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The effect of international tourism receipts on economic growth in South Africa

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Abstract

The International Monetary Fund and the Mutual Assessment Process for G20 leaders revealed that a major objective of macroeconomic policies in many developing countries is sustained economic growth. South Africa as an emerging economy has been striving to achieve sustainable economic growth through different strategic sectors such as tourism sector. Although international tourism contributes to the growth of many economies, it is in turn affected by growth in developed countries. The focus of this study, therefore, was to assess the relationship between tourism earnings and economic variables, including long-run economic growth in South Africa using the Vector Error Correction Model. Real gross domestic product, international tourism earnings, real effective exchange rate and money supply were analysed. A multivariate vector autoregressive model using quarterly data covering the years 2000 to 2015 was used. In addition, a diagnostic test was carried out to authenticate the correct model specification. The results obtained showed a positive relationship between tourism earnings and real gross domestic product over a period of time. Based on the findings, it is recommended that policymakers work from a tourism-led growth orientation to (re)organise and allocate resources effectively in the attempt to boost economic development.

Key phrases

Economic growth; gross domestic product; tourism and South Africa

1. INTRODUCTION AND BACKGROUND

The heads of state that convened at the 2016 G20 Hangzhou Summit profoundly declared tourism to be a key macroeconomic driver of economic growth and development that has the capacity to induce global economic recovery (International Monetary Fund (IMF) 2017:3). It is undeniable that the tourism industry in South Africa is a success story, as witnessed by the sector's sustained growth. South Africa received a positive tourism trade balance from $ 8,684,000,000 in 2009 to $10,484,000,000 in 2014 (StatsSA 2016:1). However, the tourism trade balance decreased by -19 % from $10,484,000,000 in 2014 to $8,807,000,000 (World Data Atlas, 2017:1). Realistically, the tourism industry has generated employment for the local populace, creating an average of 1 job per 12 jobs in the country since 2012 (StatsSA 2016:2). This statistical proportion can be attributed to the stimulation of economic growth caused by the tourism sector that encompasses a direct and an indirect impact on other areas such as the agricultural and service sectors (Antonakakis, Dragouni & Fillis 2015:142; Brida & Pulina 2010:4).

The World Travel and Tourism Council revealed that the total contribution of travel and tourism to South Africa's gross domestic product (GDP) was $27 154 693 980 in 2016 (9.3% of GDP) and grew by 2.5% to $27 830 183 880 (9.4% of GDP) in 2017 (Department of Tourism of the Republic of South Africa 2018:2). Prior to this, an annual average growth rate of 7.4% between 2011 and 2013 with a record 9.6 million international tourist arrivals recorded in 2013 was documented (StatsSA 2014:3). Furthermore, a 3% increase in international tourist arrivals was noted in 2011 (StatsSA 2015a:1). Remarkably, StatsSA (2015b:2) recorded a tourism spend of R218.9 billion in 2013, marking a 9.7% increase from 2012, with international tourist spending contributing 43% to the total tourism spend in 2013. Undeniably, this assisted in maintaining a positive tourism trade balance, which is a favourable position for significantly influencing economic growth (Akinboade & Braihmoh 2009:151; Pablo-Romero & Molina 2013:30; StatsSA 2016:3; Tang & Tan 2013:53). Nonetheless, although tourism stimulates economic growth, it should not be regarded as a

panacea but recognised as a tool that has the potential to drive economic growth (Cardenas-Garcia, Sanchez-Rivero & Pulido-Fernandez 2015:208).

2. OPPORTUNITY INVESTIGATED

When considering the economic opportunities created by tourism in South Africa such as job creation, it is imperative to expound the framework through which such opportunities are derived. It is asserted that international tourism receipts stimulate economic growth, but the question is does the Tourism-Led Growth (TLG) hypothesis apply to South Africa? (Akinboade & Braihmoh 2009:151; Pablo-Romero & Molina 2013:30; StatsSA 2016:3; Tang & Tan 2013:53). This unanswered question laid the foundation for the development of this article.

3. PURPOSE OF THE RESEARCH

This article aims to discover the plausible effects of tourism receipts on economic growth in the short run and the long run by investigating the relationships among exchange-rate fluctuation, tourism receipts and economic growth. The article is extended by hypothesising that (a) there is no statistically significant effect on tourism receipts and economic growth in South Africa (H_o); and (b) there is a statistically significant effect on tourism receipts and economic growth in South Africa (H_1), thus attempting to answer the question: 'Does tourism receipts have an effect on economic development?'

4. THEORETICAL FRAMEWORK: LINK BETWEEN TOURISM AND ECONOMIC GROWTH

The theoretical literature placing tourism within the framework of an economic development pattern can be found in Brida and Pulina (2010:4), Lawson (2014:1), Mahalia (2012:15) and Siyabonga (2013:2), among others. Furthermore, a theoretical review of literature is replete with authors who employ a causality analysis based on the export-led growth hypothesis that forms the basis for the TLG hypothesis (Aslan 2014:365; Katircioglu 2009:2743; Oh 2005:40; Seetanah 2011:293; Solarin 2014:229; Tang 2013:272).

The export-led hypothesis between trade and Gross Domestic Product (GDP) forms the connotation about the potential impact of international tourism on economic growth. The TLG hypothesis claims that expansion of the tourism industry precedes economic growth (Akinboade & Braimoh 2009:158; Mahalia 2012:16). Tourism is closely linked with other

economic sectors of the economy such as communications, the wholesale and retail trade, finance and business services and the agricultural, transport and communication sectors (Dube 2013:3).

The TLG hypothesis was validated by Hye and Ali-Khan (2013:312) who analysed the long-run relationship between income from tourism and the economic growth of Pakistan. The results confirmed that a long-run relationship between income and tourism exists. Income from tourism indeed contributes to economic growth in Pakistan (Hye & Ali-Khan 2013:312). As such, the introduction of tourism policies as a way to initiate economic growth stands as one of the most effective ways to foster growth in both developing and developed countries (Al-mulali, Fereidouini, Brida, Cortes-Jimenz & Pulina 2016:392; Kumar, Loganathan, Patel & Kumar 2015:1104). In support of this, Laakso (2011:53) mentioned that tourism is one of the most significant components of social dimensions, situations and circumstances. Tourism achieves interaction between the environmental factors and the decisions taken by tourists, with the social, cultural, political, natural, economic and technological environments forming the basis of tourism. Hence, to a great extent, the TLG hypothesis occurs when tourism stimulates the whole economy in the form of spill over from the various environments (Mahalia 2012:18).

Economic growth in South Africa is significantly influenced by international tourism receipts, which are dependent upon the number of foreign tourist arrivals (Dube 2013:2). The weaker South African rand to the United States Dollar (SAR/USD) in the past ten years left the exchange rate in favour of the international tourist, thereby creating the potential for a high number of international tourist arrivals in South Africa (StatsSA 2016:3). This implies that exchange-rate fluctuations are significant in attracting international tourists. As a result, tourism has significantly emerged as one of the key foreign currency contributors to economic growth in South Africa (Getz & Page 2016:598; Marschall 2017:143; Peeters, Matheson & Szymanski 2014:298;). In essence, South Africa's main tourism markets are found in Western developed countries such as the United States of America and Britain (StatsSA 2016:3). Croes and Vanegas (2008:96) highlight the relocation of wealth and income from the origin markets to the destination areas that transpires when tourists from developed countries travel and spend in emerging countries.

As stated by Croes and Vanegas (2008:95) equally important is the "democratisation of the dollar" that occurs simultaneously with the arrival of international tourists from mainly developed countries. This concept is attributed to the relationship between tourism and economic growth, which is founded on the transfer of wealth by tourists from developed origin markets to emerging destination areas (Dwyer 2015:328). This relationship results in the stimulation of employment and other income-related opportunities, leading to a multiplicity of effects in the local community. Increased visitor numbers and spending is guaranteed to spur employment within the tourism industry. This is evident in the increase in tourist arrivals and spending in South Africa witnessed from 2012 to 2013 that equally influenced the increase in employment from 645 755 employees in 2012 to 655 609 employees in 2013 (StatsSA 2016:1).

Tourism as an agent for economic development has drawn the attention of various scholars who are interested in understanding the significance of tourism in economic development (Kibara, Odhiambo & Njuguna 2012:518; Cardenas-Garcia *et al*. 2015:212). In South Africa, researchers such as Balcilar, Van Eyden, Inglesi-Lotz and Gupta (2014:4381) and Phiri (2016:31) have generally focused on the economic developments brought about by tourism receipts but have overlooked impulse response functions and variance decomposition to analyse the shocks and innovations that occur in the economy due to tourism receipts. The weaker South African Rand due to exchange-rate fluctuations directly affects tourist arrivals, simultaneously affecting tourism receipts and eventually the contribution of the tourism industry to the GDP (Agiomirgianakis, Serenis & Tsounis 2017:31; Sharif & Afshan 2016:103). This narrative thus led to a review of existing empirical evidence indicated in the following section.

4. EMPIRICAL EVIDENCE

Oh (2005:39) examined the causal relationships between tourism growth and economic development on the Korean economy. The results revealed that there is a one-way causal flow from economic growth to tourism development. In addition, there are several studies that are consistent with the bi-directional causality between tourism and economic growth. These studies were conducted by Kim, Cheng and Jang (2006:925), Katircioglu (2009:2742) and Seetanah (2011:291). Seetanah (2011:292) examined the influence of tourism potential on economic development and growth in 19 island economies. The findings showed that

tourism significantly contributes to the economic growth of island economies and that there is a bi-causal relationship between tourism and growth (Seetanah 2011:292). Katircioglu (2009:2749) examined the relationship between international tourism and economic growth in Malta and the direction of causality. Katircioglu (2009:2749) concluded that both the TLG and the output-driven tourism hypotheses are relevant to Malta in Europe. Kim *et al*. (2006:926) tested the causal relationship between tourism growth and economic development in Taiwan, and the results revealed that there is a long-run equilibrium relationship and bi-directional causality between the two variables.

Lee (2008:73) used the bounds testing approach to examine both the short- and long-run relationship between tourism and economic growth in Singapore. The findings of the study revealed that there is a uni-directional Granger causality (the causal relationship between variables in question) from economic growth to tourism, thus supporting the TLG hypothesis in Singapore. Payne and Mervar (2010:1090) used quarterly data from 2001:Q1 to 2008:Q3 in Croatia to examine the TLG hypothesis. The results revealed that there is a positive uni-directional causality from real GDP to international tourism revenues.

Kibara *et al*. (2012:517) examined the dynamic relationship between the development of the tourism sector and economic growth, using annual time-series data from Kenya. The study used the Autoregressive Distributed Lag (ARDL)-bounds testing approach to examine the linkages and incorporated trade as an intermittent variable between tourism development and economic growth in a multivariate setting. The results from Kibara *et al*. (2012:523) revealed that there is a uni-directional causality from tourism development to economic growth. The results were found to hold irrespective of whether the causality was estimated in the short or the long run. Furthermore, the results showed that international tourism Granger-causes trade, while trade Granger-causes economic growth in Kenya in both the short and the long run.

Newly developed ARDL-bounds testing approach was used by Odhiambo (2011:71) who examined the significance of the TLG hypothesis for Tanzania. Odhiambo (2011:80) found that there is a short-run, bi-directional causality between tourism development and economic growth. In addition, the author found that there is a distinct long-run, uni-directional causal flow from economic growth to tourism development. Odhiambo (2011:80) concluded that

tourism-led growth is applicable to Tanzania in the short run; however, in the long run, the TLG hypothesis dominates.

Akinboade and Braimoh (2009:153) demonstrated the direction of causality between international tourism earnings and long-run economic growth in South Africa and other variables using Granger causality analysis. The results obtained revealed a uni-directional causality running from international tourism earnings to real GDP in both the short run and the long run. The error correction mechanism carried out also supported this causality.

Having a clear understanding of the theoretical framework, the empirical model of this article relies on the work of Akinboade and Braimoh (2009:160). Thus, the methodology of the study is as follows.

5. RESEARCH METHODOLOGY

Akinboade and Braimoh (2009:160) posit that the focus of policymakers should be placed on 'economic Tourism First' or 'economic Development First'. This study, therefore, addresses the notion of whether economic tourism or economic development should be developed first, thus motivating the testing of the hypothesis. To test the causal relationships between tourism revenue and economic growth in South Africa, the study specified the three-variable vector autoregressive (VAR) model, which is used to capture the linear interdependencies among multiple time series as follows:

GR = f (INT, EXC, Ms) ……..……...Eq. 1

Where:

f = "function of"

GR = Economic Growth rate in real terms

EXC = quarterly real exchange rate (ZAR/USD)

INT = quarterly international tourism receipts/earnings

Ms = Broad Money Supply

The sample consists of 60 sets of quarterly data from 2000 to 2015. All data were converted into log equations for time series processing. Thus, the coefficient can be interpreted as an elasticity.

After linearisation and log transformation, the model becomes:

$LnGRt = \beta_0 + \beta_1 \ln INT + \beta_2 \ln EXC + \beta_3 \ln Ms + \varepsilon$……………….………………………..Eq. 2

Where:

β_0 = intercept of the given model

$\beta_1 - \beta_3$ = Coefficients of each independent or explanatory variable

μ = Error term

6.1 Data sources and analysis

The study used the time series quarterly data obtained from the South African Reserve Bank and StatsSA. The exchange rate was valued in real value (inflation adjusted), while money supply and international tourism earnings were valued in billion rand.

6.2 Unit root test

Stationarity test: Stationarity of a series is an important phenomenon because time series data must be stationary to avoid spurious results. This study used the Augmented Dickey-Fuller (ADF) and the Phillips-Perron test (PP) for unit root testing to check if the variables were stationary or contained a unit root. Brooks (2008:318) states that ADF tests and PP tests are similar, and they incorporate an automatic correction to the Dicky-Fuller procedure to allow for autocorrelated residuals. This necessitates checking if the data is stable after the lag-1 period. Louangrath (2015:2) revealed that testing for stationarity verifies whether the effect of shock is permanent or transitory. Thus, if the effect of shock is transient (temporary), the value of the dependent variable in the subsequent period will return to its long-run equilibrium. Consequently, these two tests examine the null hypothesis of a unit root. In the case where the test statistic value is greater than the critical value, the null hypothesis of a unit root is rejected in favour of the stationary alternative. Rejecting the null hypothesis means that the series does not have a unit root and hence, it is stationary.

6. FINDINGS AND MANAGERIAL IMPLICATIONS

The results of the unit root tests are presented in Table 1 below and show that when considering the ADF test, the variables GR and MS were stationary at level series while the variables EXC, CPI and REPO were not stationary at level series but became stationary after first difference. When using the PP test, all variables were stationary after first difference except for the variable CPI that was stationary at level series. Considering the results of the much stricter PP test, variables were thus integrated of order 0 and 1.

Table 1: Stationarity results of the Augmented Dickey-Fuller test

Augmented Dickey-Fuller Test				
Order of integration	Variable	Intercept	Trend & intercept	None
Level	LGR	-2.433419	-3.318772	-1.287026
1st difference	DGR	-6.365876***	-6.337160***	-6.406185***
Level	LEXC	0.240436	-0.398723	1.449300
1st difference	DEXC	-6.538414***	-6.709504***	-6.417611***
Level	LINT	-2.160259	-2.810114	-1.351784
1st difference	DINT	-3.020944**	-4.435407***	-2.695535***
Level	LMS	-1.431543	-3.517547	0.440979
1st difference	DMS	-12.61288***	-12.57007***	-12.56534***
1%	Critical values	-3.542097	-4.115684	-2.603423
5%		2.592645	-3.485218	-1.946253
***** represents stationary variables at 1% significance level; ** represents stationary at 5%**				

Source: Generated by the author from Eviews 9.5 version Output

Table 2: Stationarity results of the Phillips-Perron test

Phillips-Perron Test				
Order of integration	Variable	Intercept	Trend and intercept	None
Level	LGR	-2.089998	-2.575154	-1.367977
1st difference	DGR	-6.368310***	-6.342296***	-6.411041***
Level	LEXC	-0.107599	-0.718854	1.249226
1st difference	DEXC	-6.544131***	-6.694051***	-6.431027***
Level	LINT	-2.780285	-3.246673	-1.574503
1st difference	DINT	-13.13514***	-14.19556***	-11.85119***
Level	LMS	-1.536829	-3.199911	0.567766
1st difference	DMS	-16.17863***	-17.34555***	-14.26194***
1%	Critical values	-3.538362	-4.110440	-2.602185
5%		-2.908420	-3.482763	-1.946072
***** represents stationary variables at 1% significance level; ** represents stationary at 5%**				

Source: Generated by the author from Eviews 9.5 version Output

Tables 1 and 2 show the results for stationarity according to the ADF and the PP tests. The tests were conducted under the null hypothesis of a unit root. The calculated statistics of ADF and PP were compared against the respective critical values. The rule of thumb states that if the calculated statistic is greater than the critical value at one or both levels of significance (1% and 5%), the null hypothesis is rejected, concluding that the series has no unit root and thus confirming that the series is stationary (Brooks 2008:315). The ADF tests were conducted on variables in (a) intercepts, (b) trends and intercepts, and (c) no trends and no intercepts. For variables in levels, the tests in intercepts, trends and intercepts, and no intercepts revealed that all variables in the study had a unit root at both the 1% significance level and the 5% significance level. Nonetheless, all the differenced variables were stationary at the 1% significance level and, therefore, the null hypothesis of unit root was rejected. All variables under trends and intercepts and trends and no intercepts data

series were non-stationary in levels but became stationary at the 1% significance level when first differenced.

Table 2 shows the PP results. All variables in levels under the test in intercepts, trends and intercepts and no intercepts revealed that none of the variables was stationary. Nonetheless, soon after first differencing, all variables on intercepts, trends and intercepts and no intercepts were stationary at 1% significance level. For the test under no trends and no intercepts, all variables in the levels were non-stationary. When first differenced, all the variables were stationary at 1% significance level. Both methods used to test for the presence of unit root significantly revealed that the data series were non-stationary in both levels and became stationary when first differenced. Therefore, the series are integrated of the same order I (1).

7.1 Tests for co-integration

It was crucial to determine whether or not a long-run equilibrium relationship existed among the variables since all the variables were integrated of the same order. The article used co-integration to examine the long-run relationship between the GDP and control variables. Since all the variables were non-stationary in level, the next procedure was to test for the existence of long-run relationships among the variables in the model. The Johansen test for co-integration requires the estimation of a VAR equation. The variables (LnEXC, LnINT and LnMS) are entered as endogenous variables. The information criteria approach was applied in this article as a direction to choose the lag order. It is a requirement of the Johansen technique to indicate the lag order and the deterministic trend assumption of the VAR. The table below confirms the lag lengths selected by different information criteria.

Table 3: Lag order selection criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-279.054	NA	0.172654	9.595032	9.735882	9.650014
1	-132.3321	268.5747	0.002058*	5.163800*	5.868050*	5.438710*
2	-116.6698	26.54620*	0.002098	5.175249	6.442899	5.670088
3	-104.3508	19.20933	0.002425	5.300027	7.131077	6.014795

4	-89.08293	21.73731	0.002581	5.324845	7.719295	6.259541
5	-76.84882	15.75919	0.003124	5.452502	8.410352	6.607127

Source: Generated by the author from Eviews 9.5 version Output

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Table 3 above confirms that the criteria selected 1 lag. Subsequently, making use of the information criteria approach, the Johansen co-integration test was conducted using 1 lag for the VAR. The trace test results based on the Johansen co-integration are presented in Table 4.

Table 4: Co-integration Rank test (trace and eigenvalue)

	Co-integration Rank test (Trace)				**Co-integration Rank test (Eigenvalue)**			
Hypothesised No of CE(s)	Eigenvalue	Trace	0.05 Critical Value	Prob**	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob**
None*	0.37198	48.4595	47.8561	0.0438	0.371976	28.8409	27.5843	0.0344
At most 1	0.21643	19.6186	29.7970	0.4491	0.216434	15.1218	21.1316	0.2805
At most 2	0.06668	4.49679	15.4947	0.8597	0.066684	4.27867	14.2646	0.8288
At most 3	0.0035	0.21811	3.84146	0.6405	0.003512	0.21811	3.84146	0.6405

Source: Generated by the author from Eviews 9.5 version Output

Trace Max-Eigen value test indicates 1 co-integration Equation(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

** MacKinnon-Haug-Michelis (1999) p-values

The test operates under the null hypothesis that the number of co-integrating equations is greater than the number of variables involved. If the test statistic is smaller than the critical values of the trace tests, the null hypothesis is not rejected. Thus, the results of the Johansen co-integration test are presented based on the maximum eigenvalue. The maximum eigenvalue test was conducted on a null hypothesis of the number of co-integration equations (r) against the alternative hypothesis of a number of co-integration equations plus one (r +1). The null hypothesis is not rejected if the *t*-statistic is smaller than the critical values of the maximum eigenvalue test.

Table 4 presents the results of the trace and the maximum eigenvalue tests, which confirm the existence of at least one co-integrating equation at the 5% significance level. In Table 4, the null hypothesis of no co-integration vectors is rejected since the trace (test) statistic of 48.459 is greater than the 5% critical value of approximately 47.856. The null hypothesis of at most 1 co-integration is not rejected since the *t*-statistic of 19.6186 is less than the critical value at 5% of 29.7970. Using a similar explanation under eigenvalue, the null hypothesis, which states that at most 1 co-integration vector exists, cannot be rejected since the test statistic of approximately 15.121181 is less than the 5% critical value of about 21.131. For this reason, both the trace statistics and the maximum eigenvalue specified 1 co-integrating relationship at the 5% significance level in the growth model. Therefore, it can be concluded that there is one significant long-run relationship between the given variables (using both the trace and the max-eigenvalue test). Since variables can either have short- or long-run effects, a Vector Error Correction Model (VECM) was used to disaggregate these effects. The co-integration vector represented the deviations of the endogenous variable from its long-run equilibrium level.

7.2 Vector Error Correction Model

The discovery of a co-integrating equation necessitated the use of the VECM. The distinction between the long- and short-run impacts of the variables established the extent of influence that the tourist receipts had on economic growth. The VECM results are presented in the Table 5.

Table 5: Vector Error Correction Model

Variable	Coefficient	Standard error	*t*-statistic
Constant	-4.029465	-	-
GR	1.000000	-	-
LnINT	1.577031	0.40306	3.91263
LnEXC	5.391783	2.32882	2.31524
LnMS	3.592820	0.79087	4.54285

Source: Generated by the author from Eviews 9.5 version Output

The long-run results of tourism earning on economic growth presented in Table 5 are illustrated using Equation 3 :

GR = -4.029465 + 1.577031INT + 5.391783 EXC + 3.592820 MS……..Eq. 3

Equation 3 shows that the control variables, INT, EXC and MS, have a positive long-run relationship with economic growth (Growth Rate). The *t*-statistic value of greater than 2 for all the variables authenticates the statistically significant result of all control variables in explaining economic growth. The results recommend that a unit increase in INT increases economic growth in the long run by approximately 1.577. This shows that the tourism industry in South Africa plays a vitally important role in economic growth in the long run and that it is sustainable. The long-run results follow the view of the tourism-led hypothesis regarding tourism earnings, which holds that currency depreciation has an expansionary effect on economic growth and employment, especially for less economically developed countries. This is in support of studies conducted by Payne and Mervar (2010:1093) and Kibara *et al*. (2012:518), which revealed that tourism indeed has positive effects on economic growth.

Depreciation decreases domestic prices, and this attracts foreign visitors in particular, thus increasing economic growth through INT. In the long run, depreciation decreases the cost of domestic production in general and through imported inputs, a unit decreases in the long run.

In the long run, an increase in EXC, which in this case is currency appreciation, attracts direct foreign investment, especially portfolio investments that improve South Africa's balance of payments, and thus increases economic growth. Therefore, a unit increase in EXC, which is South African Rand appreciation, increases economic growth in the long run by approximately 5.391. Direct foreign investment in public and private infrastructures such as roads, plants and equipment expands the country's production capacities. This, in turn, guarantees increases in the GDP of a country in the long run. In this article, MS has a positive long-run effect on economic growth. A unit increase in MS increases economic growth by approximately 3.592. In the long run, an increase in MS can increase capital injections into the economy, and this has positive effects on economic growth. More capital means more production and hence, an increase in the total output of an economy.

7.3 Diagnostic checks

The model of this article was subjected to diagnostic tests. The model was tested for serial correlation, normality, autoregressive conditional heteroscedasticity and stability. Diagnostic checks were implemented in the GDP modelling in order to authenticate the parameter assessment of the outcomes achieved by the model. Problems with the residuals from the estimated model could render the model inefficient, and the estimated parameters in the model would be biased. For the purposes of this study, the VAR model was subjected to diagnostic checks. The diagnostic test results are presented in Table 6 below, and these assisted in checking for serial correlation, normality and heteroscedasticity. The diagnostic checks were based on the null hypothesis that there is normality for the Jarque-Bera test, there is no serial correlation for the Lagrange Multiplier (LM) test and there is no heteroscedasticity for the White Test for Heteroscedasticity.

Table 6: Results of diagnostic checks

Test	Null Hypothesis	*t*-statistic	Probability
Lagrange Multiplier (LM)	No serial correlation	17.432	0.434
White (Chi-square)	No conditional heteroscedasticity	0.919	0.516
Jarque-Bera (JB)	Normal distribution	8.026	0.066

Source: Generated by the author from Eviews 9.5 version Output

The results shown in Table 6 display that the test for serial correlation produced an LM statistic of 17.432 and a probability of 0.434. The Jarque-Berra test *t*-statistic was 8.026, and the probability was 0.056 for the Histogram and Normality Test. Thus, the Jarque-Bera *t*-statistic is insignificant since it is above the 5% significance level. Moreover, the histogram is bell-shaped, and this confirms that the residuals are normally distributed. Therefore, the null hypothesis of a normal distribution was not rejected. In addition, the heteroscedasticity tests gave the F-statistic of 0.919 and the probability of 0.516, which meant that the null hypothesis of no heteroscedasticity was not rejected and thus, the residuals were homoscedastic. The results of the diagnostic checks for serial correlation and heteroscedasticity showed that the data was well behaved.

7. LIMITATIONS OF THE RESEARCH

The overall limitations of the study are centred on the nature of the data used. The data required more complicated software regarding the model used. There are several preliminary tests that are mandatory prior to Vector Error Correction Modelling. Excessive confirmatory tests require more knowledge and are time consuming to perform. Ultimately, generalisation when interpreting the results may result in overstating or understating the actual issues concerning forecasting. In addition, converting the data into logarithms necessitated the use of percentages when interpreting the results of the study.

8. CONCLUSION AND RECOMMENDATIONS

International tourism as presented in this study is unequivocally an important area that boosts economic growth in a country. In South Africa, Tourism-Led Growth Hypothesis has clearly emerged as a long-term solution that boosts development at a reasonable pace. This has necessitated the implementation of marketing solutions into South Africa's top destinations in addition to marginalised areas since remote areas comprise the natural environment and deliver the extensive wildlife that attracts international tourists. Resultantly, this brings development and modernity to these areas, which facilitate the stay of the tourists further. Moreover, tourism is a labour-intensive industry and at some point, unemployed youth will be absorbed into the industry, thus demonstrating the strategic importance of

tourism in employment contribution. Thus, tourism employment illuminates the value of international tourism in heightening development within a nation.

It is noteworthy that the positive association between international tourism and economic growth has been widely accepted in previous scholarly work, resulting in what is now known as the TLG hypothesis. Supported by the study's findings, the current study concurs with this concept. However, it should be noted that the TLG hypothesis will not yield positive results in all cases because this is determined by, but not limited to, the country's supporting structure, facilities, resources, public services and policies that are available to promote the tourism industry. In addition, the arrival of international tourists into the country is influenced by the value of the South African Rand, visa regulations, empathy level of the host towards tourists and even the attractiveness of close competitor's products and services. In regard to visa regulations, the establishment of visa-free entry into South Africa for BRICS members inherently boosts international tourism receipts. Likewise, the existing tourist market base in Western countries such as the United Kingdom enjoys visa-free entry into South Africa. This collaboratively boosts tourism receipts.

This study concludes by acknowledging the indispensable role of international tourism in economic growth and at the same time, recognises the interwoven tourism system that is responsible for the remarkable statistical figures in regard to employment and GDP contributions. Policymakers need to work from a tourism-led growth orientation in order to (re)organise and allocate resources effectively in the attempt to boost the economic development of the nation. To achieve such a status, the researchers profoundly recommend collaboration among personnel such as past and present tourism ministers, government officials working and having interests in the tourism industry, policymakers and economists in order to set a feasible platform that allows the effective implementation of tourism-led growth while simultaneously creating spill-over effects for other industries within the country. In so doing, this would establish and successfully expedite an optimal tourism-led growth set up as the country sought to develop its economy.

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