مجلة الأصيل للبحوث الاقتصادية والإدارية
El - Acil Journal for Economic and Administrative Research
ISSN: 2571-9866
EISSN: 2661-7854
Volume:10 / N°2/October 2026, PP 149-167

Fiscal Policy Under the Implementation of Technological Innovation: A Comparative Study of the Malaysian and Algerian Experiences for the Period (2010–2024)

السياسة المالية في ظل تطبيق الابتكار التكنولوجي: دراسة مقارنة للتجارب الماليزية والجزائرية للفترة(2010-2024)

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Received:18/07/2026 *Accepted:19/10/2026* *Published:31/10/2026*

Abstract:

This study aims to investigate the role of technological innovation in enhancing fiscal policy management in Malaysia and Algeria between 2010 and 2024, using three indicators: tax revenues, internet usage, and the e-government development index. The findings indicate that Malaysia has made significant improvements in its fiscal policy management, while Algeria has made limited improvements. However, the lessons learned from Malaysia's improvements in fiscal policy can be applied in Algeria to enhance fiscal policy management and align it with international digital standards.

Keywords: Fiscal Policy-Technological Innovation-Public Revenues-Public Expenditures-Digital Platforms
JEL classificationcodes: H20-O33-H50

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1. Introduction

Considering the major changes that have resulted from technological innovation, the integration of these technologies into fiscal policy has become a fundamental pillar of financial systems. Such integration utilizes digital technology to increase the transparency and efficiency of financial systems. Many developing nations, including Algeria, have incorporated technological innovation as a means of enhancing economic outcomes. However, the combination of these technologies with the management of fiscal policy presents numerous obstacles for these nations. The scientific and practical value of studying the impact of technological innovation on fiscal policy makes its study imperative for developing nations.

The problem statement for this study is as follows: ***To what extent does technological innovation contribute to improving the performance of fiscal policy in Algeria?*** This main problem statement elicits the following sub-questions: *What are the differences in the application of technological innovation in the fiscal policy of Algeria and Malaysia? Moreover, what benefits can be derived from the experience of Malaysia by the Algerian government?*

The purpose of this research is to investigate the impact of technological innovation on fiscal policy using data from Malaysia and Algeria between the years 2010 and 2024. More specifically, the study aims to provide an overview of fiscal policy, introduce the concept of technological innovation and its relationship to fiscal policy, and perform a comparison between the two countries in the face of technological innovation.

The methodology for this research will involve the use of a comparative analytical approach to investigate the impact that technological progress has on fiscal policy, utilizing a study of the common and varying elements of the two countries. Furthermore, the study will investigate the impact that technological innovation has on fiscal policy for both countries in the period between 2010 and 2024. The variables to be studied include both the level of technological innovation within each country (as indicated by the number of internet users and the E-Government Development Index) and the level of that country's fiscal policy (as indicated by the percentage of that country's total GDP that is represented by tax revenues). Data

for these variables will be obtained from various international sources (including the World Bank, CEIC, the United Nations Department of Economic and Social Affairs, and various academic articles and reports) to perform the investigation of the research questions.

2. Literature Review

A review of recent research literature across three countries - Malaysia, Ukraine, and Algeria - consistently finds that the digitalisation of fiscal processes, whether in the form of procurement platforms, tax collection ecosystems, or regulatory frameworks, is linked to statistically significant positive outcomes for public finance management, albeit with varying degrees of development and progress. However, when turning to the case of Malaysia, (Ahmad et al, Abul Hassan, & Ismail, 2023)deployed the Website Attribute Evaluation System (WAES) to measure the government's procurement platform, revealing a quantitative rating of 73.91% level of transparency across 17 indicators, thus validating its role as an effective tool for reducing public fund waste and improving expenditure management. However, another study by (Kamarudin, Mohamad, Mohd Nasir, & Abdul Malak, 2024) digitally examined the state of Malaysia's tax digitalisation ecosystem from 2006 to 2024, applying descriptive analysis to relevant published documents and statistics, providing evidence that the platforms improved collection efficiency, reduced administrative burdens on stakeholders, and improved taxpayer compliance, all ultimately leading to a recommendation for continued public and private investment in these technologies to avoid reversal of the digitalised tax system. However, turning to the Ukrainian experience, (Lukianykhina, Suprunenko, Slavkova, Skorba, & Zavrazhnyi, 2024) utilised theoretical and methodological tools to study reform in fiscal policy, specifically in the "Diia City" programme in order to establish the extent to which tax policy can or cannot lead to digitalised sectors, indicating instead that reforms must also take place at the legislative-regulatory framework levels, illustrating their interconnectedness for the successful growth of the digital economy. Finally, in an Algerian study whose outcomes were measured quantitatively by (Ramzi, 2024) through the analyses of official records documenting revenues and expenditures from fiscal year 2013-2023), provides evidence that the outcomes in this case are exceptionally tangible: the digitalisation of tax administration

increased tax revenues by 70% and reduced costs for collection by over half, enabling the state to fund public spending demands and achieve optimal outcomes through maintaining a strong fiscal position. Together, these studies indicate that regardless of the nation in which fiscal tools are employed, digitalisation of finances can ensure greater transparency, efficiency in processes, and increase government revenues; at the same time, however, both Malaysia and Algeria demonstrate distinct but potentially equally successful paths to achieving these benefits through different stages of development, while Ukraine prioritises ensuring that legal-regulatory frameworks actually match up with technological efforts towards the digitalisation of expenditures.

3. Theoretical Framework

3.1.Fiscal Policy

Fiscal policy is broadly recognized as the state instrument for managing public revenues and expenditures to achieve predetermined objectives (Myskin , Martynenko, & Myskina , 2022, p. 83); (Yakushko, 2022, p. 38);(Ibrahimov, 2022, p. 06). More specifically, fiscal policy can be defined as the governmental plan for managing the economy through its revenues and expenditures (Husseini, 2018, p. 97). Fiscal policy is essentially a regulatory governmental program that uses its principal instruments - public revenues and public expenditures - to control the economic situation within the country (Костик , 2020, pp. 157, 158, 161). Furthermore, fiscal policy also plays a crucial role in regulating crises and mitigating risks for the economy (Lutsyk, Pravdiuk, Puhalskyi, & Deneha, 2025, p. 05)

3.2.Technological Innovation

Technological innovation is defined as the development that uses advanced methods to improve the efficiency of the services or products that are provided(World Bank, 2013, p. 166). More specifically, it describes the process of transforming ideas into technologies that allow institutions to perform better (Coccia, 2021, p. 07). The primary goal of technological innovation is to modernize the technologies that are currently in use to ensure that the production of a given good or service is performed more efficiently. In the context of fiscal policy, three main techniques for

technological innovation are identified. The first, the use of artificial intelligence and big data analysis, can lead to the reduction of the costs and risks associated with fiscal policies, an improved equality in the distribution of public expenditure, and an increase in the revenues that can be obtained from taxes (Bao, Xiao, Deng, Bi, & Wang, 2024, pp. 2,3,4,6). The second technique, the use of block chain technologies and smart contracts, improves the transparency of fiscal policies and enables the governance of an entity and taxpayers to directly create crowdfunding campaigns to increase the revenue of that entity(Mensel & Chaouch, 2022, p. 1268); (Robert & Roubíčková, 2018, p. 65); (Fadi, 2023, p. 141). Finally, the use of fintech technologies increases the rate at which digital financial services can be accessed by taxpayers and improves the efficiency of tax collection by governments (Al-Sheikh, 2025, p. 60).

4. An Analysis of the Malaysian and Algerian Experiences in Fiscal Policy under the Application of Technological Innovation during the Period (2010–2024):

In order to conduct a comparison between the two experiences, it is necessary to examine several aspects and stages to provide a detailed analysis that highlights the key differences between these two countries and how Algeria can benefit from this experience.

4.1. An Analysis of the Malaysian Experience in Applying Technological Innovation in Fiscal Policy for the Period (2010–2024):

4.1.1. Government Reforms and Technological Innovation Techniques and Their Impact on Fiscal Policy Performance in Malaysia

Malaysia has utilized a consistent, gradual, yet fully integrated approach to enhancing the efficiency and effectiveness of its fiscal policy through the introduction of various technological innovations between 2010 and 2024. During the initial stage between 2010 and 2014, Malaysia implemented systems like Outcome-Based Budgeting and the MyResults platform to increase the efficiency, transparency, and accountability of its government(Myers & Boothe, 2018, pp. 15,21), as well as upgraded platforms like the e-filing and the OeF corporate platforms that led to online taxpayer submissions reaching past the two-million mark by 2013(Inland Revenue Board of Malaysia, 2014, p. 46)Revenue Board of Malaysia, Between 2015 and 2019, Malaysia implemented the nextgenePerolehan system to replace its current government procurement system, which helped to lower the costs that were incurred in the buying of government goods and services, as well as introduced the Integrated Government Financial and Management Accounting System that allowed for the real-time planning and monitoring of government budgets across all government agenciesto to (Kaliannan, 2011, p. 25) and (Ahmad,

Abul Hassan, & Ismail, 2021, p. 602). Finally, between 2020 and 2024the government implemented the MyDIGITAL Blueprint that required all government institutions to be digitalized, as well as to expand the country's tax base to include the digital economy(International Monetary Fund, 2026). The introduction of the mandatory electronic invoicing system in August of 2024 is but one of the various initiatives that will revolutionize tax collection in the nation(Khan & Kaur, 2024, p. 13). Thus, Malaysia has progressed from the initiation of digitization of its fiscal policy to maturity in 2024 and can better withstand economic shocks (as experienced during the COVID-19 pandemic), as well as better control and monitor its spending, increase accountability, and improve its revenue-generating capacity

4.1.2. Indicators of Fiscal Policy and Technological Innovation in Malaysia during the Period (2010–2024)

The Malaysian experience represents a leading model in the utilization of technological innovation to support fiscal policy, making the study of the evolution of its indicators during the period under review an entry point for understanding the impact of these digital technologies on public financial performance.

Table 1: Evaluation of Fiscal Policy and Technological Innovation Indicators in Malaysia during the Period (2010–2024)

Years	Tax Revenues (% of GDP)	Internet Usage (% of Population)	E-Government Development Index (%)
2010	13.3	56.3	61.01
2011	14.8	61	-
2012	15.6	65.8	67.03
2013	15.3	57.1	-
2014	14.8	63.7	61.15
2015	14.1	71.1	-
2016	13.6	78.8	61.74
2017	12.9	80.1	-
2018	12	81.2	71.74
2019	11.9	84.2	-
2020	10.9	89.6	78.92
2021	11.2	96.8	-
2022	11.6	97.4	77.4
2023	12.6	97.7	-
2024	N/A	97.4	81.11

Source: Prepared based on World Bank data, CEIC data, and the United Nations E-Government Database (World Bank, 2026; United Nations, 2026; World Bank, n.d.)

Table No.(01) shows that Malaysia witnessed, during the period (2010–2024), a notable development in technological innovation indicators associated with fiscal policy. Internet usage

experienced widespread expansion, which was reflected in the improvement of the digital readiness of society. This was accompanied by progress in the E-Government Development Index, indicating the strengthening of government capabilities in delivering digital public services and improving the efficiency of financial administration. In contrast, tax revenues as a percentage of gross domestic product exhibited relative fluctuations. Despite this, technological innovation contributed to supporting fiscal policy and enhancing its instruments; however, it remains a complementary factor that is itself influenced by macroeconomic conditions and the overall economic context.

4.2.A Review of the Algerian Experience in Implementing Technological Innovation in Fiscal Policy for the Period (2010–2024)

In the case of Algeria, its steps have been relatively delayed compared to Malaysia in adopting technological innovation techniques in the field of public finance and the conduct of fiscal policy. Nevertheless, these reforms have brought about a certain degree of transformation in public financial management and in the implementation of public policy. The following table presents the key milestones in improving public financial management and its development toward the use of digital technologies to modernize the functioning of fiscal policy.

4.2.1. The Path of Reforms Adopted in Algeria to Improve Fiscal Policy under Technological Innovation Techniques

Algeria's journey towards the modernisation of its fiscal policy through technological innovation between 2010 and 2024 included a preparatory stage. During the first stage between 2010 and 2014, despite the failure of the IMF's proposal of a budget framework based on the permanent income approach(International Monetary Fund, 2011, p. 11)., the country initiated the development of the "Jibayatik"(Lakehal & Rahali, 2025, p. 129)electronic platform in 2013 to digitalize its tax procedures, as well as initiated the development of a system that aimed to implement results-based budgeting (MSB)(Keshawi, 2022, p. 437), though the legislation would only be passed through Organic Law No. 18-15 in 2018. During the second stage between 2015 and 2019, the government implemented a digital system for the Tax Identification Number (NIF)(Ramzi, 2024, p. 09)in 2016, which created a digital database that would allow for the tracking of all taxpayers, as well as passed Organic Law 18-15(Belkhieri & Kesri , 2025, p. 204), whose goals

were to modernize the country's fiscal policy, increase the transparency of public finances, and improve the management of public funds; however, the law had little impact due to legislative hurdles to implementing the proposed digital system(Saoula & Mohamed, 2025, p. 23). During the most recent stage between 2020 and 2024, the government passed Executive Decree No. 20-354 in November 2020, which mandated the implementation of digital coding systems for all public institutions to enable the implementation of Organic Law 18-15 and to allow for the electronic monitoring of all public budgets(Algerian Official Gazette, 2020, pp. 6-7), as well as developed the "Mossahamatak" platform to manage digital tax payments from citizens in order to reduce tax evasion and increase compliance with tax laws(Kamash & Boukhdouni, 2022, p. 779). Despite these initiatives by the government, the fiscal policy of Algeria remains significantly hindered by inadequate digital infrastructure, the lack of human resources with the required digital skills and knowledge, and the general rigidity of the existing fiscal policy and legislation. Additionally, Algeria's economy's dependence upon oil has led to instability of its public budgets, which prevents the allocation of any resources towards technological innovations in its fiscal policy.

4.2.2. Indicators of Fiscal Policy and Technological Innovation in Algeria during the Period (2010–2024)

The following table presents the trajectory of developments in indicators related to fiscal policy and technological innovation over the study period (2010–2024), reflecting the developmental efforts undertaken by the government to revitalize, modernize, and digitalize public financial management.

Table 2: Evaluation of Fiscal Policy and Technological Innovation Indicators in Algeria during the Period (2010–2024)

Year	Tax Revenues (% of GDP)	Internet Usage (% of Population)	EGDI
2010	N/A	12.5	31.81
2011	N/A	14.9	-
2012	N/A	18.2	36.07
2013	4.51	22.5	-
2014	4.57	29.5	31.06
2015	5.48	38.2	-
2016	5.6	42.9	29.99
2017	5.73	47.7	-
2018	5.3	49	42.27
2019	5.47	55.8	-
2020	5.66	63.5	51.73
2021	4.74	72.2	-
2022	3.8	74.8	56.11

2023	4.63	76.9	-
2024	4.52	72.9	59.55

Source: Prepared based on data from the World Bank, CEIC, and the United Nations E-Government Database (CEIC Data, 2026; Nations, 2026; Trading Economics, 2026)

Table 02 presents a gradual trajectory in the use of technological innovation techniques in Algeria through two indicators, namely internet usage as a percentage of the population and e-government development, whose data are reported biennially. The table shows a high and continuous increase in the levels of these indicators, reflecting the expansion of digitalization. In contrast, the tax revenue indicator recorded limited stability with partial improvement during certain periods. Consequently, the impact of these indicators on the fiscal policy indicator, represented by tax revenues, suggests that technological innovation contributes to enhancing tax collection performance and improving the effectiveness of fiscal policy in Algeria.

5. Presentation and Analysis of the Comparative Results Between Fiscal Policy Indicators and Technological Innovation Indicators in Malaysia and Algeria During the Period (2010–2024)

Based on the objectives of this study, a set of indicators related to the efficiency of fiscal policy in the context of technological innovation was previously presented in the tables. These include tax revenues as a percentage of GDP, the proportion of internet users in the population, and the e-government development index. These indicators enable a comparative analysis between the Malaysian and Algerian experiences over the period (2010–2024), as well as the presentation of relative differences for each indicator with the aim of analysing the gap between the two countries. This difference also illustrates the extent to which fiscal policies rely on technological innovation and the degree to which the latter contributes to improving fiscal policy performance in both countries. The year 2010 was adopted as a reference year to measure the extent of subsequent digital reforms and their impact on fiscal policy performance in both countries.

5.1.Evaluation of the Relative Difference in the Tax Revenue to GDP Indicator for Malaysia and Algeria During the Period (2010–2024)

The following table presents the main developments in the relative difference of tax revenues as a percentage of GDP for Malaysia and Algeria.

Table 3: Relative Difference in the Tax Revenue to GDP Indicator for Malaysia and Algeria During the Period (2010–2024)

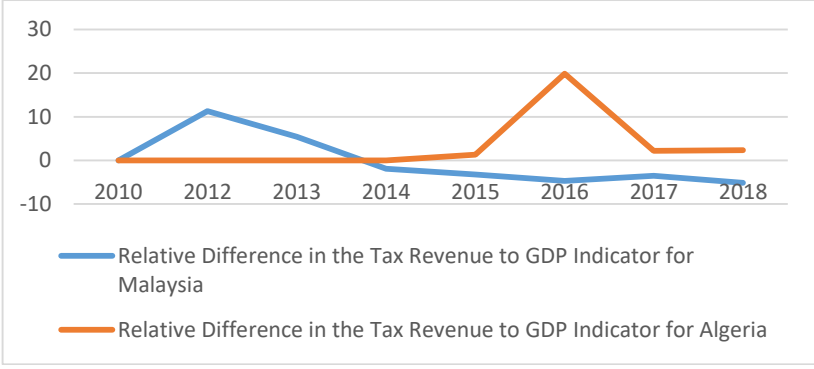
Years	Malaysia	Algeria
2010	N/A	N/A

2011	11.27	N/A
2012	5.4	N/A
2013	-1.92	N/A
2014	-3.26	1.33
2015	-4.72	19.91
2016	-3.54	2.18
2017	-5.14	2.32
2018	-6.97	-7.5
2019	-0.83	3.2
2020	-8.4	3.47
2021	2.75	-16.25
2022	3.57	-19.83
2023	8.62	21.84
2024	-	-2.73

Source: Prepared based on the data of Tables (01) and (03).

As shown, the table illustrates the main trends in the relative difference of the tax revenue indicator as a percentage of GDP during the study period (2010–2024). It should be noted that for the early years from 2010 to 2013, no values were recorded for this indicator in Algeria due to the difficulty of obtaining data. Similarly, for Malaysia, the indicator is absent for the initial year 2010 and the final year 2024. The trajectory of this indicator has therefore been analyzed using Curve (01).

Figure 1: Key Developments in the Relative Difference of Tax Revenue as a Percentage of GDP for the Two Countries (Malaysia–Algeria)



Source: Prepared based on the data in Table 03.

As clearly illustrated by the trajectory in Figure No. (01)which plots the relative tax revenue gaps for both countriesthe comparative fiscal paths of Malaysia and Algeria over 2010–2024 reveal starkly divergent outcomes.

The curve for Malaysia shows a deliberate, U-shaped progression: it initially rises in the early 2010s, then dips into

sustained negative territory between 2015 and 2019 (reflecting the upfront costs of systemic digital overhauls and expenditure rationalization), plunges further during the 2020–2021 pandemic-driven expansionary phase, and finally rallies sharply from 2022 onwardpeaking at 8.62% in 2023as the curve clearly demonstrates the eventual payoff of fully matured digital infrastructure and highly efficient tax administration. In sharp contrast, the plotted data for Algeria exhibits extreme volatility: the curve spikes briefly at 19.91% in 2015 due to early reform efforts, only to crash amid collapsing oil prices, and remains highly erratic through 2020, before dropping precipitously to nearly –20% in 2021–2022. While the Algerian curve shows a modest uptick in 2023–2024 as digital tools and the new results-based budgeting law gradually take hold, it never achieves the consistent stability seen in Malaysia's trajectory. Ultimately, the curve underscores that Malaysia's sustained, integrated digital strategy yields a resilient and upward-trending fiscal profile, whereas Algeria's fragmented approachcompounded by heavy hydrocarbon dependency and institutional bottlenecks—produces a persistently unstable and shock-prone path, confirming the critical role of cohesive technological investment in modern fiscal policy success.

5.2.Evaluation of the Relative Gap in the Indicator of Internet Usage as a Percentage of the Population in Malaysia and Algeria during the Period (2010–2024)

The following table has been constructed to present the main relative differences between the Malaysian and Algerian governments in terms of the internet usage indicator. Through this, it is possible to determine the levels of internet penetration among citizens and to assess the extent to which digital financial platforms are capable of achieving inclusiveness.

Table 4: Relative Gap in Internet Usage as a Percentage of the Population in Malaysia and Algeria during the Period (2010–2024)

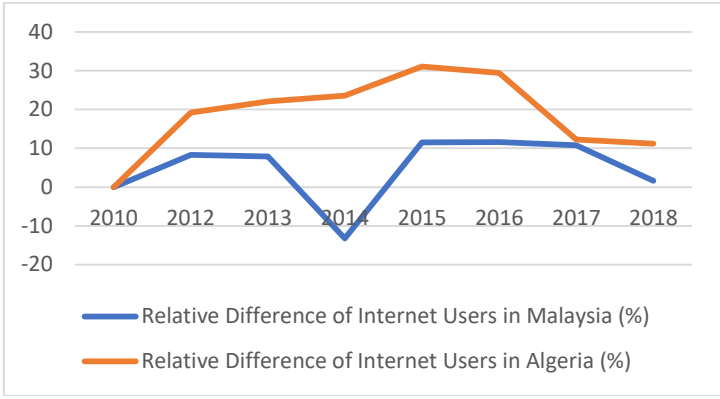
Years	Malaysia (%)	Algeria (%)
2010	0	0
2011	8.34	19.2
2012	7.86	22.1
2013	-13.22	23.6
2014	11.55	31.1
2015	11.61	29.49
2016	10.82	12.3
2017	1.64	11.18
2018	1.37	2.72
2019	3.69	13.87
2020	6.41	13.79

2021	8.03	13.7
2022	0.61	3.6
2023	0.3	2.8
2024	-0.3	-5.2

Source: Prepared based on Tables (01) and (03).

The table illustrates the stages of change in the indicator of internet users as a percentage of the population over the period (2010–2024). This is intended to provide an analytical study to determine the impact of this indicator on the role and effectiveness of fiscal policy in both the Malaysian and Algerian experiences. This is examined through a graphical representation of the indicator in Curve (02) below:

Figure 2: Developments in the Relative Difference of the Internet Usage Indicator for Malaysia and Algeria over the Period (2010–2024)



Source: Prepared based on the data in Table 04.

The graph illustrates the two different trajectories taken by each of these countries in utilizing their digital infrastructure to support their fiscal policy. Malaysia's graph displays a progression through the various stages of its digital system's development. Initially dipping to -13.22% in 2013, the graph shows increasing values between 2014 and 2015 (to around 11.6%), then tapers off between 2016 and 2018 to indicate the saturation of their digital system. Between 2019 and 2021, however, the value increased from 3.69% to 8.03%, indicated by the COVID-19 pandemic and the increased use of digital systems for fiscal policies. After 2021, though, the digital system declined to 0.61% in 2022, then to -0.30% in 2024, indicating the maturity of their digital systems and the shift from focusing on increasing digital access to improving the quality of the digital systems used in managing their fiscal policy. In

contrast, though, Algeria's digital system displays fragmentation within its graph. After surging to 31.1% in 2014 (from 19.2% in 2011), the digital system declined to 2.72% in 2018. Between 2019 and 2021, though, the percentage evened out around 13.7% (again, indicated by digital transactions related to the COVID-19 pandemic). From 2021 to 2024, though, the percentage continued to decline, indicating that the fragmentation of their digital system and the failure of their digital system to relate to their fiscal policies have led to their continued decline in digital access and management of fiscal policy. Thus, the data plotted in these graphs makes it clear that Malaysia has developed digital systems related to their fiscal policies in comparison to Algeria; the decreasing rate of development in Algeria indicates their digital systems have developed to the point of maturity, but with the fragmentation of their digital system, there is a need for a unified digital platform for the country to create improvements to their digital systems related to fiscal policies.

5.3. Evaluation of the Relative Difference in the United Nations E-Government Development Index (UN EGDI) for Malaysia and Algeria During the Period (2010–2024):

The following table presents the key milestones in the rates of change of the E-Government Development Index for Malaysia and Algeria:

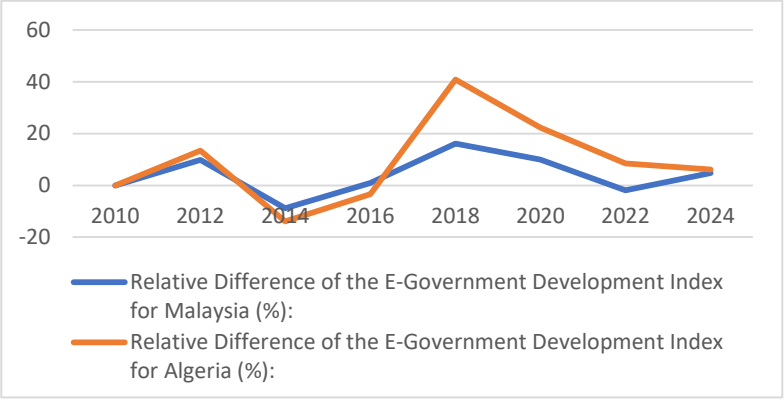
Table 5: Relative Difference in the United Nations E-Government Development Index (UN EGDI) for Malaysia and Algeria During the Period (2010–2024)

Years	UN EGDI Malaysia (%)	UN EGDI Algeria (%)
2010	N/A	N/A
2012	9.86	13.39
2014	-8.77	-13.88
2016	0.96	-3.44
2018	16.19	40.94
2020	10	22.37
2022	-1.92	8.46
2024	4.79	6.13

Source: Prepared based on the data of Tables (01) and (03).

Table (05) presents the main relative differences in the United Nations E-Government Development Index (UN EGDI) between the Malaysian and Algerian governments during the period (2010–2024). These data have been interpreted through Figure (03).

Figure 3: Growth of the Relative Difference in the E-Government Development Index for Malaysia and Algeria during the Period (2010–2024)



Source: Prepared based on the data in Table 05.

The graph illustrates the contrasting trajectories of the two countries' digital and fiscal policies. Malaysia's curve depicts an upward trajectory with minor fluctuations in the indicated period. For instance, the country did experience a dip in 2012 and a decline of around 10% from 2020 until 2024 due to the COVID-19 pandemic; however, the curve indicates that the country recovered from these setbacks quickly, ending the period with a value of 5.19% in 2024. In contrast, Algeria's curve is erratic and unstable. Algeria's index spiked to 13.39% in 2012 and reached a high of 40.94% in 2018; however, there appear to be no corresponding improvements in the country's fiscal policy. After peaking in 2018, Algeria's index sharply declined to 22.37% at the beginning of the pandemic, continuing to decline to 6.13% in 2024. These declining values indicate the lack of digital spending mechanisms within the country's fiscal policy, supporting the notion that e-government in Algeria has developed into an immature policy.

Overall, then, the graph supports the idea that Malaysia has implemented a successful digital and fiscal policy compared to Algeria's digital and fiscal policy, which has led to the fragmentation and failure of its fiscal policy to develop into a successful policy.

6. Conclusion

Ultimately, the results of this study consisted of exploring the effects of the use of certain technological innovation techniques on improving the performance of fiscal policy. This was achieved through a comparative approach based on selected digital and financial indicators between the Malaysian and Algerian governments over the specified study period, with the aim of evaluating the contributions of technological modernization in supporting the trajectory of government fiscal policy. The main findings revealed a clear divergence between the two governments.

The tax revenue indicator for the Malaysian government demonstrated a high level of efficiency and stability, owing to the early adoption of reforms in public finance and the implementation of an effective digital fiscal policy. In contrast, the results of the same indicator for Algeria were characterized by lower efficiency and greater volatility, reflecting the relatively recent nature of digital reforms and the slow pace of their implementation.

The second indicator, namely internet usage, showed that the Malaysian government has reached a stage of digital maturity. The associated outcome indicates that the use of technological innovation has made an effective contribution to enhancing the management of its fiscal policy. In Algeria's case, although the indicator reflects a widespread use of the internet, the weakness of institutional structures and their limited integration with this digital orientation have constrained the effectiveness of digitalization in achieving the general objectives of fiscal policy.

The third indicator shows that Malaysia has united its efforts to create a uniform digital system which operates to handle public financial resources and fiscal management. The indicator results prove that digital reforms have successfully modified fiscal policy mechanisms while also restructuring its framework and increasing transparency through public expenditure rationalization. This improved its efficiency. The results from this indicator show that Algeria has not yet reached digital maturity because its digital government system remains underdeveloped for fiscal policy management.

The research findings from these four studies support each other because they prove that technological innovation methods will boost fiscal policy performance and efficiency through their operation in a full digital infrastructure system.

The study found important results, but the research limitations stem from its short time frame and restricted indicator set, which future studies should address by including more advanced digital technologies.

The study proves that fiscal policy effectiveness will improve when digital technological innovations integrate with institutional and legal reforms, which need to operate together as a single system. The research findings show that Malaysian digital transformation development stands apart from Algerian digital transformation development because Malaysia has made faster progress.

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