International Journal of Scientific Research & Engineering Trends
Volume 12, Issue 1, Jan-Feb-2026, ISSN (Online): 2395-566X

The opportunities and risks of artificial intelligence-driven taxation from an international perspective

James Anderson
Researcher, The School of Economic, Political and Policy Sciences, The University of Texas at Dallas.

Abstract- The use of artificial intelligence technologies in tax administration is becoming increasingly widespread worldwide to increase efficiency and detect fraud. Tools such as chatbots, risk ratings and predictive analytics optimise workflows, but their wider use in administrative decision-making raises legal and structural challenges. There is a critical difference between decision-supporting and autonomous artificial intelligence. Over-reliance on automated systems risks eroding legal expertise and obscuring decision-making, making it difficult for taxpayers to seek redress. Taxpayer profiling carries the risk of discriminatory treatment, so rigorous testing and minimisation of bias are necessary. In terms of methodological foundations, the study used dogmatic and transdisciplinary analysis to examine the opportunities and risks from an international perspective. The advantages of artificial intelligence include the real-time analysis of large amounts of data, which helps to filter out tax avoidance schemes and reduce the administrative burden on taxpayers (e.g. pre-filled tax returns). At the same time, the "black box" phenomenon violates the principle of transparency. The US and the OECD aim to improve efficiency and develop taxpayer services using artificial intelligence tools. The EU takes a risk-based approach, imposing strict requirements on high-risk artificial intelligence systems and emphasising the need for human oversight and legal remedies. Australian examples (Robodebt, Pintarich cases) highlight the legal and human rights risks of faulty algorithms, underlining the need for accountability. Success lies in striking a balance: while exploiting technological efficiency, it is necessary to guarantee human oversight, the accountability of algorithms and the protection of taxpayers' fundamental rights. Artificial intelligence should support fair law enforcement, not replace it.

Keywords – Tax procedure, artificial intelligence, tax system, taxpayer, tax authority, conditional tax assessment.

I. INTRODUCTION

Tax authorities around the world operate based on function-based or tax-type-based models, within which artificial intelligence is increasingly being used to improve efficiency, detect fraud and automate service delivery. Tools such as chatbots, taxpayer risk ratings and predictive analytics are now an integral part of optimising tax authority workflows and detecting non-compliant taxpayer behaviour. Despite these advances, artificial intelligence is not yet widely used in administrative decision-making within tax authorities. However, its wider application is not a question of "if" but "when". Artificial intelligence offers unparalleled speed and efficiency in processing information and allocating resources, making its integration into tax authority decision-making processes logical and inevitable.

However, this transition poses significant structural and legal challenges. In general, it can be said that the current tax administration framework is not prepared for the use of artificial intelligence in discretionary decision-making roles. The transition from human-led interpretation to algorithmic decision-making would fundamentally change the basis of tax authority and discretion, which would require not only technical modernisation but also legal and institutional transformation. It should also be noted that the COVID-19 crisis has had a significant impact on tax systems [1], so the lessons learned from this crisis should also be incorporated into the process of introducing artificial intelligence.

A critical distinction must be made between artificial intelligence as a decision-support tool and artificial intelligence that independently determines taxpayer obligations. As tax authorities increasingly rely on automated systems, concerns arise about the potential erosion of legal expertise in decision-making. Without adequate safeguards, tax authorities risk transferring interpretative powers from legally trained professionals to technology developers who may lack the necessary legal acumen. Some jurisdictions, such as France, are exploring initiatives to encode tax rules into programming languages such as, while ensuring that artificial intelligence models comply with established legal norms.

The opacity of AI-related decision-making poses an additional challenge to taxpayers' rights [2]. Taxpayers must be able to understand and challenge decisions generated by artificial intelligence, especially when they affect fundamental rights such as the right to privacy and access to fair administrative procedures. The reliance of artificial intelligence on complex, proprietary algorithms can obscure the reasoning behind tax assessments, making it difficult for individuals to challenge tax authority decisions. All of this points to the fact that procedural safeguards are not only necessary, but that their importance is growing exponentially over time.

Artificial intelligence-based taxpayer profiling raises further concerns. Tax authorities are increasingly using artificial intelligence to categorise taxpayers based on variables such as previous filings, business activities and geographical location. While such classifications increase the efficiency of tax authority enforcement, they also carry the risk of stigmatisation and discriminatory treatment. Taxpayers classified as "high risk" may be subject to disproportionate tax authority scrutiny, which can negatively affect their credit ratings and financial standing. The reliability of AI-driven classifications depends on the integrity of the training data and the validity of the statistical methodology. Consequently, tax authorities need to ensure rigorous testing to minimise bias and prevent unfair treatment.

II. METHOD

The study was conducted using the following two methods:

- the first is a dogmatic analysis, which involves reviewing the legal provisions primarily from a systematic and logical perspective, and then addressing the concepts and related legal arguments that arise during the examination.
- the other is transdisciplinary research, which involves the joint involvement of several disciplines to examine complex issues (e.g. tax risks).

Using these two methods, the study examines the opportunities and risks inherent in AI-driven tax procedures from an international perspective and draws conclusions on how tax administration procedures are changing because of the tax authorities' use of AI.

III. THE TRANSFORMATION OF TAX ADMINISTRATION BECAUSE OF ARTIFICIAL INTELLIGENCE FROM AN INTERNATIONAL PERSPECTIVE

Artificial intelligence-driven tax procedures in general

The rapid integration of artificial intelligence has triggered regulatory initiatives at both national and international level to address legal and ethical concerns, while increasing efficiency and accuracy.

The advantages of artificial intelligence in tax administration are efficiency and accuracy. Machine learning algorithms can analyse vast amounts of data in real time, enabling predictive risk analysis. This allows tax authorities to more accurately filter out tax avoidance schemes and fictitious invoicing chains before significant budgetary damage occurs. [3]

For taxpayers, artificial intelligence can mean easier administration. Automated systems, such as pre-filled tax returns and intelligent chatbots, make compliance faster and simpler. Artificial intelligence can provide personalised information, reducing the number of errors resulting from human error and unnecessary paperwork. As a result, the technology could become the basis for a fairer distribution of the tax burden by reducing the grey area.

Alongside the opportunities, the risks are also significant. One of the main concerns is the "black box" phenomenon: when an algorithm decides to audit or sanction a taxpayer, its logic is often opaque to both the client and the auditors. This violates the principles of transparency and the right of appeal.

Data protection and data quality are critical issues. Artificial intelligence only works well if it learns from clean data; biased input data can lead to discriminatory results, such as unjustifiably targeting certain sectors or social groups. There is also a risk of over-reliance on algorithms, which can be at the expense of considering individual circumstances.

Artificial intelligence-driven tax administration systems developed by the US Internal Revenue Service

Artificial intelligence poses potential risks to tax systems, but it also offers opportunities to improve administration by enhancing fairness, collection efficiency and anti-fraud measures. A significant aspect of the role of artificial intelligence is optimising enforcement, improving services to taxpayers and increasing compliance. In the United States, the Internal Revenue Service has allocated significant resources to transforming the tax administration process using artificial intelligence-based tools, which facilitates more efficient processing of tax returns and detection of anomalies between the tax authority's database and tax returns. This has also led to an improvement in the taxpayer experience. [4]

OECD recommendations on artificial intelligence in relation to tax procedures

As part of broader digital economic reforms, the OECD examined the role of artificial intelligence in tax administration. As a result of this examination, the OECD's recommendations on artificial intelligence aim to seamlessly integrate tax processes into taxpayers' everyday digital systems. In this context, the OECD emphasises that the use of artificial intelligence must require respect for human rights and democratic values. In addition, the OECD recommends the use of artificial intelligence to automate high-volume, repetitive

tasks, freeing up human expertise for more complex cases. One such area, particularly about taxpayers' right to information, is the transformation of tax authority customer services with the involvement of artificial intelligence, so that taxpayers can obtain the necessary tax authority information 24 hours a day, seven days a week.

The most important tasks of the AI-driven tax authority information assistant are:

1. **General information:** Artificial intelligence can answer the most common tax questions, such as those relating to personal income tax returns, tax identification number applications or tax card replacements.
2. **Interactive assistance:** It helps users navigate the tax authority's website and provides direct links to relevant information brochures, forms, or completion guides.
3. **Customer service:** Provides information on customer service opening hours and locations and assists with the appointment booking process.
4. **Customs information:** Provides basic information on ordering from abroad (e-commerce), customs clearance and baggage regulations.
5. **Continuous expansion:** The system uses machine learning, so its knowledge base is constantly expanding based on user questions, providing increasingly accurate answers even on more complex tax issues.

The OECD recommends that taxpayers establish an artificial intelligence-based tax return system that can categorise digital transactions in real time, recognise invoices and receipts, and then automatically assign them to the appropriate tax return lines. This minimises errors resulting from human error and significantly reduces the administrative burden. A well-designed artificial intelligence-based tax return system can deliver significant results in terms of tax optimisation, as the algorithms can analyse thousands of pages of constantly changing legislation. Based on individual financial data, artificial intelligence makes personalised recommendations for claiming legal tax benefits that might otherwise escape the user's attention.

Artificial intelligence can also be an effective tool for tax authorities in the areas of risk management and tax auditing, where AI-based software can perform "preliminary audits" using data available to the tax authorities, comparing tax return data with reports from previous years and which can serve as a useful basis for identifying risks and substantiating any tax authority audits and findings.

Based on the above, the OECD's recommendations point in the direction that artificial intelligence-based tax administration will not only represent a technological change but will also become the cornerstone of a modern state based on trust and transparency, where the tax authority "invisibly" assists in compliance. [5]

Landmark ruling by the District Court of The Hague

The ruling of the District Court of The Hague on 5 February 2020 is a milestone in the history of digital fundamental rights and algorithm-based governance. The court ruled that the System Risk Indication (hereinafter: SyRI) system used by the Dutch government violates Article 8 of the European Convention on Human Rights, which guarantees the right to respect for private life.

SyRI was a risk assessment software developed by the Dutch authorities to detect social security and tax fraud. The system linked various government databases (e.g. tax, employment, housing and health insurance data) and then used algorithms to create "risk profiles" of citizens. Persons deemed suspicious were subject to further investigation by the authorities.

In its ruling, the court set out the following main arguments:

- **Lack of transparency:** The system operated as a "black box". Neither the citizens concerned, nor the court could know exactly what criteria the software used to identify suspects, which made effective legal redress impossible.
- **Disproportionate:** According to the court, the system did not comply with the principle of "necessity and proportionality". Although combating fraud is a legitimate goal, the indiscriminate mass analysis of data on the entire population constituted an excessive interference with privacy.
- **Risk of discrimination:** The civil society organisations that brought the case and the UN Special Rapporteur also pointed out that SyRI was used primarily in poorer neighbourhoods, which stigmatised low-income groups. [6]

The ruling is significant on a global level as it was one of the first cases in which a national court stopped government profiling to protect human rights. The decision highlighted that automated decision-making systems cannot be exempt from the rule of law. This case highlights the urgent need for transparency, accountability and legal oversight in AI-based tax administration.

European Union proposals on artificial intelligence in relation to tax procedures

The European Union's regulatory framework for artificial intelligence, in particular the harmonised rules on artificial intelligence adopted in 2024, as well as Regulations (EC) No 300/2008, (EU) No 167/2013, 168/2013/EU, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144, as well as 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828, Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 (hereinafter referred to as the Artificial Intelligence Regulation) has a direct and significant impact on tax administration processes. The European Union aims to strike a balance that allows for technological innovation in the fight

against tax fraud while guaranteeing the protection of taxpayers' fundamental rights.

The most important element of the regulation adopted by the European Union is the risk-based approach to data-driven taxation. Since systems using artificial intelligence employed by tax authorities (such as risk analysis software or automated control systems) can have a significant impact on the financial situation of natural and legal persons, these systems often fall into the "high risk" category. As a result, Member States must impose strict requirements on artificial intelligence-based systems used by tax authorities to ensure that tax authority decisions made with the involvement of artificial intelligence and the processes leading up to them are transparent and non-discriminatory in actual tax administration procedures. In the first instance, this must be ensured without the use of human supervision, but it could be considered a step further if the algorithm in question can do so without human supervision.

The proposals currently known to have been formulated by the European Union emphasise that artificial intelligence cannot make final decisions without human intervention in cases that have legal implications for the taxpayer. Taxpayers must be guaranteed the right to information, i.e. the tax authority must be able to justify why the algorithm has classified a given taxpayer in a certain risk group.

In addition, the European Union is pushing for improvements in the quality of data in the tax authority database and for cross-border data exchange within the framework of the DAC (Directive on Administrative Cooperation). With the help of artificial intelligence, the European Union wants to take more effective action against VAT fraud and aggressive tax planning.

Overall, the essence of the European Union's strategy is to apply "ethical artificial intelligence" as widely as possible in tax matters, but at the same time, the technology must not become a "black box", i.e. the tax authorities must inform the taxpayers concerned about the steps taken to apply artificial intelligence. Tax authorities must guarantee data protection (GDPR compliance), cybersecurity and legal remedies, ensuring that automation increases efficiency but does not undermine taxpayer confidence and legal certainty. [7]

The Australian example

In Australia, the integration of artificial intelligence into tax administration is driven by technological advances, expanded data access, evolving tax policies and changing social expectations. In May 2024, the Australian Taxation Office produced 43 artificial intelligence models and approved eight generative artificial intelligence tools for public use. These AI-based applications support tax assessments, anomaly detection and tax compliance monitoring, processing approximately 36 million documents for tax audit purposes to ensure appropriate taxpayer selection. To ensure the legal compliance of artificial intelligence-based applications, the Australian Taxation Office has established, among other things, data ethics principles, data protection impact assessments and security risk assessments.

Despite these measures, significant shortcomings remain, as evidenced by the Australian National Audit Office's report, which states that mechanisms for assessing the effectiveness of the Australian Taxation Office's strategy remain underdeveloped, and 74% of the artificial intelligence applications developed and used by the Australian Taxation Office do not have a completed data ethics assessment. The Australian National Audit Office also pointed out that, while the general data ethics guidelines adopted by the Australian Taxation Office require that all tax authority decisions involving artificial intelligence be reviewed by at least one tax authority employee, i.e. human oversight and control, this formally remains in place for all tax authority decisions. At the same time, the Australian Taxation Office also acknowledged that draft decisions generated by artificial intelligence do not always contain accurate and consistent findings, highlighting the need for meaningful human intervention and accountability. [8]

The risks of AI-based tax administration are illustrated by two Australian cases: Robodebt and Pintarich. The Robodebt system relied on a data matching algorithm that averaged the Australian Taxation Office's records of fortnightly income, which often led to incorrect tax assessments. This flawed approach ignored income fluctuations and incorrectly shifted the burden of proof to individuals, violating established legal norms. The system was ultimately ruled unlawful, highlighting the dangers of automated decision-making. In another case, the Australian Taxation Office's automated letter-generating system (Pintarich) issued a notice indicating a specific tax assessment, which an Australian Taxation Office official later claimed was not an actual tax assessment decision. In this case, the Australian Federal Court ruled that no binding decision had been made and warned of the dangers of treating machine-generated communications as autonomous decisions without human oversight. This case highlights the need for a clear legal framework for artificial intelligence-assisted decision-making. [9]

The Australian Human Rights Commission has set out key principles for AI-assisted decision-making, emphasising compliance with international human rights standards, minimisation of harm and accountability for implementation. The Commission stresses that AI-based decision-making must be subject to robust regulation to prevent harmful consequences. [10]

As AI-based decision-making evolves, legal and ethical frameworks must adapt to ensure fairness, transparency, and accountability ( ). The principles of tax administration law must be strictly adhered to prevent artificial intelligence from

undermining the fairness of tax procedures and eroding public trust. The broader implications of AI integration require an approach that preserves the fundamental principles of tax governance. The principle of "no taxation without representation" should not be replaced by "no taxation without automation". Instead, artificial intelligence should complement rather than replace the established principles of tax fairness and procedural fairness.

IV. CONCLUSIONS

Artificial intelligence has become an inevitable part of tax procedures. The key to success is striking a balance: while exploiting technological efficiency, it is necessary to guarantee human oversight, the accountability of algorithms and the protection of taxpayers' fundamental rights [11]. Artificial intelligence should not replace, but rather support, fair law enforcement. Despite these advantages, AI-driven tax administration poses significant legal and ethical challenges. Artificial intelligence-driven decision-making undoubtedly offers opportunities to improve the efficiency and accuracy of tax administration. At the same time, however, the integration of artificial intelligence into the automated decision-making processes of tax authorities also raises significant regulatory and ethical challenges. In many jurisdictions, the current legal frameworks do not provide adequate tools to address the complexity of AI-based automated decision-making, particularly in contexts that require nuanced, discretionary decisions. As artificial intelligence plays an increasingly important role in tax assessments and enforcement, maintaining transparency, accountability and procedural fairness becomes increasingly critical.

REFERENCES

1. Ildikó Szabó: TAX STRUCTURES BEFORE AND AFTER COVID-19. HUNGARIAN REVIEW 12 : 3 pp. 47-58. , 12 p. (2022)
2. Jeffrey Owens, Richard Stern, Rhodah Nyamongo, Irma Mosquera, Tofigh Hasen Nezhad Nisi, David Hadwick, Diana van Hout: AI Governance and Taxpayers' Rights in a Digital Age. Intertax, Volume 53, Issue 11 (2025) pp. 747 – 772, httpss://doi.org/10.54648/taxi2025069
3. Braun Binder, N. (2020). Artificial Intelligence and Taxation: Risk Management in Fully Automated Taxation Procedures. In: Wischmeyer, T., Rademacher, T. (eds) Regulating Artificial Intelligence. Springer, Cham. https://doi.org/10.1007/978-3-030-32361-5_13
4. Enuma Ezeife: AI-Driven Tax Technology in the United States: A Business Analytics Framework for Compliance and Efficiency. International Journal of Multidisciplinary Research and Growth Evaluation, Volume 2; Issue 1; January-February 2021; Page No. 693-701 https://doi.org/10.54660/.IJMRGE.2021.2.1.693-701
5. OECD (2025), Governing with Artificial Intelligence: The State of Play and Way Forward in Core Government Functions, OECD Publishing, Paris, https://doi.org/10.1787/795de142-en.
6. Daly S. ARTIFICIAL INTELLIGENCE, THE RULE OF LAW AND PUBLIC ADMINISTRATION: THE CASE OF TAXATION. The Cambridge Law Journal. 2024;83(3):437-464. doi:10.1017/S0008197324000448
7. Rizzo, Amedeo and Hassan, Giorgio, Addressing the Use of AI by EU Tax Authorities: Towards a Common Framework of Taxpayer Protection (2 December 2024). European Taxation, volume 65, issue 1, 2024[10.59403/1avybfj], Available at SSRN: https://ssrn.com/abstract=5259173
8. Whait, R., & Vitale, C. (2024). Can artificial intelligence help or hinder the compliance of vulnerable taxpayers?: case studies from the Australian National Tax Clinic Program. New Zealand Journal of Taxation Law and Policy, 30, 279-293.
9. Bishop, Elizabeth: Legal issues arising from the use of artificial intelligence in government tax administration and decision making. Journal of AI, Robotics & Workplace Automation, Volume 1 / Number 1 / Autumn/Fall 2021, pp. 99-108(10)
10. Richardson, D. (2024). Taxing tech companies. The Journal of Australian Political Economy, (94), 128–137. https://search.informit.org/doi/10.3316/informit.T202501 1000011801661206853
11. Ildikó SZABÓ: Possibilities and Practical Experiences of Using Artificial Intelligence in Taxation. PÁZMÁNY LAW REVIEW 11:1 pp 53-66., 14p. (2024), https://doi.org/10.55019/plr.2024.1.53-66