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**Tourism, democracy and
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Abstract

While numerous studies have explored the determinants of economic growth, research on the impact of tourism and democracy on economic growth remains debated in both developed and developing countries. Furthermore, studies examining the moderating role of democracy in the tourism-economic growth relationship are particularly scarce. Achieving the Sustainable Development Goals (SDG-8) by 2030 requires a comprehensive understanding of the interplay between tourism, democracy, and economic growth. This paper addresses this gap by analyzing the moderating effect of democracy on the tourism-economic growth nexus in Africa from 2000 to 2020. Using the panel corrected standard errors (PCSE) estimation technique, the study finds that tourism fosters economic growth. Moreover, democracy positively moderates the impact of tourism on economic growth in Africa, with the marginal effect of tourism varying depending on the level of democracy. Accordingly, there are positive synergies from the interaction between democracy and tourism because while tourism promotes economic growth, democracy complements tourism to further promote economic growth. The study discusses the policy implications of these findings and suggests potential policy measures.

Keywords: Tourism, democracy, economic growth, PCSE, Africa

1. Introduction

The purpose of this study is to assess the role of democracy or political institutions in the tourism-“economic growth” relationship in Africa¹. Sustainable economic growth and prosperity depend on structural transformation. As highlighted by Bime et al. (2024), this transformation is a complex process that involves reallocating resources from traditional agriculture and other low-productivity primary sectors to more efficient industrial and service industries. Among the service sectors, tourism has been recognized as a key driver of economic growth and sustainable development (Hughes & Moscardo, 2019; Siakwah et al., 2020). Over the past two decades, the relationship between tourism and economic growth has garnered significant attention from scholars in tourism economics and economic development. According to Nunkoo et al. (2019, 2020), numerous studies have explored this relationship, revealing four key findings. First, many studies support the tourism-led growth hypothesis. For instance, El Menyari (2020) analyzed the impact of tourism on Morocco's economic growth from 1983 to 2018 using international tourist arrivals as a proxy for tourism development. The findings indicate that tourism significantly contributes to economic growth. Similarly, Haller et al. (2021) examined 28 European countries between 2012 and 2018 and found that tourism fosters economic growth. Likewise, Sun et al. (2025) employed Ordinary Least Squares (OLS), System Generalized Method of Moments (GMM), and Quantile regression to analyze data from 182 countries between 1998 and 2022, concluding that tourism drives economic growth. Second, some studies suggest a growth-led tourism hypothesis. For example, Oh (2005) applied the Engle and Granger two-stage approach and a bivariate Vector Autoregression (VAR) model, finding that economic growth stimulates tourism development. Similar results were reported by Tang and Jang (2009), who investigated the tourism-economic growth relationship in the United States. Likewise, Liu et al. (2025) analyzed 35 Asian countries between 2004 and 2020, using IV-GMM and Pooled Mean Group (PMG) estimation techniques, and confirmed that economic growth fuels tourism demand. Third, some research suggests a bidirectional relationship between tourism and economic growth. For example, Rasool et al. (2021) examined BRICS countries and found a mutual causality between tourism and economic growth. Lastly, some studies indicate no significant relationship between tourism and economic growth. Du et al. (2014), using a panel of 109 countries and applying Ordinary Least Squares and quantile estimation techniques, found that tourism has a negligible impact on economic growth.

¹ “Democracy” and “political institutions” are used interchangeably throughout the study. We are equating “political institutions” to “democracy”, not least, because political institutions are understood as the election and replacement of political leaders. Five types of democracy are used in the study which are defined in Section 3.3, notably: electoral democracy, liberal democracy, deliberative democracy, participatory democracy and egalitarian democracy.

This study introduces an additional factor to the existing inquiry—one that has been largely overlooked in tourism economics literature but may influence the relationship between tourism and economic growth: the quality of political institutions in destinations. Acemoglu (2012) argued that democracies tend to enhance institutional quality, which plays a crucial role in tourism development. Recent studies, such as Ghalia et al. (2019) and Nguyen (2021), have identified a positive relationship between tourism and institutional strength. Moreover, Dossou et al. (2023) and Dossou et al. (2021) documented that strong institution, particularly through the protection of property rights, can foster tourism development, subsequently improving income distribution and reducing poverty. As highlighted by Acemoglu (2012), democracy contributes to a stable environment for investment and economic activity. As highlighted by Huang et al. (2020), a stable investment environment can be beneficial for the development of tourism. Furthermore, Gerring et al. (2005) highlighted that democratic governments tend to invest in key growth sectors, such as education and healthcare, fostering a more skilled and productive workforce that can, in turn, drive tourism development.

Building on the underlying argument, this study aims to explore the moderating role of democracy in the relationship between tourism and economic growth in African countries. Specifically, its objectives are: (i) To assess the impact of tourism on economic growth in African countries. (ii) To determine how democracy moderates the effect of tourism on economic growth in African countries. The key questions this study seeks to address are: (i) To what extent does tourism development influence economic growth? (ii) What role does democracy play in shaping the relationship between tourism and economic growth?

A review of the literature focused on tourism development and economic growth reveals three significant gaps. First, research on the relationship between tourism and economic growth in Africa remains debated. For example, Bichaka Fayissa et al. (2007) examined this relationship from 1995 to 2004, while Sahni and Nsiah (2020) also explored the tourism-economic growth link using Africa as a case study. Second, no study has analyzed whether democracy—disaggregated into liberal, deliberative, electoral, participatory, and egalitarian dimensions—serves as a moderating factor in the impact of tourism development on economic growth in Africa. Third, the effects of tourism development on economic growth across different levels of democratic governance remain unexplored in the literature. To address these gaps, this study investigates the moderating role of democracy in the tourism-economic growth nexus.

This study makes several contributions to the tourism economics and economic development literature. First, it investigates the impact of tourism development on economic growth. As highlighted by Nyasha et al. (2021a), there is a debated understanding of how tourism development influences economic growth in Africa. Second, while previous studies have extensively examined the direct effect of tourism on economic growth, this study advances

the tourism economics literature by exploring the moderating role of democracy in the tourism-economic growth relationship.

The closest study to this research is Antonakakis et al. (2016), which examines the relationship between tourism, democracy, and economic growth. However, this study differs from Antonakakis et al. (2016) in several ways: (i) Although prior literature has recognized the role of democracy in shaping economic growth in Africa, most studies, including Antonakakis et al. (2016), have primarily focused on the direct relationship between tourism, democracy, and economic growth. A significant research gap remains regarding how democracy interacts with tourism to enhance economic growth. This study addresses this gap by analyzing the moderating role of democracy in the tourism-economic growth nexus in African countries. (ii) While Antonakakis et al. (2016) use polity as a proxy for democracy, this study adopts a more comprehensive approach by incorporating multiple dimensions of democracy—electoral democracy, deliberative democracy, liberal democracy, participatory democracy, and egalitarian democracy. These democracy indicators have been employed in recent tourism research, such as Jiaqun et al. (2024), who examined their moderating role in the tourism-income inequality relationship. Additionally, they have been applied in economic development studies, including Opoku and Acheampong (2023), who used them to explore the moderating effect of democracy on the energy justice-economic growth relationship. Third, this study estimates the threshold effects of electoral democracy, deliberative democracy, liberal democracy, participatory democracy, and egalitarian democracy in the tourism-economic growth relationship. This analysis is particularly relevant for policymakers, as it provides empirical evidence on how improvements in these five dimensions of democracy can shape the impact of tourism development on economic growth in Africa.

2.Literature Review

As Acemoglu (2012) highlights, GDP growth encompasses not only total productivity but also fundamental structural changes in an economy, including institutionalized, interpersonal, and specialized elements. These changes are influenced by governance quality, institutional strength, trade, and policy frameworks on a global scale (Grossman & Helpman, 1994; Krugman, 1991; Mankiw, Romer, & Weil, 1992). By considering the potential benefits of democracy and tourism—particularly their interaction—this study contributes to the existing literature on economic growth.

2.1 Theoretical Background

2.1.1 Theoretical Background on the democracy- tourism nexus

To understand why a higher degree of democracy, characterized by greater freedom, attracts more tourists, an incentive behavior model incorporating governance variables and external travel demand could be valuable. The Psychological Reactance Theory (PRT), as highlighted by Miron & Brehm (2006), suggests that resistance to institutional authority—whether political, societal, or religious—can lead to behavioral shifts, such as choosing destinations with greater freedom. Tang (2014) aligns this idea with stimulus-response and reinforcement theories, proposing that modifying behavior is possible by addressing specific beliefs. PRT consists of two key phases: the freedom phase and the threat elimination phase (Magno et al., 2018). According to Chung et al. (2014), personal motives play a significant role in predicting perceived threats to freedom. Several studies have explored the implications of PRT. Wen et al. (2020) found that many participants were hesitant to adopt new technologies, particularly self-service check-in systems at hotels, airports, and tourist destinations. Respondents felt compelled to use intelligent services instead of traditional human interactions, perceiving this shift as a threat to their freedom. This perception created a sense of restriction in using smart systems.

Similarly, studies by Alananzeh et al. (2021), Jungkeun Kim, Jooyoung Park, Ricky Y. K. Chan (2023), and Kang et al. (2021) suggest that strict regulations may cause individuals to feel their freedom is under threat. As a result, they may experience increasing pressure to engage in prohibited activities, sometimes even defying explicit government directives. Brehm (1972) categorized reactance-related effects into two groups: behavioral outcomes, which are visible to others, and mental outcomes, which involve changes in perception or evaluation. The former manifests as a heightened preference for restricted choices, while the latter may lead to open defiance or protest.

2.1.2 Theoretical Background on the democracy- economic growth nexus

Sirowy and Inkeles (1990) examined contrasting conceptual frameworks regarding the impact of democracy on economic growth. They presented three competing models that portray democracy as: a development driver, a development obstacle, or having no independent relationship with economic growth. This aligns with their extended perspective, which posits that the democracy-economic relationship is based on three viewpoints: the conflict model, which argues that regulations essential for rapid economic growth can only be enforced by a repressive political system; the compatibility perspective, which suggests that democracies can achieve both growth and equitable distribution, thereby stimulating economic expansion; and the skeptical view, which questions the existence of a consistent link between democracy and economic growth.

The conflict hypothesis posits that democracy and economic growth are mutually exclusive. Democratically elected leaders, in an effort to increase their chances of winning elections, may make shortsighted decisions (Comeau, 2003). This behavior makes policymakers susceptible to influence from interest groups seeking immediate benefits (Krueger, 1974), particularly labor unions, whose actions can lower business owners' profits and constrain GDP growth (De Pinto & Goerke, 2020). In contrast, autocrats are incentivized to foster prosperity to maximize their share of national wealth, as they are the enduring claimants to their countries' fortunes (McGuire & Olson, 1996).

Secondly, supporters of the conflict model argue that democracy does not contribute to long-term economic stability (Narayan et al., 2011) or sustained growth (Barro, 1994). They point out that popular electoral processes often lead to the implementation of laws that redistribute wealth from the rich to the poor, particularly in reforms related to land ownership. In response, Cheung (1998) offered a third perspective, suggesting that corruption is more likely to worsen in democratic governments than in authoritarian regimes. Cheung's argument is supported by the view that in dictatorial governments, those in power are focused on preserving their authority, and corruption often undermines this goal. For autocrats, corruption comes at a significant cost. However, in democracies, where power changes hands more frequently, politicians may be motivated to exploit opportunities when they win elections (Cheung, 1998).

The conflict theory is challenged by the compatibility theory, which argues that institutional oversight and political diversity are crucial for preventing extortion and widespread abuse often associated with authoritarian regimes. Well-designed and secure property rights, essential for economic development, are only protected when civil and political liberties are guaranteed; otherwise, unlawful seizures remain a persistent threat (North, 1993). Moreover, democracy's system of accountability and oversight is said to reduce rent-seeking behavior, challenging the arguments put forth by the conflict theory (de Haan & Sturm, 2003). This view

aligns with the claim by Hinterleitner & Sager (2022) that democratic structures are the most effective means of resolving societal conflicts in a predictable, fair, and collaborative manner. According to the compatibility theory, economic and political freedoms mutually reinforce each other (Narayan et al., 2011). The theory suggests that democracy is far more conducive to economic liberalization and GDP growth than dictatorship, as maintaining financial autonomy is key to a democracy's political legitimacy, even though there is nothing inherently preventing non-democratic governments from doing the same (Barro, 1994). Despite the thorough and insightful discussions surrounding these three theories, many fundamental questions about the long-term effects of political democracy on economic development remain largely unresolved.

2.2 Empirical Studies

2.2.1 Empirical studies regarding the relationship between democracy and tourism

Studies on tourism are increasingly focusing on the economic impact of foreign tourist presence in different destinations (Antonakakis et al., 2016; Pradipta, 2015). Using the resource curse theory, (Acemoglu et al., 2008) argue that undemocratic countries with abundant resources tend to develop at a slower rate than those that are democratic. This is because the gains from these resources are primarily used by the country's wealthy, instead of benefiting the economy as a whole. Similarly (Mehlum et al., 2006) claim that the quality of institutions impacts the link between growth and the availability of resources in a given country. Governance issues linked to democracy in terms of; corruption, political unpredictability, threats, and terrorist activities significantly impact the tourism market (Gozgor et al., 2017). Research conducted by (Balli et al., 2016; Saha et al., 2017; Yap & Saha, 2013) examined the correlation between tourism and democratic metrics, including political vulnerability, civil liberties, and freedom of expression (what were the findings?).

Additionally, a study by (Gozgor et al., 2017) found that reducing the military's involvement in politics leads to a significant positive impact on Turkey's tourism industry. In an alternate study, (Demir & Gozgor, 2019) observed that freedom of the media is a crucial part of democratic institutions. According to a panel statistical evaluation of 160 countries, the results revealed that there exists a positive link between free speech in the media and tourism growth.

2.2.2 Empirical studies regarding the relationship between democracy and economic growth

The premise that political disputes exist among humans forms the foundation of political economic growth models. This theory suggests that politicians are logical humans whose actions can be interpreted through their political decisions, weakening the foundation of the corresponding agent approach (North, 1990; Olson, 1993). Generally speaking, a democratic political system is one in which citizens are permitted to engage in politics, elections are open to all, and politicians have an obligation to represent their constituents (Acemoglu & Robinson, 2006). In practical terms, democratic systems are identified by the presence of restraints on the government's authority originating from weak points. Intellectually, a great deal of research views democracy as a meta-institution, as an institution that gives or reinforces other kinds of organizations (Acemoglu et al., 2005).

The subject of the extent to which democratic political structures contribute to economic growth lies at the heart of the discussion regarding the relationship across democracy and growth. Until recently, the literature concerning democracy and economic growth is divided into two classes; The first holds that democracy promotes growth, while the second contests this idea, claiming that democracy, on the other hand, inhibits growth or fails to explain it.

Theoretical Justifications for Democracy

There are various ways in which democracy may influence growth. First, there is the property rights channel. Democracy promotes growth because it provides greater safety for property rights. The second way is political stability - a popular political regime defined by improved government stability that enhances growth. One more method that democracy may contribute to growth is through the accumulation of human capital. Last but not least, technological innovation. Democracy fosters creativity and technological advancement, which enhances economic outcomes.

The Channel of Protection of Property Rights

Intellectual property rights refer to the privileges assigned to a specific person or entity that transfer ownership, and can be transferred in lieu for rights corresponding to those over other properties (ref). (North, 1990) explains intellectual property rights as guidelines established by law that define rights to use, revenue generation, and ownership of resources. Democratic structures provide better protection of property rights for multiple reasons.

A democratic system defines institutions that ensure property rights are protected and effectively enforced. Nevertheless, the ability of a government to enact the law also grants it the capacity to deviate from it; an autocratic government is one such example (Haber et al., 2008). Therefore, the assurance of strong defense of property rights can solely be provided by a governing body that enforces limitations on its authority, including a democratic system (Harris, C., Cai, M., Murtazashvili, I., & Murtazashvili, 2020). Additionally, ensuring

functional resolution of disputes arising from the positive and negative outcomes of groups operating in an evolving economy strengthens the safeguarding of property rights within a democratic regime, a capability that is inherent to democratic governments (Abduh, 2021; Kalyvaki, 2023; Yuldashov, 2023). Democracy mitigates this risk by affording citizens lawful avenues to express their opinions via nonviolent means (Bethke & Pinckney, 2021; Etzioni, 2021). Democracy promotes oversight and harmony, limiting unlawful conduct and preventing the looting of shared fortunes. However, it's beneficial to note that the positive impact of democracy on property rights is linked to the political regime's robustness and long-term sustainability (Chang, H. J., & Andreoni, 2020; Montinola et al., 1995; Rodrik, 2004). Furthermore, the development of fundamental freedoms and political liberty is essential to the long-term survival of democracy, and these rights are necessary for safeguarding of property rights (North, 1993; Olson, 1993).

The Channel of Political Stability

Another way democracy influences growth is by fostering political stability (Acemoglu et al., 2019; Akalin, Guray; Erdogan, 2020; Przeworski, 2004; Shen, 2002). A political regime that is insecure discourages investment and slows down growth. In fact, political unrest lowers visibility and creates a state of ambiguity about the future hence scaring away investors from starting businesses. Primarily, a system of political democracy differs from other forms of government by enforcing open regulations to guarantee the rotation of political organizations. A political system based on democracy differs from other forms of government by enforcing open regulations to guarantee the rotation of political parties. (Kmezić, 2021) argues that legitimate government systems are distinguished by a distinct succession plan that forbids leaders from using any illegal means to seize power, while autocratic regimes frequently employ extralegal and threatening techniques (Stephan Haggard, 2021). Furthermore, (Weber, 1922) argues that institutional restraints that restrict the authority of political officials within the parameters of the laws stipulated in the constitution apply to a democratic government, which is not uncommon in authoritative regimes. Finally, an elected government would reduce the likelihood of political turmoil, particularly during leadership transitions, and instead lengthen the government's longevity by bolstering confidence in the viability of the political system (Elbahnasawy, 2020; Trinugroho, I., Achsanta, A. F., Pamungkas, P., Saputro, N., & Yuniarti, 2023; Vu, 2022).

The Channel of Human Capital Accumulation

Diverse social decisions are made depending on the institutional features of each political administration, especially when it comes to government spending on education and health care. A political system that is democratic is prevalent in this setting, enabling improved growth by way of the development of human capital (Avelino et al., 2005; Baum & Lake, 2003; Hornset & de Soysa, 2022). Given that spending on public education is funded by the government, redistribution strategies have a significant impact on a large portion of this expenditure.

Democracy will be more vulnerable to demands for redistribution if it both expands voting rights to all members of society by boosting political rivalry. Fulfilling the requests for equitable distribution enhances the availability of public goods and contributes, among several other things, to the advancement of the educational system (Busemeyer, 2007; Onaran Özlem, 2017; Shafuda & De, 2020; Yumei, H., Iqbal, W., Irfan, M., & Fatima, 2021). Therefore, the decision to embrace a democratic system of governance ought to make it easier to enact laws that support the growth of human capital. On the other hand, (Beloshitzkaya, 2020; Pelke, 2020) claim that an authoritarian regime manages to elude the popular strain for equitable distribution.

The Channel of Technological Innovations

The final avenue for democracy to spread toward development is through technological advancements. Considering that sustainable development is determined by technological advancement, (Romer, 1990) affirms that the possibility of a link between democracy and innovations in technology will inevitably have a positive impact on growth. There are a number of reasons that show how democracy and the implementation of new technologies are positively correlated. Compared to organizational structures, entities that exhibit a distribution of power among multiple bodies and a progressive dissolution of hierarchical connections are more likely to embrace new initiatives despite unpredictability. Considering that democracies tend to have more distributed and decentralized legitimacy, (Marks et al., 2008) believe that the reasoning above suggests that democracy has technological benefits. Democratic institutions are learning environments where members gather information, have discourse, modify their opinions, and revise previous knowledge (Hansson et al., 2015; Jaeger & Burnett, 2005; Lee-Geiller & Lee, 2019). In a democracy, these various attributes promote people's adoption of emerging technologies. In contrast to democrats, autocrats seek to curtail basic rights and restrict the flow of information both domestically and internationally in order to lessen the risks linked to their survival strategy (Knutsen, 2015; Maerz et al., 2020; Rosenberger & Gorman, 2020). This makes it harder to adapt to evolving technologies and prevents the spread of concepts and innovations that can generate revenue. Lastly, democracy encourages innovation and technological advancement by making it easier for creative businesses to enter and exit markets (Martinez-Bravo & Wantchekon, 2023; Richard, 2020; Williams, 2005). According to the conceptual framework created by (Howitt, 2008), the entry explains how democracy and the distance to the edge of technology relate. More precisely, given that these industries have higher barriers to entry and more competition, (Howitt, 2008) believe that democracy is more prevalent in more developed economies.

Hypothesis

H_1 Consistent with the endogenous growth model supported by (Saint-Paul, G., & Verdier, 1993), democracy may have a statistically significant impact on the tourism-growth nexus.

H_2 In conformity with the endogenous growth model endorsed by (Saint-Paul, G., & Verdier, 1993), democracy could have no statistically significant relationship on the tourism-growth nexus.

3. Methodology

3.1. Theoretical model

According to Xu et al. (2024), the final sector produces final goods using unskilled labor, measured as simple labor, and physical capital, represented by machinery. This sector operates in a perfectly competitive market and carries out production activities by employing unskilled labor and purchasing machinery, formalized as follows in Equation (1):

$$Y = L_Y^{\beta_1} \int_0^{\min[A,I]} x_i^{\beta_2} di \quad (1)$$

In Equation (1), β_1 and β_2 represent the production elasticities of machinery and unskilled labor, with $\beta_1 + \beta_2 = 1$. Y denotes the final output, L_y is the quantity of unskilled labor employed. A represents technology i refers to the variety of machinery and $\min[A, I]$ represents the input quantity of the i -th variety of machinery, determined by existing technologies and institutional quality. x_i and p_i are the quantity and price of the i -th variety of machinery, respectively. Given that institutional quality influences the adoption of new technologies in the market, we assume $A \geq I$. Thus, the production function for the final sector is expressed as follows in Equation (2):

$$Y = L_Y^{\beta_1} \int_0^I x_i^{\beta_2} di \quad (2)$$

Assuming that all machines are similar $x_i = x$ (Xu et al., 2024) for all i , the integral simply becomes a multiplication by I (the number of machine varieties) as apparent in Equation (3):

$$Y = L_Y^{\beta_1} \left(\int_0^I x^{\beta_2} di \right) = L_Y^{\beta_1} \cdot I \cdot x^{\beta_2} \quad (3)$$

This model is now a linear function in logarithmic terms, as we can take the logarithms on both sides to obtain the following linear form in Equation (4):

$$\ln Y = \beta_1 \ln L_Y + \ln I + \beta_2 \ln x \quad (4)$$

3.2. Empirical model

To examine the relationship between tourism, democracy, and economic growth, we extend Equation 4 and start with a two-way fixed effects model for panel data. Thus, the baseline model for the estimation is constructed as follows in Equation (5):

$$\ln GDP_{it} = \gamma_i + \beta_1 lTourism_{it} + \beta_2 lpop_{it} + \beta_3 FDI_{it} + \beta_4 Dev_fin_{it} + \beta_5 ICT_{it} + \beta_6 educ_{it} + \beta_7 dem_{it} + \lambda_t + \mu_{it} \quad (5)$$

Where $\ln GDP$ is the logarithm of GDP, $lTourism$ is the logarithm of tourism, $lpop$ is the logarithm of population, FDI denotes the foreign direct investment, Dev_fin is the financial development, ICT is the technology, $educ$ is the education, dem is the level of democracy. γ_i , λ_t and μ_{it} are

respectively the individual effect, the time-fixed effect, and the random error term. i and t respectively indicate the countries and time. Specifically, this study involves two steps. The first step is to examine the effect of tourism and democracy on economic growth according to Equation (6):

$$\ln GDP_{it} = \beta_0 + \beta_1 lTourism_{it} + \beta_2 lpop_{it} + \beta_3 FDI_{it} + \beta_4 Dev_fin_{it} + \beta_5 ICT_{it} + \beta_6 educ_{it} + \beta_7 dem_{it} + \varepsilon_{it} \quad (6)$$

The second step is to examine the impact of the interaction between tourism and democracy on economic growth according to Equation (7):

$$\ln GDP_{it} = \beta_0 + \beta_1 lTourism_{it} + \beta_2 lpop_{it} + \beta_3 FDI_{it} + \beta_4 Dev_fin_{it} + \beta_5 ICT_{it} + \beta_6 educ_{it} + \beta_7 dem_{it} + \beta_8 (ltourism_{it} \times dem_{it}) + \varepsilon_{it} \quad (7)$$

Where $ltourism_{it} \times dem_{it}$ is the interaction between tourism development and democracy

According to a study by Ofori et al. (2021) and Ofori and Asongu (2021), the net effect of tourism on economic growth can be calculated as follows in Equation (8):

$$\frac{\partial \ln GDP}{\partial ltourism} = \beta_1 + \beta_8 \overline{dem} \quad (8)$$

Where \overline{dem} is the average value of democracy. This effect is calculated for all five forms of democracy (see V-dem)

3.3. Data

This study focuses on a panel of 24 Sub-Saharan African countries² over the period 2000-2020. The scope of this analysis was defined due to missing data in the context of Sub-Saharan Africa. In the light of the problem statement which is to assess the role of democracy in the nexus between tourism and economic growth, economic growth the dependent variable, tourism is the main independent variable or channel while democracy is the moderating independent variable.

Five types of democracy are used in the study notably: electoral democracy, liberal democracy, deliberative democracy, participatory democracy and egalitarian democracy. Consistent with extant literature (Coppedge et al., 2018; Selseng et al., 2022; Iheonu & Asongu, 2024), (i) electoral democracy assesses the core principles a country must maintain to be recognized as democratic. The index uses Dahl's idea of polyarchy and emphasizes five political institutions that define modern representative democracy. These include elected officials; regular, free, and fair elections; freedom of the media and expression; freedom of

² Benin, Botswana, Burkina Faso, Burundi, Central African Republic, Ivory Coast, Egypt, Ethiopia, Ghana, Guinea, Kenya, Liberia, Malawi, Mauritania, Morocco, Mozambique, Niger, Nigeria, Senegal, Sierra Leone, South Africa, Sudan, Uganda, Zimbabwe

association; and universal suffrage. (ii) The democratic ideal of protecting individual and minority rights against both state tyranny and majority oppression is captured by liberal democracy. Countries scoring highly on this index have constitutions that secure civil liberties; an independent judiciary whose decisions are respected by the government; and a strong legislative branch enabled to investigate, oversee, and challenge the executive. (iii) Participatory democracy involves active citizen engagement in electoral and non-electoral activities, along with the presence and effectiveness of local and regional democratic institutions.

Still in line with the existing studies (Coppedge et al., 2018; Selseng et al., 2022; Iheonu & Asongu, 2024), nations with strong local or regional governments, extensive direct democracy, and high civil society involvement perform well on this index. (iv) Alternatively, deliberative democracy centers on how policies are decided and includes five elements. The first checks if policy decision-makers provide public and reasoned justifications; the second examines whether these justifications emphasize the common good; the third looks at whether political leaders recognize and respect opposing views; the fourth considers the level of elite consultation; and the fifth evaluates whether public debates during policy-making are open and feature active societal participation. (v) Egalitarian democracies use subcomponents of equal protection (ensuring individual rights and freedoms are equally safeguarded across social groups), equal access (power is fairly distributed across groups, genders, and socioeconomic classes), and equal distribution (resources are shared equally) to measure both material and immaterial equality. A more equal society indicates higher institutional quality and reflects countries with more developed democracies. Generally, democracy indicators score between 0 and 1 (from low to high).

The control variables include factors which have been documented to influence economic growth, notably: education, information technology, financial development, population growth and foreign investment (Asongu et al., 2024; Nguyen, 2025; Bazaluk et al., 2025). In interactive regressions, it is difficult to establish the expected signs of control variables because the control variables are likely to be correlated with the interactive independent variables of interest. It is specifically for this reason that thresholds of the moderation variable and/or net effects of the channels are computed in order to mitigate the concern of multicollinearity that is overlooked in interactive regressions in order to avoid documented pitfalls Brambor et al. (2006). These insights are consistent with contemporary interactive regressions literature (Mete et al., 2025; Asongu, 2025). The definitions and sources of variables are provided in Table 1.

Table 1: Description of the variables

Variables	Proxy of variable	Source of data
Lgdp	Logarithm GDP per capita	WDI
Ltourism	Logarithm International tourism number of tourist arrivals	WDI
Education	School enrollment, secondary (gross), gender parity index (GPI)	WDI
ICT	Mobile cellular subscriptions	WDI
Financial development	Domestic credit to private sector (% of GDP)	WDI
IPop	Logarithm population, total	WDI
FDI	Foreign direct investment, net inflows	WDI
Democracy variables	Democracy Index	V-DEM and authors

Source : Authors

3.4. Econometrics steps

To examine the moderating effect of democracy on the relationship between tourism development and economic growth, we begin by conducting a cross-sectional dependence test using Pesaran's (2004) CD test. As indicated in Table A1 in the appendix, all variables are statistically significant, confirming the presence of cross-sectional dependence in the sample. According to Dossou et al. (2023), this necessitates performing a unit root test. Next, we assess the integration properties of the model variables using Pesaran's (2007) method. As shown in Table A2 in the appendix, all variables become stationary at the first difference, indicating the presence of a unit root at the level. Furthermore, we analyze the cointegration relationship among the selected variables using Kao's (1999) method. The results, presented in Table A3 in the appendix, confirm the existence of a cointegration relationship. For estimation, we employ the Panel Corrected Standard Errors (PCSE) technique, developed by Jönsson (2005), which accounts for cross-sectional dependence. Additionally, to ensure the robustness of our findings, we apply the Fully Modified Ordinary Least Squares (FMOLS) estimation technique to account for cointegration. All estimations were conducted using Stata 15 software.

4. Results and Discussion

4.1. Descriptive statistics and correlation matrix

Tables 2 and 3 display the descriptive statistics and the correlation matrix, respectively. As shown in Table 2, the average GDP is 10.55, while the average number of international tourists, not adjusted by the natural logarithm, between 2000 and 2020 is approximately 1.45×10^9 . The minimum number of tourists, without the natural logarithm, is 900,000, while the maximum reaches around 1.43×10^{10} , with a standard deviation of 2.85×10^9 , indicating considerable disparities in tourism reception across countries (Figure 2). These figures highlight significant inequalities in the distribution of tourist flows at the regional level, potentially reflecting differences in infrastructure, marketing strategies, natural or cultural attractions, and political stability. These disparities necessitate further investigation to identify the factors contributing to the tourism success of some countries over others. For instance, Egypt recorded the highest number of tourists, while Burundi had the lowest in the region between 2000 and 2020. Additionally, Table 2 shows that the average level of foreign direct investment (FDI) is 4.10% of GDP, which is relatively low compared to Asia and Latin America. The average quality of democracy, measured by electoral democracy, liberal democracy, deliberative democracy, participatory democracy, and egalitarian democracy, is 0.498, 0.364, 0.406, 0.306, and 0.340, respectively. Logarithms are taken for some values in Table 2 in order to make the mean values of the variables comparable so that estimated coefficients do not appear in millions of units and render the presentation of results as well as interpretation cumbersome and difficult. Figures 1 and 3 illustrate that the most democratic countries in Africa are South Africa, Senegal, Botswana, and Ghana. Table 3 presents the correlation matrix, which shows a positive correlation between tourism, democracy, and GDP growth, suggesting that tourism and GDP growth are interconnected. Furthermore, the results indicate a positive correlation between the quality of governance and economic growth, highlighting the significant role governance plays in fostering economic growth.

Table 2 : Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max
GDP per capita (log)	10.553	1.509	7.64	14.068
Tourism (log)	13.396	1.669	7.972	16.532
Electoral democracy	0.498	0.195	0.115	0.849
Liberal democracy	0.365	0.186	0.022	0.731
Deliberative democracy	0.407	0.185	0.052	0.77
Participatory democracy	0.307	0.127	0.058	0.585
Egalitarian democracy	0.341	0.155	0.059	0.642
FDI	4.101	8.613	-11.199	103.337
Population (log)	16.578	1.112	14.362	19.155
Financial development	21.963	25.823	1.604	142.422
Mobile	49.398	43.159	0.018	165.6
Education	0.866	0.185	0.383	1.388

Table 3: Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) GDP per capita (log)	1.000											
(2) Tourism (log)	0.729*	1.000										
(3) Electoral democracy	-0.053	0.098*	1.000									
(4) Liberal democracy	0.028	0.223*	0.961*	1.000								
(5) Deliberative democracy	0.012	0.189*	0.962*	0.969*	1.000							
(6) Participatory democracy	-0.025	0.128*	0.944*	0.927*	0.925*	1.000						
(7) Egalitarian democracy	-0.094*	0.080	0.962*	0.965*	0.948*	0.925*	1.000					
(8) FDI	-0.173*	0.021	0.086*	0.058	0.081	0.038	0.041	1.000				
(9) population (log)	0.856*	0.503*	-0.222*	-0.160*	-0.157*	-0.189*	-0.247*	-0.139*	1.000			
(10) Financial development	0.539*	0.619*	0.193*	0.280*	0.254*	0.259*	0.193*	-0.082	0.317*	1.000		
(11) Mobile	0.397*	0.456*	0.279*	0.291*	0.271*	0.299*	0.250*	-0.004	0.099*	0.428*	1.000	
(12) Education	0.175*	0.437*	0.198*	0.234*	0.165*	0.202*	0.221*	0.006	-0.108	0.340*	0.429*	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

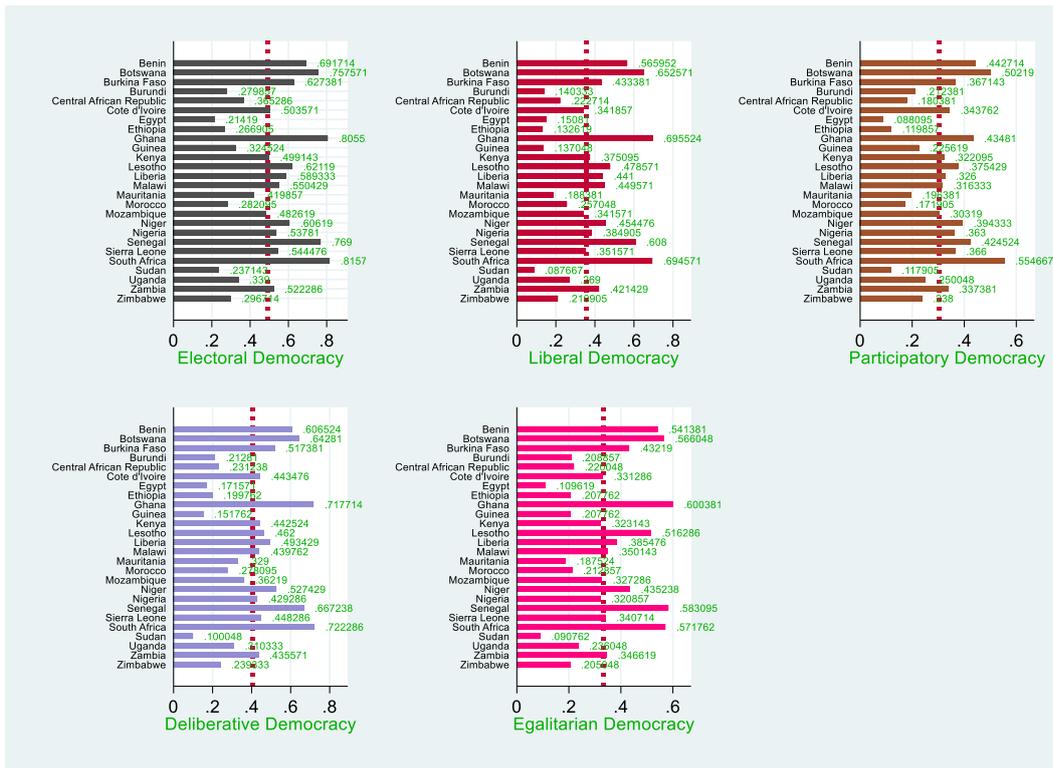


Figure 1. Average In-Country democracy performance in Africa, 2000 – 2020

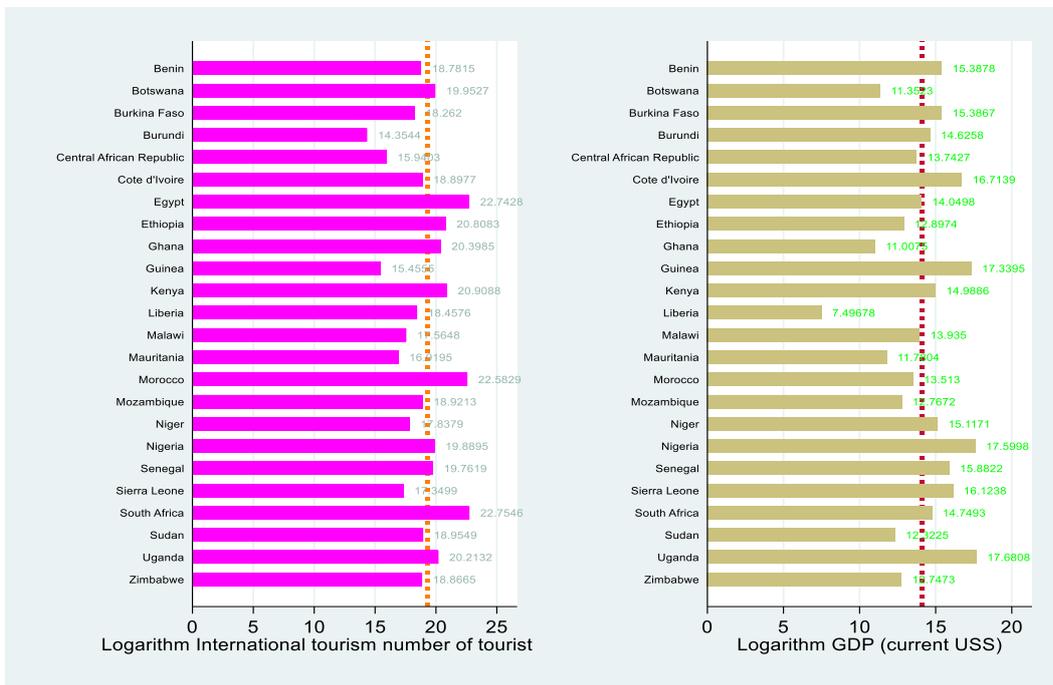


Figure 2. Average In-Country economic growth performance and tourism development in Africa, 2000 – 2020

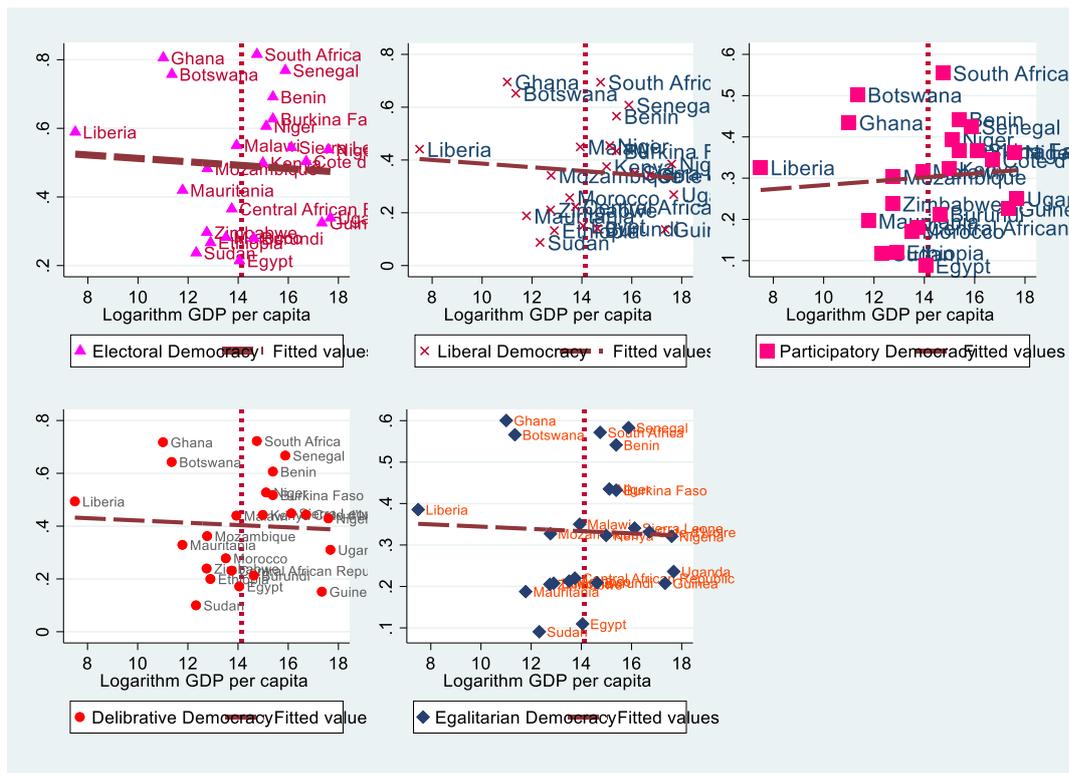


Figure 3. The Relationship between economic growth and democracy in Africa over the period 2000-2020

4.2. PCSE results

The PCSE results for the combined effects of tourism, governance quality, and economic growth are presented in Table 4. The findings indicate that financial development positively influences economic growth, suggesting that increases in financial development can help drive economic growth. These results align with previous studies (Arestis & Demetriades, 1997; Bayraktar et al., 2023; Bekaert et al., 2005; Bist, 2018; Caporale et al., 2014; Durusu-Ciftci et al., 2016; Hassan et al., 2011; Yang, 2019). Specifically, Bist (2018), using the fully modified OLS estimation technique, examined the relationship between financial development and economic growth in 16 low-income countries from 1995 to 2014. Their findings revealed that financial development promotes economic growth by mobilizing savings, allocating resources, and mitigating risks. Yang (2019) obtained similar results, studying the relationship between financial development and economic growth. Additionally, Bekaert et al. (2005) supported these findings, explaining that improvements in the banking system foster economic growth by enabling more efficient resource allocation, improving access to credit for businesses, and stimulating investment. By mobilizing savings and reducing transaction costs, the financial sector creates a conducive environment for economic expansion and productive activities. However, columns 6 and 7 show that financial development may have a negative impact on

economic growth, which could be due to contradictory mechanisms such as resource redirection toward less productive sectors or investment crowding-out effects. Additionally, fragile democratic institutions might hinder the effectiveness of economic policies, transforming potential benefits from financial development into constraints on growth. Fengju & Wubishet (2024) argue that the impact of financial development on economic growth in Africa is multifaceted, noting that while financial development generally has a positive effect on growth, this impact varies depending on the quality of governance in the countries.

The coefficients for education are negative and significant, suggesting that high enrollment rates do not necessarily translate into adequate training or skills that match labor market needs, limiting their positive effect on productivity (Cristina et al., 2023; Hanushek & Woessmann, 2020; Marquez-Ramos & Mourelle, 2019). In economies dominated by informal or agricultural sectors, schooling may divert people from employment or short-term production, temporarily slowing growth. However, from columns 6 to 10, the results indicate that the enrollment rate boosts economic growth, which could be attributed to the fact that democratic governance may improve the effectiveness of educational investments by supporting policies that encourage job creation and productivity. Moreover, in democratic systems, the tourism sector, along with a more educated workforce, could stimulate related industries such as services and attract further investment, promoting sustainable growth. The effectiveness of the enrollment rate depends on the institutional and economic context, as well as the ability of other sectors to leverage a more educated workforce.

Additionally, foreign direct investment (FDI) shows a negative and significant effect on economic growth in Sub-Saharan Africa (columns 6 to 10). For instance, in column 6, an increase of one unit in FDI reduces economic growth by 0.0188 units, implying that FDI negatively affects economic growth. This finding contradicts the results of Ahmad et al. (2018), who examined the relationship between FDI and economic growth. In many African countries, FDI is concentrated in extractive sectors (such as mining, oil, and gas), which yield limited positive spillovers to other economic sectors. These investments can create over-dependency, limit economic diversification, and contribute to the Dutch disease, where capital inflows cause currency appreciation and harm export competitiveness.

When considering the variables of interest, the results show that international tourism positively and significantly impacts economic growth in all columns, indicating that tourism development can promote economic growth. This aligns with previous studies (Albaladejo et al., 2023; El Menyari, 2020; Haller et al., 2021; Id et al., 2022; Kadir & Karim, 2012; Pan & Dossou, 2020; Paramati et al., 2017; Pulido-Fernández & Cárdenas-García, 2020; Rasool et al., 2021; Scarlett, 2021). Specifically, Haller et al. (2021), using a panel of 28 European countries, found that tourism drives economic growth. Likewise, Id et al. (2022) applied a panel data cointegration

test, Granger causality test, and Wavelet coherence analysis to investigate the relationship between tourism and economic growth across 105 countries from 2003 to 2020, revealing that tourism contributes to economic growth. However, Haini et al. (2023), using a panel of 143 economies from 1995 to 2017, and Du et al. (2014), who studied 109 countries, found that tourism has an insignificant effect on economic growth. Similarly, Antonakakis et al. (2015), investigating the tourism-economic growth relationship in 10 European countries, found it to be unstable. Brida et al. (2020), using a panel of 80 countries, also reported heterogeneous results.

The analysis of Table 4 reveals that democratic governance in African countries negatively affects economic growth, regardless of the democracy measure. In fact, the coefficient for each democracy measure is negative and statistically significant. In some democratic contexts, pressure from political parties and interest groups may lead to ineffective economic policies, poorly directed public spending, or mismanagement of public resources. Democratically elected governments may prioritize short-term voter needs (e.g., through populist policies) over long-term economic reforms. Furthermore, changes in government within democratic systems can disrupt economic policies, complicating the continuity of development initiatives. In some cases, democratic decision-making processes can be slow and inconsistent, as they involve negotiations and compromises between various political parties and interest groups. This slower pace may delay the implementation of urgent economic reforms, hindering economic growth. Several authors (Haggard, 1990; Przeworski, 1991; Haggard & Kaufman, 1995; Garrett, 2000; Rodrik, 2000; Acemoglu, Robinson & Torvik, 2013) have shown that democracy can slow down economic development, with explanations linked to information asymmetry between principals and agents. For example, Rodrik (2000) suggests that asymmetric behavior of agents has controversial economic and social effects, while Przeworski (1991) argues that democracies are prone to implementing short-term reforms that may be abandoned in favor of personal interests in the long run. Acemoglu et al. (2013) assert that democracy is vulnerable to social pressures and that only non-democratic systems can withstand such movements. However, the underlying explanation on the unconditional effect of democracy should be considered as informational because the unconditional effect of democracy should be zero when the partial derivative of economic growth on tourism is taken. Hence, the unconditional effect of democracy is zero when assessing the moderating effect of democracy on the nexus between tourism and economic growth.

This study focuses on the moderating effect of democracy quality on tourism and economic growth. The net effect is calculated as follows, using column (6):

$$\frac{\partial GDP}{\partial Tourism} = \beta_1 + \beta_8 \times \overline{ElectoralDem} = [0.0433 + (0.693 \times 0.498)] = 0.388414$$

Here, 0.0433 is the unconditional effect of tourism on economic growth, 0.693 is the conditional impact of tourism, and 0.498 is the average value of electoral democracy.

For column (7), the net effect is:

$$\frac{\partial GDP}{\partial Tourism} = \beta_1 + \beta_8 \times \overline{Liberaldem} = [0.102 + 0.930 \times 0.365] = 0.44145$$

Where 0.102 is the unconditional effect of tourism, 0.930 is the conditional impact, and 0.365 is the average value of liberal democracy.

In column (8), the net effect is:

$$\frac{\partial GDP}{\partial Tourism} = \beta_1 + \beta_8 \times \overline{Deliberatedem} = [0.0695 + 0.830 \times 0.407] = 0.40731$$

Where 0.0695 is the unconditional effect, 0.830 is the conditional impact, and 0.407 is the average value of deliberative democracy.

For column (9), the net effect is:

$$\frac{\partial GDP}{\partial Tourism} = \beta_1 + \beta_8 \times \overline{Participatorydem} = [0.0517 + 0.953 \times 0.307] = 0.344271$$

Where 0.0517 is the unconditional effect, 0.953 is the conditional impact, and 0.307 is the average value of participatory democracy.

Lastly, in column (10), the net effect is:

$$\frac{\partial GDP}{\partial Tourism} = \beta_1 + \beta_8 \times \overline{Egalitariandem} = [0.0608 + 1.045 \times 0.341] = 0.417145$$

Where 0.0608 is the unconditional effect, 1.045 is the conditional impact, and 0.341 is the average value of egalitarian democracy.

The results also show that financial development has a positive and significant impact on economic growth. A one-unit increase in financial development could boost economic growth by 0.0132 units (columns 1 to 5). Additionally, mobile telecommunications (ICT), as a proxy for innovation, positively and significantly affects economic growth (columns 1 to 10), with improvements ranging from 0.00656 in column 1 to 0.00402 in column 10 for each ICT improvement. This confirms the positive role of technology in economic growth. Lastly, secondary school enrollment rates show varied effects on economic growth. Initially, without interactions between democracy and tourism, an increase in enrollment rates seems to reduce economic growth in Sub-Saharan African countries.

Table 4 : The PCSE results.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Tourism	0.242*** (9.00)	0.248*** (8.77)	0.244*** (8.50)	0.238*** (10.64)	0.245*** (10.01)	0.0433* (1.65)	0.102*** (3.86)	0.0695*** (2.68)	0.0517* (1.87)	0.0608** (2.40)
FDI	-0.00785 (-1.54)	-0.00780 (-1.52)	-0.00800 (-1.53)	-0.00720 (-1.47)	-0.0081 (-1.59)	-0.0188*** (-4.01)	-0.0194*** (-4.14)	-0.0207*** (-4.18)	-0.0171*** (-3.74)	-0.0202*** (-4.13)
Financial development	0.0132*** (10.95)	0.0132*** (11.11)	0.0131*** (10.85)	0.0141*** (13.22)	0.013*** (11.48)	-0.00177 (-1.09)	-0.00498*** (-3.07)	-0.00324** (-2.20)	-0.000466 (-0.30)	-0.00230 (-1.60)
Mobile	0.00656*** (6.67)	0.00649*** (6.65)	0.00652*** (6.59)	0.00673*** (6.66)	0.006*** (6.63)	0.00395*** (5.72)	0.00373*** (5.19)	0.00382*** (5.18)	0.00459*** (5.81)	0.00402*** (5.50)
Education	-0.904*** (-4.69)	-0.906*** (-4.63)	-0.939*** (-4.67)	-0.885*** (-4.56)	-0.83*** (-4.40)	1.139*** (5.93)	1.191*** (7.47)	1.185*** (6.82)	1.321*** (6.16)	0.902*** (4.52)
population	2.426*** (24.69)	2.420*** (24.98)	2.438*** (24.40)	2.402*** (27.12)	2.343*** (25.02)	1.901*** (17.88)	1.863*** (16.93)	1.901*** (17.69)	1.962*** (20.91)	1.835*** (18.29)
Electoral democracy	-0.378*** (-3.42)					-1.459*** (-11.19)				
Liberal democracy		-0.379*** (-3.50)					-1.925*** (-14.44)			
Deliberative democracy			-0.288** (-2.43)					-1.724*** (-15.64)		
Participatory democracy				-1.005*** (-5.21)					-2.040*** (-11.74)	
Egalitarian democracy					-0.889*** (-6.72)					-2.197*** (-15.31)
Electoral democracy x Tourism						0.693*** (10.92)				
Liberal Democracy x Tourism							0.930*** (13.87)			
Deliberative Democracy								0.830***		

x Tourism								(15.01)		
Participatory Democracy x Tourism									0.953***	
									(11.18)	
Egalitarian Democracy x Tourism										1.045***
										(14.85)
Constant	7.097*** (28.99)	6.968*** (27.11)	7.014*** (27.27)	7.228*** (33.60)	7.131*** (30.67)	9.285*** (30.23)	8.375*** (30.77)	8.799*** (33.47)	8.947*** (28.29)	9.293*** (34.93)
R2	0.8263	0.8261	0.8255	0.8303	0.8311	0.9262	0.9246	0.9276	0.9228	0.9292
N	266	266	266	266	266	235	235	235	235	235

4.3. Robustness check

To ensure the validity of our results, we perform robustness tests. Since the variables in this study are cointegrated, we apply the Fully Modified Ordinary Least Squares (FMOLS) method to account for cointegration. The findings align with those obtained using the PCSE method (Table 5). Our analysis reveals that information technologies, education, and demographic growth contribute positively to economic growth. Regarding our key variables, we find that enhancements in democratic governance quality in Sub-Saharan Africa may hinder economic growth. Additionally, tourism has a positive and statistically significant impact on economic growth. Likewise, the interaction coefficients between tourism and democratic governance are also positive and significant.

In summary from the findings in Table 4 and Table 5, there are positive synergies from the interaction between democracy and tourism because while tourism promotes economic growth, democracy complements tourism to further promote economic growth. This is consistent with contemporary interactive regressions literature on synergies when both the unconditional and conditional effects of the channel have the same sign (Metete et al., 2025; Asongu, 2025).

5. Conclusion and policy Implications

Although numerous studies have explored the relationship between tourism and economic growth, research on the moderating role of democracy in this relationship remains debated. To complement the literature, this study investigates how democracy influences the tourism-economic growth nexus across 24 African countries from 2000 to 2020. Additionally, it examines the marginal effects of tourism on economic growth at different levels of democracy. The study employs five proxies for democracy—electoral democracy, liberal democracy, deliberative democracy, participatory democracy, and egalitarian democracy. Using various panel cointegration tests, the results confirm a long-run relationship between democracy, tourism, and economic growth. The study applies the panel corrected standard errors (PCSE) estimation technique to analyze the parameters. Findings reveal that tourism positively contributes to economic growth. Moreover, the interaction between tourism and democracy shows the potential to drive economic growth in the region. Hence, there are positive synergies from the interaction between democracy and tourism because while tourism promotes economic growth, democracy complements tourism to further promote economic growth.

The economic significance of this finding is that tourism plays a role in boosting GDP levels in Africa. For example, governments should invest in various tourism-related sectors, such as transport infrastructure (airports, roads, railways) and digital infrastructure, to enhance tourism and stimulate economic growth. Additionally, providing tax incentives for tourism-related businesses, including hotels, airlines, and tour operators, can attract both local and foreign direct investment, further driving economic expansion. Furthermore, the government should implement policies that ease restrictions on foreign direct investment (FDI) in the tourism industry, as this can enhance capital inflows and drive economic growth. Similarly, the government should invest in tourism education to improve service quality and create job opportunities. The economic implication of this finding is that the impact of tourism on economic growth becomes more significant as the level of democracy—whether electoral, liberal, deliberative, or participatory—declines in African nations. Since tourists tend to visit destinations that uphold freedom of speech, safety, and human rights, governments should prioritize the protection of political and civil liberties. Similarly, the government should promote tourism sector reforms through cultural exchange.

Although this study presents a novel contribution, it is important to acknowledge certain limitations that future research can address. First, given the significant disparity between developed and developing nations in terms of democracy and tourism arrivals, future studies could explore the moderating role of democracy in the relationship between tourism and economic growth, specifically in developed countries. Second, as this study focuses on regional nations, future research could extend the analysis by conducting case studies in regions such as Asia, Latin America, and developed countries.

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Appendix

Table A1
Pesaran (2015) cross-sectional dependence test

Variables	Statistics	P-value
GDP	71.75***	0.000
Tourism	37.79***	0.000
Electoral democracy	6.96***	0.000
Liberal democracy	6.52***	0.000
Deliberate democracy	3.91***	0.000
Participatory democracy	5.92***	0.000
Egalitarian democracy	4.16***	0.000
Foreign development indirect	4.59***	0.000
Financial development	19.89***	0.000
Information technology	76.90***	0.000
Education	13.78***	0.000
Population	81.76***	0.000

***Indicates 1 % level of significance.

Table A2. Pesaran's cross-sectional augmented Dickey–Fuller.

Variables	Intercept	Intercept and
	t bar	trend
	t bar	t bar
Level		
GDP	-1.683	-2.206
Tourism	-0.818	1.928
Electoral democracy	-1.567	-2.273
Liberal democracy	-1.717	-2.442
Deliberate democracy	-1.535	-2.431
Participatory democracy	-1.304	-2.195
Egalitarian democracy	-1.428	-2.228
Foreign development	-2.288***	-2.956***
indirect		
Financial development	0.458	1.289
Information technology	-5.774***	-2.281**

Education	-1.623*	1.791
Population	-2.706***	-3.487***
First difference		
GDP	-2.490***	-3.035***
Tourism	-6.588***	-3.635***
Electoral democracy	-2.890***	-3.006***
Liberal democracy	-3.045***	-3.137***
Deliberate democracy	-2.794***	-2.784***
Participatory democracy	-2.971***	-3.122***
Egalitarian democracy	-2.788***	-2.904***
Foreign development indirect	-3.517***	-3.505***
Financial development	-5.009***	-1.563*
Information technology	-7.661***	-6.830***
Education	-3.378***	-1.235*
Population	-2.918***	-3.083***

(*), (**) and (***) Indicates respectively 10%, 5% and 1 % level of significance.

Table A3 co-integration test

	Statistic	p-value
Augmented Dickey-Fuller	1.9877	0.0234

Notes: *** denotes statistical rejection significance at 5 % level.