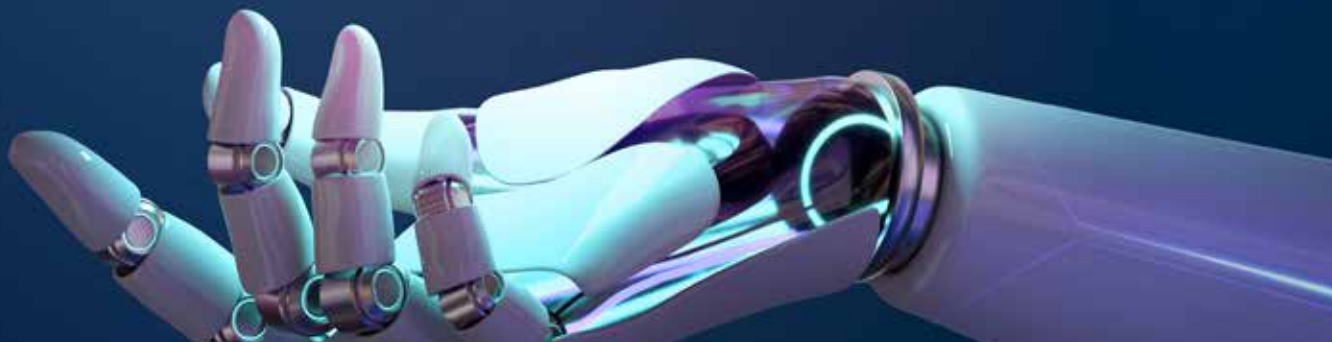


ARTIFICIAL INTELLIGENCE AND BIG DATA FOR INCREASING TAX COLLECTIONS IN TANZANIA'S MSMEs.



1. Introduction

Tax remains a primary source of revenue for both central and local governments in Tanzania. With the declining official development assistance (ODA), the country has been undertaking several initiatives to strengthen its domestic revenues and expenditures with an intention of accelerating the implementation of its priorities. These measures include broadening the mandate of the Controller and Auditor General (CAG), enhancing the capacity of the Prevention and Combating of Corruption Bureau (PCCB), centralizing some of the revenue streams, capacitating the Tanzania Revenue Authority (TRA), formulating different special task forces to enforce tax compliances, reviewing and re-negotiating tax terms in some large scale contracts, especially in mining.

These measures, to a certain extent, have helped the government increase its revenue collections as well as strengthen its tax collection systems to operate in a more transparent manner. However, the tax-to-GDP ratio remains overly minimal despite the gradual growth in the last ten years (8.9 percent in 2007 to 12.3 percent in 2018). This is attributed to many reasons that might require comprehensive analysis and evidence. Thus, for the purpose of this note, we will focus on micro, small and medium enterprises (MSMEs) subsector with discussion and a way forward on three areas. Our focus considers the fact that the majority in the subsector operate informally while retaining mobility plus unwillingness to graduate to the next steps as they fear being exposed to higher taxes.

2. Instilling compliance through behavioral change, enforcement is not enough

So far, many of the interventions by the government have looked into increasing tax compliance by ensuring that taxpayers are aware of their obligations and are observing the tax laws and requirements. However, given the structure of the taxpayers, which is dominated by MSMEs, tax authorities face the capacity challenge when it comes to tax estimations and identification of new taxpayers. Most of the MSMEs are mobile and informal businesses that keep most of their transactions off the book, tend to switch businesses oftentimes, and misreport their income, expenses and losses. As such, to trace and charge them appropriate taxes becomes a hefty task.

In addition, most of the MSMEs, particularly the medium and small, enjoy their remaining under this category due to exemptions from tax and other regulatory requirements. In that regard, they prefer to grow horizontally rather than vertically. For instance, one could be happy to have a few kiosks instead of a mini supermarket because of the requirement(s) to pay several taxes and levies to obtain an appropriate license.

Subsequently, a significant portion of taxes is left within the subsector because the majority fail to comply with tax laws and regulations. Here, the environment offers both enabling and disabling factors. To make them comply and pay taxes, we argue that enforcement of taxes is not enough given the incentives they get by remaining as MSMEs. That there is a need to include a combination of methods to transform the behavioral practices. For larger companies and transactions, there is a certain degree of compliance to tax laws in the country despite the challenges of transfer pricing and illicit financial flows, which have become prominent in sectors such as mining.

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Artificial intelligence (AI) and the use of big data have the potential to contribute towards behavioral change of MSMEs and thus, address tax compliance issues and boost tax contributions within the subsector. Among others, these methods have the potential to monitor the mobility of MSME, provide solution to the recording of their transactions through technologies such as mobile money, connect them with correct markets (suppliers and consumers), and trace their spending. Furthermore, it will be easy to recognize MSMEs, enable them to formalize for growth purposes, and support them to address the major issues on their end, including access to financial services as well as government services.

The starting point, however, will have to involve increased automation of some areas within the tax administration processes. In this respect, investing in digital solutions that enable authorities to track and monitor the incomes of MSMEs is inevitable. Following steps will have to involve systematic application of all the data collected in transforming all the factors driving MSMEs into areas that AI can intervene without cost implications.

For example, if the reasons for MSMEs to skip required taxes is fewer reminders of tax rates and due dates, then AI should have an automated system that can send monthly reminders to the target group. Or, if the MSMEs are oblivious of the whereabouts of tax collection centers, then AI should be applied to locate them. Gradually, that will change the behavior of the taxpayers and increase their contributions.

In brief, AI and big data offer an opportunity for tax collection systems to facilitate behavior change among taxpayers through machine learning, which is informed by “big-data” from sources such as mobile money transactions, internet providers etc. The change of behaviors of the taxpayers in the subsector can be examined through a systematic analysis that involves observations, experimentation of different interventions to determine which ones work best, and analytics to track the correlations overtime.

3. AI and big data for minimizing tax administration costs

Similar to other developing countries, the tax administration costs in Tanzania are extremely high owing to limited use of digital technologies, which can minimize costs, and enhance efficiency, productivity plus transparency in the entire tax chain. As mentioned earlier, tax collection systems have largely invested in administrative and enforcement/compliance (institutional) structures of which are essential. Yet, applying emerging powerful methods such as AI and big data can significantly reduce the size of administration and institutional arrangements, and bring about significant results with less resources.

The investment that goes into tax collection and administration systems, instead of automating the systems, specifically results in enforcing compliance without necessarily increasing tax collections. For instance, most of the countries are injecting their resources into activities such as tax audits, tax evasion and fraud detection, and adding pressure on non-compliant taxpayers to increase tax revenue though in reality, they raise the administration costs without any significant additions to the collections.

Furthermore, such modalities of heavy investment in administrative matters lead to increased human-to-human interactions in the tax system, allowing a room for corruption and the abuse of tax laws. On that account, the government loses trust with taxpayers. As can be observed in Tanzania, tax collectors have lost trust with MSMEs simply because taxes are collected on the basis of “estimations”, whereby an officer estimates the income/revenue of a business to determine an amount that is deemed appropriate for tax. Such an unautomated practice requires a lot of personnel, considering that majority of taxpayers are within the MSMEs category, has large cost implications, and encourages mistrust between the government and entrepreneurs – particularly micro and small.

Escaping the mistrust, reducing the room for corruption, and discouraging in-personal interactions may be easy if one commits to digitalization by applying AI and conducting big data analytics. Digital tools are easier to diagnose in case of any faults. They are also transparent, impartial, user-friendly and accurate, which influence taxpayers compliance.

The use of AI and big data culminate in increased tax revenue and compliance. First, they offer the linkage and exchange of information between tax collection systems, government systems (agencies), and private sector players – including providers of digital payments and mobile money. Second, by minimizing human faults, these technologies contribute significantly to lowering the tax administration costs and therefore, prevent corruption and mistrust between government and taxpayers.

4. AI and big data for countering tax evasions and avoidance

One of the key reasons for the lower tax-to-GDP ratio is tax evasion and avoidance in different MSMEs value chains. Tax evasion and avoidance is supported by various factors, whereby a few have been discussed above. The environment as well as tax collection infrastructures that allow the continuance of such practices pose as the most important factors.

The traditional systems preclude MSMEs from reporting the transactions (revenues and spending), allow tax collectors to negotiate with taxpayers, and encourage MSMEs to be as mobile as they want.

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These systems allow such loopholes because the focus of tax authorities is rather on increasing enforcement to prevent tax evasion and avoidance than creating an environment to promote voluntary tax compliance. As a result, taxpayers tend to avoid paying their taxes.

AI and big data offer a solution to the afore-mentioned challenges by instilling systems to detect and counter such practices. The starting point has been articulated earlier, whereby we argued that with AI and big data, tax collectors are able to identify and register all MSME taxpayers who are currently not paying their taxes. The MSMEs can be identified through big data sources, including national identification number, driving licenses, bank details, utility bills, and digital (mobile) transactions. Following that, big data analytics can be conducted to provide details of their whereabouts, value chain and monthly average spending.

The second step is to use the data to deal with some of the non-compliance behaviors of the taxpayers; incentivizing them to pay their taxes. One of the motivations can be to remind them about the regulatory requirements (tax rates), the importance of taxes, and the penalties associated with tax evasion and avoidance.

The third step is to use the data obtained to identify the reasons for MSMEs tax evasion and avoidance. Historically, people have evaded taxes because of the complexity of the tax systems and high, unrealistic tax rates. The former can be addressed by applying AI and data analytics, while the latter requires a comprehensive discussion on the appropriate taxes. AI and big data can simplify the system to become user-friendly and easily accessible to taxpayers and help improve taxpayer's literacy.

While we advocate for AI and big data analytics for minimizing tax evasion and avoidance, we clearly recognize the need for reviewing and re-structuring the tax regime in the country to allow as many MSMEs as possible to graduate and help the government expand its tax base.

5. UNDP Offer in applying artificial intelligence and big data across sectors

UNDP has launched accelerator labs that aim to build the world's largest and fastest learning network to bring into the equation new generation of solutions in line with development challenges that the world faces. One of the focus areas of these labs is the mapping of all grassroots innovations to appreciate the context of each development challenge. In addition, the labs are building on the latest thinking from the fields of complexity science, leading to user innovation and collective intelligence to accelerate development impact.

Through these well-equipped labs, UNDP has the capacity to support the government and the people of Tanzania to apply AI and big data as methods and tools to gravitate towards expanded tax base, reduced tax evasion and avoidance, and increased participation as well as contribution by the MSMEs. The protocols below guide the labs' approach in addressing development challenges.

- Build on locally sourced solutions to identify and expand on suitable approaches.
- Use rapid tests and iteration to implement what works and go beyond the obvious solutions.
- Combine the best understanding, ideas and expertise to generate collective knowledge.
- Accelerate progress by bringing expertise, creativity and collective intelligence to bear.

To start with, UNDP offers an opportunity to all partners in development, particularly the government, to undertake a comprehensive mapping exercise to understand the context, nature, and complexities of tax collections in the country. Specifically, the focus will be to understand systemic issues, identify drivers of change, identify levers and logic for intervention. Additionally, through the labs, UNDP will offer partners an opportunity to design experiments around AI and big data to validate the hypotheses behind those solutions (innovation).