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Intelligence and Taxation: The "Ve.R.A." Algorithm

Inteligência artificial e fiscalidade: o algoritmo "Ve.R.A."

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Abstract

This contribution revisits the intervention of Prof. Fabio Saponaro at the Conference "*Criminal Algorithms: AI, Mafias, and the Web*" held on December 16, 2024, at the Chamber of Deputies of the Italian Parliament. The presentation addresses the use of artificial intelligence in tax matters, particularly in the analysis of tax evasion risk.
Artificial intelligence is set to be widely used by the Italian Tax Administration with the introduction of the "Ve.R.A." algorithm, an acronym for "Verification of Business Compliance." The operation of the new algorithm is based on the integrated use of data in the Tax Register, along with information communicated by financial operators to the Financial Relations Archive. "Ve.R.A." will allow the cross-referencing of data from the Financial Relations Archive with other information already in possession of the tax administration, in order to assess whether the operations carried out by the taxpayer align with the income they have declared. The contribution highlights the limitations of the machine learning mechanisms of "Ve.R.A.," which could lead to evaluation errors that are difficult for the taxpayer to contest. Furthermore, the learning mechanisms of the new algorithm are not yet known, which could result in cognitive distortions caused by incorrect settings and biases. Although the use of "Ve.R.A." always guarantees human intervention and, consequently, does not rely on any fully automated processes, it raises concerns regarding the actual protection of the taxpayer and the exercise of their right to defense. The use of algorithms in tax matters seems to respond to the needs of a historic shift occurring in Italy, namely, the transition from inquisitorial and repressive taxation to collaborative taxation based on compliance.

Keyword: Artificial Intelligence, Taxation, Tax Audits.

Resumo

Este artigo retoma a intervenção do Prof. Fabio Saponaro no Congresso "*Algoritmos Criminais: IA, Máfias e Web*", realizado em 16 de dezembro de 2024 na Câmara dos Deputados do Parlamento Italiano. A palestra aborda o tema do uso da inteligência artificial no campo tributário, em particular na análise do risco de evasão fiscal.
A inteligência artificial está destinada a ser amplamente utilizada pela Administração Fiscal italiana com a introdução do algoritmo "Ve.R.A.", acrônimo de "Verificação da Regularidade Empresarial". O funcionamento do novo algoritmo baseia-se na utilização integrada dos dados presentes na Anagrafe Tributária, com as informações comunicadas pelos operadores financeiros ao Arquivo de Relações Financeiras. "Ve.R.A." permitirá, portanto, o cruzamento entre os dados do Arquivo de Relações Financeiras e outras informações já em posse da administração fiscal, a fim de avaliar se as operações realizadas pelo contribuinte estão em conformidade com a receita declarada por ele. O artigo destaca os limites dos mecanismos de aprendizado de máquina do "Ve.R.A.", que podem levar a erros de avaliação difíceis de contestar pelo contribuinte. Além disso, até o momento, os mecanismos de aprendizado do novo algoritmo não são conhecidos, o que pode gerar distorções cognitivas causadas por configurações erradas e preconceitos. Embora o uso do "Ve.R.A." sempre garanta a intervenção humana e, consequentemente, não faça uso de processos totalmente automatizados, ele levanta algumas dúvidas sobre a proteção concreta do contribuinte e o exercício do seu direito de defesa. O uso de algoritmos no campo tributário parece responder às necessidades de uma transição histórica que está ocorrendo na Itália, ou seja, a passagem da tributação inquisitiva e repressiva para a tributação colaborativa baseada na conformidade.

Palavras-chave: Inteligência artificial, fisco, controles fiscais.

Premise

My brief contribution will focus more closely on the topic of Artificial Intelligence (AI) applied to taxation, as a tool for assessment and the repression of tax evasion and avoidance.

In truth, at this current historical moment, still in its early stages, artificial intelligence is used in this specific sector exclusively for risk analysis, i.e., as a tool aimed at identifying taxpayers who pose a high fiscal risk, thus providing support to the organizational units responsible for inspections.

In recent years, it has become clear that the effectiveness and efficiency of tax assessments do not depend on the quantity of data and information available to the Tax Authorities (which are increasingly abundant, considering the evolution of administrative and fiscal cooperation at the supranational and international levels), but rather on the difficulty of verifying the quality and reliability of such data, as well as their proper processing in order to arrive at assessments that are as accurate as possible. This is crucial in avoiding flawed or incomplete investigations, which could generate risks for the taxpayer, undermine the application of the ability-to-pay principle, and fail to pass the test of legitimacy in judicial review, thus nullifying ex post the efforts of those responsible for control, with an inevitable waste of energy and economic resources.

From this, the necessity arises to introduce algorithms and AI techniques to process data and guide tax inspections, seeking to enhance the vast informational assets available.

In this context, the "Ve.R.A." algorithm, standing for "Verification of Corporate Regularity," recently introduced into the Italian tax authority's toolkit to combat tax evasion, should be understood.

A.I. and Taxation

While the introduction of artificial intelligence seems to respond to humanity's natural tendency to embrace innovative paradigms of convenience, which in most cases constitute the very reason for technological development and evolution (some argue that it is human laziness that stimulates intelligence and drives progress), in the field of taxation, it appears to respond instead to the need to better ensure the effectiveness and efficiency of administrative action as a tool for combating evasive and avoidant behavior.

The first step, which saw Italy leading Europe in the "Automating Society Report," was represented by the adoption, in 2019, of the Fiscal Reliability Indexes (ISA), with the goal of providing taxpayers with a self-assessment of their position with the tax authorities (a kind of report card with grades), to encourage the fulfillment of tax obligations and to better direct the activities of the Tax Authorities.

More recently, a data analysis tool called "Ve.R.A." was implemented, aimed at refining the "evasion risk analysis."

The central role in this analysis is played by the Financial Reports Archive, which constitutes a specific section of the Tax Registry containing information related to bank accounts and other financial relationships held by a taxpayer or that can be accessed through authorizations or powers of attorney to act on a bank's behalf.

Taxpayer data is "pseudonymized," so that the protections and guarantees of the "General Data Protection Regulation" (GDPR) can be applied, which would not be possible if the data were fully anonymized.

The entire inspection process is based on the "risk characteristics" that are intended to be identified. These will guide the algorithms in selecting taxpayers, starting with a large population of subjects and narrowing it down to a sample of high-risk positions.

The "Ve.R.A." Algorithm: How It Works

Let us briefly summarize the operation of the "Ve.R.A." algorithm:

1. The process begins with the selection of a sample of businesses operating in a specific retail sector with high profit margins. These businesses must be identified by the algorithm based on the presence of certain pre-established parameters: a) A difference between revenues and costs of less than 5%; b) A very low added value compared to the number of employees; c) The variable "income per employee" being below a certain threshold set for each specific sector.

2. For each business on the identified list, the relevant information from the Financial Reports Archive is matched, particularly focusing on the total amount of incoming transactions in their bank accounts.

The algorithm will then select all businesses that cumulatively show two indices: a) Annual payments exceeding at least 150% of the declared revenues; b) And, in any case, no less than €300,000.

3. The algorithm then "filters" the positions that may have potential justifications for the aforementioned discrepancies (e.g., the taxpayer has sold real estate, received certifications from withholding agents, or received exempt income).

After these three phases, we will have a sample of businesses with a high probability of underreporting their revenues.

4. Finally, lists of taxpayers at risk are prepared and sent to the provincial offices of the Revenue Agency, which can further investigate individual positions through inspections or based on other elements and assessments drawn from local knowledge.

This is a so-called "stochastic" algorithm, not based on logical "cause and effect" programming, but rather on probabilistic instructions that admit multiple possible outcomes, identifying the most likely result each time.

The Limits of Machine Learning and the Protection of Taxpayers

The machine learning (ML) of Ve.R.A., that is, its self-learning capabilities and ability to improve its performance over time, is of a "supervised" type. This means it operates on pre-classified information from a database from which the machine can draw data to address specific problems.

Ve.R.A. learns the relationships between the inputs received and the outputs, stores these relationships, and learns to generalize the correct associative rules.

This method of learning simulates human thinking (the so-called decision tree), allowing the machine to choose the best response to the stimuli it receives.

In contrast, the first-generation ISAs fall under "unsupervised" applications, which do not analyze pre-classified data. They use data provided by the taxpayers themselves to create homogeneous groups (clusters), do not follow pre-set rules in the algorithm's design, and are more basic.

However, with regard to Ve.R.A., the exact model of supervised learning adopted by the Tax Authorities is not yet known.

This type of learning presents some critical issues, as it requires a long programming process with risks of distortions, which could cause the algorithm to develop cognitive biases due to incorrect settings or prejudices (bias), often difficult to identify, with potentially dangerous consequences.

It is not excluded that, in the future, more accurate learning models based on "artificial neural networks"—dense networks capable of processing information by interacting with reality and approaching the efficiency of the human brain—could be employed.

The more complex and detailed the forms of self-learning become, the more opaque and less interpretable they become, often referred to as "black box" models.

This creates an information asymmetry that must be addressed, given the necessity for a transparent and fully understandable result for human users, the full knowledge of the algorithmic code and the criteria applied, and, ultimately, the precise accountability of the decision to the body holding the power, as highlighted by the cornerstone principles established by the Council of State (judgments 2270 and 8472 of 2019) and by the Italian legislator in the principle regulations regarding artificial intelligence.

Concluding Remarks

At the current state of the art, the use of Ve.R.A. appears entirely legitimate, as it does not imply the automatic issuance of tax assessments, at least for now, assuming, as already mentioned, a role limited to supporting control structures in identifying taxpayers with a high-risk level.

On the other hand, past experience, particularly with sector studies, has taught that the application of AI leading to the automatic justification of tax measures has never worked well.

In the use of Ve.R.A., progress is made in the analysis process, always guaranteeing human intervention, and as a result, no type of fully automated decision-making process is used. Finally, control structures can independently decide, based on the results of further investigations, which positions to examine further.

The investigation process thus adopted ensures that, following the analysis activities, no automatic procedure harms the legal rights of taxpayers.

The use of artificial intelligence in taxation must be correctly interpreted as part of an epochal transition we are currently experiencing: the shift from inquisitorial-repressive taxation to collaborative taxation based on compliance.

In this perspective, still in its embryonic stage, algorithms can truly make a difference in facilitating the improvement and consolidation of compliance, which, in my humble opinion, is the only truly effective way to win the battle against tax evasion.

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