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TOURISM AND POVERTY REDUCTION IN SOUTH AFRICA: AN EMPIRICAL EXAMINATION

In this study, we examine the causal relationship between tourism development and poverty reduction in South Africa, using the annual data between 1980 and 2009. In order to address the methodological weaknesses of the previous studies, we have incorporated trade as an intermittent variable between tourism development and poverty reduction - thereby, creating a simple multi-variate model. The results of our study show that there is an overwhelming causal flow from tourism development to poverty reduction in South Africa. This finding has an important policy implication - as it demonstrates that the tourism sector, which has shown a phenomenal growth in South Africa in recent years, leads to poverty reduction. Other results show that, while tourism development Granger-causes trade both in the short run and in the long run, the causality from trade to tourism could only be established in the short run. The results also show a distinct causal flow from trade to poverty reduction. This applies irrespective of whether the causality is conducted in the short run or in the long run.

Keywords: South Africa; tourism sector development; poverty reduction.

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ТУРИЗМ І ЗНИЖЕННЯ БІДНОСТІ В ПІВДЕННІЙ АФРИЦІ: ЕМПІРИЧНЕ ДОСЛІДЖЕННЯ

У статті надано оцінку залежності між розвитком туристичної галузі і зниженням бідності в Південній Африці на основі щорічних даних за 1980-2009 р.р. Для виправлення прорахунків у методологічному підході попередніх досліджень було введено тимчасову змінну "торгівля" і побудовано модель з декількома змінними. Результати показали істотну залежність між розвитком туризму і зниженням бідності в Південній Африці, зокрема, у зв'язку зі значним зростанням туристичної галузі за декілька останніх років. Позитивний вплив туризму на торгівлю в країні спостерігається в довгостроковій і короткостроковій перспективі, вплив торгівлі на туризм - лише в короткостроковій перспективі. Результати також демонструють істотну залежність між торгівлею і зниженням бідності незалежно від терміну.

Ключові слова: Південна Африка; розвиток туристичної галузі; зниження бідності.

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ТУРИЗМ И СНИЖЕНИЕ БЕДНОСТИ В ЮЖНОЙ АФРИКЕ: ЭМПИРИЧЕСКОЕ ИССЛЕДОВАНИЕ

В статье дана оценка зависимости между развитием туристической отрасли и снижением бедности в Южной Африке на основе ежегодных данных за 1980-2009 г.г. Для исправления просчетов в методологическом подходе предыдущих исследований была введена временная переменная "торговля" и построена модель с несколькими переменными. Результаты показали существенную зависимость между развитием туризма и снижением бедности в Южной Африке, в частности, в связи со значительным ростом туристической отрасли за несколько последних лет. Позитивное влияние туризма на торговлю в стране наблюдается в долгосрочной и краткосрочной перспективе, влияние торговли на туризм - только в краткосрочной перспективе. Результаты также

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демонстрируют существенную зависимость между торговлей и снижением бедности вне зависимости от срока.

Ключевые слова: Южная Африка; развитие туристической отрасли; снижение бедности.

1. Introduction. Tourism development has become an important target for most governments. Travel&tourism industry and their development have been the focus of many studies recently. A general consensus has emerged that tourism not only increases foreign exchange income, but also creates employment opportunities, stimulates the growth of the tourism industry - and thus overall economic growth. The United Nations World Tourism Organisation Tourism's 2020 Vision (UNWTO, 2000) forecasts that international arrivals are expected to reach nearly 1,6 bln. by 2020. The World Tourism Travel Council (WTTC, 2011) expects the tourism industry's direct contribution to account for up to 9.1% of the world's GDP, and should create 258 mln. jobs in 2011. In South Africa, tourism sector is considered to be one of the 6 leading sectors of the economy, together with mining and agricultural sectors. South Africa's tourism potential ranges from wildlife resources to spectacular landscapes, water bodies, beaches, a diversity of cultures - and a number of World Heritage sites, amongst many others.

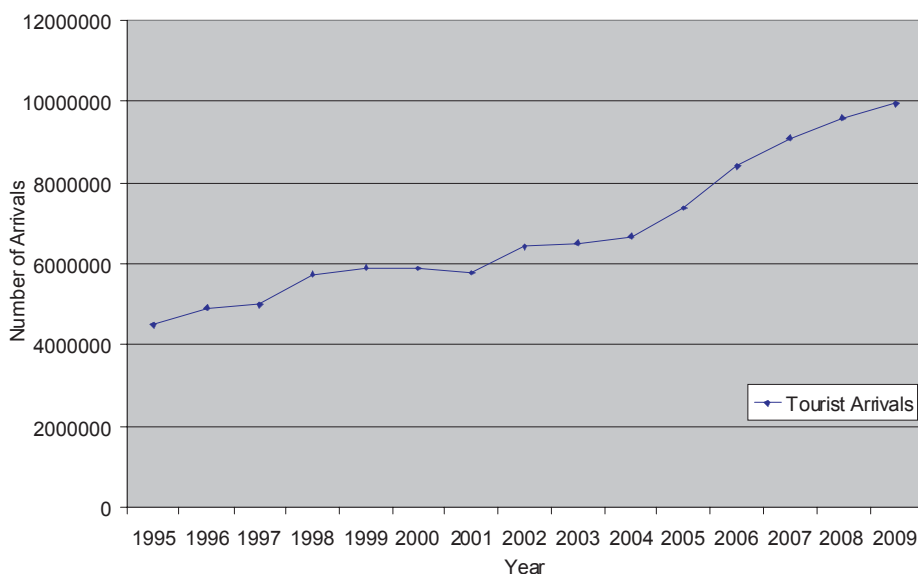
Unfortunately, very few studies have been conducted to examine the dynamic relationship between tourism development and poverty reduction using modern econometric techniques. In fact, majority of the previous studies have concentrated mainly on the relationship between tourism sector development and economic growth.

A few of the studies that have attempted to examine the linkage between tourism sector development and poverty reduction include those of Bazini and Nedelea (2008), Sharpley and Naidoo (2010), and Scheyvens and Momsen (2008). Bazini and Nedelea (2008), for example, while examining the relationship between tourism development and poverty reduction in Albania found that Albanian tourism economy is fragile and consists mainly of small businesses and a few local outlets of national franchises. Sharpley and Naidoo (2010) examined the relationship between tourism and poverty reduction in Mauritius. Their study concludes that although tourism may bring short-term economic benefits to the poor, it is unlikely to make a long-term sustainable contribution to poverty reduction by itself. In another study on tourism and poverty reduction, Scheyvens and Momsen (2008), while focusing on small island states, found tourism to be a major contributor to economic development. The authors concluded that tourism can lead to genuine improvements if the benefits are spread to the poor.

The current study aims to examine the causal relationship between tourism development and poverty reduction in South Africa using the ARDL-bounds testing approach. In addition, the study incorporates trade volume as an intermittent variable between tourism development and poverty reduction - thereby, creating a simple multivariate causality model. The rest of the paper is organised as follows: Section 2 highlights the dynamics of tourism development in South Africa. Section 3 presents the estimation techniques and the empirical analysis, section 4 concludes the study.

2. Tourism Sector Development in South Africa. South African tourism sector has grown phenomenally since the 1990s. In 1994, for example, South Africa attracted

only 500 000 international visitors and only 300 000 of those were tourists, and tourism was at that time not worth mentioning as a sector that could contribute significantly to economic growth. International tourism arrivals and statistics for 2010 World Cup, as well as the resulting effect on the South African economy are not captured in the trend graph. The graph shows a gradual increase in tourist arrivals between 1995 and 2005 and a declining rate of increase during the 2008-2009 period. This can be attributed to the global economic crisis of 2009. South Africa has weathered the 2009 economic storm relatively well, although potential visitors from overseas markets decided not to travel, resulting in a decline in air travel and overseas arrivals to the region. Figure 1 shows the trends of international tourist arrivals in South Africa during the period 1995-2009.



Source: World Development Indicators (2011)

Figure 1: Trends of International Tourist Arrivals in South Africa (1995-2009)

Just as other sub-Saharan African countries, South Africa has over the years attempted to promote the development of its tourism industry through a number of policies. For example, the country has recently launched the National Tourism Sector Strategy (NTTS) of SA, whose main aim is to carry out detailed measures for tourism's contribution to the New Growth Path identified by the SA government (2011). The 3 key focus areas of the NTSS (2011) are: 1) creation of about 255 000 new jobs in the tourism sector by 2020; 2) increasing the tourism's contribution to the GDP to about R499 bln. by 2020; and 3) increasing the number of foreign tourist arrivals annually to 15 mln. by 2020.

South Africa is known to be rich in cultural diversity; it is a country of great scenic beauty. Table 1 below presents the ranking of the top tourist attractions in South Africa - according to the SA Tourism (2011); while Table 2 gives a general description of these important tourist attractions.

Table 1. Ranking of the Top 10 Tourist Attractions in South Africa

Ranking	Attraction
1	Cape Town and the Cape Peninsula
2	The Winelands
3	The Garden Route
4	Johannesburg
5	The Kruger National Park
6	The Durban beachfront
7	Robben Island
8	Soweto
9	The Blyde River Canyon Nature Reserve
10	The Wild Coast

Source: SA Tourism (2011),

<http://www.eocapetown2010.co.za/eouniversity/content/en/eouniversity/popup-attractions>

Table 2. Description of the Top Tourist Attractions in South Africa

Attraction	Description
Cape Town and Cape Peninsula	Cape Town, as well as the Cape Peninsula – up to Cape Point, is famous for its scenic beauty; celebrity beaches; Table Mountain; whale-watching; world-class shopping, nightlife, food and wine; and a laid-back atmosphere.
The Winelands	The Cape Winelands contain some of the most scenic routes and spots in the world. These Winelands are famous for, among others, their green valleys, rugged mountains, azure seas and colourful skies. The towns and villages in the Cape Winelands also include many historic homesteads and monuments.
The Garden Route	The Garden Route, which is also regarded as South Africa's Eden, is located in the Western Cape. It has ancient forests, rivers, wetlands, dunes, and stretches of beaches, lakes and mountain scenery. It traverses an area rich in natural beauty and charm, attracting adventure seekers and outdoor enthusiasts. It is regarded as a paradise for eco-lovers and bird watchers. It lies between the Outeniqua mountains and the Indian Ocean; and it is currently regarded as one of the most beautiful places in the Western Cape.
Johannesburg	Johannesburg, which is often called “the City of Gold”, is regarded as the heartbeat of Africa. It has endless opportunities for shopping, entertainment and freedom tours, amongst others.
The Kruger National Park	The Kruger's National Park is a world-renowned park of nearly two mln. hectares. It covers an astonishing 16 vegetation zones, including 1980 plant species and 300 tree species. Its wildlife experience ranks with the best in Africa.
The Durban beachfront	The Durban beachfront is famous for its bathing and surfing beaches, fishing piers, paddling pools, kiddies' rides, cable cars, colourful rickshaws, flea market etc. It is currently the best tourist attraction in Durban. It is known as the Golden Mile – because of the high concentration of hotels and holiday apartment blocks along its location.
Robben Island	Robben Island is one of the most visited tourist attractions in South Africa. Robben Island was originally referred to as “the place of seals” by Dutch settlers. It was once home to some of the most famous political prisoners, including Nelson Mandela. It is located about 9 km (5.5 miles) offshore from Cape Town. The island was declared a World Heritage Site in 1999. Before it was declared a World Heritage, Robben Island was used as a prison, a hospital, a mental institution, and as a military base.

The End of Table 2

Soweto	Soweto is South Africa's largest and most famous township. It was a hotbed of anti-apartheid activity during the apartheid era. Some of the most popular destinations in Soweto include, amongst others, the Hector Peterson Memorial, Nelson Mandela's old house, the Winnie Madikizela-Mandela house, Ubuntu Kraal, the Chris Hani Baragwanath Hospital, the Baragwanath taxi rank, squatter settlements, etc.
The Blyde River Canyon Nature Reserve	The Blyde River Canyon Nature Reserve is located in Mpumalanga, and forms part of the Greater Drakensberg escarpment. It includes natural wonders, such as the Bourke's Luck Potholes, the Three Rondavels, Pinnacle Rock and God's Window. It has Montagne grassland that consists of more than one thousand flora species, of which many are endemic (found nowhere else in the world), rare or endangered. The panoramic splendour of the Blyde River Canyon makes this reserve ideal for scenic drives and hiking trails.
The Wild Coast	The Wild Coast is located in the Eastern Cape, and extends between the Mtamvuna River in the north and the Great Kei River in the south. It is an incredible tourist attraction, which comprises coastline, precipitous and craggy cliff faces, wild and desolate beaches, secluded bays and green rolling hills. It also offers deserted beaches, dolphins, horseback and hiking trails, cosy hotels, golf, gambling, and a mystical history, the Xhosa heritage and the Hole-in-the-Wall.

Source: SA Tourism, 2011; Cape Town Tourism, 2011; SA Places, 2011; SA-Venues.Com, 2011; Eco-Africa travel, 2011; South Africa Nature Reserve and Game Parks Guide, 2011.

3. Methodology and Empirical Analysis

3.1 Cointegration. ARDL bounds testing procedure. This study uses the ARDL approach to examine the long-run relationships between tourism development, trade and poverty reduction. The ARDL-bounds testing was originally introduced by Perasan and Shin (1999); and later it was extended by Perasan et al. (2001). This method has numerous advantages over other cointegration methods, and has been found to yield consistent and robust results — both in the long and in the short run. The ARDL model used in this study may be expressed as follows:

$$\Delta \ln POV_t = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta \ln POV_{t-i} + \sum_{i=0}^n \alpha_{2i} \Delta \ln TOUR_{t-i} + \sum_{i=0}^n \alpha_{3i} \Delta \ln TRADE_{t-i} + \alpha_4 \ln POV_{t-1} + \alpha_5 \ln TOUR_{t-1} + \alpha_6 \ln TRADE_{t-1} + \mu_t, \quad (1)$$

$$\Delta \ln TOUR_t = \beta_0 + \sum_{i=1}^n \beta_{1i} \Delta \ln TOUR_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta \ln POV_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta \ln TRADE_{t-i} + \beta_4 \ln TOUR_{t-1} + \beta_5 \ln POV_{t-1} + \beta_6 \ln TRADE_{t-1} + \mu_t, \quad (2)$$

$$\Delta \ln TRADE_t = \beta_0 + \sum_{i=1}^n \beta_{1i} \Delta \ln TRADE_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta \ln TOUR_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta \ln POV_{t-i} + \beta_4 \ln TRADE_{t-1} + \beta_5 \ln TOUR_{t-1} + \beta_6 \ln POV_{t-1} + \mu_t, \quad (3)$$

Where: $\ln POV$ = log of household's income per capita; $\ln TOUR$ = log of tourism development; $\ln TRADE$ = log of the volume of trade (exports + imports); μ_t = white noise error term; Δ = first difference operator.

The bounds test for the long-run relationships among POV, TOUR and TRADE is based on the joint F-statistics (or Wald statistics) for cointegration analysis. This involves testing the null hypothesis of no cointegration among the variables in equations (1)-(3) against the alternative hypothesis. However, the F-statistics in this case have a non-standard distribution, and depends largely on whether the variables are individually integrated of order zero, i.e. I(0), or are integrated of order one, i.e I(1)].

Pesaran et al. (2001) and Narayan (2005) report two sets of critical values for a given significance level. While one set of critical values assumes that all the variables included in the ARDL model are I(0), the other set assumes that the variables are I(1). If the computed test statistic exceeds the upper critical bounds value, then there is evidence of a long-run relation between the variables tested. If the F-statistics falls below the lower bounds value, then the null hypothesis of no cointegration cannot be rejected. However, if the computed test statistics falls between these two bounds, then the cointegration test becomes inconclusive.

3.2 Multivariate Granger causality test. In this study, a dynamic Granger-causality model is used to examine the relationship between tourism development and poverty reduction. The Granger definition of causality is based on the assertion that that the future cannot cause the past, but the past can cause the future. According to Granger's definition of causality, a time series, X_t causes another time series, Y_t , if Y_t can be predicted better by using the past values of X_t than by not doing so (see also Odhiambo, 2009a; Takaendesa and Odhiambo, 2007). The conventional Granger causality test between tourism development (TOUR) and poverty reduction (Pov) involves testing of the null hypothesis that TOUR does not cause Pov, and vice versa - by simply running the following two regressions.

$$\Delta \ln Pov_t = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta \ln Pov_{t-i} + \sum_{i=0}^n \alpha_{2i} \Delta \ln TOUR_{t-i} + \mu_{1t}, \tag{4}$$

$$\Delta \ln TOUR_t = \beta_0 + \sum_{i=1}^n \beta_{1i} \Delta \ln TOUR_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta \ln Pov_{t-i} + \mu_{2t}, \tag{5}$$

Where: Pov_t = poverty reduction; $TOUR_t$ = Tourism development; μ_1, μ_2 = white noise error process; n = the number of lagged variables.

The null hypothesis that $TOUR_t$ does not Granger-cause Pov_t is rejected if α_{2is} are jointly significant. Likewise, the null hypothesis that Pov_t does not Granger-cause $TOUR_t$ is rejected if β_{2is} are jointly significant. However, the traditional causality tests - based on Granger (1969) - suffer from major methodological deficiencies, and have been found to be rather weak. Specifically, these tests suffer from two major weaknesses. Firstly, they do not allow for the inclusion of the lagged error-correction term derived from the cointegration equation. However, according to Granger (1988), if the variables are cointegrated, then regression tests incorporating differenced variables will be misspecified unless the lagged error-correction term is included. Secondly, the majority of previous Granger-causality tests are based on a bivariate analysis. However, studies have shown that the causality tests based on a bivariate framework may be unreliable - due to the omission-of-variable bias. This is because the introduction of a third variable into the bivariate equation may change both the inference and the mag-

nitude of the estimates (see Caporale and Pittis, 1997; Caporale et al., 2004; Odhiambo, 2008).

Given this weakness, the current study examines the causal relationship between tourism development and poverty reduction by incorporating trade volume as an intermittent variable - thereby, creating a simple trivariate model. The trivariate Granger causality model, based on the error-correction mechanism, can be expressed as follows:

$$POV_t = \lambda_0 + \sum_{i=0}^m \lambda_{1i} TOUR_{t-i} + \sum_{i=0}^n \lambda_{2i} TRADE_{t-i} + \sum_{i=1}^n \lambda_{3i} POV_{t-i} + \lambda_4 ECM_{t-1} + \mu_t \quad (6)$$

$$TOUR_t = \varphi_0 + \sum_{i=0}^m \varphi_{1i} POV_{t-i} + \sum_{i=0}^n \varphi_{2i} TRADE_{t-i} + \sum_{i=1}^n \varphi_{3i} TOUR_{t-i} + \varphi_4 ECM_{t-1} + \varepsilon_t \quad (7)$$

$$TRADE_t = \delta_0 + \sum_{i=0}^m \delta_{1i} TOUR_{t-i} + \sum_{i=0}^n \delta_{2i} POV_{t-i} + \sum_{i=1}^n \delta_{3i} TRADE_{t-i} + \delta_4 ECM_{t-1} + \nu_t \quad (8)$$

where:

ECM_{t-1} = error correction term lagged one period;

$TOUR_t$ = tourism development;

POV_t = poverty reduction;

$TRADE_t$ = trade volume (exports and imports);

μ , ε and ν = mutually uncorrelated white noise residuals.

It is worth noting that even though the error-correction term has been incorporated in all the 3 equations, only equations where the null hypothesis of no cointegration is rejected will be estimated with an error-correction term (see also Odhiambo, 2009a; Narayan and Smyth, 2006; Morley, 2006). The direction of the causality in this case is determined by the F-statistics and the lagged error-correction term. The t-statistic on the coefficient of the lagged error-correction term represents the long-run causal relationship, while the F-statistics on the explanatory variables represents the short-run causal effect (see Odhiambo, 2009b; Narayan and Smyth, 2006).

3.3 Data Source and Definition of Variables. Annual time-series data, which cover the 1980–2009 period, have been used in this study. The data have been mainly obtained from the World Bank World Development Indicators (2010) and Statistics South Africa, Tourism Report (2010).

Definitions of Variables:

1) Tourism development (TOUR) is measured by the number of international tourist arrivals;

2) Poverty (POV): Unlike tourism development and trade variables, the time-series data on poverty in many developing countries are very scant. This is because many developing countries started recording poverty data only in the late 1990s. Although a number of proxies for measuring poverty in developing countries have been proposed in the literature, this study uses per capita consumption as a proxy for poverty reduction. This measure is consistent with the World Bank's definition of poverty as "the inability to attain a minimal standard of living" measured in terms of basic consumption needs (World Bank, 1990). The variable has also been found to be more reliable by a number of previous studies (see also Quartey, 2005; Odhiambo, 2011).

3) Trade: the trade volume is measured by the volume of exports and imports.

3.4 *Stationarity Tests.* The results of the stationarity tests of variables in level (not presented here) show that all the variables are non-stationary in level. Having found that the variables are not stationary in level, the variables were differenced once in order to perform stationarity tests on difference. The results of the stationarity tests on differenced variables are presented in Tables 3 and 4.

Table 3. Stationarity Tests of Variables on First Difference – Phillips-Perron (PP) Test

Variable	No Trend	Trend
POV	-3.022574**	-4.221264**
TOUR	-4.518123***	-9.849024***
TRADE	-3.944020***	-3.790543**

Note: *** and ** denote 1% and 5% levels of significance, respectively.

Table 4. Stationarity Tests of Variables on First Difference – Dickey-Fuller – GLS Test

Variable	No Trend	Trend
POV	-2.711437***	-3.448718**
TOUR	-5.015810***	-4.716756***
TRADE	-3.481010***	-3.942751***

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

The results reported in Tables 3 and 4 show that after differencing the variables once, all the variables were confirmed to be stationary. The Phillips-Perron and DF-GLS tests applied to the first difference of the data series reject the null hypothesis of non-stationarity, irrespective of whether the test is conducted with or without trend.

3.5 *Cointegration Test.* Since our unit root test results show that all the variables are integrated of order one (1), and not of two (2) or higher, we can now proceed with the ARDL-bounds test in order to examine the existence of a long-run (cointegration) relationship between POV, TOUR and TRADE. In the first step of the ARDL-bounds test, the order of lags on the first differenced variables in equations (1) - (3) is determined from the unrestricted equations by using the Akaike-Information Criterion (AIC) and the Schwartz-Bayesian Criterion (SBC). The results of the AIC and SBS (not reported here) indicate that the optimal lags for equations 1, 2 and 3 are 4, 2 and 1 respectively. In the second step, we apply a bounds F-test to equations (1) - (3), to establish whether there exists a long-run relationship between POV, TOUR and TRADE. The results of the bounds test are reported in Table 5.

The results reported in Table 5 show that cointegration has been accepted in equations 1 and 3, but not in equation 2. In other words, there is a long-run relationship when the poverty reduction and trade variables are used as the dependent variables, but not when tourism development is used as the dependent variable. These results are supported by the F-statistics, which turned out to be higher than the upper-bound critical value at the 5% level of significance in the poverty reduction equation and the trade equation, but not in the tourism equation.

Table 5. **Bounds F-test for Cointegration**

Dependent variable	Function		F-test statistics			
POV	Pov (TOUR, TRADE)		4.71747**			
TOUR	Pour(POV, TRADE)		2.24322			
TRADE	Trade(TOUR, POV)		5.32945***			
Asymptotic Critical Values						
	1 %		5%		10%	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
Pesaran et al. (2001), p. 301, Table CI(iv) CaseIV	4.99	5.85	3.88	4.61	3.38	4.02

Note: *** and ** denote statistical significance at the 1% and 5% levels respectively.

3.6 Analysis of Causality Test Based on the Error-Correction Model. We confirmed the existence of a long-run relationship between tourism development, poverty reduction and trade. In this section, we examine the long-run causal relationships among variables by incorporating the lagged error-correction term into equations (6) and (8). The causality in this case is examined through the significance of the coefficient of the lagged error-correction term, and the joint significance of the lagged differences of the explanatory variables by using the Wald test. The results of these causality tests are reported in Table 6.

Table 6. **Causality between Tourism Development, Poverty Reduction and Trade**

Dependent variable	F-statistics [P-value]			Coefficient [t-statistics]
	$\Delta \ln \text{POV}_t$	$\Delta \ln \text{TOUR}_t$	$\Delta \ln \text{TRADE}_t$	ECM _{t-1}
$\Delta \ln \text{POV}_t$	-	5.8821[0.0030]***	4.4899[0.0101]***	-0.9794*** [-2.912]
$\Delta \ln \text{TOUR}_t$	9.3808[0.0007]***	-	5.5209[0.0051]***	-
$\Delta \ln \text{TRADE}_t$	1.6497[0.2212]	3.672[0.0207]**	-	-0.72042** [-2.401]

Note: *** and ** denote statistical significance at the 1% and 5% levels respectively.

The causality results reported in Table 6 show a causal flow from tourism development to poverty reduction in South Africa — both in the long and in the short run. However, the causal flow from poverty reduction to tourism development could only be established in the short run. The long-run causal flow from tourism development to poverty reduction is evidenced by the coefficient of the error-correction term in the poverty reduction equation — which has been found to be negative and statistically significant. The short-run causal flow, on the other hand, is supported by the corresponding F-statistics, which is also statistically significant in the poverty reduction equation. The causality test between tourism development and trade shows that there are short-run and long-run causal flows from tourism development to trade, but only a short-run causal flow from trade to tourism development. The causality from tourism development to trade is evidenced by both the error-correction term and the F-statistics, which are confirmed to be statistically significant. The short-run causal flow from trade to tourism development, on the other hand, is confirmed by the corresponding F-statistics in the tourism development equation which has been found to

be statistically significant. Finally, the causality results between trade and poverty reduction show a distinct causal flow from trade to poverty reduction - both in the short and in the long run. The long-run causal flow is confirmed by the coefficient of the error-correction term in the poverty reduction equation, which is negative and statistically significant — as expected. The short-run causality, on the other hand, is evidenced by the corresponding F-statistics in the poverty equation, which is also statistically significant.

4. Conclusion. This paper has examined the inter-temporal causal relationship between tourism development and poverty reduction in South Africa. In order to address the methodological weaknesses of the previous studies, the current study uses the recently introduced ARDL-bounds testing approach by Pesaran et al. (2001) in order to examine the relationship between poverty and tourism sector development in South Africa. In addition, the study incorporates trade as an intermittent variable between tourism development and poverty reduction - in order to address the omission-of-variable bias problem associated with the previous studies. In other words, the study examines the causal relationship between tourism development and poverty reduction within a multivariate (trivariate) causality framework. The overriding question here is whether the tourism growth which has been experienced in South Africa in the recent years Granger-causes poverty reduction or not. The results of this study show that there is an overwhelming causal flow from tourism development to poverty reduction in South Africa. The results apply irrespective of whether the causal relationship is estimated in the long or in the short run. The feedback causality from poverty reduction to tourism development could only be established in the short run. This shows that the tourism sector, which has shown a phenomenal growth in South Africa in recent years, leads to poverty reduction. Other results show that, while tourism development Granger-causes trade both in the short and in the long run, the causality from trade to tourism could only be established in the short run. The results of the causality test between trade and poverty reduction, however, show a distinct causal flow from trade to poverty reduction. This applies - irrespective of whether the causality is conducted in the short or in the long run.

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