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Artificial intelligence and taxation

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Abstract

The examination of artificial intelligence and taxation is critical, as technology is fundamentally transforming the relationship between taxpayers and tax authorities, as well as compliance processes. Artificial intelligence can automate routine tasks (such as data entry and preparing returns), which can reduce errors and increase efficiency. Tax teams currently spend a significant amount of their time collecting and manipulating data, which artificial intelligence can do in a fraction of the time. Automation allows professionals to focus on higher value-added analytical and advisory tasks. Tax authorities actively use artificial intelligence for predictive analytics and network research to detect suspected tax evasion and fraud. Artificial intelligence helps analyse large amounts of financial data and identify suspicious patterns, making audits faster and more accurate. The introduction of a global minimum tax is an extremely complex and data-intensive process, for which multinational companies use artificial intelligence-based software to automate calculations and predict tax burdens. Companies that do not integrate artificial intelligence may find themselves at a significant competitive disadvantage. It is important to examine the legal and ethical framework for the use of artificial intelligence in taxation, ensuring transparency, data protection and algorithmic impartiality to avoid discriminatory bias. Examining this topic is essential for preparing future-proof tax systems and tax professionals in a rapidly changing, technology-driven world.

Keywords: Taxation; Artificial Intelligence; Global Minimum Tax; Advance Tax Ruling; Tax Advice

1. Introduction

Examining the relationship between artificial intelligence and taxation has become critical as technology is fundamentally rewriting the relationship between tax authorities and taxpayers, as well as compliance processes. Artificial intelligence can automate routine tasks (e.g. data entry, preparation of tax returns), which can reduce errors by up to 90% and increase efficiency by 60%. In addition, artificial intelligence-based tools are already capable of tracking legislative changes in real time and sending immediate alerts about irregularities. At the same time, it is important to note that taxpayers and tax authorities that do not integrate artificial intelligence may find themselves at a significant competitive disadvantage compared to their more efficient, technology-driven competitors. Based on the above, the aim of this study is to examine more closely the impact of artificial intelligence on global minimum taxation, tax authority procedures, advance tax ruling and tax advice.

2. Method

The study was prepared using three methods, which are as follows:

- The essence of dogmatic analysis is to examine the applicable legislation from a systematic and logical point of view, clarifying the concepts that arise in this context and developing the related legal arguments

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- The aim of logical methods is to use formal logic to highlight the connections and contradictions between legal norms,
- Transdisciplinary research involves the examination of complex issues (e.g. Sustainability) with the involvement of several disciplines.

Using these three methods, we examine the topic of artificial intelligence and taxation and draw conclusions about how the current environment is changing.

3. Global trends in the application of artificial intelligence in taxation

3.1. The role of artificial intelligence in the challenge posed by the global minimum tax

In the 2010s, in response to global tax avoidance, the OECD [1] recognised that the fair taxation of digital and multinational large enterprises is a global issue that can only be addressed through broad cooperation and a comprehensive solution.

The OECD proposed a two-pillar solution to end global tax avoidance, with

- Pillar 1 concerns the redistribution of corporate tax bases according to where they are used;
- Pillar 2 aims to introduce a global minimum corporate tax (the so-called "GloBe" proposal).

The global minimum tax aimed at implementing Pillar 2 penalises companies that are subject to an effective tax rate that is too low (less than 15%) at the global level. If a member of a multinational company pays income tax below the 15% minimum level in a given country, the difference must be paid in the form of an additional tax burden in the country of the parent company or, in the absence thereof, in another member country of the group, with the proviso that the undertaxing state may itself collect the missing tax. The logic behind the global minimum tax is therefore that it will motivate companies not to relocate to another country solely because of low tax obligations. [2]

While the member states of the European Union, the United Kingdom and Switzerland have made significant progress in introducing a global minimum tax, the United States, China, Brazil and India, for example, are only examining the advantages and disadvantages of introducing a global minimum tax. Among African countries, Nigeria, Zimbabwe, South Africa and Mauritius have previously stated that they are considering the possibility of introducing it, but all African countries are generally taking a wait-and-see approach. Regarding African countries, it should be noted that their tax systems offer significant tax breaks and exemptions to multinational companies, so the introduction of a global minimum tax – even if other countries around the world move forward with it – can only be timely once the tax system has undergone structural reform. We find a similar tax environment in developing Asian countries, but it is worth highlighting the cases of South Korea and Vietnam, where the global minimum tax rules were introduced in 2024 and are already being applied, and Thailand, Singapore and Hong Kong and Malaysia plan to introduce a global minimum tax based on OECD standards from 2025. The other Asian countries, like those on the South American continent, are taking a wait-and-see approach.

The introduction and implementation of the so-called "GloBe" proposal makes the use of artificial intelligence crucial, as the so-called "GloBe" proposal, all multinational companies must be able to collect and organise large amounts of financial data – both local and group-level – from various sources, which is essential for calculations covering multiple countries. In addition, artificial intelligence-driven algorithms can help determine which source data correspond to the categories specified in the regulations, reducing the risk of manual errors.

For multinational companies, the use of artificial intelligence provides an opportunity to examine the differences between the legal regulations of individual countries and OECD standards.

Furthermore, artificial intelligence enables multinational companies to automatically generate the necessary reports from databases. In addition, artificial intelligence can create an audit trail that documents every modification and calculation step, ensuring data traceability in the event of an audit.

Overall, the use of artificial intelligence not only speeds up processes, but also significantly reduces the risks associated with manual administration in an environment where 80% of companies consider the global minimum tax to be the biggest regulatory challenge. Based on all this, we can conclude that artificial intelligence plays a key role in the implementation of the OECD's global minimum tax regulation. As the system has extremely complex data requirements

(hundreds of data points per country), multinational companies use artificial intelligence-based software to automate calculations and forecast global tax burdens.

3.2. Tax authority "arms race"

Artificial intelligence not only provides taxpayers and multinational companies with opportunities but also enables tax authorities to create databases based on tax authority records that predict circumstances and situations where tax avoidance may be suspected. On this basis, developed countries (e.g. the US, the UK, China) are using artificial intelligence to build predictive analytics for their tax authorities.

Predictive analytics is a branch of advanced data analysis that uses historical data on taxpayers, statistical algorithms based on tax data, and machine learning techniques to determine the probability of future events. Its purpose is not only to understand what happened in the past, which economic activities were reported in tax returns, but also to predict what will happen in the future, how much tax revenue can be expected, or what tax avoidance loopholes may arise. Predictive analytics is essentially based on three main elements, the first of which is data-driven forecasting, which uses patterns in historical data series relating to taxpayers to estimate future outcomes. The second element is the techniques used (such as statistical modelling, data mining and artificial intelligence), which the tax authority can use to uncover tax-related correlations. The third element is probability calculation, in which the results are often presented as probability scores that indicate the likelihood of an event occurring. All this shows that analytical analytics is only a tool for the tax authority and cannot be used exclusively as a method of proof when establishing grounds for suspicion for a tax authority audit. Algorithms identify suspicious trading patterns, helping to stop cross-border VAT fraud (carousel fraud), and on this basis, artificial intelligence can contribute to the detection of economic crimes and tax fraud.

Artificial intelligence can also support tax authority processes through network research, as network research (or network science) is an interdisciplinary field that examines the elements of complex systems and the relationships between them. Its basic premise is that the economic processes under investigation (whether taxpayers, tax returns or invoices) do not exist in isolation but are part of the global economy. The significance of network research lies in the fact that artificial intelligence is capable of mapping complex, multi-country corporate structures and the underlying ownership chains, revealing hidden profit pools. This is supported by the fact that network research allows tax authorities to see not only individual taxpayers, but the entire global economic system. Network research can be used to identify "key figures" and vulnerabilities (where the network may break down), allowing tax authorities to proactively intervene in processes, for example, to stop a series of tax frauds. According to a joint study by LIM, SHEVLIN, WANG, and XU focusing on China, the impact of auditor network relationships on tax avoidance is stronger at focus companies if the partners have had longer relationships with low-tax companies and if the partners have social relationships with senior managers at the focus companies. In addition, the audit fees of focus companies with auditor network connections to low-tax companies are significantly higher if their managers do not have social connections with the partners, suggesting that audit partners benefit from sharing tax avoidance knowledge with clients who do not have social connections.[3] All this confirms that network research should play a key role in establishing the basis for tax authority audits.

The use of predictive analytics based on artificial intelligence and network research will, in the long term, enable real-time tax authority audits that can be conducted simultaneously in several countries and will check the consistency of data at the moment of the transaction (e.g. through digital invoicing systems) rather than retrospectively. [4]

3.3. Advance tax ruling and artificial intelligence

Among tax administration procedures, it is worth highlighting a procedure which, although atypical, nevertheless symbolises well how artificial intelligence is a tool that brings a new approach to traditional taxation procedures and the roles of taxpayers and tax authorities ( ). Artificial intelligence offers an opportunity to present the advance tax ruling procedure from a new perspective.

The essence of the advance tax ruling procedure is to present taxpayers with an administrative decision on the tax classification of a specific transaction or contract type and a determination of the related tax liabilities or lack thereof. Advance tax ruling only binds the tax authority during its audit if the facts presented in the application remain unchanged and the transaction is specified in detail. It is important to determine what change in the facts is linked to the release of the binding force. For this very reason, it must be emphasised that the purpose of a advance tax ruling is to create legal certainty in relation to complex or high-value economic transactions. Advance tax ruling thus enables taxpayers to ascertain the tax consequences of a planned transaction in advance, thereby avoiding subsequent tax penalties or legal disputes. [5]

From the taxpayer's point of view, it is important to monitor when the economic transaction affected by the advance tax ruling reaches the stage where the nature of the transaction and its main elements are no longer subject to material change, so that an application for a advance tax ruling can be submitted to the tax authority. Artificial intelligence can also be used to determine the date of submission of the application, as the application must be submitted before the economic transaction is initiated and after the main elements of the economic transaction have been specified. In order for this to be determined with the involvement of artificial intelligence, as much data as possible is needed, including the specific details of the economic transaction. Furthermore, after the advance tax ruling has been issued, the taxpayer must continuously monitor whether the data included in the advance tax ruling application has changed in any way or whether there are any elements that have already been modified, thus requiring the submission of a new application. or whether the situation can be handled by applying for the applicability of a provisional tax assessment.

From **the tax authority's** point of view, all economic transactions for which a advance tax ruling has been issued must be continuously analysed to ensure that there is no tax evasion or tax fraud behind the advance tax ruling. Artificial intelligence is a truly effective tool for the tax authority in this regard, as a database containing extensive tax data can be used to build a warning system through which artificial intelligence can draw attention to suspicious economic transactions affected by provisional tax assessments. As a result, by reducing the amount of human resources required by the tax authorities, meaningful tax authority control work can be started, which also leads to an increase in the soundness of tax authority assessments and, consequently, can contribute to an increase in law-abiding taxpayer behaviour.

Based on all this, we can conclude that the only thing that limits the use of artificial intelligence is where we allow it to be used. Where the opportunity exists, artificial intelligence can make its own way, as we have seen in the case of advance tax rulings.

3.4. Artificial intelligence in tax consulting

Beyond the advance tax ruling procedure, it is also necessary to examine the impact of artificial intelligence on tax advice, as tax advisers are currently facing geopolitical tensions, regulatory pressure and difficulties arising from labour shortages. Adding to this, the introduction of a global minimum tax is one of the biggest challenges, which will increase the overall tax burden on taxpayers. At the same time, only a fraction of taxpayers and tax advisors are fully prepared to comply with the related reporting obligations. In this situation, the coordinated management of data and artificial intelligence can bring about a real breakthrough.

As data reporting, calculation and reporting obligations related to the global minimum tax increase, data management and automation tools are playing an increasingly important role in corporate tax departments and among tax advisors, but only a small proportion of them actively use artificial intelligence in their daily practice. However, this is not merely a technical issue: the introduction of the minimum tax compliance system requires a comprehensive IT and data integration strategy at many companies, which will transform traditional tax workflows, including accounting and tax planning.[6]

At the same time, it should be noted that artificial intelligence can also have a positive impact by helping to alleviate the increasingly pressing labour shortage on the part of taxpayers, tax advisors and tax authorities alike. This picture is further complicated by the fact that the retirement of experienced tax professionals will have a significant impact on the day-to-day operations of taxpayers and tax authorities. However, it should be noted that professionals currently spend more than half of their working time on routine tasks, but with the help of artificial intelligence, the time devoted to strategic activities requiring comprehensive industry knowledge could be more than doubled.

In line with market expectations, forward-thinking taxpayers and tax authorities are already setting up teams with artificial intelligence capabilities for tax-related tasks. Most companies consider the retraining of existing professionals to be the most important task. Based on all this, there will be a need in the future for professionals who understand taxation, data analysis and technology and are ready to participate in organisational transformation.[8]

4. Results and conclusions

Artificial intelligence is becoming increasingly widespread in the fields of accounting and taxation, but its impact is not simply the well-known story of "robots taking away jobs". Artificial intelligence is indeed capable of automating repetitive and rule-based accounting tasks, such as classifying and recording transactions and preparing standard reports. However, this trend does not necessarily diminish the importance of the tax profession but rather transforms roles – shifting the emphasis from routine work to analytical, advisory, interpretative and supervisory tasks.

In many cases, the rise of artificial intelligence and automation in accounting tasks may not result in the disappearance of professionals, but rather in the emergence of outsourced and higher value-added roles.

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