

Panel Method Analysis of the Causal Relationship Between Tax Revenues and Employment in Terms of Sustainable Tourism Earnings

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Abstract: The tourism sector encompasses a wide range of activities, businesses, employment agreements, and working conditions. The analysis of economic activities, such as tourism, within the context of productivity considerable importance is placed on the aspect of employment. Consequently, the process of formulating tax policy is a complex undertaking that is often influenced by a multitude of interests and variables, all of which are susceptible to abrupt fluctuations. The tourism industry serves as a catalyst for economic and social progress while also generating increased tax revenues for governmental bodies. The purpose of this research is to examine the impact of tourism revenues and employment rates on tax revenues. The study model was examined using data obtained from South Africa and Morocco during the period of 2002-2020 by using the fixed effects method, a panel analytic approach. Additionally, the study uses annual data and applies the Friedman, Pesaran, and Frees tests. In order to gain a comprehensive understanding of the impact of the tourism sector on the nation, the study incorporates an examination of employment rates. The findings of the study indicate that there is no statistically significant correlation between tax revenues and tourism earnings in South Africa and Morocco. There exists a significant correlation between employment rates and tax receipts. According to the estimation, there is a positive correlation between employment rates and tax collections. Based on the aforementioned analysis, it is recommended that the government implement measures aimed at stimulating employment and fostering the creation of new workplaces through the formulation and implementation of public policies.

Keywords: tourism economics; tourism revenues; tax earnings; employment; panel analysis

1 Introduction

Since the late 1980s, research on sustainable tourism has grown in popularity. Through a rise in innovations across all business-related domains, competitiveness and sustainable tourist development are intimately intertwined. The discussion on ecologically integrated tourist development mostly centers on sustainable tourism; nevertheless, research to date indicates that sustainability is a multifaceted notion requiring a more thorough and critical examination.

In economic theory, economic growth plays a significant role in expressing the function and accountability of the state in conducting economic affairs. Tax capacity rises as economies grow. This is already the case for emerging nations, and historically, these resources have eventually benefited today's wealthy nations as well. The ratio of total tax revenue to gross domestic product is the taxation metric that is most often used globally (GDP). Countries tend to produce greater revenue in relation to GDP as they advance economically. There are many studies in the literature that analyze the effect between tourism revenues and economic growth. In a study conducted by Huseynli [1], the relationship between international tourism revenues and economic development of Kazakhstan and Kyrgyzstan in the 1998-2019 period was examined.

The literature is replete with research that demonstrate how much tax revenues influence economic performance [2, 3]. Energy consumption rises because of tax revenue's significant impact on financial performance in this setting. Local taxes and expenditure are often relatively low in low-income nations, and central governments may not be motivated to change this by providing local authorities with a sizable prospective cash stream [4]. Low-income nations do not make the most of their tax earnings. This low tax initiative is mostly the result of institutional capability gaps and corruption. It is arguable that high-income nations have well-developed institutions and high tax efforts. This indicates that a nation's tax endeavor is extremely sensitive to its institutional or governance structure [5]. One of the primary conduits for implementing fiscal policy is tax income. This channel is crucial for accomplishing fundamental macroeconomic objectives including price stability and economic growth [6].

South Africa's food production industry is vibrant and competitive, allowing the nation to consistently export agricultural goods on a net basis. Business and labor groups have recently voiced worries that the government's plans to enact a carbon tax policy will have an impact on the food supply, which will worsen unemployment and food poverty in the nation [7]. South Africa is prone to global shocks due to its open economy, comparatively well-developed financial sector, and heavy reliance on capital flows. Studies on South Africa's commercial connections with the BRICS (Brazil, Russia, India, China, and South Africa) nations have been done [8, 9]. In research published by Jensen [10], it was examined how the shift from temporary work to civil service positions causes the rise in tax capacity.

Strict rules and labor market distortions work together to limit job creation (particularly for women and young people) and produce high and chronic unemployment. High hiring and firing costs are a significant obstacle in this respect, as Moreira [11] noted, and inadequate information access impedes the effective operation and cohesiveness of the labor market, particularly by limiting and increasing the cost of job searching.

Tax revenues of South Africa and Morocco [7, 12-15] and employment [11, 16-17] have been studied in the literature. Based on all these, this study investigated the causal relationship between tourism earnings, tax revenues and employment in South Africa and Morocco with panel data analysis in the 2002-2020 period.

1.1 Sustainable Tourism Earnings

We evaluate the literature on the tourism growth nexus in this subsection. According to the research we reviewed, there has been much discussion on how tourism affects economic growth. Studies have been carried out using various approaches and models in a country-specific and/or multi-country framework. The direct economic benefits of tourism include creating foreign exchange, creating jobs, contributing to incomes, and promoting development [18]. Tourism income growth or decline is closely correlated with economic development and growth [19-22]. Studies have demonstrated that financial progress and economic growth are associated [23-24]. This relationship is not one-sided; rather, it supports both financial and economic development. Such that a 10% financial development corresponds to an economic growth of 2.7% [23]. It is still yet unknown whether increased tourism would successfully spur economic growth. Belloumi [25] for Tunisia, Akinboade and Braimoh [26] for South Africa, Tang and Abosedra [27] for Lebanon, and others have observed that tourism and economic growth are likely to be cointegrated and that tourism Granger-causes economic growth using the cointegration and Granger causality tests.

Fletcher and Morakabati [28] investigated how political unrest and acts of terrorism affected travel to Kenya and Fiji. They concluded that the partnership was unstable. However, it has been demonstrated that certain political events, such as international battles and military coups, have significantly more profound consequences than minor to moderate one-off terrorist strikes. In another study by Huseynli [29], the causality relationship between the development of the tourism sector in Morocco, South Africa and Tanzania and foreign investments, total capital increases and economic growth in these countries was examined.

The discussion on ecologically integrated tourist development mostly centers on sustainable tourism; nevertheless, research to date indicates that sustainability is a multifaceted notion requiring a more thorough and critical examination. Sustainable tourism is associated with cultural, social, and economic sustainability in addition to responsible use of the environment. One way to conceptualize environmentally

sustainable tourism is as a kind of travel that is feasible given a stable or sustainable environment.

1.2 Tax Revenues

Making tax policy is a complicated process that is regularly influenced by a variety of interests and variables, all of which are subject to rapid change. Tax policy is typically strongly influenced by prior decisions and frequently surpassed by current events [30]. Tax policy decisions have always been influenced by economic, administrative, political, and social factors, which have also placed limitations on what may be done. Of course, the basic goal of tax policy is to raise enough money to pay for the intended government spending. Building a strong state and preserving or strengthening its legitimacy depend heavily on the capacity to generate enough income to pay public spending.

Almasaeed and Tsaregorodtsev [31] verified that public spending has a favorable impact on economic growth whereas tax revenue has a negative impact. According to research by Shmelev and Speck [32], India's carbon price has a beneficial impact on enhancing environmental quality. According to Yuelan et al. [33], environmental taxes have a major impact on Sweden's efforts to reduce CO₂ emissions. In research by Angou and Nmili [13] analyzed the level of tax evasion in Morocco from 1985 to 2016. The research's findings show that, respectively, tax evasion and the informal economy accounted for an average of 6.19% and 38.74% of GDP in Morocco throughout the 1985-2016 study period.

According to Gurdal et al. [34] research, there is a long-term causal relationship between economic growth and tax revenues as well as a bidirectional causal relationship between economic growth and public expenditures in the short and long terms. However, there is no causal relationship between economic growth and tax revenues. Aremo and Abiodun [35] used Granger causality to examine the relationship between fiscal policy and economic growth, and they found no evidence of a causal relationship between the two in low-and middle-income Sub-Saharan African nations. It may be claimed that the methodology utilized and the economic climate of the nation where the study was done should be considered while attempting to understand how taxes affect economic growth [36].

1.3 Employment

Currie and Harrison [16] conducted an analysis to determine how recent trade changes in Morocco had affected the country. It has been said that environmental financial reform will contribute to increase the number of jobs available in Morocco's formal sector. This is because, unlike most other taxes, the formal and informal effects of gasoline taxes are felt throughout the whole economy. When taxes on gasoline are applied at the highest point where fuel enters the economy,

such as a port or refinery, it is not feasible to dodge taxes by escaping to the informal sector. This is because the taxes are administered at the highest point where fuel enters the economy. This eliminates one of the impulses to avoid working in the official sector or registering one's small business. In the research that was carried out by Onuoha and Moses Oyeyemi [17], the relationship between disaggregated public spending and the unemployment rate of 17 different nations, one of which being Morocco, was investigated.

The study by Moreira [11] examines Morocco's growth and employment prospects in the context of a new growth model that aims to allow the country to avoid falling into the middle position in a rapidly changing international environment that is marked by increased competition from low-wage economies and the growing automation of low-skilled jobs. Morocco's growth and employment prospects are examined in the context of a new growth model that aims. When income tax cuts target the section of the population that is most likely to migrate to the informal sector, such as low-income employees and small to medium-sized firms, employment benefits can be particularly considerable. Despite Morocco's strong performance in terms of economic growth over the course of the last few decades, the country's unemployment rate has remained persistently high at approximately 10 percent throughout the course of the last few years, particularly for young skilled employees. The high unemployment rate is particularly concerning considering that the proportion of people participating in the labor force is quite low and is beginning to fall, particularly among women [11].

2 Method

2.1 Purpose and Data Set of the Study

In the context of the African continent, the effect of tourism earnings and employment rate on tax revenues was examined by panel data analysis method, within the framework of the data obtained in the direction of South Africa and Morocco countries. The variables related to the analysis cover the years 2002-2020. The data regarding the countries were obtained from the World Bank electronic data presentation page and were included in the analysis by taking the logarithm of tax revenues and tourism revenues from the variables.

The empirical analysis of this study was conducted on the Republic of South Africa and Morocco. The main reason for selecting the Republic of South Africa and Morocco in this study is that both countries have the status of developing economies and the effects of the tourism sector on the macroeconomic structure and public finances are significant. Accordingly, it is known that both countries are among the leading countries in Africa in terms of tourism revenues and that tourism is a

strategic sector in terms of its job creation capacity. However, both countries have structural problems such as high unemployment rates, widespread informal employment and a limited tax base [13]. These common features allow for a comparative examination of the effects of tourism revenues and employment on tax revenues. Methodologically, the availability of regular, comparable and reliable data sets for both countries for the period 2002-2020 meets the methodological requirements of panel data analysis and strengthens the consistency of the findings obtained.

2.2 Analysis Method

The ability to combine time series with cross section series to create a data set with both time and cross section dimensions is the most crucial aspect of panel data analysis. In this sense, as the number of data grows, the likelihood of discovering a very linear connection between the explanatory factors decreases as well [37].

Models that consider unobservable effects across both unit and time are referred to as two-way panel data, whereas models that consider only the unit or time dimension are referred to as one-way panel data. Depending on whether these impacts are fixed or random, panel data may be categorized. Under the assumption of fixed effects, it is expected that these effects relate to the explanatory variables if the one-way unit effect is valid. This model may be estimated using a variety of techniques [38].

In this regard, tax revenues, tourism profits, and employment are all considered for the selected African continent countries. The analysis of the data went without any issues. By using the logarithm of tax revenues and tourism profits, it was taken into consideration in the study.

Panel data values for each year provide the panel's section size, while the values of economic variables across time reveal the panel's temporal dimension. The following is the fundamental equation used in panel data analysis. This equation is described by Equation (1).

$$L_{tax} = \alpha_0 + \beta_2 employment + u_{it} \quad (1)$$

$$i = 1, \dots, N; t = 1, \dots, T$$

In equation (1), the cross-sectional part of the model shows the data of $i=1, \dots, N$ number of countries, firms, or households. The time series part of the model represents $t=1, \dots, T$. In this study, $i=2$ and $N=2$. Here, it is accepted that the error term u_{it} is independent for all time and units and distributes in the form of $u_{it} \sim \text{IID}(0, \sigma^2)$ [39].

3 Analyses and Results

The statistics of the variables are summarized in Table 1 before constructing the model. Looking at Table 1, the minimum and maximum values of tax revenues, earnings from the tourism sector and employment rates are given. After examining the specific statistical results of the data, the necessary modeling was done for the analysis part.

The model required for the analysis part is described by Equation (2).

$$L_{tax\ revenue} = \beta_0 + \beta_1 L_{tourism\ revenue} + \beta_2 employment + \mu \quad (2)$$

The model includes logarithmic values of tax revenues and tourism earnings. Other dependent variables on tax revenues are expressed independently.

Table 1
Special statistics of variables after logarithmic transformation

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
L _{tax revenue}	38	11.547	0.368	10.948	12.145
L _{international tourism receipts}	38	9.884	0.155	9.433	10.049
Employment	38	12.091	0.510	8.968	11.044

Source: Prepared by the author as a result of the analysis

Classical model, fixed effects model and random effects model are used in panel data analysis. Which of these estimation methods will be used is determined as a result of the tests? In this study, F and LR (Likelihood Ratio) Tests were used to determine the presence of unit and/or time effects in the model. The F Test measures whether the data moves in units. In the F test, the H_0 hypothesis is “*There is no unit and/or time effects*”. The LR (Likelihood Ratio) test was used to determine unit and/or time effects. The test statistic described by Equation (3).

$$LR = -2[l(restricted) - l(unrestricted)] \quad (3)$$

Hypotheses:

- H_0 : Classic model suitable.
- H_1 : Classic model is not suitable.

If the H_0 hypothesis is rejected; It is judged that there are unit and time, or both unit and time effects, so the classical model is not suitable. Below (Table 2) are the results of the odds ratio (LR) test on these data.

Table 2
Likelihood ratio (LR) test results

	LR Statistics	Probability Value
Unit and Time Impact	69.00	0.0000

Unit Impact	51.06	0.0000
Time Effect	1.8e-14	1.0000

Source: Prepared by the author as a result of the analysis.

Hypotheses:

- For unit and/or time effects; $H_0: \sigma\mu = 0$; $H_1: \sigma\lambda = 0$.
- At least one non-zero for unit effect only; $H_0: \sigma\mu = 0$; $H_1: \sigma\mu \neq 0$.
- Only for the case of time effect; $H_0: \sigma\lambda = 0$; $H_1: \sigma\lambda \neq 0$.

As a result of the analysis, since the probe value was <0.05 small, the H_0 hypothesis was rejected, and it was decided that it was not suitable for the classical model. So, there is any effect on this modeled. When the analysis is examined in more detail, it is seen that there is a one-sided and unitary relationship in the model.

After proving that there is a unit effect in the model, other tests were made to test whether this effect was constant or random. Hausman test tests whether explanatory variables and unit (time) effects are correlated [40]. Hypotheses:

- $H_0: E(\varepsilon_{it}/X_{it})=0$. The output obtained here is as follows: The random effects model is suitable.
- $H_1: E(\varepsilon_{it}/X_{it})\neq 0$. The output from here is as follows: Fixed effects model is suitable.

Table 3
Hausman and Rhausman test results

Test Name	Test Statistics	Probability Value
Hausman	12.27	0.0041
Rhausman	0.69	0.8121

Source: Prepared by the author as a result of the analysis

Hypotheses:

- H_0 : The random effects model is appropriate.
- H_1 : Fixed effects model appropriate.

The Hausman and Rhausman Test is used to test whether the effect is random or fixed. The Rhausman test gives more reliable results when compared to the Hausman test. For this reason, progress has been made based on the Rhausman test values. In other words, the random effects model is valid in the study [41, 42].

Table 4
LBI test results of Durbin Watson and Baltagi-Wu

Test Name	Test Statistic
Durbin Watson	0.39356488

Baltagi-Wu'nun LBI	0.75823284
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Source: Prepared by the author as a result of the analysis

Hypotheses:

- H_0 : There is no autocorrelation.
- H_1 : There is autocorrelation.

As a result of the tests, it is seen that the statistical values are less than 2. In this case, we can say that there is autocorrelation for the random effects model. Pesaran and Friedman's tests were used to test whether the model was uncorrelated between units [43].

Table 5
Test results of Pesaran, Friedman, and Frees

Test Name	Test Statistic	Probability Value
Pesaran CD	3.134	0.0017
Friedman	30.632	0.0000

Source: Prepared by the author as a result of the analysis

Hypotheses:

- H_0 : There is no correlation between units.
- H_1 : There is correlation between units.

As a result of the tests, it is seen that the probability values are less than 0.05. In this case, the H_0 hypothesis is rejected, and it is determined that there is a correlation between the units.

The fact that the independent variables in the model have strong relationships among themselves is expressed as MDB. This is an undesirable situation in regression analysis. Different methods are used for the detection of EDB. However, the most used method is the VIF (Variance Inflation Factor) criterion.

Table 6
Results of VIF criteria

Variable	VIF	1/VIF
International tourism revenue	1.01	0.993393
Employment	1.01	0.993393
Mean VIF	1.01	

Source: Prepared by the author as a result of the analysis

In this study, it is seen that VIF values are less than 5. In other words, there is no multicollinearity problem between the variables. After the VIF values were

determined, the final test was passed. Analysis was performed using the Driscoll-Kraay Estimator method.

Table 7
Driscoll-Kraay Estimator

R²	Number of Observations		Prob	
0.3512	38		prob> 0.0440	
L_{tax revenue}	Coefficient Values	Drisc/Kraay Resistive Standard Errors	T statistics	P> t
L _{international tourism revenue}	0.443	0.388	1.14	- 0.373
Employment	0.017	0.007	2.39	0.002
Fixed Coefficient	6.426	3.863	1.66	- 1.690

Source: Prepared by the author as a result of the analysis

In this study, comprehensive robustness checks and sensitivity analyses were sequentially performed to ensure the reliability of empirical findings and the validity of model results. Accordingly, descriptive statistics were first examined by subjecting the variables to logarithmic transformation, thus evaluating distribution characteristics and reducing potential scale effects (Table 1). Then, the suitability of the classical model was tested using the Likelihood Ratio (LR) test (Table 2), and consistent model selection was made between fixed and random effects models using Hausman and Rhausman tests (Table 3). Autocorrelation and cross-sectional dependence tests were applied to determine whether the model assumptions were violated. In this context, the presence of serial correlation was investigated using Durbin–Watson and Baltagi–Wu LBI tests (Table 4), and cross-sectional dependence was tested using Pesaran, Friedman, and Frees tests (Table 5). Furthermore, the problem of multicollinearity between variables was evaluated using VIF criteria, and potential problems that could weaken the model's predictive power were controlled (Table 6). In the final stage, the Driscoll–Kraay estimator was used to test the sensitivity of the results to potential problems of heteroskedasticity, autocorrelation, and cross-sectional dependence (Table 7). The fact that the sign and significance levels of the principal coefficients were largely preserved under this alternative estimation method shows that the findings are both robust and consistent in terms of sensitivity analyses, and that the empirical results are not overly sensitive to methodological assumptions.

As a result of the analysis, it is understood that the overall model is significant. If we examine the variables one by one, we can see that the value of R² is approximately 35%. It is understood that the earnings from the tourism sector, which is one of the explanatory variables in the model, are meaningless in explaining the tax revenues of these countries. However, a statistically significant relationship was found between employment rates, which is another explanatory

variable in the model, and tax revenues obtained by the state. Namely, a 1% change in employment rates affects the total tax revenues of these states by approximately 2%. It is understood that this effect power is also weak, and this effect is positive.

4 Discussion and Conclusion

Discussion

Tourism is a very intricate sector of the economy that is dependent on many different elements, such as resources, attractions, and entrepreneurial activity in the destinations [44]. On the job market and the overall economy, COVID-19 had a severe and detrimental effect. Although things have lately gotten better, it is nevertheless helpful to map the labor market's changes and present and projected future trends [45]. While the IT industry is employing more people, there is a debate over how digitalization—which has accelerated significantly, particularly in the wake of COVID-19—will influence jobs in both good and bad ways.

The findings of this study agree with the findings of other investigations that have been published in the relevant academic literature. In particular, the findings of prior studies on tourism, employment, and tax revenues were contrasted with the findings of this study. The result of the study by Belloumi [25] shows that there is no Granger causality in the short run, but real tourism Granger causes real GDP in the long run. As a result of the study, conducted by Kofi Ocran [15], it was found that public consumption expenditures have a significant positive effect on economic growth and tax revenues have a positive effect on production growth. As a result of the study, conducted by Angour and Nmili [13], it was revealed that the average size of tax evasion and the informal economy in Morocco reached 6.19% and 38.74% of GDP during the 1985-2016 period. However, it was also stated that the agricultural sector and unemployment rate are the main determinants of tax evasion in Morocco.

As a result of the study by Samour, Shahzad, and Mentel [6], it was revealed that banking development and taxation promote renewable energy. As a result of the study, conducted by Daifi et al. [14], it was revealed that Morocco did not fully benefit from liberalization, the signing of FTAs and the lack of export competitiveness negatively affected the tax revenues of Morocco following the reduction or even abolition of customs duties. As a result of the study by Onuoha and Moses Oyeyemi [17], long-term defense and health expenditure elasticities increase the unemployment rate by 22.22% and 364.58% in Morocco and 20 other countries. The study by Moreira [11] concludes that to achieve high-income status and significantly reduce unemployment, Morocco must implement far-reaching reforms to increase growth to the 6-7 percent range and increase job creation to around 35,000 jobs per percent of growth.

The study's findings show that tourism revenues do not have a significant effect on explaining tax revenues in South Africa and Morocco, whereas employment rates are a positive and statistically significant determinant of tax revenues. This result is consistent with the literature indicating that even though tourism revenues contribute to economic growth in developing countries, their direct impact on fiscal capacity is limited [1, 19, 20]. One of the main reasons for this finding is that tourism is not sufficiently included in the tax base due to structural problems such as seasonality, informality, and low effective tax burdens [13, 21].

The relationship between tourism revenues and tax revenues. This study's finding of an insignificant effect of tourism revenues on tax revenues supports previous studies showing that tourism's contribution to growth is not directly and fully reflected in tax revenues. While the findings of Lee and Chang [19] and Fayissa et al. [20] show that tourism can produce positive effects on economic growth, they point out that the mechanisms for directly transferring this effect to the tax base are complex. The fact that tourism is not fully reflected in the tax base due to factors such as seasonality, high informality, and incentives has been frequently emphasized in the literature [13, 21]. In particular, the levels of shadow economy and tax evasion noted by Angour and Nmili [13] for Morocco provide a concrete channel that limits the transformation of tourism revenues into a fiscal collection mechanism; this directly aligns with your finding. Furthermore, the study by Daifi et al [14] showing the negative impact of trade liberalization on tax revenues helps explain how declines in foreign trade and customs revenues can be reflected in overall tax mobilization and thus the failure to realize expected tax revenues from certain sectors. The lack of a statistically significant relationship between tourism revenues and tax collections aligns with previous research suggesting that the tourism sector generally contributes to economic growth indirectly rather than directly [46, 47]. In many developing countries, tourism-related activities are characterized by high levels of informality, tax incentives aimed at attracting foreign investors, and seasonality, all of which reduce the sector's effective contribution to the tax base [48, 49]. Therefore, tourism can create jobs and foreign exchange, but it may not necessarily translate into measurable financial returns.

The relationship between employment rates and tax revenues. The findings of this study show that a 1% increase in employment rates is associated with approximately a 2% increase in tax revenues, and this effect is positive but moderate. This result is consistent with empirical and theoretical studies highlighting the impact of the labor market on tax capacity [2, 10]. Studies such as Mascagni et al. [4] show that expanding formal employment and the tax base directly increases tax mobilization; this supports your study's finding highlighting the employment channel. Furthermore, analyses by Moreira [11]) and Onuoha and Oyeyemi [17] suggest that policy reforms focusing on job creation, particularly in economies like Morocco, can improve both the unemployment problem and consequently tax revenue; this is consistent with your policy recommendations. Higher employment is known to strengthen fiscal sustainability both directly through income tax and indirectly

through consumption taxes [4]. The impact of employment-creating policies on tax capacity becomes more pronounced, especially in countries with high young populations and significant structural unemployment problems, such as South Africa and Morocco [11, 17].

The role of informality, tax compliance, and structural factors. Informality and tax compliance are critical in explaining the study's finding that tourism revenues do not translate into tax. Studies such as Epaphra and Massawe [5] show that corruption and weak governance put pressure on tax revenues in the African context; such institutional weaknesses can prevent real income from tourism from translating into government revenue. The study's findings suggest that active labor market policies, skills transformation programs, and regulations that encourage formal employment can broaden the tax base [12, 14]. Furthermore, studies revealing high levels of informality and tax compliance problems in the economies of Southern Africa and Morocco are supportive in explaining the limited impact of tourism on tax revenues [5, 13]. Informal employment and tax evasion significantly weaken public revenue systems in many African economies [50]. Therefore, institutional reforms aimed at improving tax compliance, increasing administrative efficiency, and encouraging formal sector employment can yield significant fiscal benefits.

Conclusion

The data set used in our study consists of annual data from South Africa and Morocco between 2002-2020. The Driscoll-Kraay method was used to analyze the data. As a result of the analysis, it is understood that the overall model is significant. If we examine the variables one by one, we can see that the value of R^2 is approximately 35%. It is understood that the earnings from the tourism sector, which is one of the explanatory variables in the model, are meaningless in explaining the tax revenues of these countries. However, a statistically significant relationship was found between employment rates, which is another explanatory variable in the model, and tax revenues obtained by the state. Namely, a 1% change in employment rates affects the total tax revenues of these states by approximately 2%. It is understood that this effect power is also weak, and this effect is positive.

Overall, this study demonstrates that while tourism is a significant sector for economic growth and foreign exchange earnings, employment dynamics are far more decisive in increasing tax revenues. Therefore, policymakers should prioritize job creation policies, measures to reduce the informal economy, and sectoral diversification to strengthen tax capacity while continuing to develop the potential of the tourism sector. Such an approach will support both fiscal sustainability and long-term development goals. In summary, this study contributes to a growing body of research arguing that employment, rather than tourism revenue, is a more stable and effective determinant of tax revenue in developing economies. While tourism is vital for growth and foreign exchange earnings, its fiscal contribution appears limited unless structural reforms strengthen the integration of tourism into the

formal economy. Therefore, sustainable and inclusive labor market policies represent a more reliable path to long-term fiscal sustainability and economic resilience.

Limitations and Future Research Directions

This research has some limitations. First, the study uses annual data for South Africa and Morocco from 2002–2020, and it should be considered that analyses conducted with a wider country group or longer time series may yield different results. Another limitation of the study is the measurement of important elements such as informality, tax compliance level, and seasonality in the tourism sector in the data. Furthermore, although the Driscoll-Kraay method produces robust results, possible variables not included in the model or exogenous shocks may have altered the relationship. Therefore, the generalization of the findings should be handled carefully, and it is recommended that future studies support these findings with more detailed data sets and methodologies.

Future research could delve deeper into the structural reasons behind the weak or insignificant relationship between tourism revenues and tax revenues. Given the significant and positive impact of the sector's job creation capacity on tax revenues, we suggest that future studies include factors such as the quality of employment in tourism, the level of informality, regional differences, and sectoral diversity in the model. New research is expected to offer policymakers a more comprehensive framework by using longer time series, more country comparisons, or detailed panel data models at the sub-sector level.

References

- [1] Huseynli, N. (2022): *Econometric measurement of the relationship between tourism revenues and economic growth. Study case of Kazakhstan and Kyrgyzstan*, Journal of Environmental Management and Tourism 13(4), pp. 1136-1141, DOI: 10.14505/jemt.v13.4(60).19
- [2] Babatunde, O. A., Ibukun, A. O. & Oyeyemi, O.G. (2017): *Taxation revenue and Economic Growth in Africa*, Journal of Accounting and Taxation 9(2), pp. 11-22
- [3] Moyo, D., Samour, A. & Tursoy, T. (2021): *The nexus between Taxation, Government Expenditure and Economic Growth in South Africa. A Fresh Evidence from Combined Cointegration Test*, Studies of Applied Economics 39(3), pp. 1-16
- [4] Mascagni, G., Moore, M. & McCluskey, R. (2014): *Tax Revenue Mobilisation*. In: *Developing Countries: Issues and Challenges*, European Union (Belgium). DOI: 10.2861/58312
- [5] Epaphra, M. & Massawe, J. (2017): *Corruption, Governance and Tax Revenues in Africa*, Business & Economic Horizons 13(4), pp. 439-467

-
- [6] Samour, A. Shahzad, U. & Mentel, G. (2022): *Moving toward Sustainable Development: Assessing the Impacts of Taxation and Banking Development on Renewable Energy in the UAE*, *Renewable Energy* 200(1), pp. 706-713
- [7] Ntombela, S. M., Bohlmann, H. R. & Kalaba, M. W. (2019): *Greening the South Africa's Economy could Benefit the Food Sector: Evidence from a Carbon Tax Policy Assessment*, *Environmental and Resource Economics* 74(1), pp. 891-910
- [8] Çakır, M. Y. & Kabundi, A. (2013): *Trade Shocks from BRIC to South Africa: A Global VAR Analysis*, *Economic Modelling* 32, pp. 190– 202
- [9] Ekor, M., Saka, J. & Adeniyi, O. (2015): *Trade Intensity Analysis of South Africa—BRIC Economic Relations*, *Eastern Africa Social Science Research Review* 31(2), pp. 1-34
- [10] Jensen, A. (2022): *Employment Structure and the Rise of the Modern Tax System*, *American Economic Review* 112(1), pp. 213-234
- [11] Moreira, E. P. (2019): *Morocco's Growth and Employment Prospects: Public Policies to Avoid the Middle-Income Trap*, *World Bank Policy Research Working Paper* 8769
- [12] Ghiaie, H., Auclair, G. & Ntsama, J. F. N. N. (2019): *Macroeconomic and Welfare Effects of Tax Reforms in Emerging Economies: A Case Study of Morocco*, *Journal of Policy Modeling* 41(4), pp. 666-699
- [13] Angour, N. & Nmili, M. (2019): *Estimating Shadow Economy and Tax Evasion: Evidence from Morocco*, *International Journal of Economics and Finance* 11(5), pp. 1-7
- [14] Daifi, S., Khouilid, M. & Echaoui, A. (2022): *Impact of Trade Liberalization on Tax Revenue Mobilization: Case of Morocco*, *International Journal of Economics and Management Research* 1(5), pp. 87-106
- [15] Kofi Ocran, M. (2011): *Fiscal Policy and Economic Growth in South Africa*, *Journal of Economic Studies* 38(5), pp. 604-618
- [16] Currie, J. & Harrison, A. (1997): *Sharing the Costs: The Impact of Trade Reform on Capital and Labor in Morocco*, *Journal of Labor Economics* 15(S3), pp. S44-S71, DOI: 10.1086/209876
- [17] Onuoha, F. C., & Moses Oyeyemi, A. (2019): *Impact of Disaggregated Public Expenditure on Unemployment Rate of Selected African Countries: A Panel Dynamic Analysis*, *Journal of Economics, Management and Trade* 24(5), pp. 1-14
- [18] Huseynli, N. (2023): *A Study on the Causality Relationship between Total Capital Increase, Foreign Investments, and Tourism Sector Revenues in Azerbaijan*, *Journal of Environmental Management & Tourism* 14(2), pp. 469-476, DOI: 10.14505/jemt.v14.2(66).16
-

-
- [19] Lee, C. C. & Chang, C. P. (2008): *Tourism Development and Economic Growth: A Closer Look at Panels*, *Tourism Management* 29(1), pp. 180-192
- [20] Fayissa, B., Nsiah, C. & Tadasse, B. (2008): *Impact of Tourism on Economic Growth and Development in Africa*, *Tourism Economics* 14(4), pp. 807-818
- [21] Holzner, M. (2011): *Tourism and Economic Development: The Beach Disease?*, *Tourism Management* 32(4), pp. 922-933
- [22] Seetanah, B. (2011): *Assessing the Dynamic Economic Impact of Tourism for Island Economies*, *Annals of Tourism Research* 38(1), pp. 291-308
- [23] Hassan, M. K., Sanchez, B. & Yu, J. S. (2011): *Financial Development and Economic Growth: New Evidence from Panel Data*, *The Quarterly Review of Economics and Finance* 1(1), pp. 88-104
- [24] Khan, M. & Senhadji, A. (2003): *Financial Development and Economic Growth: A Review and New Evidence*, *Journal of African Economies* 12(2), pp. 89-110
- [25] Belloumi, M. (2010): *The Relationship between Tourism Receipts, Real Effective Exchange Rate and Economic Growth in Tunisia*, *International Journal of Tourism Research* 12(5), pp. 550-560
- [26] Akinboade, O. A. & Braimoh, L.A. (2010): *International Tourism and Economic Development in South Africa: A Granger Causality Test*, *International Journal of Tourism Research* 12(2), pp. 149-163
- [27] Tang, C. F. & Abosedra, S. (2014): *The Impacts of Tourism, Energy Consumption and Political Instability on Economic Growth in the MENA Countries*, *Energy Policy* 68, pp. 458-464
- [28] Fletcher, J. & Morakabati, Y. (2008): *Tourism Activity, Terrorism and Political Instability within the Commonwealth: The Cases of Fiji and Kenya*, *International Journal of Tourism Research* 10(6), pp. 537-556
- [29] Huseynli, N. (2022): *Causality Relationship between Foreign Investment and Tourism Sector Growth: Selected African Continent Countries*, *African Journal of Hospitality, Tourism and Leisure* 11(4), pp. 1656-1667, DOI: 10.46222/ajhtl.19770720.315
- [30] Bahl, R. W., Bird, R. M. (2008): *Tax Policy in Developing Countries: Looking Back—and Forward*, *National Tax Journal* 61(2), pp. 279-301
- [31] Almasaeed, A. & Tsaregorodtsev, E. (2018): *The Impact of Fiscal Policy on the Economic Growth of Jordan*, *International Journal of Economic and Finance* 10(10), pp. 145-161
- [32] Shmelev, S. E. & Speck, S. U. (2018): *Green Fiscal Reform in Sweden: Econometric Assessment of the Carbon and Energy Taxation Scheme*, *Renewable and Sustainable Energy Reviews* 90, pp. 969-981
-

- [33] Yuelan, P., Akbar, M. W., Hafeez, M., Ahmad, M., Zia, Z. & Ullah, S. (2019): *The Nexus of Fiscal Policy Instruments and Environmental Degradation in China*, Environmental Science and Pollution Research 26(28), pp. 28919-28932
- [34] Gurdal, T., Aydin, M. & Inal, V. (2020): *The Relationship between Tax Revenue, Government Expenditure, and Economic Growth in G7 Countries: New Evidence from Time and Frequency Domain Approaches*, Economic Change and Restructuring 54, pp. 305-337, DOI: 10.1007/s10644-020-09280-x
- [35] Aremo, A. G. & Abiodun, S. T. (2020): *Causal Nexus among Fiscal Policy, Economic Growth, and Income Inequality in Sub-Saharan African Countries (1995-2016)*, African Journal of Economic Review 8(1), pp. 1-25
- [36] Saafi, S., Mohamed, M. B. H. & Farhat, A. (2017): *Untangling the Causal Relationship between Tax Burden Distribution and Economic Growth in 23 OECD Countries: Fresh Evidence from Linear and Non-Linear Granger Causality*, The European Journal of Comparative Economics 14(2), pp. 265-301
- [37] Çalışkan, Z. (2009): *Health Expenditures in OECD Countries: Panel Data Analysis*, Erciyes University Journal of Faculty of Economics & Administrative Sciences 34, pp. 117-137
- [38] Güney, T. & Durman, M. (2014): *The Effect of Corruption on Welfare Level: Panel Data Analysis*, Suleyman Demirel University Journal of Faculty of Economics & Administrative Sciences 19(3), pp. 253-266
- [39] Sandalcılar, A. R. (2012): *The Relationship Between Economic Growth and Exports in BRIC Countries: Panel Cointegration and Panel Causality*, Suleyman Demirel University Journal of Faculty of Economics & Administrative Sciences 17(1), pp. 161-179
- [40] Hausman, J. A., & Taylor, W. E. (1981): *Panel data and unobservable individual effects*, Econometrica: Journal of the Econometric Society 1(1), pp. 1377-1398, DOI: 10.2307/1911406
- [41] Baltagi, B. H., Demetriades, P. O. & Law, S. H. (2009): *Financial Development and Openness: Evidence from Panel Data*, Journal of Development Economics 89(2), pp. 285-296
- [42] Bhargava, A., Franzini, L. & Narendranathan, W. (2004): *Serial correlation and the Fixed Effects Model*, The Review of Economic Studies 49(4), pp. 533-549
- [43] Pesaran, M. H. (2004): *General Diagonist Tests for Cross Section Dependence in Panels*, Mimeo, University of Cambridge
- [44] Nagy, B., Oltean, F. D., & Gabor, M. R. (2023): *Entrepreneurship or Resources for a Better Tourism? AK Nearest Neighbors and Decision Tree*

- Dynamic Analysis for Romania*, Acta Polytechnica Hungarica 20(10), pp. 157-179
- [45] Demeter, R., & Kovari, A. (2024): *Labor Market Analysis for IT Jobs*, Acta Polytechnica Hungarica 21(3), pp. 93-107
- [46] Dwyer, L., Forsyth, P., & Dwyer, W. (2020): *Tourism economics and policy* (Vol. 5), Channel View Publications
- [47] Sinclair, M. T. (1998): *Tourism and economic development: A survey*, The Journal of Development Studies 34(5), pp. 1-51, DOI: 10.1080/00220389808422535
- [48] Scheyvens, R., & Russell, M. (2012): *Tourism and poverty alleviation in Fiji: Comparing the impacts of small-and large-scale tourism enterprises*, Journal of Sustainable Tourism 20(3), pp. 417-436
- [49] Sharpley, R., & Telfer, D. J. (Eds.) (2015): *Tourism and development: Concepts and issues*, Bristol, Channel View Publication
- [50] Medina, L., & Schneider, M. F. (2018): *Shadow economies around the world: what did we learn over the last 20 years?*, International Monetary Fund