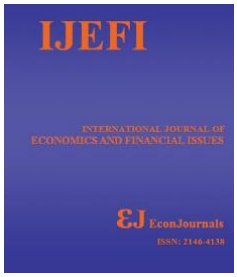

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# Cutting-Edge Technologies and Taxation in Morocco: An Empirical Investigation

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**ABSTRACT**

The study assesses the impact of cutting-edge technologies on tax revenue collection in Morocco over the period 2008-2021, based on reliable institutional data. Its aim is to measure the contribution of technological innovation to improving government tax revenues. By adopting an empirical approach based on an econometric Vector AutoRegressive model, the results highlight a positive and significant impact of the adoption of cutting-edge technologies on the growth of tax revenues. This confirms their role as a catalyst for economic growth and a source of financing for the national economy. These findings underline the importance of continued investment in human resources training, capacity building in tax data management, and the creation of strategic partnerships with experts in the field. By integrating these technologies gradually and strategically, the State could maximise their benefits to promote sustainable and inclusive economic development in Morocco.

**Keywords:** Economic Growth, VAR, Tax Revenues, Cutting-Edge Technologies
**JEL Classifications:** C32, H20, O33, O40

## 1. INTRODUCTION

Against a backdrop of far-reaching technological change, the debate surrounding taxation and digital innovation is revealing marked divergences. On the one hand, there is considerable optimism about technological advances because of their potential to improve speed, performance and transformation capabilities. On the other hand, some tax experts are concerned about the real impact of these technologies. These concerns relate in particular to the sometimes unfulfilled promises of increased efficiency and reduced costs, as well as the crucial challenges associated with data confidentiality and security. The recent emergence of technological '"hallucinations," characterised by inconsistent, fictitious or erroneous results generated by certain systems, has heightened mistrust of these innovations (Alarie and McCreight, 2023). Despite the immediate challenges imposed by the COVID-19 pandemic on tax administrations in the short term, the major challenges in the medium and long term stem mainly from ongoing developments in the digital economy (Hendriyetty et al., 2023). In response, societies are struggling to adapt to the transition from the third (or digital) industrial revolution, marked by the development of information technology and computers from the mid-twentieth century onwards, to the fourth industrial revolution, characterised by extensive digitalisation and the explosive emergence of new technologies previously unimaginable. In this context, tax authorities must manage the repercussions of this transition, particularly on the sustainability of their tax bases and the efficiency of tax administration and revenue collection (Assouline and Glon, 2018).

To deal with this, tax authorities need to adopt a proactive approach in collaboration with external partners. They must not only explore and integrate new analytical technologies to assess the impact of these transformations on their tax bases, but also continue to optimise the management and collection of tax revenues. In addition, it is essential to enhance transparency, improve tax

compliance and increase the effectiveness of controls by relying on automation, artificial intelligence and the analysis of massive data (OECD, 2023).

Aware of the importance of cutting-edge technology in improving tax management, Morocco has stepped up its efforts in recent years to modernise its infrastructure and adapt its tax practices. The aim is to maximise the efficiency of tax revenue collection and strengthen its tax system. To this end, the country has embarked on the Maroc Digital 2030 initiative, an ambitious programme aimed at boosting the digital economy and developing innovative technological solutions. By focusing on the digitalisation of public services, training in digital skills, artificial intelligence and the promotion of digital start-ups, Morocco is affirming its desire to make full use of technological advances to modernise its tax administration, improve the experience of citizens and businesses, and promote sustainable and inclusive economic growth (Rachad and Kamal, 2024). This approach reflects the country's commitment to adapting to digital change, strengthening its governance and positioning itself as a benchmark player in the field of technological innovation and digital transformation.The main objective of this study is to answer the following central question: How does the adoption of cutting-edge technologiesinfluence the collection of tax revenues in Morocco?

To answer this question, an empirical analysis will be carried out to assess the effect of technological innovations on the generation of tax revenues between 2008 and 2021. The study will be based on reliable institutional data and will use the VAR (Vector AutoRegressive) model to explore the dynamic relationships between tax variables and technological change. The rest of this work will be structured as follows: the first section will present a literature review analysing the relationship between cutting-edge technologies and tax revenues. The second section will detail the research data and the methodology adopted. The third section will set out the main results obtained and provide an in-depth analysis of their implications. Finally, the fourth section concludes with the implications and future directions of the study.

## 2. LITERATURE REVIEW

### 2.1. Definition of Key Concepts

#### *2.1.1. Cutting-edge technologies*

Technology, whose etymological origins can be traced back to the Greek terms tekhnē ("art" or "craft") and logos ("discourse" or "study"), refers to all the tools, processes and know-how used to manufacture objects or transform the environment in order to meet human needs. According to Larousse, technology also includes the study of machines, processes and methods used in different industrial sectors (Larousse, s. d., 2025). Cutting-edge technologies, on the other hand, represent a set of innovations at the frontier of current scientific and technical knowledge. These technologies incorporate cutting-edge solutions that can profoundly transform traditional value chains and open the way to new economic opportunities. However, their development requires substantial investment, both in research and development (R&D) and in human capital (Tidd and Bessant, 2020).

The advent of cutting-edge technologies has brought about major transformations in industrial sectors, reshaped consumer experiences and aroused growing interest in the field of scientific research. According to Bellon et al., (2007), these technologies are defined as "devices, methods or technological innovations that exploit the most advanced computer developments, thus representing tools located at the frontier of current knowledge." In the fields of customer experience and marketing, these innovations are also referred to as new generation or emerging technologies (Kramer and Krafft, 2023).

According to Allioui and Mourdi (2023), the manufacturing industry is benefiting from major innovations and increased productivity thanks to the harmonious integration of cutting-edge technologies, such as the Industrial Internet of Things (IIoT), intelligent systems, virtual value chains and artificial intelligence. The digital revolution is fostering the emergence of new business, management and production models, enabling new markets to be explored and traditional industries to be transformed. This evolution goes beyond simply improving the efficiency of manufacturing processes to stimulate overall economic growth.

These cutting-edge technologies, interconnected by nature, are listed in Maresch and Gartner (2020) Hype Cycle, which identifies 30 emerging innovations and trends likely to profoundly transform business, society and lifestyles over the next five to ten years. However, a detailed analysis of all these technologies is beyond the scope of this study. We therefore focus specifically on the impact of advanced technologies in the tax field, by assessing their influence on tax revenue collection in Morocco.

#### *2.1.2. Tax revenue*

Tax revenue refers to the financial resources collected by the State through compulsory levies on individuals, businesses and other economic entities. They are a fundamental pillar of public finance, ensuring not only the financing of public expenditure, but also the regulation of the economy and the redistribution of wealth (Musgrave, 1959).

These revenues come mainly from two categories of taxes: direct taxes, such as income tax and corporation tax, and indirect taxes, such as VAT and excise duties. Stiglitz (1988) stresses that these taxes are essential to guarantee macroeconomic stability, finance public infrastructure and reduce social inequalities.

However, collecting tax revenue remains a major challenge for many countries. Bird (2010) stresses the importance of efficient and transparent tax administration in maximising revenue and reducing losses through tax evasion and avoidance. He also stresses the need to modernise tax systems to bring them into line with current economic developments. In addition, Tanzi and Zee (2000) argue that the design of tax policies plays a key role in revenue mobilisation. They insist that the balance between economic efficiency and social equity is fundamental. Excessive taxation can discourage investment and stifle growth, while a well-structured tax system can foster inclusive and sustainable development.

Against a backdrop of economic transformation, globalisation is having an impact on tax collection. The increased mobility of capital and people complicates the task of governments, which must adapt their tax systems to maintain a sufficient level of revenue while remaining internationally competitive (Aizenman et al., 2015).

Technological development is another lever for optimising tax revenues. The integration of Big Data and artificial intelligence into tax auditing considerably improves the effectiveness and efficiency of collection processes. These technologies make it possible to reduce the time and costs associated with traditional procedures, while optimising tax adjustment mechanisms. Thanks to their ability to rapidly identify anomalies and risky tax behaviour, they strengthen the fight against fraud and speed up tax collection. Through automation and advanced data analysis, AI and Big Data thus promote more efficient mobilisation of tax revenues and enhance the transparency of the tax system (Lahcen and Hakima, 2024).

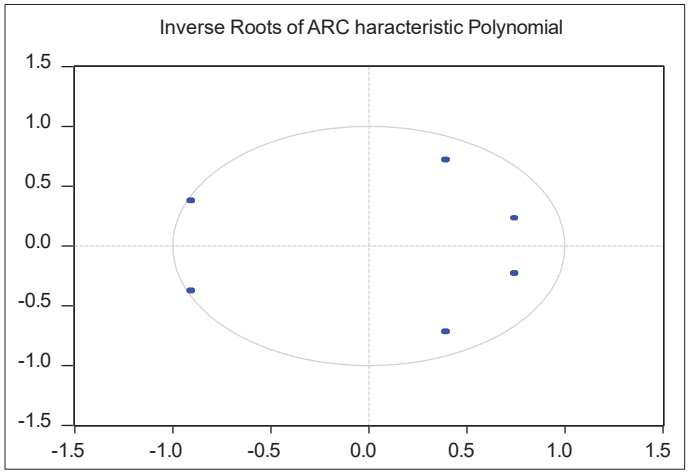
Finally, tax governance plays an essential role in optimising these revenues. Ajaz and Ahmad (2010) show that the quality of tax administration and the fight against corruption have a direct influence on tax revenue performance. Efficient and transparent management fosters taxpayer confidence and contributes to optimal tax collection, which is essential for financing public services and supporting economic development.

## 2.2. Literature on the Link between Cutting-edge Technologies and Tax Revenues

This section examines the theoretical underpinnings of the relationship between cutting-edge technologies and tax revenues. The evolution of modern tax systems increasingly relies on the integration of technological innovations to improve the efficiency of tax collection, reduce tax evasion and optimise the management of public finances.

The integration of cutting-edge technologies into tax systems has profoundly transformed the declaration and payment processes, making these services more accessible to taxpayers. According to the OECD (2023), the digitisation of tax procedures has led to a significant improvement in the tax compliance rate, thanks in particular to e-taxation, which has reduced administrative costs and simplified reporting obligations. A study by Bassongui and Honlonkou (2024), conducted on a sample of 53 African countries between 2004 and 2020, confirms these results using an econometric approach based on the lagged difference estimator. The authors show that e-taxation contributes to a reduction in the average number of annual tax payments, thereby lightening the administrative burden on taxpayers and improving the efficiency of tax collection.

**Figure 1:** Verification of stationarity using model roots.




Source: The authors

In the case of Morocco, Fadwa (2024) highlights the decisive role of digitalisation in optimising tax revenues, in particular through the modernisation of services provided by the Directorate General of Taxes. Simplifying administrative processes, making it easier to declare and pay tax, and stepping up measures to combat tax fraud have all helped to improve the collection rate and establish a relationship of trust with taxpayers. However, Lahcen and Hakima (2024) point out that these developments must be accompanied by appropriate training for human resources, to ensure optimal use of the new digital tools.

In addition to their impact on tax management, cutting-edge technologies have a direct influence on tax revenues by encouraging innovation and economic growth. According to Akcigit and Stantcheva (2020), taxation affects several dimensions of innovation, including the quantity and quality of innovations, the geographical mobility of inventors, entrepreneurial dynamism and the direction of research efforts. A well-designed tax policy can encourage investment in innovative technologies by supporting the most productive companies and optimising the use of public resources. Conversely, a poorly calibrated tax system can generate excessive burdens, reduce incentives for innovation and slow down technological development.

On the other hand, Magnant et al. (2022) classify tax policies into two broad categories:

- General tax policies: These include personal and corporate income tax, the main purpose of which is to generate tax revenue and redistribute income. Although these taxes do not directly target innovation, they can reduce the expected net returns from investment in advanced technologies, thereby limiting the incentives to innovate. This can lead to a slowdown in economic dynamism and the adoption of new technologies, which could have an indirect impact on tax revenues in the long term.
- Targeted tax policies: These aim to specifically encourage innovation and the adoption of cutting-edge technologies. These measures include tax credits for research and development (R&D), tax incentives for technology companies and innovation subsidies. They encourage technological progress and increase tax revenues in the medium and long term through the growth of innovative sectors.

According to Doghmi (2020), mobilising tax revenue is essential for economic development. He highlights the gap between tax capacity and the revenue actually collected, particularly in Morocco. The average share of tax revenue in GDP in

developing countries varies between 10% and 20%, well below that of developed countries, which is between 25% and 50%. This disparity reveals a significant shortfall in tax revenue, attributable to an inefficient tax system, a narrow tax base due to tax evasion and avoidance, and the poor performance of tax administration. An analysis based on the use of stochastic frontier models makes it possible to assess this capacity, providing a better understanding of the efficiency of tax collection. It highlights the impact of tax reforms and the improvement in administrative performance, particularly through digitalisation and the adoption of information technologies.

# 3. ECONOMETRIC STUDY OF THE IMPACT OF CUTTING-EDGE TECHNOLOGIES ON TAX REVENUES IN MOROCCO: APPLICATION OF THE VAR MODEL

## 3.1. Data, Methodology and Specification of the Empirical Model

This research uses an econometric methodology based on VAR (Vector AutoRegressive) modelling to analyse the impact of cutting-edge technologies on tax revenues in Morocco. Two main areas are studied:

- Cutting-edge technologies, assessed through the annual advanced technology readiness index, which combines indicators such as ICT deployment, skills, R&D, industry and financing.
- Tax revenues, represented by the sum of direct taxes, indirect taxes, customs duties, and registration and stamp duties.

VAR modelling makes it possible to examine the dynamic interactions between these two variables over a given period, providing an in-depth view of the influence of technological advances on the structure and volume of tax revenues in Morocco. This approach facilitates a better understanding of economic and fiscal mechanisms in a context of technological change.

The analysis begins by assessing the stationarity of the series using unit root tests, in particular the Augmented Dickey-Fuller (ADF) test. This step is used to check whether any prior transformations of the data are necessary before applying the VAR model. Next, the Johansen cointegration test is performed to detect the existence of long-term relationships between the variables under study. In the absence of cointegration, the analysis is based on a VAR model in first differences, in order to avoid potential biases linked to the non-existence of long-term relationships.

An essential step in this methodology is to determine the optimal number of lags to include in the model. This determination is crucial for correctly capturing the temporal relationships between the variables and guaranteeing the robustness of the results. Finally, the model is validated by verifying several hypotheses, including the stationarity of the model, the normality of the residuals, the absence of autocorrelation and the homoscedasticity of the errors. These tests ensure the reliability and relevance of the conclusions drawn from the analysis.

The data used in this study cover the period from 2008 to 2021 in Morocco. They come mainly from the Manar-Stat and UNCTAD Stat databases, which provide reliable and detailed information on the variables studied. This temporal framework and these sources guarantee the quality and relevance of the data needed to carry out the econometric analysis.

## 3.2. Econometric Model Specification

The proposed econometric model aims to examine the impact of cutting-edge technologies on tax revenues in Morocco over the period 2008 to 2021. It is broadly formulated as follows:

$$TR = f(CT) \quad (1)$$

The selection of parameters is based on the principles of economic theory, while taking into account the constraints and specificities of the data used in the study. Once the economic model has been defined, it is essential to convert it into an econometric model for quantitative analysis. The econometric equation obtained is expressed as follows:

$$TRt = \beta 0 + \beta 1 CTt + \epsilon t \quad (2)$$

Where:

TRt: represents tax revenue for period t,

β0: is the constant or intercept term,

β1: is the regression coefficient associated with the explanatory variable. It measures the marginal effect of cutting-edge technologies (CTt)on tax revenue (TR),

ϵt: In order to facilitate the economic interpretation of the estimated coefficients, it is common practice to use a logarithmic specification of the econometric model. This approach allows the estimated coefficients to be interpreted in terms of elasticities, thus providing a more intuitive view of the economic relationships studied. The model can then be expressed in the following form:

$$Ln(TRt) = \beta 0 + \beta 1 ln(CTt) + \epsilon t \quad (3)$$

## 3.3. Estimating the VAR Model

### *3.3.1. Stationarity test ADF*

We used the ADF (Augmented Dickey Fuller) unit root test to examine the stationarity of the series in our model. The Table 1 summarises the results.

The results of the ADF test show that neither the LTR variable nor CT are stationary in level. However, after their first differentiation, these series become stationary, which means that they are both integrated of order 1 (I (1)).

These results lead us to conclude that the two series can be used in econometric analysis, particularly in VAR or VECM models. However, a Johansen cointegration test will be performed to verify the existence of long-term relationships between them.

### *3.3.2. Johannsen co-integration test*

We used the Johannsen test (cointegration) to verify the existence of long-term relationships between the series studied. The following Table 2 summarises the results obtained.

The cointegration test based on trace statistics reveals that no cointegrating relationship exists between the series at the 5% threshold. Consequently, the variables are not cointegrated, which justifies the use of a reasonable VAR model. Before proceeding with the estimation of this model, it is essential to determine the optimal number of lags in order to ensure accurate estimation (the subject of the next section).

### *3.3.3. Determination of the number of delays*

According to the results obtained in Table 3, the FPE, AIC, SC and HQ criteria identify 3 as the optimal number of delays, minimising their respective values. Consequently, the appropriate model is VAR (3).

### *3.3.4. Regression results for the VAR model*

The Table 4summarises the results of the estimation of the parameters of our VAR model.

The high $R^2$ value (96.57%) indicates that the model explains the relationship between the variables very well. This means that 96.57% of the variation in LTR (dependent variable) is attributable to variations in CT (independent variable) according to the estimated model. In other words, the model provides a solid fit and shows that CT is a predominant factor in explaining fluctuations in LTR.

### *3.3.5. Validation of the model*

#### 3.3.5.1. Testing the stationarity of the model

To assess the stationarity of the model, we apply the multiple roots test. If all the roots have an amplitude of less than one and lie within the unit circle, the model is considered to be stationary.

As shown in Figure 1, the stationarity of the series is confirmed.

#### 3.3.5.2. Tests for normality of residuals

In order to verify the normality of the residuals of our VAR model, the Jarque-Bera test was used. Analysis of Table 5 reveals that all the probabilities associated with the Jarque-Bera test exceed the 5% threshold. We therefore accept the normality assumption for the residuals of the estimated VAR model.

#### 3.3.5.3. Autocorrelation test

The autocorrelation of the residuals was assessed using the Lagrange multiplier (LM) test. The data, produced using Eviews 10, show that the probability associated with the LM test exceeds the 0.05 threshold. Consequently, the hypothesis of non-autocorrelation of the residuals is accepted.

| VAR Residual Serial Correlation LM Tests | | | | | | |
|---|---|---|---|---|---|---|
| Sample: 2008 2021 | | | | | | |
| Included observations: 11 | | | | | | |
| Null hypothesis: No serial correlation at lag h | | | | | | |
| **Lag** | **LRE* stat** | **Df** | **Prob.** | **Rao F-stat** | **Df** | **Prob.** |
| 1 | 3.908235 | 4 | 0.4186 | 1.339692 | (4, 2.0) | 0.4697 |
| 2 | 4.357374 | 4 | 0.3598 | 1.636803 | (4, 2.0) | 0.4132 |
| 3 | 3.246424 | 4 | 0.5175 | 0.975496 | (4, 2.0) | 0.5629 |

*Likelihood ratio statistics corrected for Edgeworth expansion

#### 3.3.5.4. Test of heteroscedasticity

The heteroscedasticity test is essential to check whether the residuals can be considered as white noise. According to the results obtained using Eviews 10, the errors are homoscedastic, since the value of 0.2735 is greater than the threshold of 0.05.

| VAR Residual Heteroskedasticity Tests (Levels and Squares) | | |
|---|---|---|
| Sample: 2008 2021 | | |
| Included observations: 11 | | |
| Joint test | | |
| **Chi-sq** | **Df** | **Prob.** |
| 30.94262 | 27 | 0.2735 |

## 4. RESULTS AND DISCUSSION

Analysis of the VAR model estimation results for the relationship between cutting-edge-technologies and tax revenues in Morocco

**Table 1: Results of ADF stationarity test**

| | Level | | 1st | | Decision | Model |
|---|---|---|---|---|---|---|
| | *T stat* | Specification | *T stat* | Specification | | |
| LTR | −0.141004 (0.9248) | Constant | −3.887025 (0.0183) * | Constant | I (1) | VAR |
| CT | 0.867722 (0.8849) * | None | −3.316625 (0.0033)* | None | I (1) | |

P-values in brackets, *Significant at 5% level. Source: The authors

**Table 2: Results of the Johannsen test (cointegration)**

| Unrestricted cointegration rank test (Trace) | | | | |
|---|---|---|---|---|
| **Hypothesized No. of CE(s)** | **Eigen value** | **Trace statistic** | **0.05 critical value** | **Prob. **** |
| None | 0.426602 | 7.488607 | 15.49471 | 0.5216 |
| At most 1 | 0.065624 | 0.814514 | 3.841466 | 0.3668 |

Source: The authors

**Table 3: Test results for selecting the optimum number of delays**

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | 31.88131 | NA | 1.50e-05 | −5.432965 | −5.360621 | −5.478569 |
| 1 | 45.98131 | 20.50909* | 2.46e-06 | −7.269329 | −7.052295 | −7.406138 |
| 2 | 48.95231 | 3.241089 | 3.32e-06 | −7.082237 | −6.720514 | −7.310253 |
| 3 | 56.74957 | 5.670741 | 2.29e-06* | −7.772650* | −7.266238* | −8.091872* |

Source: The authors

**Table 4: Regression results for the VAR model**

| Vector Autoregression Estimates | | | | |
|---|---|---|---|---|
| Dependent Variable: LTR | | | | |
| Sample: 2008 2021 | | | | |
| Included observations: 11 | | | | |
| **Variables** | **Coefficient** | **Std. error** | **t-statistic** | **Prob.** |
| LTR (−3) | −0.432959 | 0.291768 | −1.483918 | 0.1761 |
| CT (−3) | 1.095896 | 0.456352 | 2.401429 | 0.0431 |
| C | 11.47354 | 3.192050 | 3.594410 | 0.0070 |
| R-squared 0.965742 Mean dependent var 12.16879 | | | | |
| Adjusted R-squared 0.914355 S.D. dependent var 0.107485 | | | | |
| Sum squared resid 0.003958 | | | | |
| S.E. of regression 0.031456 | | | | |
| F-statistic 18.79346 | | | | |
| Durbin-Watson stat 2.582692 | | | | |

Source: The authors

**Table 5: Results of the residual normality test**

| Component | Jarque-Bera | Df | Prob |
|---|---|---|---|
| 1 | 0.378555 | 2 | 0.8276 |
| 2 | 1.705787 | 2 | 0.4262 |
| Joint | 2.084342 | 4 | 0.7202 |

Source: The authors

over the period 2008 to 2021 highlights some important conclusions that deepen our understanding of the impact of new technologies on tax revenue collection and public finance management in the country.

First, the estimated coefficient for cuttin-edge-technologies (CT) shows a positive and statistically significant relationship with tax revenue (LTR). This result suggests that the adoption and integration of advanced technologies, particularly in tax processes, has a direct effect on Morocco's ability to collect tax revenues. This is partly due to the improved efficiency of tax collection, facilitated by the automation and digitalisation of tax processes and the use of intelligent systems to identify and reduce tax evasion. The observed link between cutting-edge technologies and increased tax revenues underlines the relevance of technological investment in modernising tax infrastructures and improving administrative efficiency.

The constant term, or intercept, in the VAR model also plays an important role in explaining variations in tax revenues. This parameter shows that there are underlying factors other than cuttin-edge-technologies that influence tax revenues, such as tax policies, economic fluctuations or other institutional variables. This finding highlights the complexity of the Moroccan tax system, where advanced technologies interact with a range of economic and institutional factors. It is therefore crucial to take these elements into account when analysing tax revenue dynamics.

Another key result of the model is the coefficient of determination $R^2$, which reaches a high level of 96.57%. This high rate suggests that the model is particularly effective in explaining variations in tax revenues as a function of variations in cuttin-edge-technologies. In other words, almost 97% of the variation in tax revenues can be attributed to fluctuations in advanced technologies. This high explanatory power shows that cutting-edge-technologies play a major role in the country's fiscal performance. This finding supports the idea that technologies are not only a vector for economic growth, but also have a direct impact on tax management, contributing to the creation of revenue for the State.

Analysis of the empirical results, compared with the theoretical underpinnings present in the literature, reveals a high degree of consistency between the two. Indeed, the results of this study confirm the existing theories on the positive impact of technologies on tax efficiency and public finance management. The empirical data validates the hypotheses that technological innovation can be an essential lever for improving tax collection and, more broadly, for stimulating economic growth by increasing the State's ability to mobilise the resources it needs to operate.

Finally, these results offer interesting perspectives for policy makers and researchers. They suggest that policies focused on innovation and the integration of cutting-edge technologies into tax and economic systems can not only improve public finances, but also foster sustainable economic development. By strengthening digital infrastructures and focusing on technological innovation, Morocco could maximise its tax revenues, improve the transparency and fairness of its tax system, and thus stimulate economic growth while reducing inequalities and promoting social inclusion. These avenues are therefore crucial in guiding the Moroccan authorities' strategic choices in terms of taxation and economic development.

## 5. CONCLUSION

After establishing a literature review highlighting the link between cutting-edge-technologies and tax revenues, this article empirically analysed their impact on tax collection in Morocco. To this end, an econometric study was conducted by applying the VAR (Vector AutoRegressive) model to time series covering the period 2008-2021.

The results largely confirm the conclusions of previous research, highlighting the decisive role of the adoption and integration of advanced technologies in optimising tax processes. By modernising infrastructures and boosting administrative efficiency, these innovations make it possible to improve tax revenue collection and limit the losses associated with tax evasion and avoidance. However, their impact cannot be fully understood without taking into account various structural factors, including current tax policies, the level of digitalisation of tax services, economic fluctuations and the institutional framework that influences the dynamics of publics revenus.

## REFERENCES

Aizenman, J., Jinjarak, Y., Kim, J., Park, D. (2015), Tax Revenue Trends in Asia and Latin America: A Comparative Analysis. Working Paper 21755. National Bureau of Economic Research. Available from: https://www.nber.org/papers/w21755

Ajaz, T., Ahmad, E. (2010), The effect of corruption and governance on tax revenues. The Pakistan Development Review, 49(4), 405-417.

Akcigit, U., Stantcheva, S. (2020), Taxation and Innovation: What do

we Know? National Bureau of Economic Research. Available from: https://www.nber.org/papers/w27109
Alarie, B., McCreight, R. (2023), The ethics of generative AI in tax practice. Tax Notes Federal, 180(5), 785-793.
Allioui, H., Mourdi, Y. (2023), Exploring the full potentials of IoT for better financial growth and stability: A comprehensive survey. Sensors (Basel), 23(19), 8015.
Assouline, A.V.A., Glon, G. (2018), Fiscalité du digital, digitalisation de la fiscalité. Revue d'économie Financière, 131(3), 217-232.
Bassongui, N., Honlonkou, A.N. (2024), Do E-tax reforms reduce tax compliance costs in Africa? A staggered double difference approach. African Multidisciplinary Tax Journal, 4(1), 102-122.
Bellon, B., Youssef, A.B., M'Henni, H. (2007), Les capacités d'usage des technologies de l'information et de la communication dans les économies émergentes. Revue Tiers Monde, 192(4), 919-936.
Bird, R. (2010), Smart tax administration. World Bank-Economic Premise, 36, 1-5.
Doghmi, H. (2020), La Capacité de Mobilisation des Recettes Fiscales au Maroc. Document de Travail 2020-1. Bank Al Maghrib.
Fadwa, E. (2024), L'impact de la digitalisation sur la performance du système fiscal Marocain: Une revue de littérature. Revue Dossiers De Recherches en Économie Et Management Des Organisations, 9(1), 1403.
Hendriyetty, N., Evans, C., Kim, C.J., Taghizadeh-Hesary, F. (2023), Taxation in the Digital Economy: New Models in Asia and the Pacific. Available from: https://library.oapen.org/handle/20.500.12657/57262
Kramer, V., Krafft, M. (2023), When and how information and communication technology orientation affects salespeople's role stress: The interplay of salesperson characteristics and environmental complexity. European Journal of Marketing, 57(3), 659-682.
Magnant, A., Marcus, É., Pellas, J. R., Comte-Bellot, A., de Crevoisier, L., Bolard, M. (2022), La fiscalité de l'innovation: améliorer l'efficacité des dispositifs existants, poursuivre leur évaluation. Revue française de finances publiques, 158(2), 205-220.
Lahcen, O., Hakima, F. (2024), Big data et intelligence artificielle: Leviers d'une fiscalite intelligente au Maroc. Journal of Economics, Finance and Management, 3(5), 1286-1310.
Larousse, É. (s.d.), Définitions: Technologie - Dictionnaire de Français Larousse. Available from: https://www.larousse.fr/dictionnaires/francais/technologie/76961 [Last accessed on 2025 Jan 18].
Maresch, D., Gartner, J. (2020), Make disruptive technological change happen-the case of additive manufacturing. Technological Forecasting and Social Change, 155, 119216.
Musgrave, R.A. (1959), Taxes and the budget. Challenge, 8, 18-22.
OECD. (2023), OCDE. Available from: https://www.oecd.org/fr/publications/administration-fiscale-2023_678bbe59-fr.html
Rachad, D., Kamal, H. (2024), La transformation digitale de la Direction générale des Impôts et la performance: Quel lien? Quel impact? Revue Dossiers De Recherches en Économie Et Management Des Organisations, 9(2), 14-36.
Stiglitz, J.E. (1988), Tax Reform: Theory and Practice. Harik, B., editor. The Economics of Tax Reform. Kalamazoo, MI: WE Upjohn Institute for Employment Research. p9-30.
Tanzi, V., Zee, H.H. (2000), Taxation in a borderless world: The role of information exchange. Intertax, 28(2), 58-63.
Tidd, J., Bessant, J.R. (2020), Managing Innovation: Integrating Technological, Market and Organizational Change. United States: John Wiley & Sons. Available from: https://books.google.fr/books?