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TOURISM AND FINANCIAL DEVELOPMENT IN SOUTH AFRICA: A TRIVARIATE APPROACH

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TOURISM AND FINANCIAL DEVELOPMENT IN SOUTH AFRICA: A TRIVARIATE APPROACH

Mercy T. Musakwa¹ and Nicholas M. Odhiambo

Abstract

In this study, we examine the causal relationship between tourism and financial development in South Africa using data from 1995 to 2017. The study attempts to establish if financial development Granger-cause tourism in South Africa? Autoregressive distributed lag (ARDL) bounds testing approach and ECM-based Granger causality test were used to examine the link. When broad money was used as a proxy for financial development, a unidirectional causality from tourism to financial development was found in the short and the long run. However, when domestic credit provided by financial sector and market capitalisation of domestic listed companies were used as proxies, a bidirectional causal effect was confirmed in the short run and a unidirectional causal relationship from financial development to tourism in the long run. The results confirm the reinforcing effect between tourism and financial development in the short run with financial development taking the centre stage in the long run.

Key Words: Financial development; tourism; South Africa; real effective exchange rate; ECM-based causality testing

JEL Classification: E44, Z3

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1. Introduction

South Africa is a member of the World Tourism Organisation (UNWTO), a United Nations specialised agency to promote tourism. UNWTO promotes tourism as a driver for economic growth, environmental sustainability and inclusive development (UNWTO, 2020a). The organization also offers knowledge and support on tourism policies worldwide. South Africa has embraced the ethos of the organisation that it subscribes to, as evidenced by the contribution of tourism to economic development (UNWTO, 2020b).

Tourism has grown to be an important source of economic growth and a source of poverty alleviation in South Africa (South Africa Communications, 2020; Statistics South Africa ‘STASSA’, 2020a). South Africa enjoys a positive trade balance with the rest of the world. The trade balance shifted in favour of South Africa between 2011-2016 (STASSA, 2020a). Although the trade balance remained positive, it narrowed from 2016 (STASSA, 2020a). In 2018, tourism contributed 2.8% to gross domestic product and supported 739 657 jobs, which is about 4.5% of total employed (STASSA, 2020a). This has made tourism a larger contributor to economic growth when compared to major industries like agriculture and forestry (STASSA, 2019). This has earned a new name in South Africa from the President as the ‘new gold’ (Africa’s Travel Indaba, 2020). In addition to impacting economic growth positively, the tourism industry has contributed directly and indirectly to employment. It is projected that the sector supported 9.5% of total employment in 2017 and is estimated to support 2.1 million jobs by 2028 (South Africa Communications, 2020). These developments coincide with the time when South Africa is working relentlessly in advancing the financial sector development as part of the economic growth agenda.

The relationship between tourism and economic growth has attracted a great deal of attention from researchers (see, for example, Dogru, Bulut, Kocak, Isik, Suess and Sirakayay-Turk, 2020; Li, Jin, and Shi, 2018; Ramphul, 2017; Akinboade and Leshoro, 2009). These studies provide overwhelming evidence of tourism-driven economic growth. Thus, confirming the ethos of the World Tourism Organisation. Nevertheless, the same cannot be said with studies that investigated the causality between tourism and financial development worldwide and in South Africa in particular. There is a dearth of literature on the causality between tourism and financial development (see, Yenisehirlioglu and Bayat, 2019; Shahbaz *et al.*, 2019; Basarir and Cakir, 2015). This is despite the importance of the knowledge on the direction of causality between the two, especially to policy makers. South Africa took radical steps to reform the financial sector from the 1990s, on both market-based and bank-based, by coming with a suit of regulatory reforms and legal overhauls, taking the financial system to a world-class status (Bank of International Settlements 'BIS', 2012). Despite the strides that the monetary authorities have achieved in developing the financial sector, the monetary authorities are still striving to improve it further in line with global developments and financial development that can handle transactions in line with desired economic development. Financial development has become an important goal to South Africa as it provides a lounge pad for economic advancement, achieving Sustainable Development Goals, among other national goal spelt out in the National Development Plan 2030. In considering the stakes on financial development and the burgeoning tourism receipts, , the main objective of this study is to the establish a causal relationship between tourism and financial development. This will aid in understanding which factor has to be influenced first to realise a growth in the other between financial development and tourism.

This study extends the frontiers of knowledge on the relationship between tourism and financial development by employing the ARDL approach to cointegration and ECM-based causality test. To minimize bias associated with a bivariate framework due to omission of variables (see Nyasha and Odhiambo, 2015), this study includes real effective exchange rate as an intermittent variable to form a trivariate framework. The outcomes from this analysis provide more insight into the causality between the two variables in South Africa. The selection of South Africa for this study was motivated by the need to establish if South Africa can benefit from burgeoning tourism receipts in the financial development agenda. Further, few studies that have attempt to establish the causality between tourism and financial development focused on other countries, leaving South Africa with little empirical evidence to support tourism-financial development policies. The findings from this study will be important to policy makers as they shed more light on tourism-financial development strategies.

The rest of the study is structured as follows: Section 2 discusses the literature review and section 3 outlines estimation techniques. Section 4 discusses the results and section 5 concludes the study.

2. Literature Review

2.1 Country based Literature on Tourism and Financial Development in South Africa

The Tourism Act of 2014 provides for development and promotion of sustainable tourism in South Africa (South Africa Government Communication, 2020). The Act aims to promote tourism for the benefit of South African residents and visitors, provide enjoyable experience for tourists and provide tourism access to people with physical challenges (South Africa Government Communication, 2020). The South Africa Tourism Board was created by the same Act to oversee tourism activities (South Africa Government Communication, 2020). South African Tourism (SAT) under the Tourism Act of 1993 is mandated to market South Africa domestically and internationally (South Africa Government Communication, 2020). The SAT is also responsible for ensuring tourism facilities are of a high standard (South Africa Government Communication, 2020). South Africa has also put into place the Tourism Enterprise Partnership (TEP), a non-profit organization that facilitates sustainability and growth of small tourist businesses (South Africa Government Communication, 2020). Besides instruments that have been created in an endeavour to promote tourism, South Africa does have a variety of platforms that are used to market tourism, such as the Tourism Indaba that is popular and supported by high dignitaries (South Africa Government Communication, 2020).

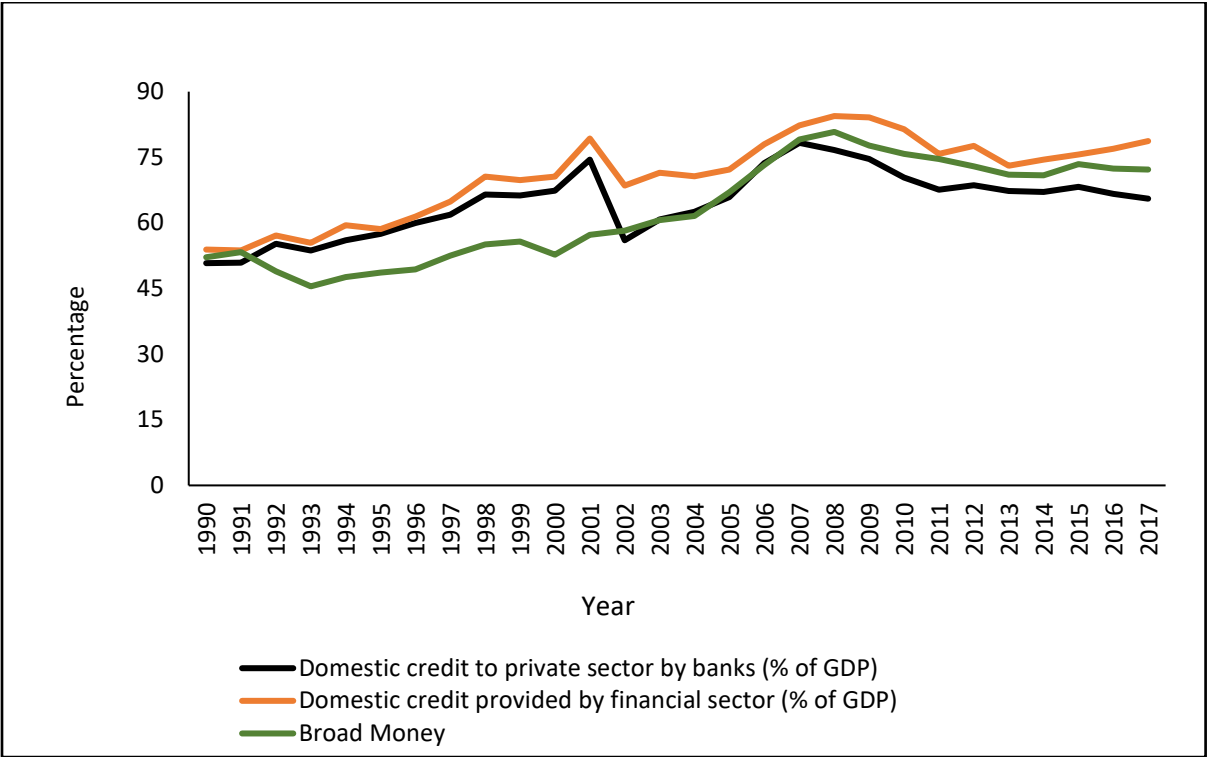
In response to the measures put in place to support tourism, South Africa has experienced a growth in tourism compared to other industries (STASSA, 2020b). Tourism has grown to be a key economic driver and the National Tourism Strategy is working on increasing the contribution further to R499 billion by 2020 (South Africa Government Communication, 2020). Despite the sluggish economic growth, tourism created 31 752 new jobs in 2017, and between 2014 -2017 a total of 64 000 new jobs were created (STASSA, 2020b). Given the positive trajectory that tourism has brought to the economy despite a slow economic growth, it remains pertinent to answer the question whether tourism causes financial development (South Africa Government, 2020).

Financial development can be broadly divided into bank-based and market-based development. The bank-based development is related to banking institutions and services that are closely related to these, while market-based financial development is related to the stock market with measures like stock market capitalisation, turnover ratio and total value traded. South Africa has established a competitive stock market and a well-developed banking system (BIS, 2012). Financial sector reforms started in the 1990s that focused on stock market and bank-based elements. This was a culmination of different factors, such as global demands and the need to modernise the system. The stock market reforms focused on the regulatory framework, legal, and supervisory reforms, among other key reforms. In the banking system, the South African Reserve Bank paid attention to rehabilitation of bank infrastructure, legal judiciary issues, and restoring bank soundness (BIS, 2012).

In response to these rigorous reforms from the bank-based reforms, domestic credit to private sector by banks as a percentage of GDP, domestic credit provided by financial sector as a percentage of GDP and broad money as a percentage of GDP, saw a gradual increase from 1990.

Figure 1 shows the trend in bank-based indicators.

Figure 1: Trends in Broad Money, Domestic Credit to Private Sector by Banks and Domestic Credit Provided by Financial Sector



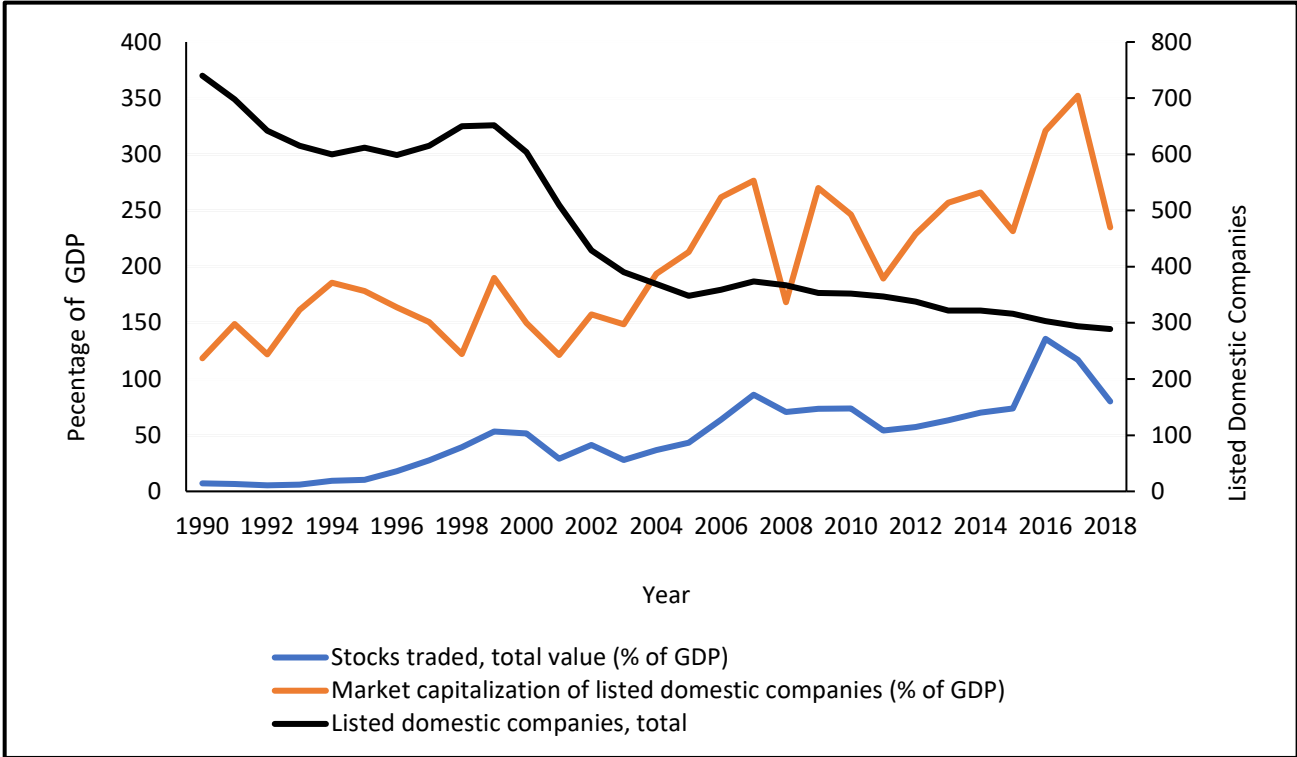
Source: World Bank (2020)

Figure 1 depicts a steady growth in financial development – bank-based – measured by broad money, domestic credit to the private sector by banks and domestic credit provided by financial sector as a percentage of GDP from 1990 (World Bank, 2020). The three indicators show a positive growth up to 2001 (World Bank, 2020). A drop was registered between 2001 and 2002, before an upsurge that has been sustained up to 2017 (World Bank, 2020). This coincides with the time the

financial reforms were being implemented. On the market-based indicators, the development in selected indicators reflected a mixed reaction to the reforms that have been implemented.

Total stocks traded as a percentage of GDP, market capitalisation of domestic listed companies as a percentage to GDP and listed companies presented in Figure 2, display a mixed trend (World Bank, 2020). Total stocks traded and market capitalisation of domestic listed companies as a percentage to GDP reflect an upward trend from 1990, while listed companies fell consistently from 1990 (World Bank, 2020). There has, therefore, been a mixed response to financial reforms when measured by market-based indicators.

Figure 2: Trends in Stock Market-Based Indicators



Sources: World Bank (2020)

2.2 A Review of Related Literature

The development of the financial sector is important in the advancement of other sectors of the economy. This is mainly because of the role the financial sector plays in mobilising savings from

surplus units to deficit units (Levine, 1997). Financial systems can be divided into bank-based or market-based system, depending on the one that is dominant among the two. In a bank-based financial system the role of financial intermediaries takes a centre stage, while in a market-based system financial markets play a key role (Demirguc-Kunt and Levine, 2001). The importance of financial development in economic growth can never be underestimated regardless of the source of the financial development – bank-based or market-based. The ability of the financial sector to mobilise savings from surplus units to deficit units makes provision of financial resources to all sectors of the economy possible, including tourism related business in South Africa besides other roles that a developed financial system offers. Apart from credit provision to tourism related industries, other factors that tourists consider in selecting their destinations include the economic conditions of the country of tourist origin, as tourists tend to select destinations where there are good macroeconomic conditions that also provide favourable transaction costs, and tourism travel costs. According to Wang (2009), tourist prices in the destination country relative to those of country of origin, exchange rates and travel costs are some of the factors that determine tourism demand. Besides factors related to economic conditions, political and social factors are also important to tourism demand (Song and Lin, 2010). Thus, a country with a well-developed financial system stand to have a better chance of attracting tourism due to a stable exchange rate, low transaction costs and other tourism-related costs. Song and Lin (2010) also confirm this postulation in their study for inbound and outbound tourism in Asia. Financial crises were found to have a negative impact on inbound tourism. However, though it is apparent that tourism is attracted by a number of factors that are linked to economic growth (macroeconomic conditions of the destination country), the ability of a country to attract tourists needs a country-by-country analysis.

Although the relationship between tourism and financial development is supported in the theoretical literature, the same cannot be said of the empirical literature. Vast studies have been done on the relationship between tourism and economic growth (see Ramphul, 2017; De Vita and Kyaw, 2016; Du, Lew and Ng, 2014). Growing literature is available that has examined the impact of tourism on financial development (Shahbaz, Benkraiem, Miloudi and Tiwari, 2019; Cannonier and Burke, 2017; Ridderstaat and Croes, 2015). Of the studies that investigated the impact of tourism on financial development, there is overwhelming evidence of a positive effect of tourism on financial development. However, among the few studies that took the analysis further and analysed the causal relationship between tourism and financial development, the results are inconsistent (see, Yenisehirlioglu and Bayat, 2019; Shahbaz *et al.*, 2019; Basarir and Cakir, 2015; Shahbaz, Kumar, Ivanov and Nanthakumar, 2015). The mixed results from the studies that have been done on the causal relationship between tourism and financial development makes generalization of the results to other countries inappropriate.

Shahbaz *et al.* (2019) investigated the relationship between tourism and financial development in Malaysia, employing data from 1975-2016, and found a positive relationship between tourism and financial development. Cannonier and Burke (2017) investigated the relationship between tourism and financial development in the Caribbean countries using data from 1980 to 2013. Tourism was found to have a positive impact on financial development measured by financial depth and financial efficiency. In the same spirit, Ridderstaat and Croes (2015) analysed the impact of money cycles in the United Kingdom, Canada, and the United States on tourism demand in Aruba and Barbados, using panel data from 1890 to 2014. The study found a negative cycle from Canada and United States to the tourism demand cycle in Aruba. Based on the studies that have investigated

the relationship between tourism and financial development, there is overwhelming evidence of tourism playing a positive and instrumental role in financial development. Although, the studies establish the nature of the relationship, the direction of causality remain a grey area, yet it is important to financial development strategies. Thus, among a few studies that have taken the analysis further to establish the direction of causality, some studies found a unidirectional causality from financial development to tourism, or a unidirectional causality from tourism to financial development, while some found a bidirectional causal relationship.

Yenisehirlioglu and Bayat (2019) carried out an investigation on the causality between tourism and financial development in the MENA using data from 1995-2016. The study found unidirectional causality from financial development to tourism in Jordan and Tunisia. In the same study, a unidirectional causality was found from tourism to financial development in Sudan and Morocco. In contrast to the findings by Yenisehirlioglu and Bayat (2019), Ridderstaat and Croes (2015) in an investigation on the effect of money cycles in Canada, the United States and United Kingdom on tourism in Aruba Barbados, found that the causality was running from money cycles to tourism in all cases except for the United States and Aruba. Causality when analysing positive cycles was for Canadian tourism to Barbados and UK tourism to Aruba. When analysing the negative cycles, strong causality was present in all destinations except Canadian tourism to Barbados and US tourism to Aruba. The studies by Yenisehirlioglu and Bayat (2019) and Ridderstaat and Croes (2015) provide evidence of variation in causality results based on the study country.

In the same vein, Shahbaz *et al.* (2019), conducted a study on Malaysia, using data from 1975 to 2016. Employing Toda–Yamamoto Granger-causality approach; the study found a bidirectional causality between tourism and financial development. Khan, Yaseen and Ali (2019) investigated

the nexus between financial development, tourism, renewable energy and green gas emission in high income countries from Asia, Europe and America. Using Dumitrescu and Hurlin non-causality, a unidirectional causality was confirmed from financial development to tourism in America. Shahbaz *et al.* (2015) did another study on the causality between tourism and financial development, trade openness and output. Employing quarterly data for Malaysia from 1975 to 2013, they found a bidirectional causality between financial development and tourism. In the same year, Basarir and Cakir (2015) investigated the causal relationship between tourism, financial development, carbon emission and energy consumption in Turkey, France, Spain, Italy and Greece, using data from 1995-2010. In the study, a feedback causal relationship was found between tourism measured by tourist arrivals and financial development. Thus, tourism was found to have a mutually reinforcing impact on financial development.

The findings from this study show the mixed results on the causality between tourism and financial development depending on the period under study and the study countries. Although there is overwhelming evidence of a bidirectional causal relationship between financial development and tourism, unidirectional causal relationship from financial development to tourism or unidirectional causal effect from tourism to financial development cannot be ruled out as evidenced by a study by Yenisehirlioglu and Bayat (2019). Based on the studies reviewed, it is inappropriate to generalise results from one country to the other, including South Africa. This study seeks to close this lacuna by establishing the causal relationship between financial development and tourism in South Africa.

3. Estimation Techniques and Empirical Results

3.1 Estimation Techniques

The Autoregressive Distributed Lag (ARDL)-bounds test for cointegration and the error correction model (ECM)-based causality test were employed. The two approaches use the lags of the dependent and independent variables as explanatory variables. The ARDL approach was extended by Pesaran *et al.* (2001) and developed by Pesaran and Shin (1999). The lag lengths of the dependent and independent variables were selected based on the Schwarz Bayesian Criteria (SBC) or the Akaike Information Criteria (AIC). The ARDL was selected based on the advantages that include: the ARDL-bounds test, which uses a reduced form of single equation (Pesaran and Shin, 1999), unlike other methods, such as Engle and Granger (1987) that employ residual-based cointegration, and Johansen and Juselius (1990) that use the maximum likelihood test. The approach does not require all variables in the model to be integrated of the same order (Pesaran *et al.*, 2001; Solarin and Shahbaz, 2013); and the methodology is robust in small samples. Against these numerous advantages, the ARDL bounds test to cointegration and ECM-based causality test were selected.

Before proceeding to test for causality, a unit root test was carried out on all the variables included in the model to establish stationarity. Once variables are confirmed to be stationary, cointegration tests are carried out. Stationarity is important to avoid spurious regression. Cointegration tests are done to establish if there is a long-run relationship among the variables. In this study, a test for cointegration was done on tourism, financial development and real effective exchange rate. The presence of cointegration indicates causality in at least one direction (Narayan and Smyth, 2004). The null hypothesis of no cointegration is tested. If the calculated F-statistic is greater than the upper bound critical values developed by Pesaran, Shin, and Smith (2001) at 1%, 5% and 10%, the presence of

cointegration is confirmed, otherwise if the F-statistic falls below the lower bounds, the null hypothesis of no cointegration is accepted. However, if the F-statistic falls between the upper bound and the lower bound, the results are inconclusive.

Definition of variables

The main variables of interest in this study are tourism (TRE) and financial development (FID) measured by bank-based proxies; domestic credit provided by financial sector as a percentage of GDP (DCF) and broad money (BM); and market-based financial development proxy – market capitalisation of domestic listed companies as a percentage to GDP (MC). However, given the limitation of bivariate causality studies (see, Nyasha, and Odhiambo, 2015; Odhiambo, 2009), a third intermittent – real effective exchange rate – variable was added to form a trivariate causality framework. Tourism is captured by tourism receipts as a percentage of gross domestic product. There are a number of studies that have examined the impact of tourism on financial development, but few studies have taken the investigation to establish causality between the two. A unidirectional causality from FID to tourism implies FID causes tourism (resulting in an increase in tourism), while a unidirectional causality from tourism to financial development means tourism has a causal effect on FID (cause financial development). A bidirectional causal relationship between tourism and FID means the two variables have a mutual effect on each other. The higher the value of any the financial development proxy - broad money, total value of stocks trades as a percentage of GDP and domestic credit provided by financial sector as a percentage of GDP, the more an economy is advanced, hence expected to attract more tourism. The reverse is true when the financial development proxy is low, the less development there is in the financial market, hence it is less likely to attract tourists.

The other variable added as an intermittent variable is real effective exchange rate. Other studies have employed real effective exchange rate to fully specify the model (see Shahbaz *et al.*, 2019). The real effective exchange rate indicates a close relationship with financial development proxied by broad money, total value of stocks traded as a percentage of GDP and domestic credit provided by financial sector as a percentage of GDP and tourism. The stronger the currency of a country in relation to a basket of currency, the more tourists are attracted to an economy with a healthy macroeconomic environment. The higher the flow of tourists, the stronger the real effective exchange rate, because tourism causes an increase in flow of foreign currency, hence it can be classified as an export of services.

The ARDL-bounds specification for the trivariate causality model is given in Equations 1-3,

General Cointegration Model (TRE, FID and RER)

$$\Delta TRE_t = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta TRE_{t-i} + \sum_{i=0}^n \alpha_{2i} \Delta FID_{tm-i} + \sum_{i=0}^n \alpha_{3i} \Delta RER_{t-i} + \theta_1 TRE_{t-1} + \theta_2 FID_{tm-1} + \theta_3 RER_{t-1} + \mu_{1t} \dots \dots \dots (1)$$

$$\Delta FID_{tm} = \alpha_0 + \sum_{i=0}^n \alpha_{1i} \Delta TRE_{t-i} + \sum_{i=1}^n \alpha_{2i} \Delta FID_{tm-i} + \sum_{i=0}^n \alpha_{3i} \Delta RER_{t-i} + \theta_1 TRE_{t-1} + \theta_2 FID_{tm-1} + \theta_3 RER_{t-1} + \mu_{2t} \dots \dots \dots (2)$$

$$\Delta RER_t = \alpha_0 + \sum_{i=0}^n \alpha_{1i} \Delta TRE_{t-i} + \sum_{i=0}^n \alpha_{2i} \Delta FID_{tm-i} + \sum_{i=1}^n \alpha_{3i} \Delta RER_{t-i} + \theta_1 TRE_{t-1} + \theta_2 FID_{tm-1} + \theta_3 RER_{t-1} + \mu_{3t} \dots \dots \dots (3)$$

Where TRE is tourism as a percentage of GDP; FID_{mt} – financial development – measured by broad money as a percentage of GDP, domestic credit provided by financial sector as a percentage of GDP, market capitalisation of domestic listed companies as a percentage to GDP. These

financial development proxies enter the equation one at a time; RER real effective exchange rate; α_0 is a constant, $\alpha_1 - \alpha_3$ and $\theta_1 - \theta_3$ are regression coefficients; and μ_{1t} , μ_{2t} and μ_{3t} are error terms.

Granger-Causality Model Specification

A test on cointegration for Equation 1-3 was done employing the ARDL approach. Each of the variables in the trivariate causality framework enters into the equation as an independent variable as specified in Equation 1-3. The presence of cointegration indicates a long run relation; however, it does not give the direction of causality. According to Narayan and Smyth (2004), the presence of cointegration shows a long-run relationship at least in one direction. A further analysis using ECM-based causality is done to establish the direction of causality in a trivariate causality framework. A trivariate causality framework has an advantage of reducing omission of variable bias that is associated with bivariate causality (Nyasha and Odhiambo, 2015; Odhiambo, 2009). The addition of another variable in the causality model also improves the magnitude of estimates and may alter the direction of causality (Loizides and Vamvoukas, 2015). Selection of the optimal lags was done using the Schwarz Bayesian Criteria or the Akaike Information Criteria. The ECM-based causality gives short-run and long-run causality.

The General ECM-based Granger-causality model specifications are given in Equations 4-6.

$$TRE_t = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta TRE_{t-i} + \sum_{i=1}^n \alpha_{2i} \Delta FID_{mt-i} + \sum_{i=1}^n \alpha_{3i} \Delta RER_{t-i} + \theta_1 ECM_{t-1} + \mu_{1t} \dots \dots \dots (4)$$

$$FID_{mt} = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta TRE_{t-i} + \sum_{i=1}^n \alpha_{2i} \Delta FID_{mt-i} + \sum_{i=1}^n \alpha_{3i} \Delta RER_{t-i} + \theta_1 ECM_{t-1} + \mu_{2t} \dots \dots \dots (5)$$

$$RER_t = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta TRE_{t-i} + \sum_{i=1}^n \alpha_{2i} \Delta FID_{mt-i} + \sum_{i=1}^n \alpha_{3i} \Delta RER_{t-i} + \theta_1 ECM + \mu_{3t} \dots \dots \dots (6)$$

Where α_0 is a constant, $\alpha_1 - \alpha_3$ and θ_1 are regression coefficients, $\mu_{1t} - \mu_{3t}$ are the error terms and all the other variables are as described in Equations 1-3.

Data Sources²

Annual time series data covering 1995 to 2017 was used to investigate the causality between tourism and financial development in South Africa. A trivariate framework was used with real effective exchange rate as an intermittent variable. All the data was extracted from World Bank Development Indicators.

3.2 Empirical Results

Unit Root Test

Autoregressive Distributed Lag (ARDL) bounds-test approach does not require unit root tests; however, unit root tests were done to ascertain the order of integration of all variables included in the model, i.e. are integrated of order zero I(0) and integrated of order one [I(1)]. If the variables in the model have an integration of a higher order than one, then the approach falls away (Pesaran, Shin and Smith., 2001) Stationarity can be defined as when variance and mean and covariance of variables included in a model remain constant over time (Gujarati and Porter, 2012). Two unit

² Data is available upon reasonable request

roots tests were carried out, namely the Phillip- Perron test and Dickey-Fuller Generalised Least square (DF-GLS). The results of the unit root test are presented in Table 2.

Table 1: Unit Root Test Results

Dickey-Fuller Generalised Least Square (DF-GLS)					PP (root) Test			
Variable	Stationarity of all Variables in Levels		Stationarity of all variables in First Difference		Stationarity of all Variables in Levels		Stationarity of all variables in First Difference	
	Without Trend	With Trend	Without Trend	With Trend	Without Trend	With Trend	Without Trend	With Trend
TRE	-2.0628**	-2.2666	-	-4.9277***	-2.4008	-2.3429	-4.7336***	-4.7098***
BM	-1.2388	-1.7583	-2.8007***	-3.0996*	-1.6011	-1.0521	-2.7421*	-4.2596**
DCF	-1.6117	-2.1108	-5.3827***	-5.8036***	-2.5491	-2.3498	-5.3667***	-5.5017***
RER	-1.5707	-3.2425**	-4.0497***	-	-2.1006	-2.7367	-3.9841***	-3.8812**
MC	-1.4118	-0.2876	-5.2936***	-5.5396***	-1.0516	-3.6152*	-6.1731***	-

Note: *, ** and *** denote statistical significance at 10%, 5% and 1% levels, respectively

The Unit Root results presented in Table 1 show that tourism (TRE), financial development proxies market capitalisation of domestic listed companies as a percentage to GDP (MC), domestic credit provided by financial sector (DCF) and broad money as a percentage of GDP real effective exchange rate (RER) are stationary in levels or first difference depending on the stationarity test considered. The stationarity of all the variables with the highest order of 1 [I(1)] confirm a possibility of employing ARDL to investigate the data further. Proceeding to cointegration tests with each variable entering the equation as an explanatory variable. The cointegration results are presented in Table 2.

Table 2: ARDL Bound Test to Cointegration Results

Dependent Variable	Function	F-Statistic	Cointegration Status			
Panel A: Broad money (%GDP)						
TRE	F (TRE BM, RER)	4.2203**	Cointegrated			
BM	F (BM TRE, RER)	3.6455*	Cointegrated			
RER	F (RER BM, TRE)	4.0591**	Cointegrated			
Panel B: Domestic credit provided by financial sector (% GDP)						
TRE	F (TRE DCF, RER)	5.5458***	Cointegrated			
DCF	F (DCF TRE, RER)	1.8127	Not Cointegrated			
RER	F (RER DCF, TRE)	3.4776*	Cointegrated			
Panel C: Market capitalisation of domestic listed companies (% GDP)						
TRE	F (TRE MC, RER)	4.2359**	Cointegrated			
MC	F (MC TRE, RER)	1.1747	Not Cointegrated			
RER	F (RER MC, TRE)	2.1760	Not Cointegrated			
Asymptotic Critical Values (unrestricted intercept and no trend)						
Critical Values	1%		5%		10%	
	I (0)	I (1)	I (0)	I (1)	I (0)	I (1)
	4.13	5.00	3.10	3.87	2.63	3.35

Note:*, ** and *** denote stationarity at 10%, 5% and 1 % significance levels, respectively.

According to Pesaran. *et al.* (2001) cointegration is confirmed if the calculated F-statistic is greater than the upper bound I (1) at either 10%, 5% or 1%. If the calculated F-statistics are below the I (0) bound we fail to reject the hypothesis of no cointegration. However, if the calculated F-statistics fall between upper bound and lower bound, the results are inconclusive. The results presented in Table 2, Panel 1 where broad money is a proxy for financial development, confirm the presence of cointegration in the TRE, BM and RER functions; Panel B, where domestic credit provided by financial sector as a percentage of GDP (DCF) is a proxy for financial development, only the DCF function is reported to have no cointegration as shown by the F-statistic of 1.8127 which is below the I(0) at 10%; and Panel C where market capitalisation of domestic listed companies as a percentage of GDP is a proxy for financial development, cointegration is confirmed in the TRE.

To proceed with the causality test, in all the functions where cointegration was confirmed an error correction term is added into the function. Table 3 gives the results of the causality test.

Table 3: ECM-Based Causality Results

Variables	FID- Broad money (%GDP)			
Dependent Variable	F-statistic [Probability Value]			ECM t-statistics
	Δ TRE	Δ BM	Δ RER	
Δ TRE	-	2.2775[0.1264]	6.9647***[0.0068]	-0.5299***[-4.3573]
Δ BM	4.3902**[0.0209]	-	0.3127[0.5842]	-0.0392***[-3.5128]
Δ RER	7.7008**[0.0130]	3.9179**[0.0399]	-	-0.1519***[-4.2794]

Note:*, ** and *** denote stationarity at 10%, 5% and 1% significance levels, respectively.

The results reported in Table 3 on the trivariate causality model confirm a unidirectional causal effect from tourism to financial development proxied by broad money as a percentage of gross domestic product (GDP) in both the long run and the short run. The short-run causal relation is confirmed by a significant F-statistics at 5%, while the long-run causal effect is confirmed by a significant t-statistics at 1%. In South Africa, the inflow of tourists is good for financial development or advancement of the financial sector. The findings from this study are supported in the literature where the host country money supply cycles have positive or negative effect of tourism demand (Yenisehirlioglu and Bayat; 2019). The results are not unique to South Africa alone: Yenisehirlioglu and Bayat (2019) also found a unidirectional causality from tourism to financial development in Sudan and Morocco. The results imply that South Africa needs to influence tourism to achieve financial development. Thus, South Africa tends to respond to

tourism's financial needs, and by so doing achieve financial development. In an endeavour to provide quality services that the National Department of Tourism and South African Tourism stand for, they are forced to develop a sound and competitive financial market. De Vita and Kyaw (2016), in a study on 129 countries, found the impact of tourism on economic growth to depend on financial absorption capacity of the host country. The findings of the study support the important role of financial development.

Other results presented in Table 3 show a bidirectional causal relationship between real effective exchange rate and broad money supply in both the short run and the long run. This relationship is supported in the theoretical literature where there is a link between exchange rate and money supply linked by the interest rate. In South Africa, real effective exchange rate Granger-causes broad money supply which, in turn, broad money supply Granger-cause real effective exchange rate. A unidirectional causal relationship was found from financial development to real effective exchange rate.

Table 4: ECM-based causality test for Model B-

Variables	FID- Market capitalisation of domestic listed companies (% GDP)			
Dependent Variable	F-statistic [Probability Value]			ECM t-statistics
	Δ TRE	Δ DCF	Δ RER	
Δ TRE	-	4.9572*[0.0417]	8.7965***[0.0030]	-0.2495***[-3.6563]
Δ DCF	10.7945**[0.0111]	-	8.9379***[0.0173]	-
Δ RER	5.9043**[0.0258]	0.4363[0.5173]	-	-0.2815***[-3.7208]

Note:*, ** and *** denote stationarity at 10%, 5% and 1% significance levels, respectively.

Table 4 reports the causality results when domestic credit provided by financial sector as a percentage of GDP is used as a bank-based financial development measure. The results reveal a bidirectional causal relationship between financial development and tourism in the short run and a unidirectional causal relationship from financial development to tourism in the long run. This is confirmed by a significant error correction term (ECM) at 1%. The results confirm a reinforcing effect between tourism and financial development in the short run with the influence of financial development on tourism taking a central stage in the long term. Thus, South Africa may benefit from policies that support both tourism and financial development. Shahbaz *et al.* (2019) and Basarir and Cakir (2015) found the same results on separate studies on Malaysia; and Turkey, France, Spain, Italy and Greece, respectively.

Other results from Table 4 show a unidirectional causal relationship from real effective exchange rate to financial development proxied by domestic credit provided by financial sector as a percentage of GDP only in the short run. The results point to the importance of a favourable real effective exchange rate to stimulate financial development in South Africa. A bidirectional causality was found between tourism and real effective exchange rate in both the long run and the short run. The results reveal a mutual beneficial relationship between tourism and real effective exchange rate. This suggests a balance in policy emphasis between tourism inclined policies and real effective exchange policies to be beneficial in advancing financial development in South Africa.

Table 5: ECM-based causality test for Model B

Variables	FID- Market capitalisation of domestic listed companies (% GDP)			
Dependent Variable	F-statistic [Probability Value]			ECM t-statistics
	Δ TRE	Δ MC	Δ RER	
Δ TRE	-	7.3599[0.0054]	7.4507***[0.0052]	-0.3985***[-5.5873]
Δ MC	4.4806*[0.0527]	-	0.4483[0.5140]	-
Δ RER	6.2366**[0.0220]	0.0769[0.7846]	-	-

Note:*, ** and *** denote stationarity at 10%, 5% and 1% significance levels, respectively.

The results presented in Table 5 show a bidirectional causal relationship between tourism and financial development measured by market capitalisation of domestic listed companies as a percentage to GDP in the short and a unidirectional causal relationship from financial development to tourism in the long run. The results suggest reinforcing effect between financial development and tourism in the short run while in the long run policy makers in South Africa would have to influence financial development first to get a positive response to tourism receipts. This finding supports the key role that the financial sector plays in providing financial resources to all businesses that are related to tourism. In addition, tourist tend to prefer countries with stable macroeconomic environment where financial markets offer efficient transaction services. The results are not unique to South Africa alone, Shahbaz *et al.* (2019) in a study on Malaysia found the same results.

Other results presented in Table 5 reveal a bidirectional causal relationship between tourism and real effective exchange rate in the short run and a unidirectional causal relationship from real effective exchange rate to tourism in the long run. The results show a mutual relationship between

real effective exchange rate and tourism suggesting the importance of a stable currency to attracting tourism at the same time showing the importance of tourism as an export service to real effective exchange rate. No causality was found between financial development and real effective exchange rate.

The results presented in Table 3 where broad money as a percentage of GDP is a proxy for financial development reveal a unidirectional causal relationship from tourism to financial development; Table 4 where domestic credit provided by financial sector as a percentage of GDP is a proxy for financial development found a bidirectional causality between tourism and financial development in the short run and a unidirectional causal effect from financial development to tourism in the long run; and Table 5 where market capitalisation of domestic listed companies as a percentage to GDP is a proxy for financial development show a bidirectional causal effect between financial development and tourism in the short run and a unidirectional causal relationship from financial development to tourism in the long run. The results show overwhelming evidence of a bidirectional causal effect between financial development and tourism in the short run as exhibited by two out of the three proxies employed in this study. Nonetheless, a unidirectional causal effect from financial development in the long run was also dominant with two financial development proxies and only one proxy -broad money showing a unidirectional causal effect from tourism to financial development. Overall, the mutual beneficial relationship between tourism and financial development dominant in South Africa, according to the findings of this study.

5. Conclusion and Recommendation

This study investigated the causal relationship between tourism and financial development in South Africa using time series data from 1995 to 2017. The study uses three proxies for financial development namely: broad money as a percentage of GDP and domestic credit provided by financial sector as a percentage of GDP – bank-based measures; and market capitalisation of domestic listed companies as a percentage to GDP – a market-based financial development proxy. To minimise the omission-of-variables bias, which is normally common in a bivariate causality test, the real effective exchange rate was added as an intermittent variable between tourism and financial development. The study was motivated by the ongoing debate on the nexus between tourism and financial development. The findings of this study will, therefore, shed some light on which sector should be developed first in the South African economy. Using the ARDL Bounds Test approach to cointegration and the ECM-based Granger causality test, the study finds that there is distinct unidirectional causality from tourism to financial development when broad money was used as a proxy for financial development. When domestic credit provided by financial sector as a percentage of GDP and market capitalisation of domestic listed companies as a percentage to GDP were used as proxies for financial development, a bidirectional causal effect was found in the short run and a unidirectional causal relationship from financial development to tourism in the long run.

The findings from this study confirm mutual reinforcing effect between tourism and financial development in the short run and unidirectional causal effect from financial development to tourism as confirmed by two market-based financial development proxies. It is recommended that South Africa may continue to pursue policies that support tourism and financial development as a

strategy to advance each sector and benefit from the mutual relationship between the two. However, if policy makers are looking at advancing bank-based financial development, it is recommended that advancement in attracting tourism is done first in order to achieve bank-based financial development. The South African Department of Tourism may continue to implement the National Tourism Sector Strategy whose ultimate goal is to ensure sustainable tourism development, while the South Africa Reserve, as the custodian of financial development roles, continue to strengthen the financial sector. In the long run the financial development effort would benefit and sustain tourism receipts according to evidence from this study. In the long run, policy makers are recommended to strengthen financial development first in order to achieve a positive response from tourism. A strong and efficient financial system plays an important role in attracting inbound tourism in the long.

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