional financial burden/tax” is analytically very revealing. It suggests that a complicated filing process can itself feel like a quasi-tax on the taxpayer’s time, effort, or need to hire assistance. This is a powerful illustration of how procedural difficulty can be experienced as an economic burden.

Thus, the qualitative responses reinforce one of the strongest conclusions of the dissertation: a system may be digitally available and still impose a meaningful compliance cost if it is not simple enough for ordinary users.

Theme 4: Internet and portal performance

A smaller theme concerned internet or portal performance, appearing in 2 responses (5.3%), such as:

- “sometimes internet issue comes”
- “There is no portal glitches - only speed of internet to be improved”

This theme is interesting because it partly shifts blame from the portal to the user-side environment. Not all respondents attribute performance problems to the portal itself. Some explicitly see internet quality as the issue.

This nuance is useful because it reminds the dissertation that not all digital difficulty comes from the platform. Some of it arises from the broader digital infrastructure within which the taxpayer is operating.

Theme 5: Intermediary issue

One response explicitly mentioned:

- “Intermediary issues”

Though short, this comment matters because it shows that intermediary dependence is salient enough to appear in open-ended commentary even without detailed prompting.

This supports the broader pattern in the dataset that intermediary reliance is not only common but also recognised by users as a distinct part of the digital filing experience.

Theme 6: Automation for TDS-linked taxpayers

One additional response suggested:

- “Automate for those paying TDS”

This aligns closely with the earlier improvement theme around automation, AIS, and system-based calculation. It suggests that some taxpayers especially want automation in more routine, TDS-driven cases where much of the relevant information is already available within the formal system.

This is a practical and policy-relevant insight. Taxpayers seem to feel that where data are already known to the system, the filing burden should reduce correspondingly.

Theme 7: Third-party misuse and taxpayer protection

One particularly important additional response stated:

- “If a Third party misused Individual Tax payer s PAN ITAN. Then the IT department should take action against the culprit in place of torturing the Tax payer.”

This is one of the most analytically powerful comments in the whole qualitative set. It reveals a very clear taxpayer expectation: when misuse occurs, the burden of proving innocence or carrying the resulting stress should not fall unfairly on the taxpayer.

This comment strongly reinforces the structured risk findings on:

- PAN/Aadhaar/OTP misuse,
- intermediary risk,
- and fear of consequences from things not fully under taxpayer control.

It also introduces a deeper issue of procedural fairness. Taxpayers do not only fear misuse; they also fear being treated as though they are responsible for misuse committed by someone else.

This is a major governance insight and one that deserves emphasis in the dissertation’s later recommendation chapter.

Theme 8: Tax rebate suggestion

A single response said:

- “Tax Rebates should be more”

Although this comment is more policy-substantive than process-oriented, it is still worth noting because it shows that some respondents use open-ended spaces not only to discuss filing difficulties but to express broader tax-policy expectations.

This type of response is not central to the digitalization theme, but it does indicate that taxpayers often do not separate the filing process entirely from the overall tax burden.

Integrated interpretation of the qualitative themes

When the three open-ended questions are considered together, a very coherent picture emerges. The qualitative responses strongly reinforce the structured quantitative findings of the study.

1. The system is not widely perceived as broken A significant number of respondents explicitly reported no major problem, no suggestion, or no additional issue. This confirms that the overall taxpayer evaluation of digital filing is broadly positive.

2. Knowledge and understanding remain central barriers One of the strongest qualitative themes is lack of knowledge, confusion over tax rules, sections, and terminology. This directly supports the earlier awareness findings and helps explain continued dependence on professionals.
3. Complexity is felt as a lived burden Respondents repeatedly referred to complicated forms, too many pages, entangled paperwork, and difficulty selecting ITR forms. This confirms that digitalization has not fully simplified the compliance journey from the taxpayer's perspective.
4. Technical friction remains memorable Portal glitches, login issues, network problems, and peak-time crashes remain vivid in taxpayer memory. This supports the structured challenge and satisfaction findings related to portal performance.
5. Support and guidance are strongly needed Respondents repeatedly asked for:
 - guidelines,
 - flowcharts,
 - demonstrations,
 - awareness campaigns,
 - plain language,
 - and user-friendly explanations.

This confirms that digitalization without support does not produce equal taxpayer empowerment.

6. Automation is welcomed when it reduces burden but remains correctable Some respondents clearly want:
 - more prefilled data,
 - automated assessment support,
 - PAN-based or deduction-based automation,
 - and the ability to reject incorrect AIS reflections.

This indicates that taxpayers are not anti-automation. They want automation that reduces effort without eliminating their ability to contest wrong data.

7. Privacy and third-party misuse remain serious concerns Open-ended comments on privacy, security, and third-party misuse show that trust and taxpayer protection are not peripheral concerns. They are integral to the experience of digital filing.

What the qualitative responses add beyond the quantitative findings

The structured survey items already showed that taxpayers:

- appreciate time-saving and transparency,
- face challenges around support and stress,
- perceive significant risk,
- and remain dependent on intermediaries.

The open-ended responses deepen these findings in several important ways.

1. First, they show how taxpayers themselves frame the issue For example, rather than saying “challenge index is high,” respondents say:
 - “Basic knowledge”
 - “Too many pages”
 - “Habit of trusting CA”
 - “Easy language”
 - “There should be process in flowchart”

These are highly revealing because they show the lived form of the problem.

2. Second, they expose the emotional and practical meaning of complexity A statistical score can show that respondents find the process stressful. But a phrase like “paperwork very very entangled” or “additional financial burden/tax” reveals how complexity is actually felt.
3. Third, they reveal future directions more clearly The improvement suggestions make it clear that taxpayers want:
 - simplification,
 - awareness support,
 - explanation,
 - and smarter automation.

This allows the dissertation to move into policy recommendations with a much stronger user-grounded basis.

Methodological reflection on the qualitative material

It is important to interpret the qualitative material carefully.

The open-ended responses:

- come from only part of the sample,
- are brief rather than elaborated interview narratives,
- and therefore cannot be treated as a full standalone qualitative study.

However, they are still highly valuable because:

- they corroborate the quantitative findings,
- they surface the vocabulary taxpayers use,
- they identify which problems are most salient without prompting,
- and they reveal what kinds of changes taxpayers themselves consider meaningful.

Thus, the qualitative themes should be read as interpretive triangulation, not as a separate methodological universe.

Concluding interpretation of the qualitative themes

In conclusion, the open-ended responses provide a rich and important layer of evidence in the dissertation. They show that taxpayers do not experience digital filing in a one-dimensional way. Many see no major problem and broadly accept the system. But among those who identify concerns, the most common themes are:

- lack of knowledge,
- procedural complexity,

- technical glitches or speed issues,
- dependence on others,
- and privacy or misuse concerns.

The suggestions for improvement are equally revealing. Taxpayers most often ask for:

- simpler forms and shorter processes,
- clearer guidance and awareness-building,
- easier language,
- more automation where appropriate,
- and better support for ordinary, non-technical users.

These qualitative findings strongly reinforce the central argument of the dissertation: the digitalization of income tax filing in India has delivered real opportunities, but the next stage of reform must focus on making the system more understandable, less intimidating, and less dependent on external interpretation.

In other words, the issue is no longer only whether filing is digital. The issue is whether digital filing feels sufficiently clear, supportive, and secure for ordinary taxpayers to use with confidence.

Comparative Interpretation Across Demographic and Behavioural Groups

A major strength of this study lies not only in the measurement of awareness, opportunity, challenge, risk, and satisfaction at the aggregate level, but also in the possibility of comparing how these dimensions vary across different categories of respondents. Such comparison is important because the digitalization of income tax filing is not experienced uniformly. The same portal, the same verification process, and the same digital filing environment may be perceived very differently by respondents depending on their age, gender, income, education, filing mode, digital comfort, and prior dependence on others.

This comparative approach is essential for a dissertation on taxpayer experience. Aggregate averages are useful, but they can conceal meaningful inequalities in autonomy, awareness, and confidence. A digital system may appear broadly successful on average while still remaining uneven in how its benefits are distributed. Therefore, this section interprets the survey findings comparatively, with the objective of understanding which groups appear more empowered by digitalization, which groups remain more dependent or risk-sensitive, and which differences are most significant for the broader argument of the dissertation.

The comparative interpretation below is organised around the following major categories:

1. Age-wise comparison
2. Gender-wise comparison
3. Income-wise comparison
4. Education-wise comparison
5. Filing mode-wise comparison
6. Digital comfort and internet-readiness comparison
7. Technological dependence and comparative outcomes
8. Integrative interpretation of group differences

The purpose of this section is not merely to repeat earlier descriptive tables, but to interpret what the differences actually mean for digital tax administration in India.

Why comparative analysis matters in this dissertation

Before proceeding to the subgroup findings, it is useful to clarify why comparative interpretation is necessary.

Digital taxation is often discussed in universal terms, as though the introduction of an online portal affects all taxpayers more or less equally. In reality, the taxpayer population is internally diverse. A salaried, urban, postgraduate respondent in mid-career may encounter the digital filing system in a very different manner from a retired respondent, a taxpayer with low digital confidence, or someone who routinely outsources filing to a consultant. Therefore, if the study were to stop at overall mean scores, it would risk overstating homogeneity where meaningful differences actually exist.

Comparative interpretation allows this dissertation to answer deeper questions such as:

- Who is more likely to file independently?
- Which groups experience higher awareness?
- Which groups perceive greater opportunity in the digital system?
- Which groups carry stronger challenge and risk perception?
- Who is more satisfied?
- And perhaps most importantly, where does digitalization appear to increase autonomy, and where does it appear merely to transfer compliance into an online but still mediated form?

This last question is especially important. The digitalization of income tax filing should not be assessed only by system-wide rollout or filing volumes. It must also be assessed by asking whether different categories of taxpayers are equally able to benefit from it.

Age-wise comparative interpretation

Age is one of the most important variables in the study because tax filing is strongly connected with stage of life, income stability, administrative exposure, and digital familiarity. In the present survey, age produces meaningful differences in filing behaviour and in dependence due to technological discomfort.

1. Age and filing status

The earlier cross-tabulation showed that filing rates rise sharply with age up to the main working-age groups. Filing is lowest in the youngest categories and strongest in the 36–60 range, especially the 46–60 group where around 93.0% reported filing ITR.

Interpretation

This pattern is expected, but it is also important. It confirms that digital tax filing is primarily a lived issue of economically active adulthood. Younger respondents may be more digitally native, but they are less likely to be deeply embedded in the tax system. By contrast, middle-aged respondents are the actual volume users of digital tax filing because they are more likely to have taxable income, recurring compliance responsibility, and prior filing

history. This has an important implication for the dissertation: digital tax reform should not be evaluated only from the perspective of technological familiarity. It must also be evaluated from the perspective of the age groups who most frequently bear filing responsibility.

2. **Age and self-filing** Among actual filers, self-filing is not dominant in any major age group. Self-filing remains below one-third in the principal adult categories, and it falls further among respondents above 60.

Interpretation

This suggests that age affects digital tax experience not simply through whether one files, but through how independently one files. Even in age groups with high filing participation, independence remains limited. Therefore, digitalization has expanded participation more strongly than it has expanded self-management.

3. **Age and reliance on others because of technological discomfort**

One of the most important age-related findings is that the 46–60 group shows especially high reliance on others due to technological discomfort. This group reported dependence levels substantially above the younger adult categories.

Interpretation

This is a major result for the dissertation. It suggests that the core working-age tax population may still be only partially comfortable within the digital environment. In other words, the age group most likely to be legally engaged with income tax filing is also one of the groups most likely to seek assistance because of technological unease. This has two major implications. First, the digitalization of tax filing has a generational adaptation dimension. For many taxpayers in mid to late working life, the tax system has moved from paper or assisted manual environments into an interface-driven compliance environment that they did not grow up with. Second, support design becomes especially important for this age segment. If the largest and most compliance-relevant taxpayer group still relies on others, then the success of digitalization cannot be measured only by whether filing is online. It must also be measured by whether the system is genuinely manageable for experienced but not always digitally confident taxpayers.

4. **Age and the broader meaning of autonomy**

The age findings together suggest that digital tax filing becomes more legally relevant as age increases, but not necessarily more autonomous. This is a crucial insight. In public discourse, younger users are often assumed to represent the future of digital administration. But in tax administration, the crucial question is whether the people who actually file every year can manage the process with confidence. The present results indicate that the answer is mixed. Mature taxpayers are active users of the system, but not always direct or confident operators of it.

Gender-wise comparative interpretation

Gender is another important variable in the study because digital public services often look neutral in design while remaining uneven in actual autonomy or confidence. The present survey results show that gender differences are particularly visible in filing participation, self-filing autonomy, awareness, and risk perception.

1. **Gender and filing status**

Male respondents in the sample were more likely to file ITR than female respondents. The difference was not overwhelmingly large in absolute terms, but the pattern was clear.

Interpretation

This result likely reflects broader socio-economic patterns rather than only tax-specific behaviour. Men in the sample may be more directly engaged in taxable formal work, or may be more likely to handle household tax matters even where women also earn. Thus, the gender filing gap should be read not simply as a digital issue but as part of the wider social distribution of financial administrative responsibility.

2. **Gender and self-filing**

One of the clearest gender results is that women in the sample are far less likely to self-file than men. Among actual filers, self-filing is much higher for men and very limited among female respondents.

Interpretation

This is one of the strongest pieces of evidence that digitalization does not automatically produce equal autonomy. A woman respondent may be part of the filing population and may successfully complete tax compliance each year, but still do so through a CA, family member, or office support structure rather than through direct engagement.

This is highly significant for the dissertation because it underscores a key distinction:

- access to digital compliance is not the same as
- independent control over digital compliance.

Thus, the e-filing system may be functionally inclusive in the sense that women's returns are filed online, but it may still not be equally empowering in terms of personal operational ownership.

3. **Gender and awareness** The broader index comparisons showed that female respondents had a lower Awareness Index on average than male respondents.

Interpretation

This result helps explain the self-filing gap. Lower awareness does not simply mean lack of information; it may also reflect less direct exposure to tax procedures, greater mediation through others, or less frequent involvement in financial administration. Where awareness is lower, confidence is usually lower, and reliance on assistance becomes more likely. This suggests that gender differences in digital tax experience may be cumulative:

- lower direct engagement,
- lower awareness,
- lower self-filing,
- and higher perceived risk.

4. **Gender and risk perception**

Female respondents also showed a higher Risk Index than male respondents.

Interpretation

This is an especially important result because it reveals that digital tax filing is not experienced with the same level of subjective security across genders. Women in the sample appear more cautious about the digital environment of tax compliance. This may relate to:

- lower direct control over filing,
- greater reliance on others,
- greater concern about misuse of personal or financial data,
- or a broader pattern of lower institutional comfort in high-stakes digital systems.

From a policy standpoint, this is highly relevant. A digital system that is formally available to all may still not be equally trusted by all. Therefore, gender-sensitive digital empowerment requires more than portal access; it requires confidence-building, safer assistance structures, and greater procedural clarity.

5. Gender and overall interpretation

The gender findings do not suggest that women are excluded from digital tax filing in a total sense. Rather, they suggest that women are more likely to experience the system through mediated rather than autonomous engagement. This is a subtle but crucial distinction. It implies that future improvements in digital tax administration must pay attention not only to usage rates, but also to who actually controls the compliance process.

Income-wise comparative interpretation

Income is a crucial variable because tax filing is intrinsically tied to income liability, complexity of financial affairs, and incentives for formal documentation. The survey results show that income affects not only whether respondents file, but also how they perceive the opportunities of digitalization and how they engage with assistance.

1. Income and filing status

Filing rates rise sharply with income in the dataset. At very low income levels, many respondents do not file. In the higher income categories, filing becomes nearly universal.

Interpretation

This is a predictable but important result. It confirms that tax filing is structurally embedded in income position. Higher-income respondents are not just more digitally active; they are more deeply obligated to interact with the tax system. This matters for the dissertation because it means higher-income taxpayers will often have more repeated exposure to the digital system and therefore may evaluate it more from experience than from abstract perception.

2. Income and opportunity perception

One of the strongest comparative results is that the Opportunity Index differs significantly across income categories, with higher-income groups generally showing stronger perceived benefit than the lowest-income respondents.

Interpretation

This finding suggests that digitalization may be more visibly useful to those whose financial lives require:

- formal documentation,
- refund visibility,
- cleaner annual compliance,
- and easier access to records for professional or institutional purposes.

Higher-income taxpayers may also derive more benefit from the speed and trackability of digital filing because their financial interactions are more likely to depend on formal tax records.

At the same time, this result should not be interpreted to mean that lower-income respondents gain nothing. Rather, it suggests that the visible utility of digitalization becomes stronger where the financial stakes and compliance relevance are greater.

3. Income and self-filing versus outsourcing

The descriptive results show that assisted filing remains common across income groups, and in some middle- and upper-income ranges, dependence on others is actually very high.

Interpretation

This is one of the most interesting findings in the dataset because it challenges the assumption that assistance always implies lack of capability. At lower income levels, not filing or low self-filing may reflect lower need or lower confidence. At higher income levels, however, dependence on professionals may reflect a different logic:

- greater financial complexity,
- stronger desire to minimize risk,
- and a more rational use of expert assistance.

Therefore, the meaning of assisted filing changes with income. In lower-income groups, it may reflect weaker confidence or lower filing relevance. In higher-income groups, it may reflect strategic outsourcing rather than exclusion.

This is a very important nuance for the dissertation. It prevents simplistic interpretation of assisted filing as a uniform problem.

4. Income and technological discomfort

The survey also showed that reliance on others due to technological discomfort is not limited to low-income respondents. In fact, some middle- and higher-income categories show very high rates of such reliance.

Interpretation

This suggests that “technological discomfort” in practice may sometimes combine with:

- risk aversion,
- time constraints,
- and complexity of filing.

In other words, higher-income respondents may not literally lack the ability to use technology. They may simply feel that independent filing is not worth the risk or effort relative to their resources. This again reinforces the distinction between capability-based dependence and convenience- or complexity-based dependence.

5. Income-wise overall interpretation

The broader income pattern shows that digitalization is strongly relevant to higher-income taxpayers and is generally viewed positively by them, but it does not automatically eliminate professional dependence. Therefore, digital tax filing should not be seen as a system that becomes more self-service in a linear way as income rises. Instead, income changes both the need for filing and the logic of assistance.

Education-wise comparative interpretation

Education is often assumed to improve digital confidence and administrative self-management. The present study partly supports this assumption, but the pattern is more nuanced than a simple linear relationship.

1. Education and filing behaviour

The earlier cross-tabulation indicated that educational qualification is associated with filing status and filing mode, but the relationship is not perfectly linear. Graduates, postgraduates, and doctorates do not differ in a simple ascending pattern of self-filing.

Interpretation

This is a very important result because it shows that formal education alone does not determine tax autonomy. A more educated respondent may still depend on a CA if:

- the tax situation is complex,
- the respondent is older,
- they prefer to outsource,
- or they do not want to risk an error.

Thus, education improves the potential for awareness, but it does not automatically eliminate the perceived value of professional help.

2. Education and understanding versus ownership

A highly educated respondent may be better able to understand instructions, legal language, or portal features, but that does not mean they will necessarily choose to operate the system personally. In fact, some of the most educated respondents may also be those with the most demanding time constraints or most complex tax affairs.

Interpretation

This suggests that education contributes to cognitive capacity, but autonomy depends additionally on:

- confidence,
- habit,
- filing complexity,
- and willingness to invest personal effort.

This is a key conceptual distinction. Digital taxation requires more than literacy. It requires procedural ownership, and that is not identical to educational attainment.

3. Education and the significance of residual challenge

The highly educated composition of the sample overall makes the later challenge and risk findings more important. If even this respondent pool shows moderate awareness, continued dependence, and high fear of notices, then the issue is clearly not only a lack of formal education. It also reflects the inherent seriousness and complexity of the tax environment. Thus, education helps, but it does not fully neutralize challenge.

Filing mode-wise comparative interpretation

Filing mode is arguably the most analytically important comparative variable in the study because it directly captures the difference between independent digital use and mediated digital use.

1. Self-filers versus assisted filers

The comparison between self-filers and assisted filers shows some of the strongest differences in the entire dataset:

- Self-filers have much higher Awareness
- Self-filers report stronger Opportunity perception
- Self-filers report lower Challenge
- Self-filers report lower Risk
- Self-filers report higher Satisfaction

Interpretation

This pattern is fundamental to the dissertation. It demonstrates that the experience of digital tax filing is significantly more positive for those who are able to operate the system directly. This does not simply mean that self-filers are “better” users; it means that autonomy changes the way the system is experienced.

When the taxpayer understands and controls the process:

- the portal appears more useful,
- less difficult,
- and more satisfying.

By contrast, assisted filers still recognize the opportunities of digitalization, but they do so from a more dependent position. They often gain the outcome, but not the same degree of confidence or ownership.

2. Why filing mode matters more than many demographic variables

Some demographic variables influence filing behaviour or risk perception, but filing mode cuts across many of them because it directly reflects operational control. A male or female respondent, a younger or older respondent, or a high- or middle-income respondent may all fall into different demographic categories — but what most sharply distinguishes digital experience is whether the respondent uses the portal independently or through another person.

Interpretation

This makes filing mode a more behaviourally direct measure of digital empowerment than many background characteristics. It is the point where awareness, comfort, complexity, confidence, and trust all come together.

3. Filing mode and the central argument of the dissertation

The filing-mode comparison provides one of the clearest empirical supports for the dissertation's larger claim:

- digitalization has improved participation and efficiency,

- but it has not equally improved autonomy.

This is why filing mode is not just another descriptive variable. It is one of the strongest indicators of whether digital tax reform is functioning as a true citizen-facing transformation.

Digital comfort and internet-readiness as comparative factors

The study also shows that differences in digital experience are strongly shaped by portal comfort and, to a lesser extent, internet stability.

1. Portal comfort

Respondents with higher portal comfort show:

- higher Awareness,
- higher Opportunity perception,
- and higher Satisfaction.

Interpretation

This is one of the strongest comparative gradients in the study. It suggests that digitalization works best for taxpayers who already feel confident in online government environments. Where portal comfort is low, the system may still be used, but not with the same degree of ease or positive evaluation.

This finding is crucial because it shows that a digital public service is never experienced only at the level of its formal design. It is also experienced through the user's own level of interface confidence. Therefore, digital tax reform must aim not only to deliver services online, but to make those services feel comfortably usable to moderate-confidence users.

2. Internet stability

Respondents with regular internet access show higher awareness, stronger opportunity perception, and greater satisfaction than those with unstable internet.

Interpretation

This reinforces the point that digital filing depends on the wider digital environment. Even where the portal itself is workable, the user's experience is shaped by the reliability of the connection through which the portal is accessed. This is particularly relevant because tax filing is a multi-step process involving login, form navigation, submission, and verification. Therefore, the impact of weak internet is not simply technical; it affects trust and confidence in the filing session itself.

3. Combined meaning of readiness variables

When portal comfort and internet stability are read together, the broader picture becomes clear:

- most respondents are digitally connected,
- but not all are equally digitally confident.

This distinction again reinforces one of the central themes of the dissertation: digital availability is not identical to digital self-sufficiency.

Technological dependence as a comparative dividing line

Another especially revealing comparative variable is whether respondents reported that they had relied on someone else because they were not technologically comfortable.

Those who answered "yes" showed:

- lower Awareness,
- higher Challenge,
- higher Risk,
- and lower Satisfaction.

Interpretation

This is one of the clearest patterns in the dataset because it directly connects subjective digital discomfort with broader outcomes in the tax-filing experience.

Respondents who rely on others due to technological discomfort do not merely outsource the task. They also:

- understand less,
- feel more challenged,
- feel more vulnerable,
- and are less satisfied.

This is a powerful finding because it shows that technological dependence is not neutral. It is associated with a qualitatively different experience of digital taxation.

Thus, the comparative difference here is not only behavioural. It is experiential and evaluative. It strongly supports the dissertation's argument that digitalization remains uneven in its ability to produce confident taxpayer agency.

Comparative interpretation of opportunities, challenges, and risks together

When the subgroup patterns are viewed together, a deeper interpretive structure emerges.

1. Groups more strongly empowered by digitalization

The following groups tend to show stronger positive digital experience:

- self-filers,
- respondents with high or very high portal comfort,
- respondents with stronger awareness,
- and respondents with regular, reliable internet.

These groups report higher opportunity perception and higher satisfaction, while generally carrying lower challenge or risk scores.

2. Groups more likely to experience mediated or stressed digitalization

The following groups tend to show greater vulnerability:

- assisted filers,
- respondents who have relied on others due to technological discomfort,

- respondents with lower awareness,
- some older adult groups,
- and respondents with higher subjective risk sensitivity, including many women in the sample.

These groups may still file and may still recognize opportunities, but they do so with more dependence, more uncertainty, or more perceived exposure.

Interpretation

This means the digital tax system is not producing a single standardized user experience. It is producing a tiered experience:

- a more confident and empowering experience for some,
- and a more assisted and risk-conscious experience for others.

This is one of the most important comparative insights in the dissertation.

What these comparative patterns mean for the research objectives

The group differences identified in this section help sharpen the broader research objectives of the study.

1. Objective related to awareness

Awareness is not evenly distributed. It is stronger among self-filers and digitally comfortable users, and weaker among those who remain dependent on others.

2. Objective related to opportunities

Opportunities are widely recognized, but they are not felt equally strongly by all groups. Those with more direct control over the system tend to appreciate its benefits more fully.

3. Objective related to challenges

Challenges are more prominent among respondents with lower autonomy, lower comfort, or greater dependence.

4. Objective related to risks

Risk is not evenly distributed. It is influenced by gender, dependence, and control. Some taxpayers experience the digital system with significantly more caution than others.

5. Objective related to satisfaction

Satisfaction is clearly higher where awareness, comfort, and autonomy are higher. Therefore, improving digital tax satisfaction requires improving not only the portal, but also the conditions under which taxpayers interact with it.

Thus, comparative analysis shows that the central objectives of the dissertation cannot be answered by looking only at aggregate means. They must be answered by examining how digitalization is distributed across different kinds of taxpayers.

Comparative interpretation and the idea of unequal digital citizenship

A broader conceptual point emerges from the subgroup findings: the digitalization of income tax filing is also producing a differentiated form of digital fiscal citizenship.

All taxpayers may be subject to the same legal system. All may have access, at least in principle, to the same portal. But in practice, taxpayers do not stand in the same relation to that portal.

Some taxpayers interact with the state directly, understand the interface, and derive strong satisfaction from doing so. Others interact with the state indirectly, through a consultant or other helper, and experience the same digital system with more uncertainty.

This is a very important theoretical conclusion for the dissertation. It suggests that digitalization has not erased inequality in the taxpayer-state relationship. Instead, it has reorganized it.

The new divide is not only between online and offline users. It is between:

- direct and mediated users,
- confident and dependent users,
- and low-risk and high-risk users.

That is why the next generation of digital tax reform must focus not only on increasing usage, but on reducing these experiential inequalities.

Concluding interpretation of comparative group differences

In conclusion, the comparative analysis across demographic and behavioural groups shows that the digitalization of income tax filing in India is broadly successful, but unevenly experienced.

The key conclusions of this section are as follows:

- Age shapes filing participation and dependence, especially among core working-age users.
- Gender shapes autonomy and risk, with women showing lower self-filing and higher caution.
- Income shapes filing necessity, perceived benefits, and the logic of assistance.
- Education contributes to capacity but does not by itself guarantee self-filing.
- Filing mode is one of the strongest determinants of awareness, challenge, and satisfaction.
- Portal comfort and internet stability strongly affect how useful and satisfying the digital system feels.
- Technological discomfort is closely linked with lower awareness, higher challenge, higher risk, and lower satisfaction.

Taken together, these findings support one of the central claims of the dissertation: the digitalization of income tax filing has significantly improved access, efficiency, and convenience, but it has not yet produced equally distributed autonomy across taxpayers.

Some respondents experience digital taxation as a tool of empowerment. Others experience it as a system that works, but only through assistance, caution, or partial confidence.

This comparative understanding is essential because it prepares the ground for the next logical stage of the dissertation: a synthesis of the major findings in relation to the research objectives, hypotheses, and the broader implications for taxpayer-centric digital tax reform in India.

Discussion of Findings in Relation to Research Objectives and Hypotheses

The purpose of this section is to move from description to interpretation. The earlier parts of Chapter 4 presented the empirical results of the survey in detail: the demographic structure of respondents, filing behaviour, digital readiness, awareness, opportunity

perception, challenge perception, risk perception, satisfaction, filing mode, dependence on intermediaries, AI attitudes, and group-wise variation across age, gender, income, and portal comfort. Those results now need to be brought together in a more integrated manner and discussed directly in relation to the major research objectives and the working hypotheses of the study.

This stage of the dissertation is important because raw findings, however detailed, do not by themselves amount to a research conclusion. A dissertation must demonstrate not only what the data show, but also how those data answer the original research problem. In the present case, the central research problem is the following: How has the digitalization of income tax filing in India transformed the experience of taxpayers, and what opportunities and challenges does this transformation create?

The answer that emerges from the data is neither one-sidedly optimistic nor one-sidedly critical. The digitalization of income tax filing is clearly perceived as a meaningful improvement over older modes of compliance. Respondents recognize strong benefits in time saving, transparency, tracking, ease of filing, and reduced direct interface. At the same time, the system is not experienced as fully self-explanatory, uniformly empowering, or universally confidence-building. Fear of notices, dependence on intermediaries, moderate rather than deep awareness, support deficits, and privacy or misuse concerns remain important parts of the taxpayer experience.

Thus, the findings of the study support a broader interpretive conclusion: digitalization has improved the mechanics of compliance more strongly than it has equalized the capacity for independent compliance. This insight lies at the heart of the discussion that follows.

Discussion in relation to Objective 1: To examine the level of awareness regarding digital income tax filing

The first objective of the study was to assess the level of taxpayer awareness regarding the digital filing ecosystem. The empirical findings show that awareness is moderate overall, with stronger awareness for routine filing functions and weaker awareness for more advanced, defensive, or post-filing components.

Respondents were relatively more aware of:

- portal login and registration,
- e-verification,
- online payment and challans,
- and pre-filled return/AIS-type features.

They were less aware of:

- Form 26AS/TDS matching,
- grievance and complaint systems,
- faceless assessment/e-proceedings,
- and especially faceless appeals.

This distribution is highly significant. It shows that taxpayer awareness is concentrated around the submission side of the system rather than the resolution side. In practical terms, taxpayers generally know how to enter the portal and complete the filing process, but they are less aware of what to do when:

- a mismatch arises,
- a clarification is needed,
- a grievance must be raised,
- or a more formal procedural response becomes necessary.

This finding is important for two reasons :

1. First, it shows that digital tax awareness in India cannot be treated as a simple yes-or-no variable. Taxpayers may be digitally active and still not be fully aware of the wider architecture of digital tax administration. Awareness therefore exists in layers. Routine awareness is stronger than deeper procedural awareness.
2. Second, this pattern explains why self-filing remains limited despite the wide availability of the portal. A taxpayer may know enough to cooperate with the system or to assist a consultant, but not enough to feel fully secure in handling the process independently.

In relation to the first objective, therefore, the study concludes that taxpayer awareness is functional but incomplete. The digitalization of tax filing has clearly become visible and familiar to respondents, but awareness has not advanced equally across all parts of the digital tax ecosystem.

This discussion also supports one of the deeper conceptual arguments of the dissertation: the success of digitalization should not be judged only by whether taxpayers know that filing is online. It should also be judged by whether taxpayers understand the wider processes that protect them when things go wrong.

Discussion in relation to Objective 2: To identify the opportunities created by digitalization for taxpayers

The second objective of the study was to identify the major opportunities created by digitalization. This objective is very strongly supported by the findings.

The overall Opportunity Index is high, and respondents clearly perceive digital tax filing as beneficial. The most strongly recognized opportunities are:

- saving time,
- improving transparency and record tracking,
- making compliance easier for ordinary taxpayers,
- reducing direct physical interface,
- reducing rent-seeking or unnecessary manual friction,
- and helping reduce some kinds of filing error through validations and pre-fill.

These results are extremely important because they show that the digitalization of tax filing is not experienced merely as a compulsory technical shift. It is experienced as a meaningful service improvement. Taxpayers are not simply saying, “We now have to file online.” They are saying, in effect, “The online system gives us certain real advantages.”

The most strongly perceived opportunity is time saving. This suggests that the strongest success of digitalization lies in administrative efficiency. Taxpayers value reduced travel, reduced repeated interaction, easier submission, and more flexible filing.

The second major opportunity is transparency and tracking. This is especially important because digitalization does not only speed up filing; it also improves the visibility of filing status, acknowledgement, and refund-related progress. A system that allows the taxpayer to see what has happened after submission is more credible and more useful.

However, the opportunity discussion also reveals an important limit. Respondents are less strongly convinced that the digital system has substantially deepened their understanding of their own tax position. This means that digitalization is being experienced more strongly as a process reform than as a knowledge reform. The portal helps taxpayers file better or faster, but does not equally help all of them understand tax law or compliance logic more deeply.

Thus, in relation to the second objective, the study concludes that digitalization has created substantial opportunities, especially in convenience, transparency, and administrative standardization. These opportunities are real, widely recognized, and central to the positive evaluation of the system. At the same time, the opportunity structure remains stronger at the level of transaction simplification than at the level of taxpayer self-education.

Discussion in relation to Objective 3: To identify the major challenges faced by taxpayers in digital income tax filing

The third objective of the study was to identify the principal challenges encountered by taxpayers. The findings support this objective very strongly and show that digitalization, while beneficial, is still associated with meaningful forms of burden.

The overall Challenge Index is moderately high. The major challenges perceived by respondents are:

- fear of notices and penalties,
- lack of guidance and support,
- portal slowness during peak filing periods,
- portal glitches such as login or OTP issues,
- difficulty with legal or technical language,
- uncertainty over correct ITR form or regime,
- and difficulty in matching AIS or Form 26AS with actual income records.

This challenge structure is highly significant because it reveals that digital difficulty is not confined to one domain. It includes:

- emotional stress,
- support deficit,
- technical friction,
- and interpretive uncertainty.

The strongest challenge, fear of notices and penalties, shows that the system is not experienced as a low-stakes convenience portal. Taxpayers understand that filing has formal consequences. Therefore, even where the portal works technically, users may remain tense if they do not feel certain that they have filed correctly.

The second strongest challenge, lack of guidance/support, is equally important because it directly explains continued dependence on intermediaries. Taxpayers do not appear to see support as a minor add-on. They see it as a core requirement for confidence.

The technical challenges — slow portal and glitches — show that operational performance matters, especially under deadline pressure. This indicates that digital public service success depends not just on portal existence, but on system resilience under real filing conditions.

Thus, in relation to the third objective, the study concludes that digitalization has not removed taxpayer burden; it has altered its form. The old burden of paper movement and office visits has been reduced, but a new burden remains in the form of stress, uncertainty, and support-sensitive digital compliance.

Discussion in relation to Objective 4: To assess the risks perceived by taxpayers in the digital filing environment

The fourth objective concerns risk perception, and the findings show that risk is a substantial part of the taxpayer experience.

The overall Risk Index is moderately high. The main risks identified by respondents are:

- incorrect filing leading to penalty or notice,
- misuse of PAN/Aadhaar/OTP,
- fraud or misreporting by intermediaries,
- privacy of financial and personal data online,
- and system unreliability during peak filing periods.

The strongest risk is not external cyberattack in an abstract sense, but the fear that one's own filing may turn out to be wrong and create official consequences. This is a very important result because it shows that the dominant digital tax risk is compliance risk, not merely technological risk.

The second major risk, misuse of PAN/Aadhaar/OTP, reflects the sensitive identity-linked nature of digital tax filing. Since the system depends on credentials, verification, and linked accounts, taxpayers naturally see identity misuse as a serious threat.

The third major risk, intermediary fraud or misreporting, is especially important because it reveals a contradiction in taxpayer behaviour. Taxpayers depend heavily on intermediaries, but they also see them as a source of vulnerability. This means that digital assistance can reduce one kind of risk while introducing another.

The privacy concern, though not the strongest, remains clearly significant. This indicates that taxpayers do not treat their digital tax footprint as harmless. They remain cautious about how personal and financial data are handled in the online environment.

Thus, in relation to the fourth objective, the study concludes that digital tax filing is experienced not only as a convenience system but also as a risk-bearing system. Risk perception remains embedded in the filing experience even among taxpayers who continue to use and appreciate the system.

This is one of the dissertation's most important contributions. It shows that digital tax reform must be evaluated not only in terms of efficiency but also in terms of felt security.

Discussion in relation to Objective 5: To examine taxpayer satisfaction with the digital filing system

The fifth objective of the study was to assess taxpayer satisfaction, and the results show that overall satisfaction is positive but internally uneven.

The overall Satisfaction Index is 3.77, which indicates that respondents are broadly satisfied with the e-filing system. The strongest satisfaction areas are:

- login and navigation,

- e-verification,
- usefulness of pre-filled data,
- and overall filing experience.

The weaker areas are:

- helpdesk and grievance support,
- and especially portal speed during peak times.

This pattern is highly significant because it shows that taxpayers are most satisfied where the filing workflow is direct, structured, and procedurally clear. Satisfaction weakens where:

- the system becomes support-intensive,
- the user needs help,
- or the portal must perform under high demand.

In other words, the system performs best in ordinary, linear filing situations. It performs less strongly in exceptional, support-dependent, or high-pressure situations.

This is a very important interpretive conclusion because it suggests that the digital tax system has reached a stage of transactional maturity, but not yet full service maturity. Taxpayers can generally complete the process and judge it positively, but they are less satisfied with the layers that matter when difficulties arise.

Thus, in relation to the fifth objective, the study concludes that satisfaction with digital filing in India is clearly positive overall, but still limited by support weakness and performance concerns. The system works, but it does not yet reassure equally well in all situations.

Discussion in relation to Objective 6: To assess whether digitalization has increased taxpayer autonomy or whether dependence on intermediaries remains significant

Although this objective may not always be separately stated in the questionnaire structure, it is clearly central to the theme of the dissertation and emerges repeatedly in the empirical findings.

The study shows that digitalization has not eliminated dependence on intermediaries. Among actual filers, only a minority self-file. The largest group files through CAs or tax consultants, and others rely on friends, relatives, colleagues, or employer/account offices. In addition, more than half the sample report having relied on someone else because of technological discomfort.

This is one of the most important findings in the study because it shows that digitalization has expanded digital participation much more than it has expanded digital autonomy.

This does not mean the system has failed. It means that the portal has become the standard compliance environment, but many taxpayers still reach that environment through another person's skill, not entirely their own.

The reasons respondents give for using others reinforce this interpretation:

- not understanding tax provisions,
- fear of mistakes,
- lack of time,
- technological discomfort,
- and perceived complexity of the portal.

This means dependence is not simply inertia. It is partly rational, partly structural, and partly confidence-driven.

Therefore, in relation to taxpayer autonomy, the study concludes that digitalization has not yet produced universal self-service tax compliance. Instead, it has produced a large field of assisted digital compliance, in which online filing is normal but direct user control remains uneven.

This is arguably one of the most substantive contributions of the dissertation.

Discussion in relation to Objective 7: To explore taxpayer attitudes toward AI-enabled or technology-assisted support in filing

The study also explored how respondents view the possible role of AI-based tools and support features in tax filing. The findings show cautious but meaningful openness.

Most respondents have not yet used AI tools such as chatbot systems or large language model tools for tax filing support. However, their attitudes toward the possible use of AI are moderately positive. Respondents support:

- AI-based guidance,
- AI-based error detection,
- and AI as a help mechanism for non-expert taxpayers.

At the same time, they strongly insist that any AI-related decision should have:

- human review,
- clear explanation,
- and accountability.

This is a very important finding because it suggests that taxpayers do not reject advanced digital assistance. They are willing to consider AI if it reduces uncertainty and improves clarity. But they do not want AI to become an opaque, unquestionable layer of authority.

This fits well with the broader findings of the dissertation. In a system where:

- fear of mistakes is high,
- support is seen as insufficient,
- and dependence on others remains strong,

AI is perceived as potentially useful if it functions as guided assistance, not as an automated judge.

Therefore, in relation to this objective, the study concludes that taxpayers are open to deeper digital support, but only under a model of human-supervised, explainable, and taxpayer-friendly assistance.

Discussion in relation to Hypothesis 1: Higher awareness is associated with greater taxpayer autonomy in digital filing

The findings strongly support this hypothesis.

Self-filers have a much higher Awareness Index than assisted filers. In other words, respondents who understand the system better are more likely to file independently. This is one of the clearest and most important relationships in the dataset.

The significance of this result lies in the fact that awareness is not merely a descriptive quality. It has behavioural consequences. Higher awareness appears to strengthen:

- confidence,
- direct engagement,
- and willingness to operate the portal without relying on another person.

This supports a central thesis of the dissertation: the success of digital tax reform is closely linked to how far taxpayers understand the system, not merely whether they can technically access it.

Thus, Hypothesis 1 is supported.

Discussion in relation to Hypothesis 2: Greater digital comfort improves awareness, opportunity perception, and satisfaction

The findings strongly support this hypothesis as well.

Respondents with higher comfort using online government portals show:

- higher awareness,
- stronger opportunity perception,
- and higher satisfaction.

This is one of the strongest gradients in the study and confirms that digital comfort acts as an enabling condition for positive digital tax experience.

The importance of this finding is that it shifts attention from infrastructure alone to interface confidence. Taxpayers may have devices and internet, but unless they feel comfortable engaging with formal digital systems, the perceived value of those systems remains weaker.

Thus, Hypothesis 2 is strongly supported.

Discussion in relation to Hypothesis 3: Dependence on others due to technological discomfort is associated with lower awareness, higher challenge, and lower satisfaction

The findings clearly support this hypothesis.

Respondents who reported relying on someone else because they were not technologically comfortable show:

- lower awareness,
- higher challenge,
- higher risk,
- and lower satisfaction.

This is a crucial finding because it shows that technological dependence is not a neutral arrangement. It is associated with a distinctly weaker overall digital tax experience.

This means that the taxpayer who depends on others is not merely outsourcing a task; they are often experiencing the system from a position of lower confidence and lower control.

Thus, Hypothesis 3 is supported.

Discussion in relation to Hypothesis 4: Women perceive greater digital tax risk than men

The findings support this hypothesis in a meaningful way.

Female respondents in the sample show a higher average Risk Index than male respondents, along with lower awareness and much lower self-filing rates. This indicates that digital tax filing is experienced with greater caution or subjective vulnerability among women in the sample.

The importance of this finding lies not only in the risk score itself, but in what it implies about unequal digital autonomy. A system may appear neutral in design while still being uneven in how secure and controllable it feels across user groups.

Thus, Hypothesis 4 is supported, though it should be interpreted with the sample's gender distribution in mind.

Discussion in relation to Hypothesis 5: Income level influences the perceived opportunity structure of digital filing

The study supports this hypothesis.

Opportunity perception is lower in the lowest-income group and stronger in many middle- and higher-income groups. This suggests that taxpayers with greater financial engagement, higher filing relevance, and stronger use for documentation or refunds derive more visible benefit from digitalization.

However, this relationship is not perfectly linear in all respects. Income also changes the logic of assistance. Higher-income respondents may still depend heavily on professionals, not because the system fails them, but because filing becomes more complex or the cost of outsourcing is relatively low.

Thus, Hypothesis 5 is supported, but with the important qualification that income influences not only perceived opportunity, but also the meaning of dependence.

Discussion in relation to Hypothesis 6: The digital tax system performs better in core filing functions than in support or post-filing functions

The evidence clearly supports this hypothesis.

Respondents show stronger awareness and satisfaction regarding:

- login,
- e-verification,
- pre-filled filing,
- and routine workflow functions.

They show weaker awareness and satisfaction regarding:

- grievance systems,
- helpdesk support,
- faceless appeals,
- e-proceedings,
- and peak-period system performance.

This indicates that the system is stronger at transactional filing than at support, remediation, and escalation.

This is a highly important finding because it shows that the next stage of reform should not merely refine core filing; it should strengthen the layers that become critical when taxpayers encounter difficulty.

Thus, Hypothesis 6 is strongly supported.

Discussion in relation to Hypothesis 7: Intermediary dependence remains structurally significant despite digitalization

The findings strongly support this hypothesis.

The largest filing mode is through CAs or tax consultants, and a majority of respondents have relied on someone else due to technological discomfort. This proves that digitalization has not displaced the intermediary. Instead, it has repositioned the intermediary within a digital ecosystem.

This result is central to the dissertation because it directly challenges the assumption that online filing automatically means self-service filing. In reality, the system appears to have become digitally mainstream while remaining socially mediated.

Thus, Hypothesis 7 is strongly supported.

Discussion in relation to Hypothesis 8: Taxpayers are open to AI-enabled assistance but prefer human review and accountability

The findings support this hypothesis.

Respondents are moderately positive toward AI-based guidance and error detection, but the strongest AI-related preference is that any AI-influenced outcome should be subject to:

- human review,
- explanation,
- and clear accountability.

This indicates that respondents do not want to replace human judgment with opaque automation. Instead, they want AI to function as a confidence-building support mechanism.

Thus, Hypothesis 8 is supported.

Overall discussion: What the objectives and hypotheses together reveal

When the objectives and hypotheses are read together, a highly coherent picture emerges.

The study does not show a digital tax system that is failing. Nor does it show a system that has fully solved the citizen-side problem of compliance. Instead, it reveals a system that has achieved strong procedural modernization, but still remains uneven in terms of taxpayer comprehension, confidence, and autonomy.

The strongest empirical conclusions that emerge are:

- taxpayers clearly recognize the benefits of digitalization,
- awareness exists but is stronger for basic filing than for deeper procedural features,
- challenges remain concentrated in stress, support deficits, and performance weakness,
- risk is high enough to influence behaviour,
- satisfaction is positive but uneven,
- self-filing remains a minority mode,
- and autonomy is most strongly associated with awareness and comfort.

This leads to a highly important conceptual conclusion for the dissertation: Digitalization has moved tax compliance online, but it has not yet fully equalized the capacity to navigate that online compliance independently.

That is why the study repeatedly finds a gap between:

- system availability and taxpayer control,
- digital participation and digital confidence,
- and successful filing and fully informed filing.

This is the point at which the dissertation moves from empirical interpretation to broader implications.

Concluding interpretation of findings in relation to objectives and hypotheses

In conclusion, the discussion of findings in relation to the research objectives and hypotheses shows that the digitalization of income tax filing in India has been substantively successful, but not uniformly empowering.

The objectives relating to awareness, opportunities, challenges, risk, satisfaction, autonomy, and AI attitudes are all meaningfully answered by the survey data. The hypotheses are, in large part, supported:

- awareness supports autonomy,
- digital comfort supports more positive experience,
- technological dependence is associated with weaker outcomes,
- women show greater risk sensitivity,
- income shapes perceived opportunity,
- the system is stronger in core filing than in support-intensive functions,
- intermediary dependence remains significant,
- and AI is accepted more as assistance than as authority.

Taken together, these findings justify a strong dissertation-level conclusion: the digitalization of income tax filing has improved efficiency, visibility, and procedural convenience for taxpayers, but it has not yet fully transformed the system into an equally understandable, equally trusted, and equally self-manageable environment for all categories of users.

This conclusion provides the direct foundation for the final chapter, where the major findings can be crystallized, recommendations can be formulated, and the broader implications for taxpayer-centric digital tax reform in India can be stated more definitively.

Discussion with Prior Literature

The findings of the present study acquire deeper meaning when placed alongside the existing literature on e-filing, taxpayer perception, digital compliance, and the changing architecture of India's income tax administration. The Indian literature on e-filing has broadly developed in three overlapping streams. The first stream focuses on awareness and satisfaction, asking whether

taxpayers know about e-filing and whether they are satisfied with it. The second stream is more explicitly rooted in technology adoption theory, especially perceived usefulness, perceived ease of use, trust, and intention to continue using the system. The third stream, which is more visible in official documentation than in older academic work, concerns the institutional expansion of the e-filing ecosystem itself—including AIS, e-Proceedings, grievance redressal, assisted filing tools, and faceless appeal structures. The present study stands at the intersection of all three streams. It confirms many findings from earlier Indian work, but it also extends that literature by showing that digital tax filing in India is now a broader, more data-rich, more support-dependent, and more unevenly experienced system than many earlier studies captured.

A useful starting point in the literature is the earlier Indian research on awareness and satisfaction. One of the most frequently cited studies in this area is the Coimbatore-based work of Geetha and Sekar, which found that existing users were generally satisfied with e-filing, but that awareness of the broader e-filing and e-payment procedures was uneven and required strengthening. That study also observed that awareness varied across specific components: respondents were highly aware of some matters such as use of software and website address, but much less aware of challan-filing and TDS-related elements. At the same time, the authors reported that respondents were satisfied with important aspects of the filing system, especially the filing procedure itself.

The present study aligns with that earlier awareness–satisfaction pattern, but it does so in a more contemporary digital context. Here too, taxpayers are broadly satisfied with the e-filing system, and the strongest satisfaction lies in relatively direct and structured functions such as login, e-verification, and general system use. Likewise, awareness in the present study is not uniformly low; instead, it is unevenly distributed across components. Respondents are more aware of basic filing functions such as login, registration, e-verification, and pre-filled return features than of more advanced or defensive functions such as grievance channels, e-Proceedings, and faceless appeals. In this sense, the current findings strongly echo the earlier literature: awareness is not absent, but it is layered and selective. What changes in the present study is the object of awareness. Older work often focused on website address, e-payment, or software use; the current study must address AIS, portal support architecture, faceless proceedings, and broader digital grievance structures, because the portal itself has become institutionally more complex.

A second major literature stream comes from technology acceptance and satisfaction models. A particularly important Indian contribution here is the IIM Indore study by Puthur, Mahadevan, and George. That study found that perceived usefulness and perceived ease of use, along with website quality and information quality, significantly enhance taxpayer satisfaction and intention to reuse the e-filing system. It also highlighted the role of trust, computer self-efficacy, and the expectation that satisfied taxpayers are more likely to continue using the system in subsequent filing sessions. Importantly, the authors concluded that the department should redesign the e-filing architecture to ensure convenience and ease of use so that taxpayers would be motivated to use it in the future.

The present study is strongly consistent with that theoretical line of argument. The strongest opportunity items in the current survey are time saving, transparency and tracking, and easier compliance. These are all practical manifestations of perceived usefulness. Likewise, the strong relationship observed here between portal comfort and both satisfaction and opportunity perception closely parallels the role of perceived ease of use and self-efficacy in the earlier TAM-oriented literature. The current findings also show that self-filers—who are likely to be those with higher awareness and confidence—report substantially higher satisfaction and lower challenge than assisted filers. This is fully consistent with the logic that greater ease, familiarity, and control improve digital service evaluation. In that sense, the present study does not displace the earlier adoption literature; it empirically reinforces it.

At the same time, the present study extends that literature in an important way. Much of the earlier Indian work asked why taxpayers adopt e-filing or whether they are satisfied with it. The current findings suggest that this question is no longer enough. For a substantial number of taxpayers, adoption has already occurred in the formal sense: the return is filed online. The more important question now is how that filing is experienced—independently or through assistance, confidently or anxiously, transparently or opaquely. In other words, the problem has shifted from basic adoption to the quality of digital participation. This is why intermediary dependence emerges so strongly in the present study. Earlier adoption models often treated the taxpayer as the operative user of the system. The current study shows that, in practice, the taxpayer may be a successful participant in digital filing without being the primary operator of the portal. This is a major conceptual extension to the literature. It suggests that India's e-filing system should now be studied not only as a tool of adoption, but as a domain of assisted digital compliance.

Another relevant piece of Indian literature is the ACM paper on factors influencing e-filing adoption in the Indian context. That paper examined the underlying factors shaping intention to adopt e-filing and concluded that upgrading e-filing services would improve taxpayers' compliance intentions and their willingness to use the system. Even from the limited accessible abstract information, the focus is clear: system design and user-facing service quality matter for adoption and use.

The present study supports that logic, but again broadens its practical meaning. The current findings suggest that “upgrading the system” is no longer only about general adoption. It is now about making the platform more self-explanatory, more resilient under peak load, more trustworthy in identity-linked processes, and more effective in reducing dependence on non-official support channels. In the present dataset, the strongest challenges are not simply “I cannot access the system.” They are: fear of notices, lack of guidance, portal slowness under pressure, and difficulty interpreting key decisions such as form/regime choice and data matching. Thus, the findings suggest that service quality in the current phase of digital tax administration must be understood more broadly than in earlier adoption studies. It must include not only usability, but also reassurance, support visibility, and explainability.

The literature on awareness and satisfaction from city-specific Indian studies remains highly relevant to the present dissertation. The Coimbatore literature, for instance, reported satisfaction with e-filing among current users while simultaneously identifying low or uneven awareness regarding several procedural components. The present study confirms that this dual pattern has not disappeared. Even in a more recent and digitally richer environment, satisfaction can coexist with partial understanding. This continuity is important because it suggests that one of the core tensions of e-filing in India has remained stable over time: the system can be useful and even satisfactory without being fully understood by all its users.

However, the present study also shows that the content of “what needs to be understood” has changed significantly. Older literature frequently discussed awareness of website address, e-forms, digital signature, or challan procedures. Today, the official e-filing architecture includes the Annual Information Statement, the Taxpayer Information Summary, feedback loops on reported data, e-Proceedings, e-Nivaran grievance pathways, assisted filing tools, co-browsing, and electronic appeal filing. The AIS itself is now described by the Department as a comprehensive view of taxpayer information intended to support complete information display, taxpayer feedback, seamless prefilling, voluntary compliance, and deterrence of non-compliance. The portal also explicitly

distinguishes AIS and TIS from Form 26AS, with 26AS now mainly reflecting TDS/TCS-related data from AY 2023–24 onward, while a broader range of information is available through AIS.

This official architecture matters enormously for interpreting prior literature. Much of the Indian e-filing literature that shaped the field in the early 2010s and mid-2010s predates the full significance of AIS-based filing support, current e-Proceedings workflows, and the present faceless appeal ecosystem. The official Form 35 user manual shows that appeals now operate within a faceless framework, and the portal's e-Proceedings guidance explicitly allows taxpayers to respond electronically to defective notices, adjustment intimations, rectification matters, clarification communications, and other formal notices. The portal's assisted-filing overview further indicates that the Department has already recognized the need for wizard-based selection, pre-filled returns, chatbot support, manuals, and videos, while co-browsing support allows helpdesk agents to guide taxpayers in real time in the same browser session.

This means the present study contributes something the older literature could not easily capture: the digital tax experience is no longer confined to return submission alone. It now includes a broader digital compliance lifecycle. A taxpayer must potentially understand not only filing but also:

- how to read AIS and TIS,
- how to reconcile data,
- how to respond to e-Proceedings,
- how to raise grievances,
- and how to navigate electronic appeal structures.

The current study's findings on awareness fit this expanded architecture very closely. Respondents are relatively more aware of routine functions such as login and e-verification, but less aware of grievance channels, e-Proceedings, and faceless appeals. This implies that digitalization in India has progressed further in making taxpayers participants in the online system than in making them fully informed navigators of the larger digital compliance lifecycle. This is one of the most important ways in which the current study extends the literature. Earlier studies identified awareness gaps within a more limited portal environment; the present study identifies awareness gaps within a much broader and more sophisticated digital tax state.

The issue of trust and security also deserves comparison with prior literature. Puthur and colleagues explicitly treated trust as a major variable, linking it to privacy and security concerns and showing that trust has a significant positive effect on taxpayer satisfaction. The present study strongly confirms the continuing importance of this line of reasoning, but with a more differentiated risk structure. In the current findings, taxpayers do not simply express an abstract concern about trust. They identify specific risks: incorrect filing leading to notice or penalty, misuse of PAN/Aadhaar/OTP, fraud or misreporting by intermediaries, privacy of personal and financial data online, and unreliability during peak filing periods. The contemporary trust problem therefore appears more granular and more identity-linked than much of the older literature captured.

This refinement is very important. Earlier trust-oriented literature was correct to identify security and privacy as important adoption variables. The present study shows that in the current Indian context, taxpayer risk is experienced not just as “do I trust the system?” but as several more specific questions:

- Do I trust myself not to make a consequential filing error?
- Do I trust the person helping me?
- Do I trust the safety of my credentials?
- Do I trust the reliability of the platform when I need it most? This means that the trust literature remains highly relevant, but it requires an updated vocabulary for the current portal ecosystem.

The present study also contributes by bringing intermediary dependence into much sharper focus than many earlier studies. Early literature certainly recognized the role of preparers and intermediaries. The Coimbatore study, for example, explicitly referred to intermediaries operating in multiple Indian cities and also mentioned tax return preparer training efforts. But in much of the mainstream adoption/satisfaction literature, the conceptual unit remained the taxpayer as direct user of the system. The current study shows that this assumption is often too narrow. Large sections of the taxpayer population may participate in a fully digital filing system while still relying on CAs, consultants, employer accounts staff, relatives, or colleagues for interpretation and execution.

This matters theoretically because it changes how digital success should be measured. If the literature stops at filing adoption, it may conclude that digitalization is succeeding simply because returns are being filed online. The present study shows that a better measure is whether taxpayers can:

- understand the process,
- control the process,
- and complete the process with confidence. That is why the current findings distinguish between digital participation and digital autonomy. The literature on e-filing in India has not always clearly separated those two ideas, and this dissertation argues that future research should do so more explicitly.

Another contribution of the present study concerns support systems. Earlier literature often focused on website quality, information quality, and ease of use. Those categories remain important, but the current portal environment suggests that “support” must now be treated more explicitly as a separate research dimension. The official portal already offers assisted filing, chatbot support, manuals, videos, co-browsing, grievance filing through e-Nivaran, and online responses to formal notices. The present study finds, however, that taxpayers remain only moderately aware of many support and remedial features, and that support-related challenge remains high. This shows that the system's support architecture is institutionally more developed than taxpayer awareness and experience of it. That is an important insight that prior literature, especially older awareness-satisfaction studies, could not fully surface because the ecosystem itself was less elaborate then.

The present study's findings on satisfaction also fit the literature while adding nuance. Earlier Indian work generally found that current users of e-filing were satisfied, and Puthur's model linked satisfaction to reuse intention. The current study supports that broad direction: respondents are generally satisfied with the digital filing system. But the satisfaction profile here is much more internally differentiated. Satisfaction is strongest for login, navigation, e-verification, and pre-filled data usefulness, and weakest for helpdesk/grievance support and portal speed during peak times. This shows that contemporary taxpayer satisfaction is not a single

broad approval variable; it is function-specific. Core transactional functions are relatively strong, while support and stress-handling functions remain weaker. That is an important refinement to the earlier literature, which often treated satisfaction more holistically.

The present study also connects with the limitations acknowledged in earlier literature. Puthur explicitly noted that its sample was limited to 10 cities in India and a few towns in Kerala, and Geetha and Sekar explicitly noted that their study was limited to Coimbatore city. These limitations are important because they remind us that Indian e-filing research has often been geographically specific and context-bound. The current study shares that broad feature: it is also sample-based and not a full national probability survey. But the important point is not that such studies are imperfect. It is that together they reveal a consistent national pattern: taxpayers tend to value the move toward e-filing, but awareness, support, and confidence remain uneven. The present study strengthens this cumulative pattern while updating it to a later stage of portal evolution.

Another important point of departure from much earlier literature is the role of AI and chatbot-like assistance. Much of the core Indian e-filing literature predates the current wave of large language model tools and conversational AI. By contrast, the present study explicitly investigates taxpayer attitudes toward AI-based support, chatbot-style assistance, error detection, and explainable digital help. The findings show that actual use remains limited, but openness is noticeably stronger than usage. Taxpayers are willing to accept AI as a guide or error-checking tool, but they strongly insist that any consequential AI-driven outcome should remain subject to human review and clear explanation. This is a distinctive contribution of the present dissertation, because it extends the literature beyond traditional TAM variables into the next generation of digital tax support. It also resonates with the official portal's present use of assisted filing, chatbot guidance, and co-browsing support as evidence that the support layer of tax administration is already moving toward more interactive digital assistance.

In broader interpretive terms, the present study suggests that the Indian literature on e-filing needs a conceptual update. Earlier work was understandably focused on adoption, awareness, and initial satisfaction in a system that was still establishing itself. The current environment is different. The portal is no longer just an online return-submission channel. It is a broader compliance environment that includes information statements, response workflows, grievance channels, assisted-filing mechanisms, and digital appellate pathways. The taxpayer is therefore no longer just a filer. The taxpayer is a potential reviewer of system-generated information, a respondent to automated or faceless processes, and a user who may need both digital skill and procedural literacy. The literature must therefore move from asking "Do taxpayers use e-filing?" to asking "How do different taxpayers inhabit the digital compliance environment, with what degree of awareness, trust, autonomy, and support?"

Taken together, the present study both confirms and extends prior literature in several important ways. It confirms earlier findings that usefulness, ease of use, and trust remain central; that awareness and satisfaction often coexist with important knowledge gaps; and that e-filing is generally accepted rather than fundamentally resisted. At the same time, it extends the literature by demonstrating that contemporary digital tax administration in India is best understood through the lenses of:

- assisted digital compliance,
- unequal digital autonomy,
- support architecture awareness gaps,
- and the emerging need for explainable, human-supervised digital assistance.

In that sense, the present dissertation contributes a more current and taxpayer-centred interpretation of India's e-filing regime. It argues that the most important policy and research question is no longer whether digitalization has occurred. It clearly has. The more important question is whether digitalization is translating into a system that ordinary taxpayers can understand, trust, and navigate without excessive dependence or anxiety. Prior literature brought the field to the point of identifying usefulness, awareness, and satisfaction as central. The present study suggests that the next phase of scholarship must focus on the quality of taxpayer agency within a mature digital tax state.

Policy Implications and Recommendations

The findings of the present study carry important policy implications because they show that the digitalization of income tax filing in India has moved beyond the stage of simple technological rollout. The issue is no longer whether a digital filing platform exists. The issue is whether the platform has become sufficiently understandable, trustworthy, support-rich, and inclusive for different categories of taxpayers. The survey results show a clear duality. On the one hand, taxpayers strongly value the digital system for saving time, improving transparency, and reducing physical compliance burden. On the other hand, they continue to report meaningful stress, dependence on intermediaries, moderate rather than deep awareness, support deficits, and concern about mistakes, privacy, and identity-linked misuse. Therefore, the next phase of reform must be less about digitization in the narrow sense and more about taxpayer-centered digital governance.

This policy question is especially significant because the e-filing system is no longer a marginal channel. It is the mainstream compliance route for millions of taxpayers. Official government reporting stated that more than 7.28 crore ITRs were filed for AY 2024–25 up to 31 July 2024, showing both the scale of digital adoption and the extent to which portal design decisions now affect mass taxpayer experience. The policy task, therefore, is not simply to maintain a portal, but to maintain a high-volume public digital infrastructure that taxpayers can use with confidence.

The recommendations below are developed directly from the empirical findings of the study. They are not abstract or generic digital-governance suggestions. Each recommendation corresponds to a clear pattern in the survey: moderate awareness, continued intermediary dependence, strong opportunity perception, high challenge around notices and support, meaningful privacy concern, low use but growing openness toward AI support, and substantial differences between self-filers and assisted filers.

Move from "digital availability" to "digital manageability"

A central policy implication of the study is that the success of digital tax reform should no longer be assessed only by the presence of online filing, electronic verification, or high filing volumes. The survey shows that digital participation and digital autonomy are not the same thing. Many respondents file returns successfully, but do not do so independently. Many appreciate the system, but still remain dependent on others for explanation, interpretation, or execution.

This means that policy should move from a supply-side digitalization model to a user-side manageability model. In a supply-side model, success is measured by whether services are available online. In a manageability model, success is measured by whether an ordinary taxpayer can complete the process correctly, understand the process well enough to trust it, and know what to do when something goes wrong.

The Income Tax Department's official portal already reflects some movement in this direction. It provides a “Help me decide which ITR form to file” service, assisted-filing guidance, tax-slab and deduction explanations, pre-filled return pathways, and stepwise filing support. Yet the survey findings suggest that these tools are not yet visible, simple, or integrated enough to eliminate dependence and uncertainty for many users.

The policy implication is clear: the next stage of reform must focus less on adding more features in isolation and more on reducing the gap between what the system technically offers and what taxpayers can actually use with confidence.

Adopt a segmented taxpayer-support strategy rather than a one-size-fits-all design

The study shows very clearly that taxpayers do not experience the digital system uniformly. Self-filers differ sharply from assisted filers. Older working-age respondents differ from more digitally confident users. Women in the sample show greater risk sensitivity and much lower self-filing autonomy. High-income taxpayers often outsource not because they lack access, but because the perceived cost of error or complexity is high.

This means a uniform portal design is unlikely to produce equal taxpayer empowerment. Policy should therefore explicitly adopt segmented support architecture. Different user groups require different kinds of help.

For example, the portal already structures taxpayer help by category—salaried individuals, business/profession users, senior and super senior citizens, non-residents, HUFs, companies, and other entities. That categorization should be expanded beyond formal status to include support intensity. The system should distinguish between:

- first-time or low-confidence users,
- repeat but moderately comfortable users,
- complex-income users,
- and users already operating confidently.

A taxpayer who only needs a basic salaried return should not experience the same cognitive burden as a taxpayer with multiple income sources or dispute-related filings. Progressive disclosure—showing only the level of detail relevant to the user's profile—would make the portal feel less like a general compliance repository and more like a guided service environment.

The study's findings strongly suggest that the largest practical target group for such design reform is not the completely digitally excluded taxpayer, but the moderate-comfort taxpayer. This group is digitally present but not fully self-sufficient. Policy gains would be especially large if this segment could be moved from assisted compliance to supported self-compliance.

Redesign filing around guided journeys, not just forms and menus

One of the clearest findings of the study is that taxpayers struggle not only with tax law, but with the overall filing journey. Open-ended responses repeatedly mention too many pages, too many fields, unclear sections, and the need for flowcharts, demonstrations, and simpler process design. This indicates that many taxpayers do not experience filing as a coherent guided journey. They experience it as a sequence of formal screens requiring interpretation.

This is a crucial design problem. A digital system may be technically functional while still feeling cognitively fragmented. To address this, the filing architecture should be redesigned around guided journeys rather than around forms alone.

The official system already provides significant building blocks for such a redesign. The portal includes identification of applicable ITR, deduction guidance, assisted-filing interfaces, FAQs, user manuals, and videos. However, taxpayers should not need to leave the filing flow repeatedly to consult separate manuals, FAQs, or PDFs. The policy implication is that help should be embedded inside the workflow.

This could include:

- contextual prompts that explain a field in plain language when hovered over or clicked,
- “why am I seeing this?” notes next to pre-filled or AIS-linked data,
- short plain-language summaries before each major decision point,
- a running “what remains to be done” checklist,
- and end-stage summaries that explicitly tell the taxpayer what has been declared, what remains the taxpayer's responsibility to verify, and what next steps may arise after submission.

Such redesign would not only improve convenience. It would directly address two of the strongest barriers identified in the study: fear of mistakes and dependence due to lack of guidance.

Strengthen support architecture as a core service layer, not a fallback layer

The survey findings show that support is one of the weakest parts of the current taxpayer experience. Lack of guidance is one of the strongest challenge items, awareness of grievance and support mechanisms is only moderate, and satisfaction with helpdesk/grievance support is notably weaker than satisfaction with login, e-verification, and general filing functions.

This implies that support architecture must be treated as a core service layer, not merely as a fallback for exceptional cases.

The current portal already includes:

- grievance raising in pre-login and post-login modes,
- grievance-status checking,
- e-Proceedings for notices and formal responses,
- help manuals and videos,
- co-browsing support,
- and visible helpdesk contact channels.

The policy problem is therefore not the absence of support infrastructure. It is the gap between formal infrastructure and lived taxpayer use of that infrastructure.

Several practical recommendations follow from this:

1. First, the portal should make support more situationally visible. If a taxpayer remains stuck on one screen for too long, triggers repeated validation errors, or revisits the same help content multiple times, the system should proactively suggest co-browsing, chatbot guidance, or a help article relevant to that stage.
2. Second, the help system should be reorganized around taxpayer tasks rather than departmental categories. A user should be able to say, in effect, “I do not understand which form to file” or “my AIS entry seems wrong” or “I received a notice—what do I do next?” and be taken directly to the relevant support flow.

3. Third, the helpdesk should be presented not as a last resort but as part of the filing journey. This matters psychologically. A support system that appears easy to access reduces filing anxiety even when the taxpayer never ends up using it.
4. Fourth, escalation pathways should be clearer. Taxpayers should know the difference between:
 - an informational help query,
 - a grievance,
 - a data-correction problem,
 - and a formal proceeding requiring response.

At present, many users likely experience these as one undifferentiated “problem.” Better support architecture would separate them in the taxpayer's mind and thereby reduce stress.

Build a specific policy framework for intermediary-mediated filing

A major contribution of the present study is the clear evidence that digitalization has not displaced intermediaries. Instead, it has created a large field of assisted digital compliance. More than half of actual filers use a CA or tax consultant, and additional taxpayers rely on relatives, colleagues, or employer account offices. Moreover, more than half the sample report having relied on another person because they were not technologically comfortable.

This means intermediary-mediated filing is not peripheral. It is structurally central. Policy must therefore recognize this openly rather than implicitly assuming the taxpayer is always the direct portal operator.

The Income Tax portal itself already recognizes the intermediary ecosystem by providing services and structured access for tax professionals and e-Return Intermediaries (ERIs). But from the taxpayer's point of view, the key question is not simply whether intermediaries can access the system; it is whether the taxpayer remains protected, informed, and in control when intermediaries are used.

Several recommendations follow:

1. First, intermediary use should be made safer through stronger consent and visibility mechanisms. Where practical, taxpayers should receive a plain-language summary of what is being filed, under which form, with what tax liability/refund effect, before final submission.
2. Second, systems should reduce the need for unsafe credential sharing. Since the survey shows strong concern about misuse of PAN, Aadhaar, and OTP, a safer model would allow taxpayer approval of certain actions without requiring full disclosure of passwords or repeated informal sharing of verification credentials.
3. Third, a stronger public guidance note should clearly distinguish between:
 - licensed or recognized tax professionals,
 - employer filing support,
 - and informal helpers, and explain what taxpayers should and should not share with each category.
4. Fourth, there should be more visible mechanisms for taxpayers to review what has been filed in their name after assisted filing. This is especially important because some respondents do not even know which ITR form they usually file. That is a direct sign of weak procedural ownership.

The long-term policy aim should not necessarily be to eliminate intermediaries. In a complex tax system, that is neither realistic nor desirable. The aim should be to ensure that intermediaries operate within a taxpayer-protective digital environment that preserves user awareness and control.

Reduce compliance anxiety by redesigning the “fear of notices” experience

The strongest challenge and strongest risk in the study both concern the possibility of incorrect filing leading to notices or penalties. This means that, from the taxpayer's perspective, the portal is not merely a convenience platform. It is also an environment of compliance anxiety.

This finding has major policy implications. Fear of notices cannot be addressed solely by telling taxpayers to be careful. It must be addressed through better system design.

Three kinds of reform are especially important here.

1. First, the filing flow should include better pre-submission reassurance architecture. Before final filing, the system should provide clearer summaries such as:
 - “Here are the most important items that match departmental records.”
 - “Here are the common issues users should verify before submitting.”
 - “Here are items that may need your attention, but do not automatically mean an error.”
2. Second, notice-related communication should be more differentiated in tone and presentation. Taxpayers often experience any formal communication as a threat. The e-Proceedings system already supports response to various notices and intimations, and the portal explains that it allows responses to communications issued by the Assessing Officer, CPC, or other authorities. But taxpayers need clearer distinction between:
 - an informational communication,
 - a request for clarification,
 - an adjustment intimation,
 - a defective return issue,
 - and a more serious dispute.
3. Third, procedural explanations should be made more visible within the notice environment itself. For example, if a taxpayer opens an e-Proceedings notice, the interface should state, in very plain language:
 - what type of communication this is,
 - whether immediate action is required,
 - what the likely reason is,
 - and what the consequence of response or non-response may be.

If the taxpayer understands the meaning of a communication more clearly, the emotional burden of digital compliance falls sharply.

Make AIS, TIS, and data reconciliation taxpayer-friendly

One of the more advanced but increasingly important policy implications arises from the study's findings on awareness, challenge, and risk in relation to pre-filled data, AIS, Form 26AS, and data matching. The official portal describes AIS as a comprehensive view of taxpayer information and explicitly notes its role in showing complete information, supporting feedback, and enabling seamless prefilling.

From an administrative perspective, this is a major digital advance. From a taxpayer perspective, however, it creates a new burden: data reconciliation. Taxpayers must now understand what the system knows, how that information was generated, whether it is correct, and what they are supposed to do if it is not.

The study's findings show that awareness and confidence in this area remain only moderate. Therefore, the policy challenge is not to reduce AIS functionality, but to make AIS more intelligible to ordinary taxpayers.

Several reforms follow naturally:

1. First, AIS entries should be accompanied by better plain-language labeling. Taxpayers often do not need more data; they need better explanation of what the data mean and how they relate to filing.
2. Second, discrepancy workflows should be clearer. If the system allows feedback or objection to wrongly reflected information, that route should be easy to locate, easy to understand, and clearly distinguished from the route for merely reviewing information.
3. Third, the portal should show better side-by-side reconciliation support between:
 - what the system has,
 - what the taxpayer has accepted,
 - and what still needs verification.
4. Fourth, where the taxpayer is not required to take action on an item, the system should say so clearly. This is important because digital visibility of data can create anxiety even where the item is not a problem.

In short, the policy aim should be to prevent AIS and pre-filled data from becoming a source of opaque pressure. They should function as confidence-enhancing supports, not as unexplained compliance shadows.

Improve portal resilience under peak demand and treat filing season as critical infrastructure

The study shows that one of the weakest satisfaction areas is portal speed during peak times. This is a policy issue of major importance because the portal's user base is now extremely large. When the system performs poorly under deadline conditions, the problem is not merely user irritation—it is a mass public digital-service failure affecting compliance confidence.

Officially reported filing volumes confirm that the portal operates at national scale. With 7.28 crore returns filed up to 31 July 2024, even a small performance weakness can affect very large numbers of people.

Therefore, filing season should be treated as a critical digital infrastructure event. The system must be designed and managed on that assumption.

This implies:

- more aggressive load forecasting,
- more visible real-time status communication,
- better queue management and session preservation,
- stronger browser/device compatibility guidance,
- and more transparent advisories to users during congestion. The portal already publishes browser-support guidance, which indicates the department recognizes that technical environment affects usability.

However, the policy challenge goes beyond advising users on browser versions. It requires building taxpayer trust that the system will remain usable when the statutory deadline approaches. Without that trust, digitalization continues to feel efficient in theory but risky in practice.

Adopt a plain-language and multilingual compliance strategy

The qualitative findings show repeated demand for easy language, clearer terminology, flowcharts, and simpler explanation. This is one of the clearest areas where policy can improve taxpayer experience without changing substantive tax law.

The portal already provides extensive help pages, FAQs, manuals, and videos. Yet the survey findings indicate that taxpayers still experience official language and procedural terminology as barriers.

This suggests that information availability is not the same as information accessibility.

Policy reform in this area should focus on three layers:

1. First, plain-language rewriting of core filing explanations. Terms should be explained not only in legal correctness, but in taxpayer-facing language. If a term remains technical, a one-sentence translation into practical meaning should accompany it.
2. Second, better use of multilingual support. Since digital public services increasingly reach diverse populations, key guidance for ordinary taxpayers should be available in major Indian languages with equivalent quality, not merely translated fragments.
3. Third, procedural language should be restructured around user questions:
 - “Do I need to do anything here?”
 - “What does this field refer to?”
 - “When should I worry about this?”
 - “What happens after I submit?”

These are the actual cognitive questions taxpayers carry into the filing process. A more question-oriented help design would reduce both complexity and fear.

Strengthen taxpayer education as an ongoing compliance strategy, not a seasonal awareness campaign

The study repeatedly shows that lack of knowledge and partial awareness are among the deepest sources of dependence and filing stress. This suggests that taxpayer education cannot be limited to deadline reminders or annual filing announcements. It must become a more continuous compliance strategy.

The official portal already hosts structured learning content, manuals, videos, and category-specific help. The policy challenge is to convert this content ecosystem into an effective taxpayer-learning ecosystem.

This could involve:

- periodic short-format awareness campaigns focused on specific filing issues rather than only filing deadlines,
- office-based or employer-linked awareness sessions for salaried taxpayers,
- targeted guidance for senior citizens and first-time filers,
- and “micro-learning” content distributed through the portal and official communication channels.

The study's open-ended responses strongly support this kind of intervention. Respondents explicitly ask for awareness, demonstration, flowcharts, and office-level knowledge campaigns. This means taxpayer education is not only a scholarly recommendation. It is a user-demanded reform.

Reframe support for senior citizens and other lower-autonomy groups

The findings suggest that digitalization affects all taxpayers, but not all taxpayers equally. Older users, lower-comfort users, and those who already rely on others experience the portal less autonomously. This means policy must include a deliberate inclusion strategy for lower-autonomy user segments.

The portal already provides category-specific support routes for senior/super-senior citizens and other taxpayer categories. But category-based menu placement alone is not enough. Support for senior and low-confidence users should include:

- simpler default journeys,
- stronger contextual help,
- highly visible assisted-filing prompts,
- more human support options,
- and clearer safety guidance on what details should never be shared casually.

This is especially important because lower-autonomy users are often at greater risk of both procedural error and unsafe dependence.

Inclusion policy in this domain should therefore not be measured only by whether such groups can technically access the portal. It should be measured by whether they can complete filing without feeling compelled to surrender control.

Build trust through visible privacy and data-protection governance

The study shows meaningful concern about privacy and about misuse of PAN, Aadhaar, and OTP. In the current digital environment, this concern is not irrational. Tax filing involves highly sensitive personal and financial information. The broader legal context is also important: India's Digital Personal Data Protection Act, 2023 provides a general statutory framework for processing digital personal data in a manner that recognizes both lawful processing needs and the individual's right to protect personal data.

The policy implication is that digital tax administration must not only be secure; it must be seen to be secure.

This means:

- clearer communication about how taxpayer data are handled,
- more visible guidance on safe credential practices,
- stronger explanation of why particular identity-linked steps are required,
- and more obvious in-portal signals distinguishing official communication from anything that could be imitated externally.

Privacy communication should not be treated as legal boilerplate. It should be a taxpayer-trust instrument.

Moreover, where assisted filing is common, the department should communicate more strongly around credential hygiene. The taxpayer must be helped to understand the difference between authorizing help and exposing sensitive identity controls.

Expand explainable AI and assisted digital support—but keep human review central

The study's AI findings are very clear: actual use of AI or chatbot support is low, but openness to AI-based assistance is noticeably stronger. Taxpayers support AI for guidance and error detection, but they strongly insist that AI-driven decisions must remain subject to human review and clear explanation.

This has major implications for future digital tax policy.

The official portal already includes assisted filing, chatbot support, and co-browsing features, which means the support layer of the system is already moving toward more interactive digital assistance. The next logical step is not fully autonomous AI enforcement. It is explainable assistance AI.

This could include:

- conversational explanation of deductions and regime choices,
- pre-submission error checks,
- plain-language walkthroughs of AIS entries,
- guided help in locating grievance or response workflows,
- and summary explanations of notices and what the taxpayer needs to do next.

However, the survey findings strongly caution against using AI in a way that feels like opaque surveillance or unexplained automated judgment. The policy principle should therefore be: AI may assist, but consequential decisions must remain reviewable and explainable by humans.

This is especially important in tax administration, where formal consequences matter. AI should reduce fear, not deepen it.

Increase awareness of grievance, e-Proceedings, and appeal pathways as part of taxpayer rights education

A major weakness in the study is the relatively lower awareness of grievance mechanisms, e-Proceedings, and faceless appeals. This is significant because the official portal already provides structured processes for all three.

Users can raise grievances in pre-login or post-login mode, check grievance status, respond to formal notices through e-Proceedings, and file Form 35 appeals electronically within the prescribed framework.

The policy problem, therefore, is not the nonexistence of these remedies. It is that many taxpayers do not treat them as familiar rights and tools.

This suggests that grievance and appeal awareness should be taught not only after a problem arises, but as part of routine taxpayer education. A taxpayer who knows in advance that:

- there is a grievance path,
- notices can be responded to electronically,
- and appeals can be filed digitally, is less likely to experience the portal environment as a one-way coercive space.

In this sense, awareness of grievance and appeal systems is not merely procedural knowledge. It is part of building taxpayer confidence and perceived fairness.

Use measurable taxpayer-experience indicators, not only filing-volume indicators

At present, digital tax success is often communicated through macro indicators such as the number of returns filed, growth in filing, and processing speed. These are useful and important. For example, the record level of ITR filing in AY 2024–25 is a strong sign of digital scale.

However, the present study shows that such indicators are insufficient by themselves. A system can process millions of returns and still leave many taxpayers dependent, anxious, or only partially informed.

Therefore, policy evaluation should include a more explicit taxpayer-experience dashboard, including indicators such as:

- self-filing rates,
- use of assisted filing versus direct filing,
- helpdesk response quality,
- grievance resolution experience,
- awareness of key support functions,
- time spent on filing by user type,
- and user trust in identity and data safety.

This would allow digital tax reform to be evaluated not only as an administrative throughput system, but as a citizen-facing public service.

Recommendations for future research and institutional experimentation

The present study also suggests directions for future institutional learning.

First, experimental evaluation of guided-filing interventions would be useful. If taxpayers are shown simpler contextual help, does self-filing rise? If AIS explanations are improved, does challenge perception fall? If co-browsing prompts are triggered earlier, does satisfaction improve?

Second, more research is needed on intermediary-mediated filing. Since assistance remains central, policymakers need better evidence on:

- how taxpayers choose helpers,
- how much they understand what is filed on their behalf,
- and how trust and control can be improved in assisted environments.

Third, the AI findings suggest strong value in piloting explainable, human-supervised support tools and evaluating them specifically for:

- first-time filers,
- senior citizens,
- moderate-comfort salaried taxpayers,
- and taxpayers facing AIS or notice-related uncertainty.

Finally, more gender-sensitive and age-sensitive research is needed, because the study suggests that formal access does not automatically translate into equal autonomy.

Concluding policy synthesis

In conclusion, the policy implications of the present study can be summarized in one core proposition:

India's e-filing system has succeeded in becoming a large-scale digital compliance platform, but the next phase of reform must focus on making it a genuinely taxpayer-centered digital service.

This requires a shift:

- from availability to manageability,
- from filing volume to filing confidence,
- from feature addition to guided usability,
- from transactional success to experiential fairness,
- and from mere online compliance to meaningful taxpayer autonomy.

The official architecture of the portal already contains many of the building blocks for this next phase: assisted filing, grievance systems, e-Proceedings, co-browsing, appeal filing, AIS, and structured help content. The challenge now is to make these capabilities more visible, more integrated, more explainable, and more confidence-building for ordinary taxpayers.

The broader dissertation implication is therefore not that digitalization should be slowed or reversed. It is that digitalization has reached a stage where user understanding, trust, and assisted autonomy matter as much as technology itself. The strongest reform agenda for the coming years is not more digitization in the abstract, but better digitalization for taxpayers as users, not merely as return filers.

Conclusion

The uploaded dataset presents a balanced but clear message. The digitalization of income tax filing in India has generated real and widely recognized opportunities for taxpayers. It has made filing faster, more transparent, easier to track, and less dependent on physical visits and direct office-level interaction. In that sense, the transformation has been meaningful and largely successful.

1. **First**, it demonstrates that the survey does not merely capture generic opinion; it captures structured differences between self-filers and assisted filers, confident and less confident users, men and women, and different income groups.
2. **Second**, it shows that awareness is central not only descriptively but functionally. It predicts autonomy and contributes to satisfaction.
3. **Third**, it shows that digital tax reform should be assessed at two levels: the level of system-wide efficiency, and the level of taxpayer-level manageability.
4. **Fourth**, it establishes that the future of digital income tax filing in India will depend on whether the state can move from providing an online service to providing a fully understandable, trusted, and support-rich compliance environment for ordinary taxpayers.

However, the findings also show that digitalization has not fully democratized tax compliance. The system still presumes a level of comprehension, procedural confidence, and digital fluency that many taxpayers do not fully possess. As a result, intermediaries remain deeply embedded in the filing process. The challenge is therefore no longer simply whether filing is online; the challenge is whether filing is independently manageable for ordinary taxpayers.

In practical terms, the chapter suggests that the next stage of reform should focus on simplification, guided assistance, better language, stronger helpdesk support, safer handling of intermediary-led filing, and citizen-friendly AI assistance with human oversight. Only then can digitalization move from being a technically available service to a genuinely inclusive taxpayer service.

V. CONCLUSION

Introduction

This chapter presents the final synthesis of the dissertation titled “Digitalization of Income Tax Filing in India: Opportunities and Challenges for Taxpayers.” The previous chapter analysed the primary survey data in detail and interpreted taxpayer responses with reference to awareness, filing behaviour, digital readiness, opportunities, challenges, risks, satisfaction, intermediary dependence, and AI-enabled assistance. The present chapter draws those findings together and places them in a concluding framework.

The purpose of this chapter is fivefold.:

1. First, it summarizes the major empirical findings of the study in a clear and structured manner.
2. Second, it provides the overall conclusion emerging from the research.
3. Third, it sets out practical legal and policy recommendations for improving the digital income tax filing ecosystem in India.
4. Fourth, it identifies the main limitations of the present study so that the findings are interpreted within their proper scope.
5. Fifth, it outlines possible directions for future research.

The central conclusion of the dissertation is that the digitalization of income tax filing in India has been substantively successful as an administrative reform, but only partially successful as a taxpayer-empowerment reform. The system has clearly improved convenience, speed, transparency, and procedural standardization. However, the evidence also shows that many taxpayers continue to experience uncertainty, support deficits, fear of mistakes, privacy concerns, and dependence on intermediaries. Thus, digitalization has improved participation more than it has equalized confidence and autonomy.

Answers to Research Questions

This section aligns the dissertation findings with the six research questions. It combines the documentary-policy background with the primary survey evidence from the uploaded dataset (n = 126 respondents; 102 reported filing ITR). For Research Question 1, the answer is necessarily based mainly on legal and policy evolution, while the survey data are used to show how far taxpayers are aware of the newer features. For Research Questions 2 to 6, the survey results provide the core empirical basis for interpretation.

Evolution of E-Filing Framework

The e-filing framework in India evolved in three broad phases.

1. In the first phase (2004–2009), the system moved from a scheme-based beginning toward centralized electronic administration. The official rules archive records both the Electronic Furnishing of Return of Income Scheme, 2004 and the Electronic Furnishing of Return of Income Scheme, 2007. A major institutional step followed in 2009, when the Union Cabinet approved the Centralized Processing Centre (CPC), Bengaluru, to process electronically filed returns and speed up refunds; the official rationale was that CPC would encourage more taxpayers to shift to e-filing and would also allow better mismatch resolution and grievance handling.
2. In the second phase (2010–2020), the framework became more fully electronic and less dependent on paper follow-up. By 2015, CBDT had introduced electronic verification using EVC, which removed the need in many cases to send paper ITR-V to CPC. In 2016, online filing of appeals through the newly notified Form 35 was enabled for specified taxpayers, and in 2017 the Department formally introduced e-Proceedings for secure electronic communication between the Department and the assessee. The next major step was the Faceless Assessment Scheme, 2019, which was notified on 12 September 2019, piloted in October 2019, and designed to eliminate physical interface, use dynamic jurisdiction, and standardize assessment. In 2020, the “Transparent Taxation – Honouring the Honest” platform added three headline reforms together: Faceless Assessment, Faceless Appeal, and the Taxpayers' Charter. Faceless Appeals were then launched nationally on 25 September 2020.
3. In the third phase (2021–2025), the framework shifted from simple online filing toward a broader digital-compliance ecosystem. The upgraded e-filing portal launched on 7 June 2021 and was officially described as a taxpayer-friendly, modern, seamless portal with immediate processing of ITRs, a single dashboard for pending actions, free preparation software with pre-filing and interactive questions, and chatbot/live-agent support. From 1 April 2022, taxpayers were also allowed to file an updated return under section 139(8A). In 2024, the rule on verification tightened further: the time limit for e-verification/ITR-V was reduced to 30 days from filing. By 2025, official government explainers described filing as simpler through pre-filled forms, faster online processing, and Aadhaar-OTP verification, while also noting the scale of digital adoption, including 7.28 crore ITRs filed in AY 2024–25.

The survey data show that taxpayer familiarity has not advanced evenly with this legal and institutional evolution. Awareness is strongest for older, routine elements of the framework such as login/registration (mean 3.69) and e-verification (mean 4.00), but much weaker for newer or more defensive elements such as faceless assessment/e-proceedings (mean 3.05) and faceless appeals (mean 2.87). Thus, the framework has evolved rapidly in law and policy, but taxpayer awareness of the newer layers of that framework remains only moderate. In dissertation terms, the legal architecture of e-filing has progressed faster than taxpayer-side comprehension of that architecture.

Opportunities and Benefits

The survey evidence shows that taxpayers perceive the opportunity side of digitalization very strongly. The composite Opportunity Index is 4.08 out of 5, which is one of the highest scores in the study. The strongest perceived opportunities are:

- time saving compared with manual processes (mean 4.29; 82.5% agree/strongly agree),
- improved transparency and tracking of refunds/status (mean 4.28; 83.3% agree/strongly agree),
- and easier compliance for small taxpayers (mean 4.13; 79.4% agree/strongly agree).

Respondents also positively rate the ideas that digital filing reduces errors through validations and pre-fill, reduces rent-seeking opportunities, and reduces personal interface and discretion. In practical terms, the survey shows that taxpayers experience digitalization first as an efficiency reform, second as a transparency reform, and third as a procedural-cleanliness reform.

For taxpayers, the main benefits are therefore:

1. lower time cost,
2. easier access to records and status,
3. more standardized and visible compliance,
4. fewer physical visits and less dependence on office-level interaction,
5. and better continuity of filing and refund-related documentation.

For the Income Tax Department, the benefits are visible in the policy architecture itself. The CPC was explicitly created to centralize return processing and issue refunds more quickly. The Faceless Assessment Scheme was intended to improve efficiency, transparency, accountability, standardization, and team-based work. The AIS framework was designed to provide a comprehensive information view, support taxpayer feedback, promote voluntary compliance, and improve prefilling. The 2021 portal was launched with features such as a single dashboard, immediate processing, guided preparation, and integrated support. From the Department's point of view, therefore, digitalization improves not only taxpayer convenience but also administrative standardization, record traceability, centralized processing, risk-based handling, and more scalable service delivery.

A broader conclusion emerges when the survey data and official design are read together: digitalization has created a genuine two-sided gain. Taxpayers gain speed, visibility, and convenience, while the Department gains standardization, centralized processing, better data integration, and lower dependence on fragmented manual administration. The reform has therefore not been merely cosmetic; it has changed the structure of taxpayer-state interaction.

Challenges in Adoption and Compliance

The survey makes it clear that the digital system is not challenge-free. The composite Challenge Index is 3.55, and the challenge profile is multi-dimensional. The strongest problems identified by taxpayers are:

- fear of notices/penalties making the process stressful (mean 3.79; 64.3% agree/strongly agree),
- lack of guidance/support increasing dependency on intermediaries (mean 3.73; 61.9% agree/strongly agree),
- slow portal during peak days (mean 3.69; 57.9% agree/strongly agree),
- and portal glitches such as login, OTP, and upload failures (mean 3.66; 58.7% agree/strongly agree).

Further, respondents also report difficulty with language, form/regime selection, and AIS/26AS matching. The qualitative responses reinforce this pattern. Open comments repeatedly mention:

- lack of basic tax knowledge,
- complicated or lengthy forms,
- difficult terminology,
- portal glitches,
- and the need for simpler guidance, demonstrations, and process flowcharts.

The effect of these problems on compliance is not primarily non-filing. In this sample, the more important effect is mediated compliance rather than independent compliance. The evidence is very strong:

- 81.0% of respondents file ITR,
- but among actual filers, only 28.4% self-file,
- while 54.9% file through a CA/tax consultant,
- and 52.4% of the full sample say they have relied on someone else because they were not technologically comfortable.

This means the main consequence of digital difficulty is not outright rejection of the system. It is continued dependence on professionals, friends, relatives, colleagues, or office staff. In effect, digitalization has shifted filing online, but it has not made filing equally self-managed.

The compliance effect is therefore fourfold. First, it raises the transaction cost of self-filing, because users must either learn complex processes or outsource them. Second, it increases dependence on intermediaries, which can reduce taxpayer control. Third, it increases stress and perceived risk, especially where the taxpayer fears that a small mistake could create formal consequences. Fourth, it weakens the full democratizing promise of digitalization: filing may be online, but not always personally understood.

Effectiveness of Recent Reforms

The documentary record shows that the recent reforms were explicitly designed to improve transparency, efficiency, and taxpayer convenience. The Faceless Assessment Scheme was described officially as a mechanism to eliminate physical interface, use automated case selection and dynamic jurisdiction, and improve efficiency, transparency, and accountability. The 2021 upgraded e-filing portal was officially launched as a taxpayer-friendly portal intended to provide immediate processing, a single action dashboard, guided ITR preparation, and integrated support through FAQs, tutorials, videos, chatbot/live agent, and later mobile/payment enhancements.

According to the survey, these reforms appear partly effective, but not uniformly effective.

They appear effective in the following respects:

- 83.3% agree/strongly agree that online records improve transparency and tracking.
- 82.5% agree/strongly agree that e-filing saves time.
- 69.8% agree/strongly agree that faceless systems reduce personal interface and discretion.
- Satisfaction is relatively strong for login/navigation (mean 3.99), e-verification (3.90), pre-filled data usefulness (3.89), and overall system satisfaction (3.90).

These results indicate that the core transactional aims of the reforms—efficiency, standardization, and reduced physical interface—have been achieved to a significant extent.

However, the same reforms appear only partially effective in deeper taxpayer experience terms:

- awareness of faceless assessment/e-proceedings is only 3.05, and faceless appeals only 2.87;
- satisfaction with helpdesk/grievance support is lower (3.56);
- and satisfaction with portal speed during peak times is the weakest service item (3.36).

This means the reforms have improved the surface architecture of compliance more strongly than the full taxpayer experience of navigating that architecture. Put differently, the reforms have made the system more transparent and more online, but they have not yet made all parts of it equally visible, equally understood, or equally confidence-building.

Therefore, the most accurate dissertation conclusion is that recent reforms have been substantively effective but operationally incomplete. They have improved transparency, reduced face-to-face interface, and modernized the filing environment, but taxpayer awareness of the newer formal processes remains limited and support/performance weaknesses still reduce the full convenience effect.

Role of AI in Improving E-Filing

AI can improve pre-filled returns, detect common filing errors, enhance taxpayer support (virtual assistants), and strengthen risk-based targeting. These gains must be balanced against privacy risks, bias, opacity, and incorrect automated decisions. AI deployment should therefore be governed through purpose limitation, explainability, human oversight, security controls, and clear redress mechanisms. The survey findings show that current use of AI in tax filing is still low, but taxpayer openness to AI-based assistance is clearly stronger than actual use. Specifically:

- 83.3% have not used any AI/help feature on tax portals or tax websites,
- 81.7% have not used LLM tools such as ChatGPT/Gemini/Copilot for ITR help,
- yet the composite AI Attitude Index is 3.65, indicating moderate openness.

The pattern of responses is highly informative:

- 54.8% agree/strongly agree that AI-based error detection could reduce filing mistakes.
- 53.2% agree/strongly agree that AI-based guidance could help non-experts understand deductions/regimes.
- 49.2% agree/strongly agree that AI may wrongly flag returns and cause harassment.
- 64.3% agree/strongly agree that any AI decision should have human review and clear explanation.

This means taxpayers support AI most strongly when it is used as:

1. an error-prevention tool,
2. a guidance/explanation tool,
3. and a confidence-building support tool for non-experts.

In practical terms, the most useful AI roles suggested by the survey are:

- better explanation of old vs new regime choices,
- intelligent guidance on ITR form selection,
- pre-submission error checks,
- clearer explanations of AIS/pre-filled data,
- notice-summary tools in plain language,
- and support triage that directs the taxpayer to the correct help, grievance, or response channel.

The Department's own portal already contains building blocks for this direction. The 2021 portal launch explicitly mentioned chatbot/live-agent support, and the current system offers assisted filing, e-Proceedings, grievance handling, and co-browsing, where helpdesk agents can guide taxpayers interactively in real time. In addition, the faceless-appeal system officially stated that allocation would include data analytics and AI.

However, the survey also makes clear what taxpayers do not want:

- opaque automated flagging,
- unexplained AI outputs,
- or AI decisions that feel coercive without human accountability.

Therefore, the dissertation answer to this research question is that AI should be used to create assisted autonomy, not opaque automation. The right policy model is explainable, taxpayer-facing, human-supervised AI. The wrong model would be unreviewable automated compliance judgment.

Legal and Policy Recommendations

The survey supports a clear set of legal and policy recommendations :

1. First, simplify the filing journey. The strongest qualitative recommendation from respondents is simplification: fewer pages, fewer fields, simpler forms, and clearer form/regime guidance. The legal structure may remain complex, but the user journey should not reproduce that complexity unnecessarily.
2. Second, embed guidance inside the filing workflow. Because lack of support is one of the strongest challenges, the system should move from static help to contextual help: step-by-step prompts, plain-language explanations, warnings that distinguish “needs review” from “serious problem,” and direct guidance on what to do next.
3. Third, treat support as a core service, not a fallback. The portal already has e-Nivaran grievance functionality, e-Proceedings, assisted filing, and co-browsing. These should be made more visible and easier to use during the filing process itself, not only after taxpayers search for them.
4. Fourth, make assisted filing safer. Since intermediary dependence remains structurally important, policy should not assume that all taxpayers will file directly. Instead, the system should better protect taxpayers in assisted-filing situations through clearer consent, better post-filing summaries, and less unsafe sharing of OTP/password-type access.
5. Fifth, improve AIS and pre-filled data explainability. AIS is meant to be a comprehensive information view with taxpayer feedback functionality. The next policy step is to make AIS easier to interpret, easier to contest where wrong, and less anxiety-producing for ordinary users.

6. Sixth, improve peak-period portal resilience. The weakest service area in the survey is portal speed during peak times. Filing season must therefore be treated as critical digital infrastructure, with better load handling, stronger session stability, and clearer user communication.
7. Seventh, adopt plain-language and multilingual taxpayer communication. Respondents repeatedly identify terminology and sections as barriers. The legal framework may remain technical, but taxpayer-facing language should be much more accessible.
8. Eighth, use AI carefully and accountably. Future AI should focus on explanation, error checks, and guided support, while keeping human review central for any consequential outcome.
9. Ninth, increase awareness of taxpayer rights in digital form. Many respondents are much less aware of grievance, e-Proceedings, and faceless appeal mechanisms than of basic filing steps. Policy should treat awareness of these channels as part of taxpayer-rights education, not as specialist knowledge.
10. Tenth, evaluate success through taxpayer experience metrics. High filing volumes are important, but they are not enough. The system should also monitor self-filing rates, help usage, grievance experience, awareness gaps, and confidence-related indicators.

Taken together, these recommendations lead to one core dissertation conclusion: the next phase of reform should not be more digitalization in the abstract, but better digitalization for taxpayers as users. The portal has already become the main compliance environment. The priority now is to make that environment simpler, safer, more explainable, and less dependent on external interpretation.

Major Findings of the Study

The present study on “Digitalization of Income Tax Filing in India: Opportunities and Challenges for Taxpayers” generated a wide range of findings relating to taxpayer awareness, filing behaviour, digital readiness, opportunities, challenges, risks, satisfaction, intermediary dependence, and future support mechanisms such as AI-enabled assistance. These findings do not point toward a one-dimensional conclusion. Instead, they reveal that the digital tax-filing system in India has achieved significant success in expanding and normalizing online compliance, while still leaving important gaps in taxpayer confidence, understanding, and autonomy.

The major findings of the study are discussed below in a structured manner.

Digital filing has become an established mode of compliance among the surveyed respondents

One of the clearest findings of the study is that digital income tax filing has become a mainstream compliance practice among the respondents surveyed. A substantial majority of respondents reported that they file income tax returns. Among those who file, continuity across years is also strong, showing that e-filing is not being used only occasionally or in an experimental way. Rather, it has become a recurring and normalized part of annual compliance behaviour.

This is an important finding because it establishes that the study is examining a mature stage of digital tax administration rather than a transitional or pilot stage. The respondents are not merely aware of e-filing as a policy initiative; many of them are active participants in it. This gives the survey findings a strong practical foundation. When respondents speak about convenience, difficulty, dependence, or satisfaction, they are often speaking from repeated interaction with the system rather than from hearsay or occasional exposure.

The regularity of filing also suggests that digitalization has succeeded in integrating income tax compliance into everyday administrative life for a substantial portion of the sample. The online filing system is no longer something external or novel. It has become part of the normal functioning of the taxpayer-state relationship.

The taxpayer base in the sample is not digitally excluded, but not uniformly digitally confident either

The study reveals that most respondents have access to:

- suitable devices,
- regular internet connectivity,
- and at least moderate exposure to online government systems.

Most respondents are not facing extreme digital exclusion in the sense of having no device, no internet, or no contact with digital services. This is an important finding because it means that the problems revealed by the study cannot be explained simply by a complete absence of digital infrastructure.

At the same time, digital readiness is not equivalent to digital confidence. While hardware and connectivity are broadly available, comfort using online government portals is far more uneven. The largest group of respondents falls in the “moderate comfort” category rather than the “very high comfort” category. This means that many taxpayers are digitally connected but not fully digitally self-assured.

This finding is crucial because it shifts the dissertation's focus from access to manageability. The key issue is no longer only whether taxpayers can reach the portal. The more important issue is whether they feel sufficiently comfortable to navigate the portal independently and confidently. The study therefore finds that digital tax administration has crossed the stage of basic access for many respondents, but has not yet fully crossed the stage of universal user confidence.

Awareness of the e-filing ecosystem is moderate, not deep

The study finds that overall awareness regarding the digital filing ecosystem is moderate. Respondents are not completely unaware of e-filing processes, but neither are they uniformly well-informed across all dimensions.

Awareness is stronger in relation to the most visible and routine aspects of the system, such as:

- login and registration,
- e-verification methods,
- pre-filled returns,
- and online tax payment/challan features.

Awareness is weaker in relation to:

- Form 26AS and AIS matching,
- grievance and support systems,
- e-Proceedings,

- faceless assessment,
- and especially faceless appeals.

This is a highly significant finding. It means that taxpayers are relatively more aware of the entry and submission layer of the digital system than of the response, dispute, and remedial layer. In practical terms, many taxpayers know how to use the portal to complete basic filing tasks, but they are much less certain about what happens when something goes wrong, when a mismatch appears, or when a formal response is required.

The implication is that awareness in the present digital tax environment is functional, but incomplete. Taxpayers may know enough to participate, but not always enough to feel fully protected or procedurally empowered.

Taxpayer understanding of tax provisions remains weaker than mere portal awareness

A deeper finding of the study is that portal-level awareness does not automatically translate into tax-level understanding. Many respondents show only moderate understanding of the tax provisions applicable to them, such as:

- deductions,
- tax sections,
- regime choice,
- and TDS-related interpretation.

This means that even where a taxpayer knows how to enter the portal or verify a return, they may still not feel able to judge:

- whether the right deductions have been claimed,
- whether the correct regime has been selected,
- whether the right ITR form applies,
- or whether the data displayed by the system are being interpreted correctly.

This is a very important finding because it helps explain why digital filing remains dependent on human support. Taxpayer difficulty is not only about using a website. It is also about navigating the legal and computational meaning of the data inside that website.

The study therefore finds that a major barrier to full digital autonomy lies not only in interface design, but in the gap between technical access and substantive tax understanding.

Digitalization has created clear and widely recognized benefits for taxpayers

The opportunity dimension of the study is one of its strongest findings. Respondents clearly and strongly recognize the positive effects of digital filing. The strongest perceived benefits are:

- saving time compared with manual filing,
- improving transparency and status tracking,
- making compliance easier for ordinary or small taxpayers,
- reducing direct physical interface,
- reducing the scope for informal friction,
- and improving the ability to maintain formal records.

This is an extremely important result because it shows that the digital system is not being used merely under compulsion. Taxpayers genuinely perceive value in it. They see e-filing as faster, more visible, and more convenient than older administrative arrangements.

The strongest opportunity findings are particularly concentrated in:

- administrative efficiency,
- digital traceability,
- and procedural convenience.

This suggests that the primary success of the e-filing reform lies in turning tax filing into a more accessible and trackable process. It is not only a back-end modernization for the Department. It is also a visible front-end improvement for users.

The study therefore clearly finds that digitalization has produced real gains in taxpayer experience, especially in terms of time, convenience, and transparency.

The portal is experienced more as a process improvement than as a full learning system

Although respondents recognize many benefits, the study also shows that the portal is not equally strong in helping taxpayers understand their own tax position in a deeper sense. Taxpayers value:

- time saving,
- status visibility,
- pre-filled data,
- and standardization,

but are somewhat less emphatic that the portal helps them fully understand:

- deductions,
- filing logic,
- or the broader compliance implications of the information shown.

This means the digital system is functioning more strongly as a process simplifier than as a tax literacy enhancer. It makes filing easier in a mechanical or administrative sense, but does not yet eliminate the need for external explanation.

This is a key finding because it helps explain the persistent role of intermediaries. If the system were both process-efficient and self-explanatory, dependence on consultants and helpers would be expected to fall more sharply. The study shows that this has not fully happened.

Taxpayer challenge has not disappeared; it has changed form

The study finds that meaningful challenges remain in the digital filing system. The strongest of these are:

- fear of notices and penalties,
- lack of support and guidance,
- portal slowness during peak times,
- technical glitches,

- difficult terminology,
- uncertainty over form or regime choice,
- and difficulty in reconciling AIS or tax data.

This means digitalization has not removed burden from the taxpayer. It has transformed it. The old burden of:

- paper forms,
- office visits,
- and physical submission

has been reduced. But a new burden remains in the form of:

- interpretive uncertainty,
- platform dependence,
- psychological stress,
- and formal anxiety.

This is one of the most significant findings of the dissertation. It shows that digital reform can succeed in modernizing procedure while still leaving taxpayers with a sense of difficulty in navigating that procedure.

The challenge is therefore no longer primarily “Can I file?” The challenge is more often “Can I file correctly, confidently, and without stress?”

Fear of notices and penalties is the strongest challenge and one of the strongest risks

Perhaps the most important single finding in the entire study is that fear of notices and penalties emerges as one of the strongest taxpayer concerns. This appears both in the challenge block and in the risk block.

This is highly significant because it shows that taxpayers approach the digital filing system in a high-stakes frame of mind. Even where the portal is technically accessible and generally useful, the user may remain worried that:

- an error,
- omission,
- mismatch,
- or misunderstanding

could trigger a notice, adjustment, or penalty.

This fear shapes the entire taxpayer experience. It helps explain:

- continued use of professionals,
- hesitation toward self-filing,
- cautious attitudes toward AI,
- and the need for reassurance, not just technical functionality.

The study therefore finds that one of the deepest burdens in digital tax filing is not purely technical, but psychological and compliance-related.

Lack of guidance and support is one of the most serious weaknesses in the present system

Another major finding is that lack of guidance/support is one of the strongest sources of difficulty. Taxpayers repeatedly indicate that the absence of clear support:

- increases dependence on others,
- reduces confidence,
- and makes the digital system harder to navigate independently.

This finding appears across multiple parts of the study:

- in the challenge index,
- in the lower satisfaction score for helpdesk/grievance support,
- in the open-ended demand for demonstrations and flowcharts,
- and in the high use of intermediaries.

This means that support is not a peripheral matter. It is central to whether the system functions as a truly citizen-facing digital service. A well-designed filing portal without strong support remains only partially empowering.

Thus, the study finds that the next stage of reform must treat help, explanation, and guided filing as core design priorities rather than optional add-ons.

Technical performance remains a real source of dissatisfaction

The study also finds that portal slowness and glitches remain important practical difficulties. While taxpayers broadly appreciate the system, they are less satisfied with:

- speed during peak periods,
- and technical smoothness under load.

This finding is important because it shows that a digital public service is judged not just by whether it works under normal conditions, but by whether it performs reliably when citizens most need it. Filing season is precisely when confidence in the system is most tested.

The study therefore finds that portal resilience under deadline pressure remains one of the weaker aspects of the digital tax environment.

Risk perception is substantial and multi-dimensional

The survey shows that digital filing is associated with substantial risk perception. Taxpayers are concerned about:

- incorrect filing leading to official consequences,
- misuse of PAN/Aadhaar/OTP,
- privacy of financial data,
- fraud or misreporting by intermediaries,
- and system unreliability.

This is a major finding because it demonstrates that digital tax filing is not experienced as a neutral utility. It is experienced as a legally sensitive and identity-linked environment.

The risk structure revealed by the study is especially interesting because it is not limited to “cybersecurity” in a narrow technical sense. It includes:

- self-error risk,
- intermediary risk,
- privacy risk,
- and institutional trust risk.

Thus, the study finds that digital tax administration must be understood not only as a service-delivery system, but also as a system of trust.

Dependence on intermediaries remains central to the taxpayer experience

One of the strongest findings of the study is that digitalization has not displaced intermediaries. The largest group among actual filers uses a CA or tax consultant. Others use relatives, colleagues, or office support. In addition, many respondents admit to having relied on another person because of technological discomfort.

This is perhaps the single most important structural finding of the dissertation.

It means that digital filing in India is, for a large share of taxpayers, best understood as assisted digital compliance rather than pure self-service digital compliance.

This finding is crucial because it changes how success should be measured. If returns are being filed online but taxpayers remain dependent on external interpreters and operators, then digitalization has increased participation without fully increasing autonomy.

Thus, the study finds that the digital tax state is not only a taxpayer-portal relationship. For many users, it is a taxpayer–intermediary–portal relationship.

Self-filers and assisted filers have very different experiences of the same system

A major comparative finding of the study is that self-filers differ sharply from assisted filers in almost every important dimension.

Self-filers show:

- higher awareness,
- higher opportunity perception,
- lower challenge,
- lower risk,
- and higher satisfaction.

This means that filing mode is not just a procedural difference. It reflects a deeper divide in the quality of digital experience.

Where the taxpayer is able to act independently, the digital system feels:

- more useful,
- less burdensome,
- and more satisfying.

Where the taxpayer depends on others, the same system appears:

- more difficult,
- more uncertain,
- and less fully owned.

This is a foundational finding. It strongly supports the conclusion that the true promise of digitalization lies not only in online filing, but in citizen-level procedural control.

Gender differences reveal unequal digital autonomy

The study finds that women in the sample:

- are less likely to self-file,
- show lower awareness,
- and report higher risk perception than men.

This is an important finding because it shows that digital public systems can be formally available to all while still remaining uneven in the degree of autonomy they enable.

The issue here is not only whether women's returns are filed. It is whether women are equally likely to:

- understand the process,
- control the process,
- and feel secure in the process.

The study therefore finds that digital tax inclusion should not be measured only by formal access. It should also be measured by equal procedural agency.

Age matters not only for filing relevance, but for technological dependence

The study shows that older working-age respondents, especially in the 46–60 category, are highly represented among filers but also show stronger dependence on others because of technological discomfort.

This is a very significant finding. It means the digital tax system is most heavily used by the age groups who also show stronger signs of assisted use.

In practical terms, the core taxpayer population is not necessarily the most digitally self-confident population. Therefore, the study finds that digital tax reform must pay close attention to the needs of experienced but not always technologically comfortable users.

Income affects both the benefits of digitalization and the logic of assistance

The study finds that higher-income respondents are more likely to file and often perceive stronger opportunities in the digital system. However, many higher-income respondents still rely heavily on professionals.

This reveals an important distinction. In lower-income groups, dependence may often reflect lower confidence or lower filing relevance. In higher-income groups, dependence may reflect:

- complexity,

- time-saving delegation,
- or risk management.

Thus, the study finds that assisted filing has different meanings at different income levels. Not all dependence indicates digital exclusion. Some of it indicates strategic outsourcing in a high-stakes tax environment.

Satisfaction is positive overall, but uneven across service layers

The study finds that overall satisfaction with the e-filing system is positive. Taxpayers are most satisfied with:

- login and navigation,
- e-verification,
- and pre-filled data usefulness.

However, they are less satisfied with:

- helpdesk/grievance support,
- and portal speed during peak periods.

This is a very important institutional finding. It shows that the system is strongest in its routine transactional functions and weaker in its support-intensive and stress-intensive functions.

In other words, the portal works relatively well when the process is straightforward. It becomes less satisfactory where the taxpayer needs help, clarification, or resilience under pressure.

Thus, the study finds that India's digital filing system has achieved a strong transactional base, but still needs improvement in its service-recovery and support architecture.

Satisfaction is strongly related to awareness, comfort, and autonomy

The study shows that taxpayers with:

- higher awareness,
- stronger portal comfort,
- more stable internet,
- and self-filing behaviour

tend to report higher satisfaction.

This means satisfaction is not simply a measure of portal design in isolation. It is also shaped by how far the taxpayer feels able to understand and manage the system.

This is a very important finding because it suggests that improving taxpayer satisfaction requires attention not only to system performance, but also to:

- taxpayer education,
- contextual support,
- and confidence-building measures.

Open-ended responses strongly validate the structured findings

The qualitative responses in the study confirm the broad quantitative pattern. Taxpayers repeatedly mention:

- lack of knowledge,
- difficult terminology,
- complexity of forms,
- portal glitches,
- privacy concerns,
- and dependence on others.

At the same time, many respondents say they do not face any major problem, which reinforces the conclusion that the system is broadly functional and not widely seen as broken.

The strongest suggestions for improvement include:

- simplification,
- easy language,
- awareness-building,
- demonstrations and flowcharts,
- and more automation where appropriate.

The study therefore finds that the qualitative evidence strongly supports the central interpretation that digital filing is useful, but not yet fully intuitive or equally empowering for all users.

AI is not yet mainstream in use, but taxpayers are open to it as guided assistance

A major future-oriented finding of the study is that actual use of AI/chatbot/LLM-based support is still low, but openness to AI assistance is noticeably stronger than actual usage.

Taxpayers support AI in roles such as:

- explaining deductions and regimes,
- detecting errors,
- and helping non-experts navigate the filing process.

However, they also express concern that AI may:

- wrongly flag returns,
- or operate in a way that creates unfair consequences without explanation.

The strongest AI-related view is that any AI-driven conclusion should have:

- human review,
- and clear explanation.

Thus, the study finds that taxpayers are open to assistive AI, but not to opaque automated authority. This is a very important policy finding because it suggests that the next stage of digital tax support should be based on explainable, human-supervised AI rather than fully automated compliance decision-making.

The central substantive finding of the study

When all the findings are brought together, the most important substantive finding of the dissertation can be stated clearly:

The digitalization of income tax filing in India has substantially improved access, efficiency, transparency, and routine compliance convenience, but it has not yet equally improved understanding, trust, and independent taxpayer control over the filing process.

This is the central major finding of the study.

The system is functioning. It is widely used. It is broadly valued. But it still does not operate as a uniformly self-manageable compliance environment for all taxpayers. The main unfinished work of reform therefore lies not in making the system digital, but in making the digital system:

- simpler,
- safer,
- more guided, and more autonomy-enhancing.

Concluding synthesis of the major findings

In summary, the study finds that the digital tax-filing system in India is best understood as a successful but incomplete taxpayer-facing reform.

It is successful because it has:

- normalized e-filing,
- reduced physical burden,
- improved status visibility,
- and created strong perceived benefits for users.

It is incomplete because:

- awareness remains uneven,
- support remains insufficient,
- fear of mistakes remains high,
- privacy and identity concerns remain meaningful,
- and dependence on intermediaries remains widespread.

The deepest policy lesson arising from these findings is that digitalization must now move from online availability to genuine taxpayer capability. A digital tax system becomes truly mature not when it is merely used, but when it is used with confidence, understanding, and retained taxpayer control.

Conclusion of the Study

The present dissertation set out to examine the digitalization of income tax filing in India with special reference to the opportunities and challenges experienced by taxpayers. The study was motivated by the recognition that tax administration in India has undergone a major transformation over the last two decades, moving from paper-based and office-dependent processes toward an increasingly integrated digital system built around online return filing, e-verification, pre-filled information, AIS-based data visibility, centralized processing, faceless proceedings, and taxpayer-facing support architecture. The core concern of the dissertation was not merely whether these reforms exist, but whether they have meaningfully improved the experience of taxpayers and whether they have done so equally for all users.

On the basis of the primary survey data and the broader legal-policy context, the overall conclusion of the study is clear:

The digitalization of income tax filing in India has significantly improved administrative efficiency, convenience, and visibility of compliance, but it has only partially succeeded in making tax filing simple, confident, and independently manageable for ordinary taxpayers.

This conclusion is important because it captures the mixed but highly meaningful nature of the findings. The study does not support the view that digital tax filing has failed. Nor does it support the view that the mere existence of an online portal has solved the deeper problems of taxpayer compliance. Instead, the evidence shows that the digital tax system in India has succeeded strongly at the level of transactional modernization, but less completely at the level of taxpayer empowerment.

Digitalization has transformed the mode of compliance

One of the strongest conclusions of the study is that income tax filing in India has already moved decisively into the digital domain. For the surveyed respondents, e-filing is no longer an exceptional option or a specialized activity for a few technologically advanced users. It has become a routine part of compliance. A large majority of respondents file returns, many have done so across multiple years, and the system of online filing, electronic verification, and digital record access has become a normal feature of their interaction with the tax administration.

This is a major institutional achievement. It shows that digitalization is not just a policy aspiration but a lived administrative reality. Filing has become faster, less dependent on physical office visits, easier to track, and more integrated into broader digital identity and financial systems. This transformation is itself one of the most important conclusions of the dissertation.

However, the study also shows that the success of digitalization at the level of mode of filing should not be confused with equal success at the level of experience of filing. The returns may be filed online, but the quality of that online experience varies significantly depending on who the taxpayer is, how confident they are, and whether they file independently or through another person.

The digital system is widely perceived as beneficial

Another central conclusion of the study is that taxpayers generally see the digital filing system as beneficial. The strongest benefits identified by respondents are:

- time saving,
- transparency of filing and refund/status records,
- easier compliance,
- reduced physical interface,
- and a more traceable process.

This means that digitalization has achieved one of its most fundamental goals: it has made tax filing more efficient and more visible from the taxpayer's point of view. The old compliance burden of paper movement, physical submission, repeated office interactions, and opaque status tracking has been reduced significantly.

This positive conclusion is important because it demonstrates that taxpayers are not using the digital system merely because they have no choice. They also recognize tangible value in it. The system is appreciated not only as a tool of administration, but as a practical convenience. Therefore, the digital transition has succeeded in generating real taxpayer-side opportunities.

Yet, the study also suggests that the benefits of digitalization are experienced more strongly in areas of administrative process than in areas of substantive tax comprehension. In other words, taxpayers clearly feel that the system makes filing faster and more traceable, but they are less strongly convinced that it makes tax law or tax decision-making fully easier to understand. This is a crucial distinction and points toward one of the major unfinished tasks of reform.

The central limitation of the present system is not access, but confident self-use

A major conclusion of the dissertation is that the main challenge in the current phase of digitalization is not simply getting taxpayers online. For most respondents in this study, that stage has already been crossed. Most have access to devices, most have internet, and many have repeated experience with digital filing. The more important challenge is whether they can use the system confidently, correctly, and independently.

The evidence shows that many cannot do so with full comfort. Awareness is moderate, not deep. Digital comfort is uneven. A large number of taxpayers still rely on others because of technological discomfort or uncertainty. Many do not know which ITR form they typically file. Many are unsure how to interpret sections, deductions, or data-matching information. Therefore, the problem is no longer primarily one of portal existence; it is one of procedural confidence.

This leads to one of the most important conclusions of the study: digital availability has outpaced digital self-sufficiency.

That is, the state has successfully made filing digital, but not all taxpayers have become equally capable of acting as independent digital filers. The online system is available, but the cognitive, emotional, and interpretive burden of using it remains unevenly distributed.

Awareness exists, but it is functionally uneven

The study also concludes that awareness of e-filing in India is not absent; rather, it is selective and function-specific. Taxpayers are relatively more aware of:

- login,
- registration,
- e-verification,
- and broad filing mechanics.
- They are less aware of:
- grievance mechanisms,
- e-Proceedings,
- faceless appeals,
- and the deeper remedial architecture of the digital tax system.

This means that many taxpayers understand how to enter and complete the system at a basic level, but not necessarily how to defend themselves, correct problems, or respond to formal communications within that system.

This is a very important conclusion because it reveals a mismatch between the growing sophistication of the digital tax framework and the depth of taxpayer understanding of that framework. The state has built a more layered digital compliance architecture, but taxpayers have not yet internalized all its features equally. As a result, taxpayers may be digitally active without being fully digitally empowered.

The system remains stressful because compliance consequences remain psychologically salient

Perhaps the strongest substantive conclusion of the study is that digital filing is still experienced under the shadow of fear of notices, penalties, and formal consequences. Even where taxpayers appreciate the system, they remain acutely aware that a mistake in tax filing is not like an ordinary digital inconvenience. It can have perceived legal, financial, and administrative implications.

This is why fear of mistakes and notices emerges as one of the strongest findings in both the challenge and risk dimensions. This result has major conceptual importance. It means that digital tax filing must be understood not only as a usability issue but also as a high-stakes compliance issue. The taxpayer does not approach the portal casually. They approach it with a sense that they must not get it wrong.

The implication is clear: digitalization has made filing more convenient, but it has not fully made filing more emotionally secure. A system may be efficient and still produce stress if the user does not feel adequately guided, reassured, or protected from the consequences of misunderstanding.

This conclusion is central because it explains several other findings at once:

- continued use of intermediaries,
- support for AI-based error detection,
- desire for human review in automated systems,
- and the relatively high concern about mistakes and data mismatch.

Intermediary dependence remains one of the defining features of digital tax compliance

One of the clearest and most important conclusions of the dissertation is that digitalization has not removed the intermediary from the tax-filing process. The largest group of filers still use CAs or tax consultants, while others rely on colleagues, family members, or office support. This means that, in practice, digital compliance in India is still very often assisted compliance.

This is a major conclusion because it changes how the success of digitalization should be understood. If success is measured only in terms of whether returns are filed online, then digitalization appears highly successful. But if success is measured in terms of whether taxpayers are themselves the primary operators and understanders of the system, then the picture becomes more mixed.

The dissertation therefore concludes that digitalization has produced a system in which participation is broader than autonomy. Taxpayers are inside the system, but many are not fully in command of it. The intermediary continues to play a crucial role because the digital tax system, despite its efficiencies, still feels too consequential or too complex for many users to manage entirely alone.

At the same time, the study also finds that intermediary use is not always a sign of exclusion. In some cases, especially among more complex or higher-income taxpayers, it may reflect rational delegation. However, for many respondents, especially those with lower confidence or moderate digital comfort, intermediary use clearly reflects the continued gap between online availability and genuine self-sufficiency.

Digital experience is uneven across taxpayer groups

Another important conclusion is that the benefits and burdens of digital tax filing are not distributed evenly. The study finds meaningful differences by:

- age,
- gender,
- income,
- filing mode,
- portal comfort,
- and technological dependence.

Older working-age respondents are often more likely to file but also more likely to depend on others because of technological discomfort. Women in the sample show lower self-filing and higher perceived risk. Higher-income respondents are more likely to file and often perceive stronger opportunities, but many still rely on expert assistance. Self-filers have substantially stronger awareness and satisfaction than assisted filers. Those who rely on others because of technological discomfort show lower awareness, higher challenge, higher risk, and lower satisfaction.

These differences matter greatly for the dissertation's final conclusion. They show that digital tax reform cannot be evaluated only at the average level. A system may be broadly successful while still being uneven in who it empowers. Thus, digitalization has not produced one uniform taxpayer experience. It has produced a layered experience:

- more confident and autonomous for some,
- more dependent and stress-sensitive for others.

This leads to a very important normative conclusion: true digital inclusion in taxation must be evaluated not only by access, but by equality of confidence and control.

Satisfaction is real, but it is not unconditional

The study concludes that taxpayers are generally satisfied with the digital filing system. This is a significant and positive result. However, satisfaction is not uniform across all parts of the portal experience. Taxpayers are most satisfied with:

- login and navigation,
- e-verification,
- pre-filled data usefulness,
- and the basic transactional workflow.

They are less satisfied with:

- helpdesk and grievance support,
- and especially portal performance during peak filing periods.

This pattern allows an important institutional conclusion. The digital filing system has become reasonably mature in its core transactional layer, but is less mature in its support and resilience layer. That is, the system works comparatively well when the user is moving through a direct and structured process, but becomes weaker when the user needs:

- help,
- clarification,
- escalation,
- or reliable performance under heavy load.

Therefore, the dissertation concludes that the tax portal is no longer a weak digital entry system; it is a partially mature digital public service that now requires deeper investment in support quality, stress handling, and issue-resolution architecture.

The future of digital support lies in explainable assistance, not opaque automation

The study's findings on AI and future digital support lead to an important forward-looking conclusion. Taxpayers are not yet widely using AI tools or LLM-based assistance in tax filing. However, they are noticeably open to the idea of AI when it is used to:

- explain tax concepts,
- detect likely filing errors,
- and support non-expert taxpayers.

At the same time, respondents are clearly unwilling to accept AI as an opaque authority. They want any AI-driven conclusion that affects them to remain subject to:

- human review,
- explanation,
- and accountability.

This is one of the most practically important conclusions of the study. It suggests that the next stage of digital tax assistance in India should not be about replacing human judgment with automated judgment. It should be about using digital intelligence to create assisted autonomy — that is, helping taxpayers understand and manage filing more independently while retaining human oversight for consequential decisions.

Thus, the future direction of digital tax reform should be:

- more supportive,
- more interactive,
- more explainable,
- but not less accountable.

The deepest conclusion: digitalization has improved compliance mechanics more than taxpayer capability

When all the findings are brought together, the deepest and most important conclusion of the study can be stated in a single proposition:

“This conclusion captures the essence of the dissertation.”

The system is better than earlier modes in terms of:

- speed,
- visibility,
- reduced physical burden,
- and transactional efficiency.

But the system is still incomplete in terms of:

- equal awareness,
- strong support,
- reduced fear,
- low-risk self-filing,
- and universal taxpayer confidence.

This is why the study rejects both extremes:

- it rejects the idea that digital tax filing is a failure,
- and it rejects the idea that digitalization alone has solved the problem of taxpayer-side complexity.

Instead, the study concludes that India now has a strong digital compliance foundation, but the next stage of reform must focus on:

- taxpayer understanding,
- confidence,
- safer assistance,
- stronger support,
- and simpler guided use.

Final conclusion of the study

In final terms, the dissertation concludes that the digitalization of income tax filing in India has been a substantive administrative success, but a partial citizen-empowerment success.

It has succeeded in making filing:

- faster,
- more visible,
- more trackable,
- and more integrated into routine compliance.

It has not yet fully succeeded in making filing:

- equally understandable,
- equally safe-feeling,
- equally independent,
- and equally manageable for all taxpayers.

The broader lesson of the study is therefore not that digitalization should be questioned. Rather, it is that digitalization has now entered a second phase. The first phase was about bringing filing online. The second phase must be about making the online system:

- easier to understand,
- more guidance-rich,
- more supportive,
- more privacy-assuring,
- and less dependent on external interpreters.

In other words, the future of digital tax reform lies not in more online filing as such, but in better taxpayer experience within online filing.

That is the central conclusion of this dissertation.

Recommendations

The findings of the present study clearly show that the digitalization of income tax filing in India has reached a stage where the question is no longer simply whether the system is online. The more important question is whether the system is simple enough, safe enough, support-rich enough, and confidence-building enough for taxpayers to use it independently and effectively. The recommendations of this study are therefore directed not only toward improving technical infrastructure, but also toward improving taxpayer understanding, procedural clarity, support delivery, trust, and autonomy.

These recommendations are organized under four broad categories:

1. Recommendations for Government and Policymakers
2. Recommendations for the Income Tax Department and Portal Design Authorities
3. Recommendations for Tax Professionals and Filing Intermediaries
4. Recommendations for Taxpayers

This structure is useful because the study shows that the quality of digital tax filing in India is shaped by all four actors. Government frames the legal and institutional environment. The Income Tax Department and its digital systems determine design and support quality. Tax professionals mediate filing for a large number of users. Taxpayers themselves shape outcomes through awareness, filing habits, and digital behaviour.

Recommendations for Government and Policymakers

Shift policy focus from digital expansion to digital usability

A major recommendation of this study is that the policy emphasis should now move from expansion of digital filing to quality of digital filing experience. In the early stages of reform, the key policy goal was to move the system online and encourage taxpayers to adopt e-filing. That phase has already achieved substantial success. The present study shows that digital filing is now mainstream among a large section of taxpayers.

The next phase must therefore focus on usability. Policymakers should evaluate the e-filing system not only by the number of returns filed, but by whether taxpayers are able to:

- understand the process,
- complete the process independently,
- respond to issues confidently,
- and avoid unsafe dependence on others.

This shift is important because a digitally available service is not automatically a digitally manageable service.

Adopt a taxpayer-centered digital governance approach

The study strongly suggests that tax digitalization should now be treated as a question of citizen-centered governance, not merely administrative modernization. The taxpayer is not only a filer, but also a user of a complex public digital system. Therefore, policy should explicitly incorporate taxpayer experience principles such as:

- simplicity,
- clarity,
- accessibility,
- fairness,
- and user confidence.

In practical terms, this means legal and administrative reforms should be assessed not only for compliance control and efficiency, but also for how they affect ordinary taxpayers' ability to understand and navigate the system.

Simplify the legal-operational environment wherever possible

One of the strongest findings of the study is that many taxpayers remain uncertain about:

- which ITR form to use,
- which tax regime to choose,
- how to interpret deductions,
- and how to understand tax terminology.

This suggests that legal simplification and procedural simplification should be treated as part of digital reform. Government should, wherever possible:

- reduce unnecessary complexity in filing structures for ordinary taxpayers,
- rationalize procedural requirements for simple income cases,
- and avoid introducing frequent changes that make the system harder for repeat users to follow.

Even where substantive tax law cannot be drastically simplified, the filing pathway for ordinary taxpayers should be simplified through clearer classification and more stable procedures.

Build taxpayer education into fiscal policy implementation

The survey shows that lack of awareness and weak understanding of tax provisions are central reasons for dependence on others. Therefore, taxpayer education should become an ongoing policy priority.

Government should encourage:

- structured awareness campaigns,
- filing-literacy programs,
- employer-linked education for salaried taxpayers,
- and publicly accessible explanatory material designed for non-expert users.

Such education should not be confined to filing deadlines. It should be treated as part of the larger public-financial literacy agenda.

Strengthen legal safeguards around digital identity misuse and data protection

The study shows meaningful concern regarding:

- misuse of PAN, Aadhaar, and OTP,
- privacy of financial data,
- and third-party misuse.

Therefore, policymakers should continue strengthening the legal and regulatory framework concerning:

- taxpayer data protection,
- safe credential usage,
- accountability for misuse of digital identity in tax matters,
- and quick redress where the taxpayer becomes a victim rather than the cause of incorrect reporting or fraudulent use.

This is important because trust in digital tax systems depends not only on efficiency, but also on the taxpayer's belief that the law protects them when digital misuse occurs.

Encourage explainable AI and supervised digital assistance frameworks

The future of digital tax filing will increasingly involve AI-based or semi-automated support. The findings of this study suggest that taxpayers are open to AI where it is used to:

- explain deductions and regimes,
- detect likely errors,
- and guide filing.

However, they do not want opaque AI-based authority. Policymakers should therefore create a framework in which AI in tax administration is:

- assistive,
- explainable,
- reviewable,
- and human-supervised.

This is especially important in a legal domain like taxation, where incorrect automation can create significant anxiety and perceived injustice.

Use user-experience metrics in policy evaluation

Government evaluation of the e-filing system should not rely only on macro indicators such as:

- total returns filed,
- processing time,
- or refund volume.

The study suggests that quality should also be assessed using taxpayer-experience indicators such as:

- self-filing rate,
- awareness level,
- support usage,
- grievance resolution experience,
- dependence on intermediaries,
- satisfaction across user groups,
- and confidence in digital safety.

This would create a more complete policy understanding of what digital success actually means.

Recommendations for the Income Tax Department and Portal Design Authorities

Redesign the filing process around guided user journeys

The portal should move further toward guided filing journeys rather than a form-centric navigation model. The current study shows that taxpayers need a process that tells them:

- where they are,
- what they need to do next,
- why they are being asked for certain information,
- and what common mistakes to avoid.

The filing journey should therefore include:

- stage-based progression,
- concise instructions,
- clearer prompts,
- and visible “next step” logic.

This is especially important for moderate-comfort users who are able to access the portal but are not fully confident in interpreting it.

Integrate help directly into the workflow

A major weakness identified in the study is that support feels separate from filing rather than integrated into it. The portal should provide:

- contextual help buttons,
- plain-language field explanations,
- examples for common deductions and reporting situations,
- and dynamic assistance at decision points such as ITR form selection and regime choice.

The aim should be that taxpayers do not need to leave the filing process to search for external clarity.

Use simpler language and more intuitive terminology

Many respondents explicitly state that the terminology used in filing is difficult for ordinary taxpayers. Therefore, the Department should:

- rewrite user-facing content in simpler language,
- reduce jargon in instructions wherever possible,
- add plain-language interpretations of section numbers and deduction labels,
- and use more example-based explanation.

The system should speak to users in a citizen-facing language rather than assuming tax or legal familiarity.

Improve ITR form and regime guidance

The study shows confusion regarding correct ITR form and tax regime choice. Therefore, the system should include stronger decision support for:

- who should use which form,
- what the differences between regimes are,
- and what factors a taxpayer should consider before proceeding.

This guidance should be:

- stepwise,
- visible before form entry,
- and supported with plain examples.

The system should not assume that the user already understands the structural logic of tax filing.

Make AIS, Form 26AS, and pre-filled data easier to understand

The Department should simplify the interpretation layer of system-provided data. Taxpayers should not merely see data; they should understand:

- what the data refer to,
- whether they must act on them,
- what happens if they disagree,
- and how those entries affect their return.

This requires:

- better labels,
- better explanations,
- clearer mismatch-handling pathways,
- and explicit indication of which items need review and which are informational.

Improve helpdesk and grievance responsiveness

Since support is one of the weaker satisfaction areas, the Department should strengthen:

- accessibility of helpdesk services,
- speed of response,
- clarity of grievance categories,
- and guidance on what to do after raising a grievance.

Where possible, the help architecture should distinguish clearly between:

- informational help,
- technical issue resolution,
- data mismatch issues,
- and formal proceedings or notices.

This would make the support structure less intimidating and more usable.

Strengthen portal performance during peak periods

Portal speed and reliability during peak periods emerged as one of the weakest areas of the taxpayer experience. Therefore, technical improvement should focus especially on:

- high-demand load management,
- session stability,
- reduction of OTP-related interruptions,
- improved upload reliability,
- and smoother performance close to deadlines.

Since taxpayers naturally concentrate filing activity around due dates, peak performance is not a secondary issue. It is central to trust in the system.

Build a safer assisted-filing experience

Because many taxpayers continue to use intermediaries, the portal should better support safe assisted filing. This could include:

- clearer user summaries before final submission,
- easier confirmation of the form and regime selected,
- better visibility of who assisted in the filing,
- and reduced need for unsafe sharing of credentials.

The aim should be to make assisted filing more transparent to the taxpayer and less dependent on blind trust.

Expand digital support tools with human-in-the-loop design

The Department should strengthen AI/chatbot/assisted support tools, but only in a way that is:

- explainable,
- taxpayer-friendly,
- and reviewable by a human when necessary.

AI can be used for:

- explaining terminology,
- identifying likely omissions,
- assisting non-expert users,
- and directing users to the correct help or grievance path.

However, any AI-led conclusion that may affect the taxpayer materially should remain human-reviewable. This is consistent with the survey finding that users want AI assistance but not unexplained AI control.

Improve mobile friendliness without sacrificing clarity

A minority of taxpayers rely on smartphones, and some respondents explicitly referred to the need for easier mobile use. Therefore, the portal should continue improving:

- mobile responsiveness,
- field readability,
- simpler layouts for smaller screens,
- and accessible guidance for smartphone users.

This is particularly important because mobile-first use may grow in the future, even among taxpayers who are not fully comfortable with desktop filing.

Recommendations for Tax Professionals and Filing Intermediaries***Move from filing on behalf of taxpayers to educating taxpayers during filing***

Since the study shows that intermediaries remain central to the filing ecosystem, tax professionals should recognize that their role is not only to submit returns, but also to:

- inform taxpayers,
- explain the form used,
- clarify the regime chosen,
- and briefly communicate key tax implications.

A taxpayer who uses a professional should not remain unaware of what is being filed in their own name. Intermediaries should therefore adopt a more educational and transparent approach.

Strengthen ethical handling of credentials and personal data

Tax professionals should minimize the need for unsafe sharing of:

- passwords,
- OTPs,
- and sensitive access credentials.

They should follow practices that preserve taxpayer safety and privacy. The survey shows that taxpayers worry about misuse and intermediary-related errors. Therefore, professional trust must be strengthened through visible ethical conduct.

Provide clear post-filing summaries to clients

After filing, professionals should provide taxpayers with a simple summary covering:

- which ITR form was used,
- which regime was selected,
- what total income and deductions were reported,
- what refund or tax liability arises,
- and what follow-up, if any, may be expected.

This would reduce blind dependence and help taxpayers gradually build awareness.

Encourage gradual taxpayer self-sufficiency where appropriate

Not every taxpayer should or will become a full self-filer. However, for simpler cases, professionals can help build client capability over time by:

- explaining the portal structure,
- clarifying verification steps,
- and encouraging taxpayers to review status and records themselves.

This would contribute to healthier digital compliance without eliminating the professional's legitimate role.

Maintain strong professional accountability

Since taxpayers perceive intermediary fraud or misreporting as a real risk, professionals must maintain:

- accuracy,
- full disclosure,
- clear billing,
- and stronger consent practices.

Trust in intermediaries is now part of trust in the digital tax system itself.

Recommendations for Taxpayers

Improve basic tax-filing literacy

Taxpayers should make an effort to understand at least the basics of:

- which ITR form they use,
- which regime they are under,
- what their major deductions are,
- and how e-verification works.

The study shows that awareness is strongly linked with autonomy and satisfaction. Therefore, even a modest improvement in personal understanding can reduce dependency and improve confidence.

Do not share sensitive credentials casually

Since misuse of PAN, Aadhaar, OTP, and related credentials is one of the strongest perceived risks, taxpayers should avoid casual sharing of such information. Even when using professionals or family support, taxpayers should be careful about:

- login credentials,
- OTP handling,
- and long-term control over access.

Digital convenience should not come at the cost of basic identity safety.

Review what is being filed in your name

Even if the return is filed through a CA, employer, friend, or relative, the taxpayer should review:

- the ITR form used,
- income figures,
- deductions,
- refund/tax payable,
- and verification status.

The study shows that many taxpayers do not fully know procedural details of their own return. This weakens control. Taxpayers should therefore treat filing as a process they remain responsible for, even when assistance is used.

Use official help resources more actively

Taxpayers should make greater use of:

- official portal help,
- user manuals,
- clarification tools,

- and digital support pathways, before turning immediately to unofficial or informal help.

This is important not because professional help is unnecessary, but because stronger direct engagement builds familiarity and reduces blind dependence.

Keep records organized throughout the year

Many filing challenges arise because taxpayers collect information only at filing time. Maintaining basic annual records of:

- Form 16 or salary documents,
- investment proofs,
- deduction-related documents,
- bank interest,
- and other taxable items

can reduce last-minute confusion and dependence.

Develop confidence gradually for simple cases

Taxpayers with simple salaried or straightforward filing situations should consider gradually increasing direct engagement with the portal. They need not immediately shift from full dependence to full self-filing, but they can start by:

- logging in personally,
- checking form type,
- reviewing pre-filled data,
- and verifying the return themselves where feasible.

Incremental familiarity is likely to reduce filing stress over time.

Recommendations for Future Institutional Practice

Pilot guided-filing models for simple taxpayers

The Department may test simplified guided-filing models specifically for:

- salaried taxpayers,
- first-time filers,
- senior citizens,
- and moderate-comfort users.

This could reduce cognitive overload and improve self-filing rates.

Experiment with explainable AI tools

Since the study finds openness to AI assistance, pilot tools may be developed for:

- deduction explanation,
- regime comparison,
- error detection,
- and notice explanation, with full human-review safeguards.

Study intermediary-mediated filing more formally

Since assisted filing remains central, institutions should gather more evidence on:

- how taxpayers use intermediaries,
- what they understand about the return filed,
- and how assisted filing can be made safer and more transparent.

Use differentiated design for different user groups

A single generic portal flow may not serve all taxpayers equally. Future reforms should consider:

- age-sensitive design,
- first-time filer guidance,
- gender-sensitive confidence support,
- and low-complexity filing modes for routine taxpayers.

Concluding Note on Recommendations

The recommendations of this study arise from a simple but important insight: the future of digital income tax filing in India lies not merely in keeping filing online, but in making online filing more understandable, safer, and less dependent on external interpretation.

The system has already crossed the stage of basic digitalization. It now needs to move toward:

- guided usability,
- confidence-building,
- safer assistance,
- clearer explanation,
- and more accountable support.

If these improvements are taken seriously, digital tax administration in India can evolve from being merely a functional compliance portal into a more genuinely taxpayer-centered digital public service.

Limitations of the Study

Every empirical study, no matter how carefully designed, operates within certain methodological, practical, and interpretive limits. Recognizing these limits is not a weakness of the research; rather, it is an essential part of academic honesty and analytical rigor. The present dissertation, which examines the digitalization of income tax filing in India from the perspective of taxpayer opportunities and challenges, also has limitations that must be acknowledged so that its findings are interpreted in the proper context.

The study offers meaningful and policy-relevant insights into taxpayer experience, but it does not claim to provide a perfect or exhaustive account of all Indian taxpayers across every region, income group, and filing category. Instead, it provides a structured

empirical picture of how the surveyed respondents perceive and experience the current digital filing ecosystem. The limitations discussed below should therefore be read as defining the scope of interpretation rather than negating the value of the findings.

For clarity, the limitations of the study may be grouped under the following heads:

1. Limitations relating to sample size and sample structure
2. Limitations relating to representativeness
3. Limitations relating to the cross-sectional nature of the study
4. Limitations relating to self-reported data
5. Limitations relating to behavioural and perceptual interpretation
6. Limitations relating to subgroup comparison
7. Limitations relating to legal-policy coverage and change over time
8. Limitations relating to qualitative responses
9. Limitations relating to causal inference
10. Overall interpretive limitation of the study

Limitation relating to sample size

One of the primary limitations of the study is the size of the sample. The dissertation is based on 126 valid survey responses. This sample size is adequate for dissertation-level descriptive analysis, comparative interpretation, and meaningful exploratory conclusions. It is large enough to reveal patterns regarding:

- awareness,
- filing behaviour,
- dependence on intermediaries,
- challenge perception,
- risk perception,
- satisfaction,
- and attitudes toward AI-based support.

However, it is not large enough to claim full statistical representation of the entire taxpayer population of India.

India's income tax ecosystem includes an extremely wide and diverse set of taxpayers, ranging across:

- salaried individuals,
- business owners,
- professionals,
- pensioners,
- senior citizens,
- taxpayers in metropolitan cities,
- semi-urban and rural users,
- digitally sophisticated users,
- and users with low digital literacy.

A sample of 126, while analytically useful, cannot fully capture the entire complexity of this national population.

This means that the findings should be treated as strong sample-based evidence, not as final population estimates for all taxpayers in India. The results are especially useful for identifying patterns, relationships, and policy concerns, but they should not be interpreted as universally precise measurements of national taxpayer behaviour.

Limitation relating to representativeness of the sample

A second important limitation is that the sample is not fully representative of the entire Indian taxpayer base. The demographic profile of the respondents shows certain concentrations that shape the nature of the findings.

The sample is relatively:

- male-dominated,
- heavily concentrated in the working-age groups,
- highly educated,
- largely salaried,
- and more urban/semi-urban than rural.

This has both strengths and limitations.

It is a strength because such respondents are highly relevant to the topic of digital income tax filing. They are more likely to have real exposure to tax return filing and are therefore able to provide meaningful responses about the digital system.

At the same time, this sample composition means that the study may under-represent the experiences of:

- low-literacy users,
- deeply rural populations,
- informal-sector earners,
- first-generation digital users,
- and individuals with very weak access to formal tax knowledge or digital support.

As a result, the study may not fully capture the most extreme forms of digital exclusion that may exist in the broader population.

This is especially important because if a relatively educated, urban, salaried sample still reports:

- dependence on others,
- support deficits,
- fear of notices,
- and difficulty understanding some parts of the system,

then the corresponding difficulties could be even greater for populations less represented in this survey. Therefore, the limitations of representativeness do not reduce the seriousness of the findings. In some ways, they may imply that the actual taxpayer difficulty in the wider population could be even deeper than the present sample reveals.

Limitation arising from the cross-sectional design of the study

The present research is cross-sectional in nature. It captures taxpayer perceptions and behaviour at one point in time rather than following the same respondents across multiple years.

This means the study can identify:

- present attitudes,
- current experiences,
- and existing patterns of filing behaviour,

but it cannot fully show how those attitudes or behaviours change over time within the same individuals.

For example, the study cannot directly measure:

- whether a taxpayer who is currently dependent on a CA will become a self-filer in two years,
- whether awareness improves after repeated portal use,
- whether satisfaction changes after a major portal upgrade,
- or whether AI acceptance increases after actual usage experience.

A longitudinal design would be better suited to measuring such change over time.

This limitation is especially relevant in a topic like digital tax administration, where the system itself is evolving through:

- portal changes,
- policy reforms,
- legislative amendments,
- AI-enabled support possibilities,
- and broader digital-governance developments.

Therefore, the present study should be read as a snapshot of the digital filing experience in its current stage, not as a dynamic long-term evolution model.

Limitation relating to self-reported data

Another major limitation is that the study relies on self-reported responses. This is common and often unavoidable in survey-based research, especially when studying perception, awareness, satisfaction, and risk. However, self-reported data bring certain limitations.

Respondents may:

- overestimate their awareness,
- underestimate their dependence,
- misremember their filing behaviour,
- or respond in ways that are shaped by impression rather than exact recall.

For example:

- a taxpayer may say they understand tax provisions moderately well, but in practice rely almost entirely on a consultant;
- another taxpayer may say they face no problem, not because the process is perfect, but because someone else handles it for them;
- some may say they are satisfied because the outcome is achieved, even if they do not understand the process itself.

Similarly, answers relating to:

- use of AI tools,
- awareness of legal features,
- or the specific reasons for depending on others are all based on personal recall and self-perception.

This does not invalidate the responses, but it does mean that they should be interpreted as subjective taxpayer realities, not as externally verified administrative records.

That distinction is important. The value of the study lies in understanding what taxpayers believe and feel about the system, because those beliefs shape behaviour. But those beliefs are not always perfect factual measures of technical system usage or legal knowledge.

Limitation relating to the gap between perception and actual technical experience

Related to the issue of self-reported data is another limitation: the study measures perceived opportunities, perceived challenges, perceived risks, and perceived satisfaction, not direct technical performance in an engineering or systems sense.

For instance, when respondents report:

- portal slowness,
- glitches,
- or difficulty with filing,

the study captures how they experience those problems, not a technical audit of server performance, software architecture, or back-end processing logs.

Likewise, when respondents say that the system saves time, the study measures their perception of time-saving, not a stopwatch-based comparison between manual and digital filing processes.

This means the findings are strongest as evidence of taxpayer experience rather than as a technological evaluation of the portal itself. That is appropriate for the dissertation's purpose, but it must still be acknowledged as a limitation.

In other words, the study is not a software-performance study, not a legal compliance audit, and not an administrative process simulation. It is primarily a user-centered empirical study.

Limitation in measuring actual filing accuracy or compliance outcomes

The study focuses on taxpayer perception and behaviour, but it does not directly measure actual filing accuracy, actual assessment outcomes, or real notice issuance for the respondents.

For example, the study identifies that respondents fear:

- incorrect filing,
- penalty,
- and notice risk,

but it does not independently verify:

- how many respondents have actually filed incorrectly,
- how many actually received notices,
- or whether the fear is proportionate to actual notice frequency.

Similarly, the study shows that many taxpayers depend on intermediaries and worry about misreporting, but it does not independently audit the returns filed on their behalf.

This is an important limitation because there may sometimes be a difference between:

- perceived risk and actual risk,
- perceived challenge and actual filing error rate,
- or perceived support weakness and actual availability of support.

The study is therefore best understood as revealing the felt reality of compliance, not as a compliance-enforcement database.

Limitation in distinguishing inability from convenience-driven outsourcing

A particularly important limitation concerns the interpretation of assisted filing and dependence on intermediaries.

The survey clearly shows that many taxpayers use:

- CAs,
- tax consultants,
- relatives,
- colleagues,
- or office support.

In many cases, this likely reflects lack of confidence, technological discomfort, or weak understanding. However, in some cases it may also reflect:

- rational delegation,
- complexity of financial affairs,
- time-saving preference,
- or strategic outsourcing despite sufficient capability.

The survey allows strong interpretation of the broad pattern of dependence, but it does not always allow a perfect distinction between:

- inability-based dependence and
- convenience-based dependence.

This is especially relevant for middle- and higher-income groups, who may outsource filing not because they cannot do it, but because they believe it is more prudent or efficient to have a professional handle it.

Thus, the study can strongly conclude that intermediary use remains widespread, but it must be more cautious in concluding that all such use reflects digital exclusion or lack of capability.

Limitation in subgroup comparison due to unequal category sizes

The study includes useful subgroup comparisons across:

- age,
- gender,
- income,
- portal comfort,
- and filing mode.

However, the sizes of some subgroups are relatively small. For example:

- the number of respondents in certain filing modes is limited,
- some income bands are smaller than others,
- the female subsample is smaller than the male subsample,
- and certain age categories such as very young or above-60 respondents are relatively small.

This means that subgroup interpretation, while valuable, must be handled with caution. Large differences in percentages within very small categories may appear dramatic but may not always have the same robustness as patterns seen in larger groups.

For this reason, the dissertation uses subgroup analysis to identify meaningful directional patterns rather than to make rigid population-wide claims for every category.

The strongest subgroup conclusions are those supported by:

- large enough category sizes,
- consistency with the broader dataset,
- and convergence across multiple variables.

Limitation relating to education and occupational concentration

The sample includes a very high proportion of:

- postgraduates,
- doctorate holders,
- and salaried respondents.

This is useful because it ensures that many respondents are likely to have genuine interaction with formal filing systems. However, it also creates a limitation.

A highly educated and salaried sample may:

- experience the system differently from self-employed informal earners,
- have better access to employer documentation,
- and possess stronger baseline familiarity with institutional processes.

As a result, the study may somewhat understate the challenges faced by taxpayers who do not have:

- structured salary documentation,
- workplace support,

- or strong formal educational backgrounds.

This means the study is especially strong in describing the digital filing experience of the formal-sector taxpayer, but comparatively weaker in representing the full diversity of India's less formal taxpayer landscape.

Limitation relating to regional and linguistic diversity

Another limitation of the study is that it does not comprehensively capture India's full regional and linguistic diversity in a systematically stratified manner.

Income tax filing in India occurs across:

- multiple states,
- many languages,
- different digital environments,
- and different levels of access to tax professionals and support infrastructure.

The present study does identify that terminology and language can be difficult, but it does not systematically compare:

- users across different language backgrounds,
- regional differences in portal use,
- or state-wise differences in taxpayer support ecosystems.

This is important because digital confidence, dependence on intermediaries, and comfort with technical language may all vary significantly across linguistic and regional lines.

Future studies with a more regionally stratified sample would be better suited to explore this dimension.

Limitation relating to evolving legal and technological context

The topic of digital tax filing is highly dynamic. The legal and technological environment changes over time through:

- amendments in filing rules,
- portal redesigns,
- AIS and pre-fill changes,
- grievance mechanisms,
- procedural timelines,
- and support tools.

This means that the study's findings are located within a particular stage of the digital tax system. For instance, perceptions of:

- portal usability,
- helpdesk quality,
- or AI usefulness may shift in future as the portal evolves.

Similarly, the legal evolution of e-filing from 2004 to 2025 includes a wide range of developments such as:

- electronic return furnishing schemes,
- CPC processing,
- e-verification,
- faceless assessment,
- faceless appeals,
- updated returns,
- AIS expansion,
- and support architecture improvement.

The study engages with this evolving context, but no empirical dissertation can permanently “freeze” a system that continues to change. Therefore, the conclusions of this research should be read as highly relevant to the present stage of digital filing, while also acknowledging that future portal changes may alter taxpayer experience.

Limitation relating to AI-related findings

The study includes important findings on AI, chatbots, and LLM-based support. However, there is a limitation here that must be explicitly recognized: actual use of AI tools among respondents is still low.

This means the AI findings primarily capture:

- attitudes,
- expectations,
- hopes,
- and concerns,

rather than deep experience-based evaluation.

For example, respondents strongly support:

- AI-based guidance,
- error detection,
- and human review of AI decisions.

But since most have not yet actually used such tools in the tax context, these responses should be interpreted as prospective attitudes, not established behavioural outcomes.

This does not reduce the importance of the AI findings, but it does define their scope. The study can reliably say what respondents are open to or worried about. It cannot yet fully say how taxpayers would evaluate AI after sustained actual use in real filing situations.

Limitation of the qualitative material

The open-ended responses in the survey provide a very useful interpretive layer, but they also have limitations:

1. First, not all respondents answered the open-ended questions.
2. Second, many of the responses were brief rather than elaborated.
3. Third, the study did not use full-scale qualitative interviewing, coding software, or in-depth narrative analysis.

Therefore, the qualitative material should be treated as:

- supportive,

- illustrative,
- and interpretive,

rather than as a separate full qualitative research design.

Its strength lies in validating the quantitative findings and revealing how taxpayers describe the issues in their own words. Its limitation is that it does not provide the same depth that interview-based or focus-group-based research could provide.

Limitation relating to causality

A very important limitation of the study is that it does not establish strict causal relationships in the scientific sense.

For example, the study shows that:

- self-filers have higher awareness,
- higher portal comfort is associated with stronger satisfaction,
- and technological dependence is associated with lower satisfaction and higher challenge.

These are strong and meaningful relationships. However, because the study is survey-based and cross-sectional, it cannot definitively prove causal direction in every case.

For instance:

- higher awareness may help produce self-filing,
- but self-filing may also strengthen awareness over time;
- portal comfort may increase satisfaction,
- but repeated positive experience may also increase comfort.

Thus, the study's conclusions are best understood as identifying strong relationships and plausible interpretations, not final causal laws.

Limitation in comparing taxpayers and the Income Tax Department symmetrically

The dissertation seeks to examine opportunities and benefits for both:

- taxpayers,
- and the Income Tax Department.

However, the primary data are collected from taxpayers, not from departmental officials, system designers, or internal administrators.

This means the taxpayer-side analysis is much richer and more direct than the Department-side analysis. The Department-side discussion relies more on:

- policy documents,
- portal features,
- public releases,
- and inferred administrative advantages.

Therefore, while the study does provide a meaningful discussion of benefits to the Department—such as efficiency, standardization, centralization, and traceability—the empirical depth is greater on the taxpayer side than on the departmental side.

A future study that includes interviews with officials, portal administrators, tax practitioners, and policy experts would be better able to produce a balanced two-sided empirical picture.

Limitation of scope: focus on income tax e-filing rather than the entire tax digital ecosystem

The present study is specifically focused on income tax return e-filing. It does not attempt to cover the full digital tax ecosystem in India, such as:

- GST systems,
- TDS compliance from the deductor perspective in full detail,
- corporate tax compliance architecture in depth,
- or integrated multi-tax digital governance.

This focus is necessary and appropriate for dissertation-level depth, but it does create a boundary. Some challenges or supports in the broader tax environment may influence taxpayer attitudes toward income tax e-filing, but they are not the central subject of analysis here.

Therefore, the findings should not be generalized automatically to all forms of tax digitization in India without further study.

Overall interpretive limitation

The most important overall limitation of the study may be stated as follows:

The dissertation provides a strong picture of how the surveyed taxpayers experience digital income tax filing, but it does not claim to be a complete administrative audit, a nationally representative taxpayer census, or a final measure of all possible user experiences in India.

Its greatest strength lies in showing a coherent pattern:

- digitalization is widely beneficial,
- but autonomy remains uneven,
- support is insufficient in important areas,
- and the transition from online filing to fully confident self-filing is incomplete.

Its limitations lie mainly in:

- scope,
- sample composition,
- self-reported responses,
- and the evolving nature of the digital filing ecosystem.

These limitations should therefore guide interpretation, but not diminish the central value of the study.

Concluding note on the limitations of the study

In conclusion, the limitations of the present research arise primarily from:

- sample size,
- non-national representativeness,

- cross-sectional design,
- self-reported perception data,
- subgroup size imbalance,
- limited qualitative depth,
- and the continuously evolving legal-technological context of tax digitalization.

Yet these limitations do not undermine the significance of the findings. Rather, they define the proper scope of the conclusions.

The study remains highly valuable because it captures a meaningful and internally consistent picture of taxpayer experience in the current digital filing environment. It shows that digital income tax filing in India is:

- broadly accepted,
- clearly beneficial,
- but still not equally manageable for all taxpayers.

Acknowledging the limitations makes that conclusion more credible, not less.

Scope for Future Research

The present study has attempted to examine the digitalization of income tax filing in India from the perspective of taxpayers, with particular emphasis on awareness, filing behaviour, opportunities, challenges, risks, satisfaction, dependence on intermediaries, and the possible future role of AI-based support. While the study offers a meaningful and structured picture of taxpayer experience, it also opens a wide range of further research possibilities. In fact, one of the important conclusions emerging from this dissertation is that digital tax administration in India has now become sufficiently mature, sufficiently widespread, and sufficiently layered to justify a much broader research agenda than was possible when e-filing was still a relatively new phenomenon.

Future research can build on the present study in multiple directions. Some of these directions involve improving methodological depth, such as using larger samples or longitudinal designs. Others involve expanding the conceptual scope, such as studying digital autonomy, intermediary dependence, taxpayer trust, or AI-assisted compliance in greater detail. Still others involve comparative or policy-oriented work, including comparison across user groups, regions, and digital-governance systems.

The scope for future research may be discussed under the following broad heads:

1. Expansion of sample and representativeness
2. Longitudinal and time-based studies
3. Comparative demographic and social-group studies
4. Deeper research on intermediary dependence
5. Studies on support systems and taxpayer help architecture
6. AI, chatbot, and digital-assistance research
7. Legal and policy evaluation studies
8. Comparative studies across tax systems and countries
9. Behavioural and psychological research directions
10. Mixed-method and advanced research designs
11. Administrative and institutional research possibilities
12. Overall future research agenda

Scope for larger and more representative sample-based studies

One of the clearest directions for future research is the need for larger and more representative surveys of taxpayers. The present dissertation provides strong exploratory evidence, but future work can significantly strengthen the field by using broader samples that better reflect India's diversity in terms of:

- geography,
- gender,
- age,
- language,
- occupation,
- income structure,
- and degree of digital exposure.

A large-scale study with stratified sampling could answer important questions such as:

- whether the awareness gaps found in this dissertation are similar across different states,
- whether rural taxpayers face more severe support and confidence barriers,
- whether women's lower self-filing rates remain consistent in larger and more balanced datasets,
- and whether intermediary dependence varies systematically by region or class.

Such studies would be especially useful for moving from sample-based patterns to stronger population-level estimates. They would also allow policymakers to identify where digital tax reform is working relatively well and where support needs are most acute.

Future research with larger datasets could also provide more powerful subgroup comparison. For example, it could differentiate between:

- salaried users with simple returns,
- pensioners,
- self-employed professionals,
- small business owners,
- and taxpayers with multiple income sources.

This would allow much more fine-grained interpretation of who benefits most from digitalization and who continues to struggle within it.

Scope for longitudinal research and panel-based studies

The present study is cross-sectional, which means it captures the taxpayer experience at a particular stage of the digital filing system. A very important future direction is therefore the use of longitudinal or panel-based research designs.

Longitudinal research could track the same taxpayers across multiple filing years and answer questions such as:

- Does repeated use of the portal gradually increase awareness?
- Do taxpayers who initially rely on CAs become self-filers over time?
- Does satisfaction improve after exposure to more portal features?
- Does risk perception fall with experience, or does it remain stable?
- How do major reforms, portal redesigns, or support changes affect user perception across years?

This kind of research would be extremely valuable because digital tax experience is not static. A taxpayer's confidence, dependence, and filing habits may change gradually with exposure, learning, and changing legal requirements. Panel studies would therefore help distinguish between:

- one-time discomfort,
- persistent structural barriers,
- and progressive adaptation.

A longitudinal approach would also be especially valuable in studying the effect of newer reforms such as:

- evolving AIS usage,
- notice-response architecture,
- AI-driven assistance,
- or further portal redesigns.

In short, future research should not only ask how taxpayers feel now, but how taxpayer experience evolves as the digital tax regime deepens.

Scope for demographic and social-group specific studies

The present dissertation identifies meaningful differences by age, gender, income, digital comfort, and filing mode. These findings themselves create strong scope for more focused studies on particular user groups.

1. Gender-focused studies

The current findings suggest that women in the sample are:

- less likely to self-file,
- lower in awareness,
- and higher in perceived digital filing risk.

Future research could explore this in greater depth by asking:

- whether women's lower self-filing reflects lower direct exposure to taxation, or lower confidence within the digital environment,
- how household-level financial decision-making affects digital tax autonomy,
- whether women trust professional intermediaries differently,
- and whether gender-sensitive digital design or support can improve independent filing.

Such research would make an important contribution to the study of digital financial citizenship and gendered autonomy in public digital systems.

2. Age-focused studies

The present study suggests that older working-age groups remain highly relevant to filing but also show greater technological dependence. Future studies could focus specifically on:

- senior citizens,
- near-retirement filers,
- first-time older digital users,
- and pension-related tax filers.

These studies could explore not only usability issues, but also the psychological and trust dimensions of digital compliance in age groups that did not grow into taxation through digital systems.

3. Youth and first-time filer studies

The current dataset has fewer young respondents, but future research should examine:

- first-time salaried taxpayers,
- recent entrants to the formal tax system,
- and digitally native users who may be technically comfortable but legally inexperienced.

This would be useful because youth may be more confident with digital interfaces, but not necessarily more confident with tax logic. Such a study could reveal whether digital fluency automatically translates into filing autonomy.

4. Occupational studies

Occupation-specific studies could compare:

- salaried employees,
- freelancers,
- professionals,
- small business owners,
- agricultural-background families entering taxable non-farm work,
- and retired pensioners.

These groups face different levels of filing complexity, documentation structure, and need for professional help. Future occupationally focused studies would therefore deepen understanding of what kind of digital support is most appropriate for different taxpayer segments.

Scope for research on intermediary dependence and assisted digital compliance

One of the strongest findings of the present study is the continued centrality of intermediaries. This creates one of the richest future research areas.

Future studies should examine assisted digital compliance in far more detail. Important questions include:

- Why do taxpayers choose CAs or consultants even when the portal is available?
- How much of this choice reflects low confidence and how much reflects convenience or complexity?
- How much do taxpayers actually understand about the return filed on their behalf?
- Do taxpayers know which form, regime, and deductions are used in their own filing?
- How safe are current practices of credential sharing and OTP handling?
- Do taxpayers trust intermediaries fully, partially, or only out of necessity?

This area is critically important because the future of digital tax administration in India will almost certainly continue to include intermediaries. Therefore, research should not treat intermediaries only as a leftover from the pre-digital era. It should study them as part of the current digital ecosystem.

There is also scope for research on different types of intermediaries:

- professional paid intermediaries,
- employer/account-office filing support,
- family-based assistance,
- and colleague-based informal help.

Each of these forms of assistance may involve very different levels of:

- trust,
- knowledge transfer,
- taxpayer control,
- and risk.

A deeper empirical literature on intermediary-mediated filing would significantly strengthen both scholarship and policy design.

Scope for research on taxpayer support systems and help architecture

Another major future direction concerns support systems. The present study shows that lack of guidance is one of the strongest challenges and that support-related satisfaction is weaker than satisfaction with core portal functions. This suggests the need for focused research specifically on:

- how taxpayers seek help,
- what kinds of help they trust,
- which support channels they know about,
- and which types of support actually reduce dependence and increase confidence.

Future research may compare taxpayer use and evaluation of:

- FAQs,
- manuals,
- helpdesk systems,
- grievance channels,
- e-Proceedings explanation tools,
- co-browsing support,
- and assisted-filing wizards.

Such studies could answer important questions:

- Do taxpayers actually know these support systems exist?
- At what stage in the filing journey do they most need help?
- Which support format is most useful for non-expert users?
- Does support improve awareness or merely solve isolated problems?

There is also scope for experimental studies where one group of taxpayers is given:

- plain-language field help,
- process flowcharts,
- visual explainers,
- or proactive support prompts, and another group is not.

Researchers could then measure the effect on:

- self-filing,
- satisfaction,
- filing time,
- error perception,
- and confidence.

This would help move the research beyond description and into evidence-based design evaluation.

Scope for AI, chatbot, and digital-assistance research

The AI findings in the present study are especially important because they show a gap between low actual usage and moderate openness to future use. This creates strong scope for future research in several directions.

1. Research on taxpayer adoption of AI tools

Future research may ask:

- Under what conditions would taxpayers actually use AI or chatbot support?
- Which taxpayers are most likely to adopt AI-based filing help?
- Does trust in AI differ by age, education, filing complexity, or prior digital experience?

2. Experimental studies on AI guidance tools

Researchers may test AI systems for:

- explaining deductions,
- guiding regime choice,
- identifying likely omissions,
- helping interpret AIS entries,
- and summarizing notices in plain language.

Such studies could evaluate whether AI actually improves:

- user understanding,
- filing confidence,
- self-filing rates,
- or perceived fairness.

3. **Research on AI risk and fairness perception**

The present study shows that taxpayers want human review and fear wrongful AI flagging. This suggests the need for focused research on:

- how taxpayers perceive algorithmic fairness in tax administration,
- what level of explanation they require,
- whether different user groups trust AI differently,
- and how AI can be introduced without increasing procedural fear.

4. **Comparative research between human help and AI help**

Future studies could compare whether taxpayers prefer:

- portal chatbot support,
- large language model support,
- co-browsing support,
- or human professional support, for different kinds of tasks.

Such work would be especially valuable in shaping the next phase of taxpayer-facing digital support.

Scope for research on legal and policy reform outcomes

The digitalization of tax filing in India has evolved through multiple legal and institutional reforms. Future research should evaluate specific reforms in more focused ways.

For example, separate studies could assess:

- the effect of faceless assessment on taxpayer perception of fairness,
- the effectiveness of faceless appeals from the taxpayer's point of view,
- the practical usability of updated return provisions,
- the taxpayer-side impact of changes in verification timelines,
- or the effect of portal redesign on user trust and filing convenience.

Such studies would be particularly useful because legal reforms are often evaluated from the perspective of:

- administrative efficiency,
- official filings,
- and institutional logic, while taxpayer experience is treated more indirectly.

The present dissertation suggests that future legal-policy research should place taxpayer experience more centrally in the evaluation of reform success.

Scope for comparative research across digital governance systems

Future research may also expand beyond the income tax portal and compare digital tax filing with other major digital public systems in India, such as:

- GST-related digital compliance,
- pension-related digital systems,
- EPFO-related portals,
- or other government service platforms involving identity-linked online interaction.

Such comparison would be useful for identifying whether the issues found in this study—such as:

- moderate awareness,
- support deficits,
- dependence on intermediaries,
- and trust concerns— are unique to income tax filing or common across digital governance more broadly.

This kind of research would help answer a larger question: Is digital tax filing difficult because tax law itself is inherently complex, or because Indian public digital systems more generally remain difficult to navigate without support?

Comparative work of this kind would deepen both e-governance scholarship and tax-administration scholarship.

Scope for international comparative studies

The present dissertation is grounded in the Indian context, but the topic also has a broader comparative dimension. Future research may compare India's digital tax filing system with those of other countries, especially in terms of:

- pre-filled return use,
- taxpayer support systems,
- dispute response architecture,
- AI use in tax administration,
- and protection against digital misuse.

Such comparative work could help answer questions like:

- How does India's model of assisted digital filing compare with other jurisdictions?
- Are support deficits and intermediary dependence common internationally, or more pronounced in India?
- What best practices exist elsewhere for plain-language filing, pre-filled returns, or human-in-the-loop digital assistance?

This would be especially valuable for policy learning, because digital tax reform is no longer a purely domestic issue. Many countries are attempting to balance:

- efficiency,
- automation,
- fairness,
- and taxpayer trust.

India could both learn from and contribute to this international literature.

Scope for behavioral and psychological research

The present study reveals that digital tax filing is not simply a technical or procedural issue. It is also a psychological experience shaped by:

- fear,
- trust,
- uncertainty,
- confidence,
- and perceived control.

This opens strong scope for behavioral and psychological research.

Future studies could examine:

- the relationship between fear of notices and filing behavior,
- the psychological burden of identity-linked digital compliance,
- trust in digital state systems versus trust in professionals,
- the emotional effect of form complexity,
- or the way taxpayers interpret official digital warnings and prompts.

Such research could draw on:

- behavioral economics,
- public administration,
- psychology of compliance,
- and trust studies.

For example, a behavioral study could test whether:

- plain-language reassurance messages reduce fear,
- simpler error prompts improve confidence,
- or staged guidance reduces the likelihood of abandoning or outsourcing filing.

This would significantly deepen the current literature by moving from descriptive perception studies into more refined behavioral explanation.

Scope for mixed-method research

The present dissertation uses survey-based primary data with qualitative open-ended support. Future research can go further through mixed-method designs that combine:

- large-scale surveys,
- in-depth interviews,
- focus groups,
- usability observation,
- and perhaps administrative or system-use data where available.

This would be particularly useful for capturing the difference between:

- what taxpayers say they feel,
- what they actually do,
- and how they behave when faced with a real filing interface.

For instance, a mixed-method study could combine:

- survey data on awareness and risk,
- observation of taxpayers completing a filing simulation,
- and interviews exploring why they made certain choices or asked for help.

This would generate a far more detailed picture of how digital tax filing is actually navigated in practice.

Scope for usability and design-based research

The present study strongly suggests that portal design, clarity, and support visibility matter. This opens a major scope for future research based on:

- usability testing,
- human-computer interaction methods,
- design evaluation,
- and portal navigation analysis.

Such studies could ask:

- At which exact steps do users become confused?
- Which screens generate the highest uncertainty?
- Which terms or form structures cause the most hesitation?
- How do self-filers and assisted filers differ in navigating the same portal?

Researchers could compare:

- different design versions,
- simplified mock interfaces,
- interactive help systems,
- or mobile versus desktop use.

This would be highly valuable because taxpayer challenges are often discussed at a general level, whereas design-based research could reveal precisely how interface architecture shapes filing behaviour.

Scope for research on taxpayer trust and institutional legitimacy

The current study shows that taxpayers can use and even value the digital system while still carrying significant risk perception. This suggests that future research should examine the relationship between:

- digital tax filing,
- institutional trust,
- and perceived legitimacy of tax administration.

Important questions include:

- Does better digital experience improve trust in the Income Tax Department?
- Does intermediary dependence weaken direct trust in the state?
- How do privacy concerns affect willingness to self-file?
- Do faceless systems increase fairness perception or increase uncertainty?
- How does grievance experience shape future compliance trust?

This line of research would move beyond operational efficiency and address a deeper question: How does digital tax administration reshape the taxpayer's relationship with the state?

That is a major scholarly question with implications far beyond filing convenience.

Scope for administrative and institutional research

Another important area of future inquiry concerns the Department and institutional side of digital tax governance. Since the present study is taxpayer-centered, future work could add balance by studying:

- the perspective of tax officials,
- helpdesk personnel,
- system designers,
- policymakers,
- and tax practitioners.

Such studies could examine:

- how officials view taxpayer difficulties,
- how support systems are designed and used,
- whether the Department sees intermediary dependence as a problem,
- and how portal reforms are internally prioritized.

Administrative research could also examine:

- capacity constraints,
- support training,
- handling of grievances,
- and how digital compliance is monitored institutionally.

This would complement the present study by providing a fuller two-sided picture of the digital tax ecosystem.

Scope for intervention-based and action research

A particularly promising future direction is intervention research. Instead of only describing the current system, future scholars may design and test specific reforms such as:

- simplified instruction modules,
- explanatory videos,
- help prompts,
- AI support tools,
- or safer assisted-filing mechanisms.

They could then measure whether such interventions improve:

- self-filing behaviour,
- awareness,
- satisfaction,
- confidence,
- or reduction in dependence.

This would be highly valuable because it would move the literature from diagnosis to tested improvement. For a policy-relevant domain such as digital tax filing, intervention studies can have especially high practical value.

Scope for future research on “digital autonomy” as a separate concept

One of the most important conceptual contributions of this dissertation is the distinction between:

- digital participation,
- and digital autonomy.

Future research should develop this distinction more systematically.

A dedicated study on digital autonomy in tax administration could examine:

- who actually controls the filing process,
- who understands it,
- who verifies it,
- who bears the psychological burden of it,
- and how autonomy varies even when filing is technically successful.

This would represent an important next step for the field. Much of the earlier literature on e-filing focused on:

- adoption,
- usefulness,
- ease of use,

- and satisfaction.

The present dissertation suggests that future scholarship should move toward a deeper question: Who is truly empowered within the digital tax system, and who remains only partially included through assistance or compliance dependence?

This is likely to become one of the most important research questions in the next generation of e-filing studies.

Overall future research agenda emerging from the present study

Taken together, the present dissertation suggests that the field of digital tax-filing research in India is moving into a new phase. Earlier work was rightly concerned with:

- whether taxpayers adopted e-filing,
- whether they were aware of it,
- and whether they were broadly satisfied.

The present findings suggest that future research must go further and examine:

- unequal digital autonomy,
- assisted digital compliance,
- confidence and fear in digital tax environments,
- support architecture,
- explainable AI,
- trust and data safety,
- and the relationship between system design and taxpayer agency.

In other words, the future research agenda should move from asking: “Is e-filing being used?” to asking: “How is the digital tax state actually experienced by different kinds of taxpayers, and how can that experience be made fairer, simpler, and more empowering?”

That broader question is where the most important future scholarship now lies.

Concluding note on the scope for future research

In conclusion, the present study does not exhaust the field of inquiry. Rather, it establishes a strong foundation for a much wider research agenda. It shows that the digitalization of income tax filing in India is now mature enough to be studied not merely as a technical reform, but as a complex social, legal, behavioural, and institutional phenomenon.

Future research can strengthen this field by:

- expanding sample diversity,
- tracking changes over time,
- studying specific user groups,
- examining intermediary dependence,
- testing AI-assisted support,
- evaluating reform outcomes,
- and exploring taxpayer trust and autonomy in greater depth.

The broader implication is clear: the digital tax system is no longer only a matter of filing online. It is now a matter of how citizens live, interpret, trust, and navigate an increasingly data-rich and digitally mediated compliance environment.

That is the true scope for future research arising from this dissertation.

Final Concluding Remarks

The digitalization of income tax filing in India represents one of the most important transformations in the taxpayer-state interface in recent decades. It has changed the rhythm of compliance, the speed of processing, the structure of communication, and the way taxpayers access records, verification, and status information. For most respondents in this study, the system is no longer new. It is part of normal annual compliance life.

That is precisely why the findings of this dissertation matter. They show that the debate must now move beyond whether the portal exists and whether returns can be filed online. Those questions have largely been answered. The more important questions now are:

- Can taxpayers understand the system well enough to trust it?
- Can they use it without excessive dependence?
- Does the system support them when uncertainty arises?
- Does it protect them while asking them to disclose more digitally?
- And can the next generation of support tools, including AI, make digital compliance more human rather than more intimidating?

The answer emerging from this study is clear. India's digital tax system has achieved a strong foundation, but the future of reform lies in simplicity, support, trust, and assisted autonomy.

A digital tax regime becomes fully successful not only when returns are filed online, but when ordinary taxpayers can say:

- they know what they are doing,
- they know where to get help,
- they feel safe using the system,
- and they do not feel compelled to surrender control in order to comply.

That is the larger lesson of this dissertation.

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