

Full Length Research

# Tourism Development, Financial Development and Remittances in Kenya

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This study investigated the impact of financial development and international remittances on tourism development in Kenya. The study used time series data for the period 1988-2021. There is scarcity of studies that have used these variables in the travel and tourism industry. Ordinary Least Squares method was used to estimate both the short-run and the long-run the regression models. The short-run results suggest that financial development, openness, economic growth and inflation determine growth of the tourism industry in Kenya. The long-run findings of the paper suggest a positive significant impact of both financial development and international remittances on tourism development in Kenya. The results suggest that the government of Kenya need to provide favorable environment for the migrants to continue sending the remittances to the country as this impact positively to the development of the travel and tourism sector in the country. The government should continue implementing policies and programs that will continue boosting development of the financial sector as this will enhance the growth of the tourism sector.

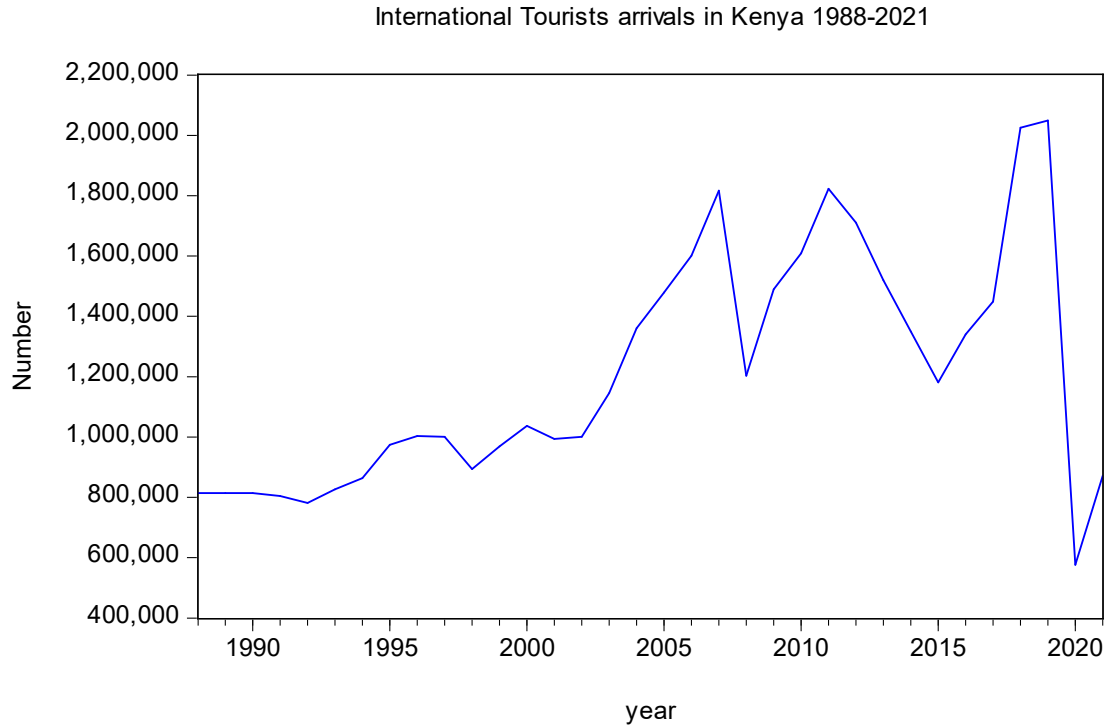
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## INTRODUCTION

Tourism sector is one of the key sectors in any economy that contributes to economic performance of the country through employment creation, contribution to gross national income, source of foreign exchange, cultural exchange among many other benefits (Kumar, 2014). In the year 2021, global international tourists recorded 426 million tourists, while in the previous year there was a drop to 405 million due to Corona virus (United Nations World Tourism Organization, 2022).

Kenya recorded 871.3 thousand international tourist arrivals in the year 2021, compared to 576.6 thousand in the previous year 2020 (Republic Of Kenya, 2022). The number of international tourist arrivals to Kenya dropped to lowest number in the year 2020 due to Corona virus (COVID-19). Figure 1. Shows the number of international tourist arrivals in Kenya 1988-2021.



**Figure 1:** International Tourists arrivals in Kenya  
Source of data: World Bank (2022)

From Figure 1, it can be seen that tourists arrivals in Kenya generally has been trending upwards up to the year 2007 after which the arrivals became erratic up the year 2019. The year 2019 recorded the highest tourism arrivals totaling to 2049 thousand. Between the period 1988-2021, the year 2020 recorded the lowest number (576.6 thousand) of international tourists arrival in Kenya mainly due to the travel restrictions of Covid-19.

The travel and tourism sector contributes a lot to the development of any economy including Kenya. It is one of the key sectors in achieving Kenya's Vision 2030 (Republic Of Kenya,2007). In the Vision 2030, Kenya aims to achieve GDP growth rate of 10% per annum. To achieve this growth, the travel and tourism sector will play a big role by implementing strategies to be among the top 10 destinations of international tourists.

The sector is a major contributor to the government revenue and personal income. Travel and tourism industry contributed about 10.3% to global GDP in the year 2019 but dropped to 5.3% in the year 2020 due to COVID-19 travel restrictions (World Travel and Tourism Council, 2022). In the year 2021, the sector improved by contributing 6.1% to the global GDP. In the same year 2021 the sector contributed about 5.4 billion U.S dollars to Kenya's GDP compared to 0.4 billion U.S dollars in the year 2020. The lowest drop in travel and travel tourism revenue to Kenya's GDP in the year 2020 was mainly caused by Covid-19 that affected the whole world. In the year 2019 the tourism sector contributed 7.9 billion U.S dollars to Kenya's GDP.

The sector is a major source of foreign exchange to the country. In the year 2021, the sector contributed about 1.3 billion U.S dollars. The sector is a major source of employment. Employment in the travel and tourism sector is divided into two, direct and indirect. Direct employment, involves employees who are directly working in the sector such as the tour guides and drivers, while indirect employment deals with those who work in indirect sectors related to the travel and tourism sector like those who are employed in the food and beverage, and accommodation sectors. In the year 2021 total world employment in the travel and tourism sector was 271 million workers which was a major drop compared to 2019 which recorded 333 million world employees (World Travel and Tourism Council, 2022). The drop in the year 2020 was due to Corona virus .In the year 2021 the sector contributed a around 8 % of the total employment in Kenya ,compared to 7.3% in the year 2020, the year of severe COVID-19.

The travel and tourism sector is key in infrastructure development especially roads,water, airports, electricity supply and information technology. Most of the tourist attractions like wild animals, wildebeest migration, and geographical attractions such as waterfalls and the beaches need good roads. This forces the government to improve the road networks to boost the tourism sector among many other needs. The sector also contributes much in the diversification of the economy as the sector is connected to other sectors in the economy such as transport, food and beverage sector, and the entertainment sector. All these sectors are positively connected to the growth of the travel and tourism sector.

The cultural interaction between the international tourists and the locals leads to economic growth. The travel and

tourism industry is key in natural and cultural heritage protection, a great benefit to the future generations (United Nations World Tourism Organization, 2022).

One of the key sectors that contribute to the development of the travel and tourism sector is the financial sector. A developed financial sector contributes to the development of the travel and tourism sector in several ways. Easy access to loans increases the demand for loans some of which can be invested in several enterprises some of which can be in the travel and tourism sector (Shi, et al, 2021). This is also enhanced by advanced investment information supplied by developed financial institutions. Developed financial sector facilitates international trade including travel and tourism industry. The growth of many microfinance institutions, supplies credit to micro and small enterprises. This reduces poverty, increases employment and investment especially for the entrepreneurs in the country. Developed financial market boosts economic growth of a country including the tourism sector.

The Kenya's financial sector consist of the Central bank which is the regulatory authority, commercial banks, mortgage finance companies, mortgage refinance companies, representative offices of foreign banks, microfinance banks, credit reference bureaus, money remittance providers, non-operating bank holding companies, foreign exchange bureaus, capital markets, insurance companies, pension and savings credit cooperative institutions (Central Bank of Kenya 2021b). Kenya's financial sector has developed in several ways, these include growth of financial innovations such as growth of mobile money transfer especially through Mpesa which recorded 622.14 Ksh billion by the year 2021. Another development is the growth of Agency banking which is the delivery of financial services through Agent banking model. By the year 2020, commercial banks had 72,617 bank agents while microfinance banks had 1,275 agents. Growth of Automated Teller Machines (ATMs) is another development in the banking sector. By the end of December 2021 there were a total of 2,366 ATMs (Central Bank of Kenya, 2021b). Other developments in the financial sector include the CBK Amendment Act 2021, the review of capital adequacy risk, introduction of CBK guidelines on climate related risk management with an aim of developing a low carbon economy, the launching of day trading of the shares in the Nairobi stock exchange market among others. All these developments are expected to spur economic growth, the tourism sector included. In spite of these promising developments in the financial sector, there is scarcity of research done on its impact on the tourism sector in Kenya.

Apart from the financial sector, international remittances contribute to the development of the tourism sector in a country. In this paper, it is assumed that international remittances which are foreign exchange sent by migrants to their families back home to support their lifestyles or for investment, contribute positively to the development of the travel and tourism sector. In the year 2021 remittances to low and middle income countries were around 605 billion US Dollars. This was an increase of 8% from the remittance flow of the previous year 2020 (World Bank, 2022). Central Bank of Kenya (Central Bank of Kenya) (2021), records that international remittances increased tenfold in the last fifteen years reaching a total of 3718million U.S Dollars by the year 2021. International remittances is a source of foreign exchange, contributes to community's education, health, housing, and food among other benefits (Central Bank of Kenya, 2021a). Remittance recipients can invest this money in various types of investments. Some of the investments can be in the tourism sector. Remittances improve human capital such as education and good health (Azizi, 2018) and this can directly or indirectly affect the tourism industry.

The main objective of this paper was to establish the impact of financial development and international remittances on the travel and tourism development in Kenya using time series data for the period 1988-2021. The hypothesis of this paper was that financial development and international remittances have a positive impact on travel and tourism industry in Kenya. There is scarcity of studies that have researched on the impact of these two variables on tourism growth especially in Kenya. This paper fills this gap by using the latest available data. The paper provides findings which are very beneficial to the tourism industry as the study shows that the financial sector both domestically and international remittances sectors contributes positively to the growth of the tourism industry.

The paper is organized as follows: section 2.0 provides literature review, section 3.0 presents the methodology used in this paper, section 4.0 presents the empirical results, while section 5.0 provides the conclusions and policy recommendations of the paper and section 6.0 presents the references used in this paper.

## LITERATURE REVIEW

A number of studies have been done on the relationship between financial development and tourism growth.

Tsaurai (2022), investigated the role of financial development on growth of the tourism sector for selected emerging markets. The study used time series data for the period 2000-2019. The Fully modified ordinary least squares, fixed effects, random effects and pooled ordinary least squares methods were used to estimate the model. The findings of the study supported that financial development; trade openness human capital, economic growth and complementarity variable positively influence the growth of the tourism sector in emerging markets.

Churchill, *et al* (2022), studied on the impact of financial sector development on tourism growth. The study used time

series data for the period 1890-2016. The ARDL method with structural break was implemented. The study revealed that financial development has a positive impact on tourism growth.

Musakwa and Odhiambo (2021), investigated the nexus between tourism and financial development in Kenya using time series data for the period 1995-2017. The study used two proxies for financial development: broad money supply and stock market development. Two models were used, the ARDL bounds test for cointegration and ECM for Granger causality. The results suggested that financial development cause tourism only in the short run. Further, results showed that financial development can boost tourism growth.

Fauzel and Seetanah (2021), explored the interactions between financial development and tourism growth for Mauritius using dynamic regression for the data over 1980-2018 period. The results indicated that financial developed contributes positively to tourism growth in the long run for Mauritius.

Hosny (2020) investigated the impact of large remittances and geographic concentration of the source of remittances on economic volatilities. The study used data for the period 2010-2015 for 72 developing countries. The study results suggest that large remittances can stabilize the economies of the 72 developing countries, however, high remittance concentration from source countries are likely to worsen the economic volatilities of the recipient countries.

Song and Lin (2010) carried a study on the impact of economic and financial crisis on tourism using Asia data. The study used the ARDL model and results indicated that financial crisis of 2007 had a negative impact on tourism development for the economy of Asia.

Ohlan(2017), examined the relationship between tourism, financial development and economic growth using time series data over the period 1960-2014 for India. The study used Bayer and Hank combined test for cointegration. The findings of the study indicated that tourism, financial development and economic growth are cointegrated. Further results indicated that tourism growth Granger causes financial development in India.

Aslam(2001) , investigated the dynamic relationship between tourism industry and financial development in SRI Lanka using data for the period 1970-2018. The study used the ARDL model. The study findings suggested that financial development and tourism industry are cointegrated and there is a significant positive relationship between the two variables.

Mora-Rivera et al (2019), explored the impact of remittances on domestic tourism in Mexico. The study used the treatment and multi-treatment method on national household income and expenditure survey data. The study findings revealed that remittances have a positive impact on domestic tourism spending.

Kumar (2014), investigated the effects of tourism and remittances on per worker output in Kenya using annual data over the period 1978-2010. The study used the ARDL method to test for cointegration. The study findings indicated that tourism has a marginal net negative effect in the short run but a positive effect on output per worker in the long run. Remittances on the other hand showed a positive effect in the short run while it had a negative effect in the short run.

Mora-Rivera and Garcia- Mora(2021), carried a study to check on impact of remittances on domestic tourism expenditure in Mexico using national household expenditure survey of 2016. Using the Tobit and Probit models, the study findings revealed that international remittances improve domestic tourism expenditures in Mexico.

## METHODOLOGY

This paper employed a non-experimental research design. This involved estimating an econometric model. Time series data was collected from the various secondary sources over the period 1988-2022.

Britton (1981, 1982) and Manuel (2006), on their dependency theory on tourism growth, argue that tourism is a new form of colonialism. This theory, states that cash flows from international tourists destination countries to developed countries. The developing countries create only poor tourism jobs which hardly benefit the developing countries. For money to flow back to advanced countries needs a developed financial sector. International remittances flow to the destination country to reinforce development of the financial sector and the tourism sector among other roles.

### The Model

From the literature the relationship between tourism receipts, financial development and remittances is expressed using the following function:

$$TRS = f(FINDEV, REM, Z) \quad (1)$$

Tourism development can be taken as output whose function can be expressed as:

$$TRS = \beta_0 FINDEV^{\beta_1} REM^{\beta_2} Z^{\beta_3} e \quad (2)$$

Where TRS, FINDEV, REM and Z represents, tourism receipts, international remittances and control variables that determine tourism development (exchange rate, CPI ,gross capital formation, economic growth, openness and elections)

The above function was expressed in linear form as:

$$LnTRS = \beta_0 + \beta_1 LnFINDEV + \beta_2 LnREM + \beta_i \sum_{i=1}^6 Z + u_i \quad (3)$$

Where  $\beta$ s are the parameters of the model, and  $u_i$  is the error term assumed to have a normal distribution with constant variance.

To investigate the short-run dynamics the Error Correction model (ECM) was estimated. The following is the ECM estimated:

$$\begin{aligned} \Delta LnTRS_t = \varphi_0 + \sum_{i=1}^k \varphi_i \Delta LnTRS_{t-i} + \sum_{j=0}^n \beta_j \Delta LnFINDEV_{t-i} + \sum_{i=0}^m \theta_i \Delta LnREM_{t-i} \\ + \pi_i \sum_{i=0}^r \Delta \ln Z_{t-i} + \delta_i ECT_{it-1} + u_{1t} \end{aligned} \quad 4$$

Where ,  $\varphi, \beta, \theta$  and  $\pi$  are the parameters to be estimated.

International tourism receipts were taken as a proxy for travel and tourism development. This is the dependent variables and was measured in U.S dollars. Data for TRS was obtained from the World Bank development Indicators (2022). Financial development (FINDEV) was proxied by financial development index obtained from IMF Data access to Macroeconomic and Financial data (IMF, 2022). This index looks at three indicators of financial development which include depth, access and efficiency of the financial sector. The index assumes values ranging from zero (poorly developed financial sector) to one (very developed financial sector). The index provides the extent to which developed financial institutions and financial markets are in regard to their depth( size and liquidity), access ( the extent to which individuals and firms access financial services) and efficiency ( the ability of financial institutions to provide financial services at low cost and with sustainable revenues and the level of activity of financial markets), IMF(2022). This index is quite comprehensive as it covers both the financial institutions and financial markets. There are no many studies that have examined the impact of this index on tourism development. Remittances (REM)are money sent by nationals staying in foreign countries back home. Most countries including Kenya have progressively received huge sums of money as remittances and have been recognized as key to economic growth of a country. This paper aimed at examining the impact of financial development and international remittances on tourism development in Kenya. It is expected that both financial development and remittances have a positive impact on travel and tourism development in Kenya.

## Sample and Data

This paper used time series data for Kenya covering the period 1988-2021. This gives a sample size of 34. The choice of this period was due to availability of data for the variables covered in the model. The sources of the data include the World Bank Development indicators (2022), the IMF data (2022) and Central bank of Kenya (2022) statistical bulletins. Data for the all the variables except elections and economic growth were converted to natural log before analysis.

## Data analysis

Data was analyzed by first doing descriptive analysis, this was followed by unit root tests since the data used was time series data. Cointegration test was done to find out whether there is long run relationship among the variables of the model. Johansen method was used for this test. Since cointegration results indicated the variables have the long-run relationship, the Error Correction model was estimated to discover the short-run dynamics of the relationships of the

variables. To understand the long –run behavior, long-run coefficients were estimated. Finally diagnostics were done that included testing for normality of the residuals, testing for the presence of heteroscedasticity, testing for the stability of the model using CUSUM of squares and testing for multicollinearity using the correlation analysis.

## Empirical Results

### Descriptive Statistics

Table 1, shows the descriptive statistics of the variables of the study. Among all the variables of the model, the natural log of the tourism receipts had the highest average of 21 , with maximum and minimum of 21 and 20. The average inflation over the study period was found to be 3.64 with a maximum value of 5.19 and a minimum of 1.64. The mean of real exchange rate was found to be 4.02 with a maximum value of 4.64 and a minimum of 2.79. Openness had a mean of 3.90 with a maximum of 4.29 and minimum of 3.30. International remittances had the second highest mean of 19.88 with a maximum of 22.03 and minimum of 17.75 and a standard deviation of 1.31. Financial development index has a mean of -1.99 with a maximum of -1.67 and minimum of -2.41. Gross capital formation over the study period was found to have an average of 2.93, with a maximum of 3.17 and minimum value of 2.73, with the lowest standard deviation of 0.11. Economic growth had an average of 3.93 over the study period with a maximum of 8.41 and minimum of -0.80 and a standard deviation of 2.42. Election variable has an average of 0.91, with a maximum value of 1 and minimum value of zero.

**Table 1:** Descriptive Statistics for the variables in the Model

	Ln(TRS)	Ln(CPI)	Ln(EXCH)	Ln(OPEN)	Ln(REM)	ln(FINDEV)	Ln(CAPITAL)	GDPG	Election
Mean	20.78	3.64	4.02	3.90	19.88	-1.99	2.93	3.93	0.91
Median	20.80	3.70	4.27	3.97	20.14	-1.97	2.95	4.48	1.00
Maximum	21.41	5.19	4.64	4.29	22.03	-1.67	3.17	8.41	1.00
Minimum	20.03	1.64	2.79	3.30	17.75	-2.41	2.73	-0.80	0.00
Std. Dev.	0.42	1.12	0.59	0.24	1.31	0.23	0.11	2.42	0.29
Skewness	-0.14	-0.38	-1.09	-0.82	-0.11	-0.34	-0.17	-0.42	-2.90
Kurtosis	1.72	2.012	2.75	3.19	1.75	1.75	2.30	2.12	9.43
Jarque-Bera	2.43	2.21	6.93	3.90	2.28	2.87	0.87	2.10	106.3
Probability	0.29	0.33	0.03	0.14	0.32	0.24	0.65	0.35	0.00
Sum	706.46	123.86	136.56	132.86	676.19	-67.60	99.68	133.66	31.00
Sum Sq. Dev.	5.871793	41.14	11.70	1.90	57.00	1.69	0.41	193.55	2.74
Observations	34	34	34	34	34	34	34	34	34

### Unit root test

In econometrics analysis using time series data needs the data to be tested for stationarity. This is meant to find the level of integration. This paper used the ADF and the Phillips and Perron tests which are the commonly used methods for testing for stationarity as found in the literature review. The results are presented in Table 2.

**Table 2:** Unit root test

	ADF				Phillips Perron			
	Level		1 <sup>st</sup> Difference		Level		1 <sup>st</sup> Difference	
	C	C+t	C	C+t	C	C+t	C	C+t
TRS	-1.70	-2.46	-5.5***	-5.40***	-1.68	-2.61	-5.72***	-5.58***
FINDEV	-1.64	-2.39	-5.58***	-5.54***	-1.64	-2.36	-5.58***	-5.5***
CPI	-1.99	-2.08	-3.13**	-3.6**	-1.66	-1.15	-3.11**	-3.64**
REM	-1.19	-4.19**	-4.87***	-4.80***	-0.22	-2.40	-7.55***	-7.82***

**Table 2 continuation**

EXCH	-2.11	-1.29	-4.67***	-5.11***	-2.07	-1.34	-4.68***	-5.11***
OPEN	-0.59	-2.32	-5.73***	-5.93***	-0.59	-2.32	-5.74***	-6.07***
EG	-3.95***	-4.76***	-6.43***	-6.34***	-3.91***	-4.78***	-10.71***	-10.40***
CAPITAL	-2.47	-2.94	-5.77***	-5.69***	-2.45	-2.71	-8.53***	-8.61***
ELECTION	-2.63	2.58	-5.09***	-5.03***	-2.36	-2.29	-5.48***	-9.91***

\*\*\* Significant at 1%, \*\* significant at 10%

Unit root test was done by use of both ADF and Phillips and Perron methods. For both tests, testing was done first with the constant only followed by both the constant and trend. From the results presented in Table 2, all variables except international remittances and economic growth were stationary at their first differences. Remittances and economic growth were stationary at levels meaning that they are  $I(0)$ . Tourism receipts, financial development index, exchange rate, CPI, openness, gross fixed capital formation and elections were stationary at their first differences for both ADF and Phillips and Perron tests. This means that the rest of the variables apart from remittances and economic performance are  $I(1)$ .

### Testing for Cointegration

With the unit root test results, it was necessary to test for cointegration. Cointegration testing is done to investigate existence of long-run relationship among the variables of the model. Given that the model contains more than two variables, Johansen method was most appropriate for testing for cointegration. The results are presented in Table 3.

**Table 3: Cointegration test results**

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.966633	323.1987	197.3709	0.0000
At most 1 *	0.862521	214.3930	159.5297	0.0000
At most 2 *	0.733461	150.8959	125.6154	0.0006
At most 3 *	0.667282	108.5844	95.75366	0.0049
At most 4 *	0.596631	73.36975	69.81889	0.0253
At most 5	0.497110	44.31681	47.85613	0.1035
At most 6	0.301486	22.32055	29.79707	0.2810
At most 7	0.271979	10.83895	15.49471	0.2216
At most 8	0.021066	0.681327	3.841466	0.4091
Trace test indicates 5 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.966633	108.8057	58.43354	0.0000
At most 1 *	0.862521	63.49706	52.36261	0.0025
At most 2	0.733461	42.31150	46.23142	0.1241
At most 3	0.667282	35.21469	40.07757	0.1596
At most 4	0.596631	29.05294	33.87687	0.1691
At most 5	0.497110	21.99626	27.58434	0.2205
At most 6	0.301486	11.48160	21.13162	0.5992
At most 7	0.271979	10.15762	14.26460	0.2018
At most 8	0.021066	0.681327	3.841466	0.4091

**Table 3 continuation**

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The results for both Trace and Maximum Eigen value methods don't agree, however both suggest that the variables in the model are cointegrated. The trace indicates that there are five cointegrating vectors, while the maximum Eigen value methods suggest existence of two cointegrating vectors. The Johansen method, therefore suggest existence of long run relationship among the variables in the model. There is a long run relationship among tourism development, financial development, international remittances, inflation, foreign exchange rate, gross fixed capital formation, economic growth and election in Kenya over the study period. Table4, presents short-run regression results.

### Estimation of the short –run Model

**Table 4:** Error Correction Model Estimated results, dependent variable  $\Delta$ tourism development

Variable	Coefficient	Std error	T-statistic	p-value
C	-0.023	0.052	-0.45	0.6548
D(TRS(-1))	0.22	0.16	1.42	0.1726
D(CPI)	-0.64	0.52	-1.23	0.2334
D(CPI(-1))	1.12**	0.46	2.44	0.0247
D(EXCH)	-0.48	0.33	-1.46	0.1606
D(OPEN)	0.57**	0.26	2.19	0.0416
D(OPEN(-1))	-0.49	0.27	-1.85	0.0804
D(REM)	-0.012	0.06	-0.21	0.8358
D(CAPITAL)	-0.68	0.36	-1.87	0.0766
D(GDPg)	0.024**	0.011	2.16	0.0424
D(FINDEV)	1.47***	0.33	4.49	0.0003
D(ELECTION)	-0.19	0.12	-1.70	0.1047
ECT(-1)	-0.892***	0.22	-4.14	0.0006
<b>R2=0.80</b>		<b>F=6.5 ( p-value=0.000)</b>		<b>D.W=2</b>

\*\*\* Significant at 1%, \*\* significant at 5%, \* significant at 10%

The short-run results presented in Table 4, suggests that financial development, openness, inflation and economic growth are significant in explaining the changes in tourism development in the short-run in Kenya. Development of the financial sector emerges to be with the highest impact on short-run changes in tourism industry in Kenya. Financial development has a positive effect on tourism industry growth as was expected. This effect is statistically significant at 1%. If financial developments in Kenya improve by 1 %, tourism industry will grow by 1.47% in the short-run. Growths of Kenyan exports and imports have positive impact to tourism industry. If exports and imports increase by 1%, tourism sector will improve by 0.57% in the short-run. In the short-run, international remittances have a negative effect on the tourism industry in Kenya. However, this impact is not statistically significant. Economic growth has a significant positive effect on tourism industry in the short-run. If Kenya's economy grows by 1% , tourism industry will grow by 0.024% in the short-run. This impact is statistically significant at 5%.

The coefficient of the error correction term (ECT) shows the speed of adjustment towards long run equilibrium. The coefficient is supposed to be negative and statistically significant. From the results in Table 4, the ECT coefficient is - 0.89 and it is statistically significant at 1 percent. The coefficient suggests that the deviation of tourism development from its long run values is corrected by 89 percent in the following year. The coefficient of the ECT further confirms that the variables in the model have a long run relationship especially among tourism development, financial development and international remittances. The significant coefficient of the ECT also suggests that the model is stable.

The coefficient of determination suggests that 80% of the changes in tourism development in the short run are explained by the explanatory variables in the model. The Durbin Watson statistic of 2 suggests that there is no autocorrelation in the short run and the F-Statistic was statistically significant at 1%. All these results suggest that the estimated short-run model is good. The following section presents long-run estimated results



### Estimation of Long-run Coefficients

Long run coefficients were estimated by use of Ordinary regression method and the results are presented in Table 5.

**Table 5:** Long run estimated Parameters

Variable	Coefficient	s.e	t	P-value
C	22.45	2.58	8.69	0.0000
Ln(FINDEV)	1.08***	0.26	4.12	0.0004
Ln(REM)	0.12**	0.050	2.29	0.0306
ln(CPI)	0.41**	0.18	2.3	0.0302
Ln(EXCH)	-0.74***	0.26	-2.83	0.0091
Ln(OPEN)	0.49**	0.23	2.33	0.0284
Ln(Capital)	-0.82*	0.46	-1.78	0.0872
GDP growth	0.03**	0.015	2.2	0.037
ELECTION	-0.18	0.10	-1.76	0.0914

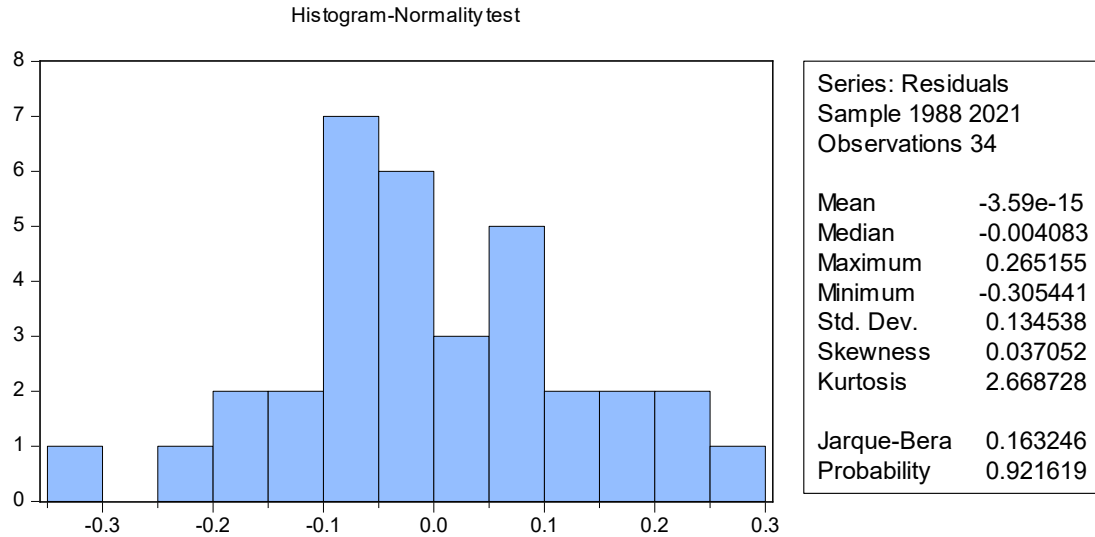
\*\*\* Significant at 1%, \*\* significant at 5%, \* significant at 10%

The main objective of this paper was to investigate the impact of financial development and international remittances on tourism development in Kenya using secondary data over the period 1988-2021. From the regression results both variables are highly statistically significant at one and five percent respectively. Financial development has a positive impact on tourism development. This variable according to the findings has the highest positive (1.08) impact on the travel and tourism industry development. If financial development changes by one percent, tourism sector will grow by 1.08 percent and this change is statistically significant. Musakwa and Odhiambo (2021) found a similar result that financial development boosts tourism development. Similarly, international remittances in Kenya have a positive impact on tourism development in Kenya. The results also agree with the findings of Tsurai, 2022; Fauzel and Seetanh 2021; and Churchill 2022, whose studies found that financial development positively impacts on tourism growth. If international remittances increase by one percent, tourism sector will be enhanced by 0.12 percent. This impact is statistically significant. Mora-River and García-Mora (2021), and Mora-Rivera *et al*, (2019), found similar result that growth of international remittances boosts the tourism industry.

The control explanatory variables included in the empirical model were found to be significant in determining tourism development in Kenya. Inflation as proxied by consumer price index, significantly impact positively on tourism growth in Kenya. A one percent increase in consumer price index leads to 0.41 percent increase in tourism growth in Kenya. The results suggest that exchange rate variable reduces growth in tourism growth over the study period. When exchange rate increases by one percent, this significantly reduces tourism growth by 0.74 percent. This effect is significant at one percent. Trade openness has a positive impact on tourism growth in Kenya. If openness increase by one percent tourism will improve by 0.49 percent. This change is significant at five percent level. Growth of gross capital formation in Kenya over the study period was found to have a negative impact on tourism growth. Economic growth in Kenya enhances tourism development. Over the study period, growth of the economy by one percent significantly improves tourism development by 0.03 percent.

### Diagnostic results

Various diagnostics were done on the regression output. The whole estimated model explained 90% of the changes in the dependent variable as indicated by the coefficient of determination with a value of 90%. The error term was found to have a normal distribution as shown by the Figure 2.



**Figure 2:** Normality test for the Error Term

The p-value of the Jarque-Bera is 0.92, therefore we fail to reject the null hypothesis which states that the error term has a normal distribution.

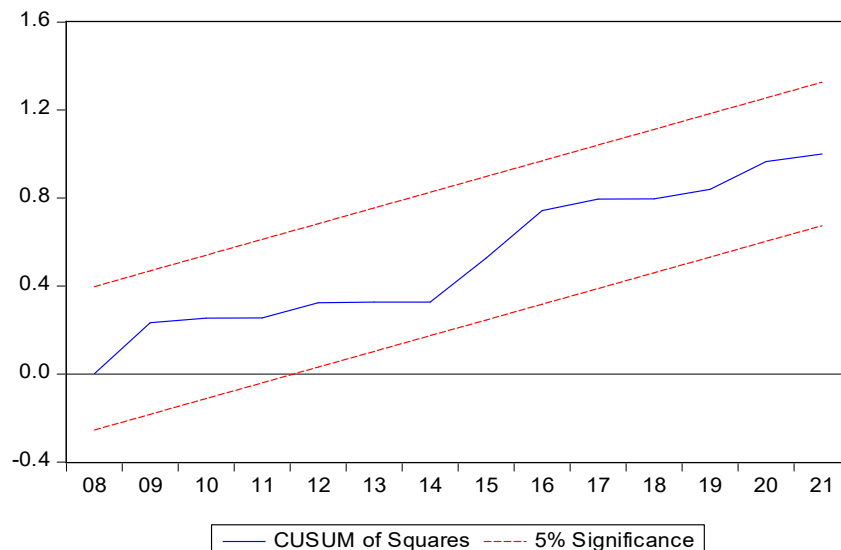
Serial correlation and heteroscedasticity tests for the error term were done by use of Breach-Godfrey serial correlation test and Breach-Pagan-Godfrey test, respectively giving the results presented in Table 6.

**Table 6:** Serial correlation and Heteroscedasticity Tests results

Test method	n*R2	p-value
Breach-Godfrey Serial Corr.LM test	2.4	0.30
Breach-Pagan-Godfrey	14.63	0.07

From the results presented in Table 6, the P-value of the Breach Godfrey serial autocorrelation test is 0.30 suggesting that the null hypothesis of no autocorrelation among the error terms cannot be rejected at five percent level. Similarly, the Breach –Pagan –Godfrey test for heteroscedasticity provides a p-value of 0.07 suggesting that the null hypothesis of constant variance of the error term is not rejected at five percent.

Stability of the coefficients was tested by use of the CUSUM Squares whose results are shown in Figure 3.



**Figure 3:** CUSUM Squares graph

Stability test for the coefficients is shown in Figure 3. The coefficients are statistically stable over the entire period of study as shown by the CUSUM Squares graph at five percent of significance.

Multicollinearity condition was tested by use of the correlation analysis whose results are presented in Table 7.

**Table 7:** Correlation coefficients among variables

	Ln(TRS)	LN(CPI)	Ln(EXCH)	Ln(OPEN)	Ln(REM)	Ln(FINDEV)	GDPG	ELECTION
Ln(TRS)	1	0.72	0.58	-0.48	0.83	0.88	0.52	-0.18
Ln(CPI)	0.72	1	0.94	-0.68	0.84	0.81	0.36	-0.10
Ln(EXCH)	0.58	0.94	1	-0.52	0.70	0.72	0.28	-0.16
Ln(OPEN)	-0.48	-0.68	-0.52	1	-0.74	-0.50	-0.18	-0.06
Ln(REM)	0.83	0.84	0.70	-0.74	1	0.81	0.33	-0.09
LN(FINDEV)	0.88	0.81	0.73	-0.50	0.81	1	0.50	-0.12
GDPG	0.52	0.36	0.29	-0.18	0.33	0.50	1	0.06
ELECTION	-0.18	-0.11	-0.16	-0.06	-0.09	-0.12	0.06	1

There is no serious multicollinearity in most of the variables except CPI which seems to be highly correlated with exchange rates, and international remittances. One of the remedies of multicollinearity is to stay with it. In this paper collinearity was maintained.

In summary the diagnostic analysis suggest that the estimated model is sound.

## Conclusions and policy recommendations

This paper investigated the impact of financial development and international remittances on travel and tourism development in Kenya. This paper used time series data over the period 1988-2021. The regression model was estimated by use of Ordinary Least Squares method.

The cointegration analysis suggested that there is long-run relationship among the variables, tourism development, financial development, international remittances, inflation, foreign exchange rate, gross fixed capital formation, economic growth and elections in Kenya.

From the ECM regression results, this paper concludes that financial sector development, economic growth, openness and inflation determine tourism development in Kenya. From the results, financial sector development emerged to be the strongest factor in determining the growth of the tourism sector. The government and other stake holders need to put more effort in developing the financial sector in Kenya. This will enhance growth in the tourism industry and other related sectors within the economy.

The long-run regression results suggest that financial development and international remittances have a significant positive impact on tourism development in Kenya. This means that as Kenya's financial sector develops the tourism sector will develop faster. From the results it can also be concluded that inflow of more amounts of international remittances to the country, spurs the tourism sector. These results are also supported by correlation analysis which shows that tourism development and financial development and international remittances are strongly and positively correlated by around 80%.

Growth of Kenya's international trade, economic growth and inflation are other factors that can boost tourism industry in Kenya. The government needs to set policies and programs that can make the country's exports more competitive in the international market as this will increase inflow of foreign exchange some of which can be invested in the tourism industry. Growth of all sectors in the economy to be boosted though increased investment by both by the government and the private sector.

The findings have policy recommendations. The empirical results suggest that the government should implement policies and programs that will increase the development of the financial sector and also provide favorable environment for migrants to keep sending remittances to the country as these will impact positively on tourism development.

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