Chapter 11
Artificial Intelligence in Tax Compliance:
Transforming Taxpayer Behavior and System Efficiency

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ABSTRACT

This chapter examines tax administration systems that utilizes artificial intelligence (AI) technologies including predictive analytics and natural language processing across multiple nations such as the United States, Europe, Australia, and India. These tools improve tax efficiency by reducing administrative costs and ensuring accurate compliance. However, the implementation of AI introduces critical ethical concerns regarding algorithmic fairness, data privacy, and equitable outcomes. These challenges can be addressed through explainable AI (XAI), ethical standards, and robust regulatory frameworks. The chapter describes the differences between AI adoption in developed nations and less developed countries alongside recommendations for local use and worldwide teamwork. Tax systems that use AI technology to serve more people become more transparent as governments learn how to handle its disadvantages. Furthermore, the chapter outlines upcoming trends like blockchain and quantum computing and presents clear steps tax authorities should take to use AI responsibly in tax operations.

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1. INTRODUCTION

New tax administration systems work better through AI technology which adds machine learning methods and analyses written data along with predicting results (Rahman et al., 2024). These technological breakthroughs give governments unique ways to run tax operations better while making tax enforcement more effective and fairer. The automated tax checking system helps tax officials check big data and spot irregularities while seeing what taxpayers may do next with better precision. Tax authorities use these advanced tools to fight fraud better while saving money and making tax services smoother for everyone (Adelekan et al., 2024).Tax authorities worldwide use AI systems to produce better tax administration results. Predictive analytics helps tax authorities find potential risks early and use their teams more wisely. Machine learning tools work with detailed tax data to find illegal practices and prevent manual errors which make tax assessment more precise. Tax agencies that use artificial intelligence chatbots enhance taxpayer services with individualized help and guidance which boosts trust in their tax operations (Nembe et al., 2024) (Allingham, M. G., & Sandmo, A. 1972).AI technology brings fairness and openness as well as productivity improvements to tax administration. AI processing technology eliminates human bias and fraud which leads to better equal tax systems. These technologies help build taxpayer trust because they provide clear records and explain AI system decisions through XAI and blockchain solutions (Yusuf et al., 2024).

Tax compliance systems empowered by AI change how taxpayers behave through robotic automation and math-based monitoring (Botha, 2021). AI usage plays a major role in shaping taxpayer perceptions surrounding fairness, trust and voluntary compliance (Komarudin & Hermawan, 2022). While predictive analytics and chatbot integration improve system efficiency, thereby fostering greater trust, concerns about excessive monitoring can have adverse effects. Researchers like (Agu et al., 2024) emphasize that algorithmic bias stemming from non-representative datasets can result in certain taxpayer groups feeling unfairly treated, thus discouraging compliance. The integration of AI into tax compliance poses significant ethical issues, particularly algorithmic discrimination and privacy issues (Allingham, M. G., & Sandmo, A. 1972). Additionally, algorithmic biases mostly stem from historical data causing discriminatory results for minority or marginalised sections. To achieve equitable tax enforcement, Adelakun et al. (2024) call for periodic audits of AI models and holistic data collection practices. In addition, protecting taxpayer data is a primary ethical responsibility. As tax systems analyse the most extensive financial information, ensuring compliance with international data protection standards, such as the GDPR, is imperative. Transparent AI operations underpin taxpayer trust and cooperation in modern tax systems. Explainable AI (XAI) provides taxpayers clear insights into decision-making processes, reducing suspicion and uncertainty (Eghaghe et al., 2024). This type of proactive transparency engenders taxpayer confidence and helps fortify the legitimacy of the AI-fuelled compliance tools.

This chapter employs a multi-method research approach, combining qualitative analysis, case-based evidence, and review of academic and policy literature. It draws on peer-reviewed journal articles, government reports, and empirical studies to assess the current role of AI in tax administration and its associated ethical and behavioural implications. The analysis includes a comparative examination of multiple tax jurisdictions to identify effective AI strategies and highlight how contextual factors influence their success (Chacko & Mishra, 2023; Adelekan et al., 2024). Real-world case studies from selected regions illustrate how AI enhances tax compliance, improves service delivery, and reduces administrative costs. By integrating thematic insights with supporting statistical evidence, this methodology enables a comprehensive evaluation of AI's impact on tax governance. It also helps to identify existing research