

Exploring the Tourism-Poverty Alleviation Nexus in the Brics Group of Nations

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Abstract. The tourism-poverty alleviation nexus is becoming an increasingly significant subject of academic inquiry within the tourism economics discourse. Using time series data from the World Bank (1995–2017) in a P-ARDL model, the present study explores the relationship between tourism (receipts from exports, the travel subsector, hospitality and accommodation subsector) and poverty alleviation (final household consumption) with tourism arrivals as the control variable within the context of the BRICS group. The results suggest that receipts from the travel subsector and exports met the a priori expectation – positively influencing poverty alleviation within BRICS nations in the long run. Contrastingly, receipts from the hospitality and accommodation subsector did not meet the a priori expectation of a positive sign, with the results indicating statistical insignificance in the long run. However, receipts from the hospitality and accommodation were found to only influence poverty alleviation in the short run. Relatedly, the results suggest that increases in consumption associated with growth in tourism arrivals did not influence poverty in the BRICS. The results point to the heterogeneity of the influence of tourism on poverty alleviation, whereby certain dimensions of tourism contribute to poverty alleviation in the long run and others do so in the short run. Based on these findings it is recommended that BRICS countries harness their tourism potential and promote intra-BRICS tourism to maximise the positive impact of travel and tourism export receipts on household consumption, which catalyses poverty alleviation.

Key words: BRICS, emerging markets, poverty alleviation, panel-ARDL model, tourism

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1. Introduction

The global tourism industry recorded upwards of 1.5 billion international tourist arrivals in 2019, representing a 4% (54 million tourists) growth in international tourism, with emerging economies – including the BRICS (Brazil, Russia, India, China, and South Africa) nations - accounting for 46.9% (685 million tourists) of all global tourism arrivals (World Tourism Organization – UNWTO, 2020). According to the most recent data, the global tourism sector's (in)direct and induced economic activity contributed USD\$ 8.8 trillion to the global Gross Domestic Product (GDP) and accounted for 10% (319 million) of all the employment worldwide (World Travel and Tourism Council – WTTC, 2019). More pointedly, global tourism exports (international receipts and passenger transport) directly generated up to USD\$1.7 trillion for destination countries (UNWTO, 2019). The BRICS nations are considered to be major tourist receipt nations (Khattak & Wang, 2018). Tourism arrivals and receipts data suggest that in 2017 and 2018, BRICS nations attracted a combined estimated 239.5 million international travelers, who generated at least USD\$185.1 billion in tourism receipts (UNWTO, 2019), thus illustrating the significance of BRICS nations within the contemporary global tourism industry.

Given the palpable economic value of the global tourism industry, tourism has thus far been propagated as a catalyst for both the economic development and rapid global value-chain integration of most emerging and developing countries (Calero & Turner, 2020; Kim, Song & Pyun, 2016; Scheyvens, 2007). Moreso, the role of tourism as a vector of poverty alleviation/reduction has emerged as a critical debate within the tourism economics discourse (Folarin & Adeniyi, 2020; Mahadevan & Suardi, 2019; Njoya, & Seetaram, 2018). Some studies (Blake, Arbache, Sinclair, & Teles, 2008; Llorca-Rodríguez, García-Fernández & Casas-Jurado, 2020; Njoya, & Seetaram, 2018) have found a positive relationship (tourism improves consumption per capita and hence, reduces poverty) between tourism and poverty alleviation. While, contrastingly other studies have found that tourism has an insignificant (Croes, 2014; Oviedo-García, González-Rodríguez & Vega-Vázquez, 2019; Rakotondramaro & Andriamasy, 2016) and in some cases a negative influence (Bolwell & Weinz, 2008; Croes & Rivera, 2015; Kim *et al.*, 2016) on poverty alleviation. What is evident from the extent of the literature is that predicting the effect of tourism on poverty alleviation is very subjective and country specific (Mahadevan & Suardi, 2017; Zhao & Ritchie, 2007). Therefore, multi-country studies would make a very distinct contribution to the literature. With this in mind, the present study seeks to explore the tourism-poverty alleviation nexus in the case of BRICS nations.

Contemporary studies (Kim *et al.*, 2016; Vanegas *et al.*, 2015; Zhao & Ritchie, 2007; Zhao & Xia, 2020) have bemoaned the lack of more meaningful academic inquiry into the tourism-poverty alleviation nexus. To a larger extent, preceding empirical studies related to the role of tourism in the alleviation of poverty have also been critiqued for being sporadic and lacking the sufficient depth to comprehensively interrogate the tourism-poverty alleviation nexus, thus contributing to the lack of consensus and the existence of gaps within the extent of the tourism literature (Mitchell & Ashley, 2010; Saayman, Rossouw

& Krugell, 2012; Zhao & Xia, 2020). Moreso, the extent of the literature is critiqued for being ‘insufficient’, generalist and overly descriptive in analyses based on predominantly single locations (Davidson & Sahli, 2015; Oviedo-García *et al.*, 2019). An extensive review of the literature from between 1999 and 2014 by Medina-Muñoz, Medina-Muñoz and Gutiérrez-Pérez (2016a), found that the empirical results of the various studies were contradictory as to the effect of tourism on poverty alleviation – and thus highlight the need for further empirical studies. Relatedly, some authors (Chok, Macbeth & Warren, 2007; Higgins-Desbiolles, 2006; Scheyvens & Hughes, 2019) have also argued against the capacity, and in some cases the viability of tourism as a poverty alleviation tool due to the multidimensionality and overall entrenchment of poverty within societies.

The present paper seeks to make the following contributions. First, while the current and potential significance of BRICS tourism is evident, tourism research into the BRICS bloc of nations is still fragmented (individual country-based) and minimal, moreso in terms of studies interrogating the influence of tourism on poverty alleviation within the association of countries. Therefore, the present paper provides critical insights into the effect of tourism on poverty alleviation from an emerging markets perspective. Second, to the best of the author’s knowledge, this paper represents the first attempt to conduct an econometric analysis to explore the tourism-poverty alleviation nexus based on tourism receipts from exports, receipts from the travel subsector, tourist arrivals and receipts from the hospitality and accommodation subsector as tourism explanatory (independent) variables within the BRICS. Therefore, this paper expands on the definitional dimensions associated with the tourism construct within the tourism-poverty alleviation nexus debate – thus complementing the extent of the contemporary literature. The remainder of the paper is organized as follows: Section 2 provides a brief overview of the literature, while Sections 3 and 4 outline the data and methodology, as well as present the empirical results, respectively. Lastly, Section 5 concludes the study.

2. Review of the literature

1.1. Overview of tourism and poverty alleviation

Tourism is a highly integrative economic activity – contributing to the socioeconomic development of host economies through employment creation, tax base expansion, infrastructure and public resource development, as well as export earnings (Medina-Muñoz *et al.*, 2016a). To this end, tourism is widely associated with the first of the United Nation’s Sustainable Development Goals (SDG1) which advocates for the harnessing of socioeconomic mechanisms such as tourism (pro-poor tourism) as a vector for poverty alleviation (Mahadevan, Amir & Nugroho, 2017; Oviedo-García *et al.*, 2019; Scheyvens & Hughes, 2019). Pro-poor tourism (PPT) may be characterised as an approach to tourism development and management where linkages are created between the tourism sector and the poor in order to alleviate poverty and mitigate its effects by changing the distribution of tourism benefits to include the poor (Chok *et al.*, 2007; Strydom, Mangope & Henama,

2019). It follows then that the notion of tourism contributing to poverty alleviation is predicated on the belief that tourism can be an effective vector for reducing poverty based on the inclusive integration of disadvantaged communities in the tourism value-chain through a pro-poor approach (Llorca-Rodríguez *et al.*, 2020; Scheyvens, 2007).

However, poverty is a dynamic and idiosyncratic construct that is susceptible to various location-specific subjective factors including demographic aspects such as gender, age and culture (Davidson & Sahli, 2015; Medina-Muñoz *et al.*, 2016b; Yang & Hung, 2014). As a result, poverty has various manifestations within a country, including a lack of income and productive resources sufficient to ensure sustainable livelihood, hunger and malnutrition; ill health; limited or lack of access to education and essential services; increased morbidity and mortality from illness; homelessness and inadequate housing, unsafe environments and social discrimination and exclusion from decision-making (Folarin & Adeniyi, 2020; Llorca-Rodríguez *et al.*, 2020; Zhao & Ritchie, 2007). Relatedly, tourism is also considered to be a multidimensional construct within the tourism-poverty alleviation context, based on dimensions such as international arrivals, travel receipts, tourism exports, as well as hospitality and accommodation receipts (Calero & Turner, 2020; Folarin & Adeniyi, 2020; Kim *et al.*, 2016; Medina-Muñoz *et al.*, 2016b). To this end, a recurring theme in the literature (Folarin & Adeniyi, 2020; Njoya & Seetaram, 2018; Scheyvens, 2007) is the argument that it is the multidimensionality of both the tourism and poverty constructs that complicates the effective measurement of the impact of tourism on its alleviation, hence the lack of consensus on the net effect of tourism on poverty alleviation.

Notwithstanding the definitional challenges associated with measuring tourism and its influence on poverty, contemporary studies have, however, attempted to model the relationship between tourism and poverty. For instance, in the case of Kenya, a dynamic, computable general equilibrium analysis (2003–2015 dataset) by Njoya and Seetaram (2018) found that a 5% increase in tourist arrivals marginally improved (1.83%) Kenya's poverty headcount and reduced the poverty gap in the country by at least 3%, thereby reducing the severity of poverty in the country. While in the case of Mexico, an autoregressive distributed lags (ARDL) cointegration model (1980–2017 dataset) found that a percentage increase in international tourism translated to a 0.46% and 0.11% increase in household consumption per capita in the long- and short-term, respectively, thereby reducing poverty (Garza-Rodríguez, 2019). Contrastingly, Oviedo-García *et al.*, (2019) applied the Ng and Perron test for analyzing time-series stationarity and the Auto Regressive Distributed Lag bounds test (2000–2013 dataset) to determine the existence of long-term relationships between tourism and poverty alleviation found that a 1% increase in tourism income translated to a 0.72% increase in poverty and a 0.40% increase in the poverty gap in the Dominican Republic. In the case of Brazil, Blake *et al.* (2008) employed a Computable General Equilibrium (CGE) model to explore the tourism-poverty nexus and found that poor households in the country would only benefit from a 10% increase threshold in tourism spending. Notably, while price increases in goods and services increased with growing tourism demand, these increases did not affect the pricing of the bundle of consumption of poorer Brazilian households. Regional and multi-country studies have also significantly contributed to the tourism versus poverty alleviation debate. For

instance, Folarin and Adeniyi (2020) applied the system Generalized Method of Moments (system GMM) estimation technique to panel data (1996–2015) from 38 Sub-Saharan African countries. They found that tourism significantly reduced poverty in terms of severity, headcount and the poverty gap in Sub-Saharan African countries. While, Kim *et al.* (2016) based on an unbalanced panel observation (1995–2012) of 69 developing countries, found tourism to have heterogeneous effects on poverty alleviation in developing countries – predominantly moderated by income level thresholds.

1.2. Tourism and poverty alleviation in the BRICS

BRICS nations account for 40% of the global population and cover 30% of the total land-mass on the planet (Tyagi, 2013). Economically, BRICS nations account for up to 31.5% of global GDP (USD\$18.33 trillion in 2017 and projected to reach USD\$26.54 trillion by the year 2022), implying that BRICS nations have some of the world’s highest individual GDPs – competing with the United States and most European countries in the near future (Abdou & El Adawy, 2018; International Monetary Fund, 2017). To date, BRICS nations have harnessed the soft power associated with tourism to enhance their competitive advantage and image as destinations (Pop, Kanovici, Ghic & Andrei, 2016; Wise, 2019). For instance, BRICS nations have since 2007 hosted global mega-events including, the FIFA World Cup in South Africa (2010), Brazil (2014), and Russia (2018) and the Olympics in China (Beijing, 2008, 2022), Brazil (Rio, 2016) and Russia (Sochi, 2014) (Wise, 2019). More pertinently, the BRICS nations represent significant tourism market potential.

Each BRICS member nation has its own unique competitive and comparative advantages in tourism (Abdou & El Adawy, 2018), however, what is interesting is the market potential of intra-BRICS tourism (see Statistics South Africa, 2018). In 2018, China had an estimated 140 million outbound tourists, and was the largest spending tourism source market (USD\$277 billion) in 2018, while Russia ranked 7th with outbound tourists spending USD\$35 billion (UNWTO, 2018). Relatedly, by 2027 China is expected to account for 300 million travelers annually (UNWTO, 2018). Overall in 2018, four of the five BRICS nations – China (2nd), India (8th), Brazil (12th) and Russia (17th) – were also ranked in the Top 20 of countries based on the overall GDP (an estimated USD\$ 1.9 trillion) contribution of travel and tourism activity to their respective economies (WTTC, 2019).

However, despite the economic significance of BRICS nations to tourism, there is a distinct dearth in studies exploring the tourism-poverty alleviation nexus within the combined BRICS nation context. Scant studies related to BRICS nations have typically been country-based, with a significant gap emerging in empirical evidence of the tourism-poverty alleviation nexus explicitly based on the group of nations. In the case of China, a Generalized Method of Moments (GMMs) estimation on panel data (1999–2014) from Chinese provinces found that tourism has a positive effect on poverty alleviation in the country (Zhao & Xia, 2020). While, in the case of South Africa, Saayman *et al.* (2012) applied a general equilibrium model and found that tourism inflows in the short-term would have to increase by at least 10% to result in a minimally significant benefit to the poorest households in South Africa. Similarly, a Brazilian study (Blake, Arbache, Sinclair & Teles,

2010) applied the CGE modelling approach to explore the tourism poverty alleviation nexus in that country and found that while tourism had a positive 0.45 multiplier effect on poverty in the country, the poorest households were not the primary beneficiaries of tourism growth. The contradictions within the contemporary literature seem to perpetuate the lack of consensus with regards to the effects of tourism on poverty alleviation and point to the potential heterogeneity in the effects of tourism on poverty within BRICS nations. It also appears as though there is no readily available empirical evidence of the tourism-poverty alleviation nexus in the cases of Russia and India, thus pointing to noteworthy gaps in the literature. It is with this in mind that the present paper becomes more significant to the extent of the literature within the tourism-poverty alleviation discourse, particularly whether tourism has a net positive or negative effect on poverty alleviation within the BRICS bloc.

3. Data and Methodology

The study utilised World Bank data (1995–2017) to examine the relationship between tourism and poverty alleviation in the BRICS nations. The BRICS countries were the focus of the study because of the surge in poverty rates despite them being Newly Industrialized countries (Kuepper, 2019). In addition, BRICS countries are some of the best countries that attract tourists worldwide. The assortment of the period 1995–2017 is built on the record of the acceptance of the tourism sector in the BRICS countries. Furthermore, the sample period was chosen due to data availability. The data includes poverty alleviation (final household consumption), tourism receipts from exports, receipts from the travel subsector, tourist arrivals and receipts from the hospitality and accommodation subsector. Poverty alleviation was used as a dependent variable, while tourism receipts from exports, receipts from the travel subsector, tourist arrival and receipts from the hospitality and accommodation subsector were used as independent variables. Such a relationship is illustrated in equation 1:

$$Pov_{i,t} = \alpha + \beta_1 lnrt_{i,t} + \beta_2 lnrx_{i,t} + \beta_3 lnrha_{i,t} + \beta_4 lnar_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where $Pov_{i,t}$ is poverty (final household consumption) in the BRICS country, $lnrt_{i,t}$ is the receipts from the travel subsector, $lnrx_{i,t}$ is receipts from exports, $lnrha_{i,t}$ is the receipts from the hospitality and accommodation subsector, $lnar_{i,t}$ is the arrival of tourists in the BRICS countries, i represents each country in the BRICS countries while t is the time and $\varepsilon_{i,t}$ is the error term.

3.1. Explanation of Variables and priori expectations

Poverty alleviation was used as a dependent variable in this study. It was measured by Households and Final consumption expenditure expressed in annual growth (World Bank, 2019). The rationale behind this measure is that an increase in consumption by households in these countries reduces poverty. Thus, a positive coefficient of the independent variables means a reduction in poverty. Notable is that this measure was also utilized by Stoyanova

and Tonkin (2018), Hjelm, Mathiassen and Wadhwa (2016). The authors conceded that households and final consumption expenditure are one of the best methods to measure poverty alleviation.

To measure tourism receipts, researches used three variables, namely: receipts from exports, receipts from the travel subsector and receipts from the hospitality and accommodation subsector. An additional tourism variable, tourist arrival, was used as a control variable. Receipts from exports is the income from tourists after buying goods and services produced in BRICS countries (World Bank, 2019). This income is expressed as a ratio of exports in the country. Accordingly, the consumption of goods and services by tourists increases the consumption level, while also reducing poverty in each country. The study expects receipts from exports to be positively related to poverty, implying that an increase in consumption will reduce poverty. This is in line with studies done by Shakouri, Yazdi, Nategian and Shikhrezaei (2017) and Raspor, Stranjančević, Bulatović and Lacmanović (2017). The receipts from the travel subsector are the income from tourists in all the travel services (World Bank, 2019). An increase in the receipts of the travel subsector increases the consumption level which consequently reduces poverty. Thus, researchers expect a positive sign between receipts from travel and poverty. The measure has also been used by Qi and Wu (2017).

The last measure of tourism receipts is the hospitality and accommodation subsector. It comprises all the income from hospitality and accommodation activities (World Tourism Organization, 2019). An increase in the income in this sector increases the consumption level and eventually decreases poverty. The study expects a positive coefficient between receipts from hospitality and poverty alleviation. Mahmoudinia, Soderjani and Pourshahabi (2011) and Gramatnikovsk, Milenkovski, Blazheska (2016) share the same notion that tourism receipts increase consumption and reduce poverty. Tourist arrival, as a control variable, is the number of tourists arriving in the BRICS countries. The results that can be adduced from this variable are twofold. Firstly, tourist arrival is associated with the increase in income that in turn increases the consumption level and reduces poverty. On the other hand, an increase in the number of tourist's benefits business owners and leaves the majority poorer. Thus, the study expects either a positive or negative relationship between tourism arrival and poverty.

Table 1. Summary of Data source and priori expectation

Variable	Proxy	Measurement	Data source	Priori expect
Poverty alleviation	InPov	Final household consumption	World Bank	
Travel receipts	Intr	Income from travel subsector	World Bank	Positive
Exports receipts	Inre	Income from exports	World Bank	Positive
Hospitality and accommodation receipts	Inho	Income from hospitality and accommodation	World Bank	Positive
Tourist arrivals	Inar	Number of tourists in the BRICS countries	World Bank	Positive/negative

Source: Own Compilation

3.2. *Prior Estimation procedures*

In determining the estimation technique, the study employed the descriptive statistics, panel unit root test and the panel cointegration tests. First, the study analysed the descriptive statistics to describe the physiognomies of the variables. This includes the mean, median, maximum and minimum standard deviation and the number of observations. The descriptive statistics gives the synopses of the study sample. Second, researchers tested for panel unit root tests with the objective of determining the order of integration. The panel unit root tests examine whether the variables are stationary or not. To check the order of integration and stationarity, the study used three important tests prescribed by the literature, namely the Levin, Lin and Chu (2002), Im, Perasan and Shin (2003), ADF of Maddala & Wu (1999). The rule of thumb is to reject the null hypothesis when the probability values of LLC, IPS and ADF are less than 10 percent (Levin, Lin and Chu, 2002). Thus, we conclude that the variable is stationary. In the event that the variable is not stationary at levels, the variable can be first differenced.

Of importance is that the panel unit root test prescribes the estimation technique to be used in the study. For instance, if the variables are integrated at level zero, an ordinary least square can be employed. A Panel ARDL (P-ARDL) can be employed when the variables are a combination of zero and one (Pedroni, 2004). In the event that the variables are integrated at level one, the Panel Vector Autoregressive (P-VAR) and Panel Vector Error Correction Model P-VECM are then employed. Since the panel unit root test shows a combination of variables that are integrated at zero and one, the study employed the P-ARDL model. Chu and Sek (2015) propound that P-ARDL is the new cointegration method. In other words, there is no need to employ the cointegration test. Rather, the researchers should employ the P-ARDL as long as the variables are a combination of zero and one. Thus, the next section discusses the estimation technique used in the study.

3.3. *Estimation techniques*

The P-ARDL model proposed by Pesaran (2004) was employed in this study. The panel autoregressive lag model was deemed fit for this study as it accommodates the variables that are integrated at different level that is level zero and one (Chu and Sek, 2015). Furthermore, it allows researchers to analyse both the short-run and long-run relationship between poverty alleviation and tourism receipts in the BRICS countries. When analysing the long-run relationship, the sign of the coefficient and the probability value are the most important indicators. If a coefficient shows a positive sign, then it means a positive relationship exists between the variables under study and the opposite is true. The probability value should be below 10 percent. On the other hand, the short run analysis accommodates the economic shocks between the variables. This is shown by the speed of adjustment that should have a negative sign and significant (Bannerjee *et al.*, 1998). For lag determination, the study employed the automatic lag selection using the AIC criteria. To make our analysis simpler, all the variables were converted into logs. Thus, equation 2 illustrates the P-ARDL model:

$$\Delta \ln Pov_{i,t} = \phi_{i,t} (\ln Pov_{i,t} - \beta_i X_{i,t-j}) + \sum_{j=1}^{p-1} \gamma_j^i \Delta (\ln Pov_{i,t-j} + \sum_{k=0}^{l-1} \delta \Delta (X_i)) + \varepsilon_{i,t} \quad (2)$$

Where $\ln Pov$ is the poverty alleviation in the BRICS countries, X = all the independent variables in the BRICS, while δ and γ represent the short-run coefficients of dependent and independent variables respectively. The subscripts i and t stand for cross-section and time respectively, β stands for long-run coefficients, i and t represents countries and time series respectively and ε is the error term.

3.4. Post estimation tests: Cross dependency test

Panel data normally experiences a cross-sectional dependency problem (Henningsen & Henningsen, 2019). The problem emanates when a country's data seizes to act independently. Simply put when the data is vastly connected. If the data are not highly connected, robust results are achieved. To assess whether we produced robust results, the probability values of Pesaran LM test, Breusch and Pagan and Baltagi should be below 10 percent. Thus, we conclude that the model used in the study was stable and has produced robust results.

4. Presentation of Empirical results

The presentation of empirical results is divided into five sections namely: descriptive statistics, panel unit root tests, long-run, short-run and cross dependency test results. The subsequent section discusses the descriptive statistics.

4.1. Descriptive statistics

The descriptive statistics results are shown in Table 2. The results reveal a positive skewedness in tourist arrivals, receipts from exports and travel receipts. This implies that the variables are fairly skewed and normally distributed. Conversely, poverty alleviation and other tourism receipts have a negative skewedness that falls between -1 and -0,5, which implies that the variables are moderately skewed. Furthermore, the results show a minimum kurtosis of 1.9 and maximum of 3.5. This means that the data has no outlier and the kurtosis is not high or low. This result is confirmed by the small difference between the maximum and the minimum values of the variables under study. The biggest gap is observed on travel receipts recording a 1.9 difference. The results further highlight positive mean coefficients in all the variables implying that tourism receipts have been increasing throughout the series.

Table 2. Descriptive statistics

	lnar	lnha	lnPov	lnre	lntr
Mean	16.20021	20.06899	1.271492	1.525416	22.76240
Medium	16.02810	20.21573	1.394720	1.452037	22.78400
Maximum	17.92211	21.64368	2.369978	2.645635	24.66803
Minimum	14.50415	17.07361	-0.972180	0.294655	20.39198
Std Dev	0.970442	1.042162	0.700003	0.553218	0.931493
Skewness	0.177101	-0.764396	-0.914840	0.084711	0.088061
Kurtosis	1.904919	3.039551	3.507375	2.083386	2.760505
Jarque-Bera	5.960973	10.52445	16.22321	3.909985	0.397696
Observations	108	108	108	108	108

Source: Own compilation

4.2. Stationarity Results

The stationarity test results are demonstrated in Table 3. The tourist arrivals, receipts from exports show probability values that are less than 10 percent. Thus, we reject the null hypothesis of non-stationarity and conclude that tourist arrivals, receipts from exports are stationary at levels and integrated at level zero. Since these variables are integrated at level zero, there is no need to test at first difference. Similarly, poverty alleviation, other receipts from tourism activities and travel receipts were found not stationary at levels since their probability values were more than 10 percent. Therefore, we cannot reject the null hypothesis of non-stationarity. After first difference the variables were found to be stationary since their probability values are less than 10 percent. As a result, poverty, other receipts from tourism activities and travel receipts are integrated at level one. As mentioned earlier in the methodology section, if the variables are a combination of zero and one, a P-ARDL can be employed. It is imperative to note is that panel ARDL is the new cointegration technique introduced by Pesaran (2004). Pesaran emphasized the point that there is no need to employ the cointegration tests since the P-ARDL is the new cointegration method. Rather, the cointegration tests can be employed if the variables are integrated at the same level. There are several researchers that used the panel ARDL such as Casola & Sichlimiris (2015), Garidzirai *et al.* (2019), Nadeem (2015) and Yildirim and Yaşa (2014). The subsequent section discusses the panel ARDL results.

Table 3. Panel unit root tests

Variables	Level & 1st Difference (intercept & trend)	LLC	IPS	ADF	Decision
lnar	Level	0.7413	0.0837*	0.0857*	1(0)
lnPov	Level	0.1575	0.0977*	0.0087***	1(0)
lnha	Level	0.4567	0.4645	0.2061	1(1)
	1 st Dif	0.0000***	0.0000***	0.0000***	
lnre	level	0.9082	0.8531	0.7314	1(1)
	1 st Dif	0.0000***	0.0000***	0.0000***	
lntr	Level	0.9386	0.9825	0.6985	1(1)
	1 st Dif	0.0082***	0.0002***	0.0008***	

Note: * indicates 10 percent and *** indicates 1 percent level of significance respectively.

4.3. Panel ARDL-Long-run analysis

This section discusses the long-run relationship between poverty alleviation and tourism receipts in the BRICS countries. The results of the long-run analysis are shown in table 4 and equation 3 below using the AIC (2,2,2,2).

$$Pov_{i,t} = 6.0271 + 0.5432_1 lnrt_{i,t} + 0.9736_2 lnrx_{i,t} - 0.0507_3 lnrrha_{i,t} - 0.248_4 lnar_{i,t} + \varepsilon_{i,t} \quad (3)$$

The long-run results in the above equation show that poverty alleviation is positively related to receipts from the travel subsector and exports. Their coefficients are positive and statistically significant at 1 percent. A 1 percent increase in receipts for travel increases the final household consumption that subsequently improve the poverty level by 0.54 percent in the BRICS countries. The result is in line with the studies done by Folarin and Adeniyi (2020) and Zhao and Xia. The studies concluded that tourism receipts from the travel subsector reduces the poverty level through the increase in the final household consumption. Furthermore, the study found that a 1 percent increase in receipts from exports increases consumption that in turn decreases poverty in the BRICS countries. Findings by Llorca-Rodriguez et al. (2020) and Njoya & Seetaram (2018) support this finding, concluding that tourism exports are a major generator of income in emerging countries. They further argue that income is spent, and poverty is minimised.

On the other hand, receipts from hospitality and accommodation and tourist arrival influenced poverty negatively. Receipts from hospitality and accommodation were found to be statistically insignificant, while tourist arrival was statistically significant at a 10 percent level. Thus, a 1 percent increase in the number of tourists increases consumption. However, the consumption increase cannot influence poverty. A similar finding was observed by Croes and Rivera (2011) and Kim *et al* (2016) who concluded that the number of tourists increase economic growth, but it does not reduce the poverty rate. The authors further highlight that tourist arrivals benefit businesses more than households. In the same vein, receipts from hospitality and accommodation did not contribute to poverty alleviation in the long run. It can be argued that these receipts only contributed to poverty alleviation in the short-run. Thus, the next section discusses the short-run results.

Table 4. Long-run results

Variable	Coefficient	Std.error	t-statistic	P-value
lna	-0.248631	0.129099	-1.925898	0.0599***
lnha	-0.050733	0.102733	-0.493832	0.6236
lnrx	0.973607	0.170422	5.712930	0.0000***
lnrt	0.543185	0.121202	4.481660	0.0000***

Note: *** represents 1 percent level of significance.

Source: Own Compilation

4.4. Short-run Analysis

The short-run analysis was used to detect the economic shocks in our study. The short-run results are reported in Table 3. The results report a negative coefficient of the Error

Correction Term (-0.9331) that is expected and is statistically significant at 1 percent. The error term confirms that all the economic shocks will be cleared in the upcoming financial year. Thus, it takes 1.07 years (1/0.9331) for poverty to adjust to changes in the tourism receipts. Simply put, a higher error correction term implies that the relationship between poverty and tourism receipts is steady. Interestingly, travel receipts and export receipts were found to be negatively related to poverty in the short-run and statistically significant at 5 percent. Thus, travel receipts and export receipts were found not to influence consumption and poverty in the short run. It is notable that receipts from hospitality and accommodation increased the consumption in the BRICS and reduced poverty. Thus, hospitality and accommodation only influenced poverty in the short-run and not in the long-run.

Table 5. Error Correction model

Variable	Coefficient	Std.error	t-statistic	probability
CointQ01	-0.933138	0.482920	-1.932282	0.0591*
lnar	0.726101	0.802703	-0.904570	0.3701
lnha	1.486238	0.712540	2.085830	0.0422**
lnrx	-1.683440	0.669243	-2.515438	0.0152**
lntr	-0.756871	0.367350	-2.060353	0.0447**
C	-7.292466	3.45991	-2.107704	0.0402**

Note: * represents 10 percent level of significance and ** represents 5 percent level of significance.

4.5. Cross-sectional dependency test

The cross-dependency test was employed to assess if the variables were correlated and have produced spurious results, as illustrated in table 5. The results report that all three tests confirm that the model used is free from serial correlation and did not produce spurious results. This was shown by the p-values that are less than 10 percent. We can safely conclude that the model was stable.

Table 6. Cross-sectional dependency

Test	Probability
Breusch-Pagan Chi-Square	0.0000***
Pearson LM	0.0000***
Pearson CD	0.0469**

Note: ** represents 5 percent level of significance and *** represents 1 percent level of significance.

5. Conclusion

The aim of the study was to explore the tourism-poverty alleviation nexus in the BRICS group of nations. The study provides critical insight into the effect of tourism on poverty alleviation from an emerging market perspective, moreso from a multi-country dataset

(1995–2017) of an association of countries located in different regions. The findings revealed that tourism receipts from travel and exports positively impacted poverty alleviation in the BRICS nations in the long-run, while the receipts from hospitality and accommodation only had an influence on poverty alleviation in the short-run. The findings appear to complement the literature by illustrating the heterogeneity of the impact of tourism on host economies within the poverty alleviation context due to the multidimensionality of the tourism construct. Thus, the study concludes that the influence of tourism on poverty alleviation in the BRICS group is positive, albeit being conditional.

However, given the sheer tourism potential within the BRICS group relating to outbound tourist figures and tourist spending power, the findings of the study imply that in the long-term, tourism could have a more significantly positive impact on household consumption and directly mitigate poverty in member countries, respectively. This can be enhanced if member states harness their intra-BRICS tourism potential by considering the following recommendations,

- Further integrating and synchronizing tourism-oriented policy within member countries to both promote and incentivize tourism between member countries. For instance, BRICS countries have a preferential visa regime to promote travel between member countries (see Abdou & El Adawy, 2018).
- Providing preferential investment incentives such as blended finance for trade in services associated with tourism (see Matiza, 2019), to promote skills and technology transfer to further develop tourism resources within BRICS. Increased investment will promote indigenous tourism enterprise growth, which will create new jobs and further catalyze tourism value chain integration for BRICS economies. Consequently, increased tourism economic activity will positively impact poverty alleviation in the long-term, through increased travel and tourism export receipts.
- Acknowledging that successful poverty alleviation through tourism is predicated on effective pro-poor tourism-oriented development strategies that promote community ownership of tourism resources (see Bolwell & Weinz, 2008).

The recommendations posited by this paper are also applicable to other regional or supra-national associations. To this end, it would be prudent for regional groupings and economic blocs such as the Central and East European (CEE) region to explore the potential economic contribution of intra-regional tourism to poverty alleviation, or at the very least increase household consumption. However, in light of the COVID-19 pandemic and its deleterious socioeconomic impact on both tourism (Arezki & Nguyen, 2020; World Travel & Tourism Council, WTTC-2020) and household consumption (Baldwin & di Mauro, 2020), a contemporary dimension has been introduced to the tourism – the poverty alleviation nexus. Due to the pandemic, the global tourism industry has virtually ground to a halt as countries implement stringent lockdowns that have restricted both domestic and international travel and tourism, economic activity, as well as social contact between people (Yanga, Zhang & Chen, 2020). This implies that tourist arrivals, travel, exports, as well as hospitality and accommodation receipts for both the BRICS and the rest of the world are severely impacted by the pandemic – with estimates projecting a tourism GDP

deficit of up to US\$2.1 trillion in 2020 (WTTC-2020). Relatedly, due to the cessation of economic activity in most countries, as well as the loss of up to 75 million travel and tourism related jobs in 2020 alone (WTTC-2020), it would be prudent to hypothesize that household consumption would decrease as a result of the COVID-19 pandemic, thus increasing global poverty levels. Hence, urgent academic inquiry into both the short-term and long-term impact of the COVID-19 pandemic on the tourism-poverty alleviation nexus is recommended for the BRICS, and other regional groupings and economic blocs such as the Central and East European (CEE) region.

References

- Abdou, D. M. S. & ElAdawy, N. S. (2018). BRICS Challenges: Economic Position, Tourism and Environmental. *International Journal of Environmental Monitoring and Protection*, 5(3), pp.64-72.
- Arezki, R. & Nguyen, H. (2020). Novel coronavirus hurts the Middle East and North Africa through many channels. In Baldwin, R. & di Mauro, B. W. (2020). *Economics in the time of COVID-19*. London: Centre for Economic Policy Research.
- Baldwin, R. and di Mauro, B. W. (2020). *Economics in the time of COVID-19*. London: Centre for Economic Policy Research.
- Blake, A., Arbache, J. S., Sinclair, T & Teles, V. K. (2010). Tourism and poverty relief. *Textos para discussão 237*, FGV EESP - Escola de Economia de São Paulo, Fundação Getulio Vargas (Brazil), <https://doi.org/10.1016/j.annals.2007.06.013>.
- Blake, A., J. S., Arbache, M. T., Sinclair, & Teles, V. (2008). Tourism and Poverty Relief. *Annals of Tourism Research*, 35(1), pp.107–26.
- Bolwell, D. & Weinz, W. (2008). Reducing poverty through tourism. Geneva: International Labour Office.
- Calero, C. & Turner, L. W. (2020). Regional economic development and tourism: A literature review to highlight future directions for regional tourism research. *Tourism Economics*, 26(1), pp.3–26, <https://doi.org/10.1177/1354816619881244>.
- Chok, S., Macbeth, J. & Warren, C. (2007). Tourism as a tool for poverty alleviation: A critical analysis of ‘pro-poor tourism’ and implications for sustainability, *Current Issues in Tourism*, 10(2-3), pp.144-165, <https://doi.org/10.2167/cit303>.
- Croes, R. & Rivera, M. (2015). *Poverty Alleviation through Tourism Development: A Comprehensive and Integrated Approach*. Apple Academic Press: Palm Bay.
- Davidson, L. & Sahli, M. (2015). Foreign direct investment in tourism, poverty alleviation, and sustainable development: A review of the Gambian hotel sector. *Journal of Sustainable Tourism*, 23(2), pp.167-187, <https://doi.org/10.1080/09669582.2014.957210>.
- Folarin, O. & Adeniyi, O. (2020). Does Tourism Reduce Poverty in Sub-Saharan African Countries? *Journal of Travel Research*, 59(1), pp.140–155, <https://doi.org/10.1177/0047287518821736>.
- Folarin, O., & Adeniyi, O. (2020). Does Tourism Reduce Poverty in Sub-Saharan African Countries? *Journal of Travel Research*, 59(1), pp.140–155.
- Garza-Rodriguez, J. (2019). Tourism and poverty reduction in Mexico: An ARDL Cointegration Approach. *Sustainability*, 11, 845. <https://doi.org/10.3390/su11030845>.
- Garza-Rodriguez, J. (2019). Tourism and poverty reduction in Mexico: An ARDL cointegration approach. *Sustainability*, 11(845): pp.1-10, <https://doi.org/10.3390/su11030845>.
- Gjorgievski, M., Milenkovski, A and Dejan Nakovski. (2017). The Impact of Tourism in Economic Sustainability of Protected Areas. *UTMS Journal of Economics*, 8 (3), pp.209–217.
- Higgins-Desbiolles, F. (2006). More than an ‘industry’: The forgotten power of tourism as a social force. *Tourism Management*, 27(6), pp.1192–1208, <https://doi.org/10.1016/j.tourman.2005.05.020>.

- Hjelm, L., Mathiassen, A., & Wadhwa, A. (2016). Measuring Poverty for Food Security Analysis: Consumption- Versus Asset-Based Approaches. *Food and Nutrition Bulletin*, 37(3), 275–289. <https://doi.org/10.1177/0379572116653509>.
- Im, K. S., Pesaran, M. H. & Shin, Y. (2003). Testing for unit roots in heterogenous panels. *Journal of Econometrics*, 115(1), pp.53-74, [https://doi.org/10.1016/s0304-4076\(03\)00092-7](https://doi.org/10.1016/s0304-4076(03)00092-7).
- International Monetary Fund. (2017). World economic outlook database. Retrieved from: www.imf.org/external/pubs/ft/weo/2017/02/weodata/index.aspx.
- Khattak, D. & Wang, Z. (2018). Dynamic relationship between tourism, economic growth, and environmental quality. *Journal of Sustainable Tourism*, 26(11), pp.1928-1943, <https://doi.org/10.1080/09669582.2018.1526293>.
- Kim, N., Song, H., & Pyun, J. H. (2016). The relationship among tourism, poverty, and economic development in developing countries: A panel data regression analysis. *Tourism Economics*, 22(6), pp.1174–1190, <https://doi.org/10.1177/1354816616669038>.
- Kuepper, J. (2019). Efficient market definition. Retrieved from: <https://www.investopedia.com/terms/e/efficientmarkethypothesis.asp>.
- Levin, A., Lin, C. & Chu, C. (2002). Unit root test in panel data: Asymptotic and finite sample properties. *Journal of Econometrics*, 108(1), pp. 1-24, [https://doi.org/10.1016/s0304-4076\(01\)00098-7](https://doi.org/10.1016/s0304-4076(01)00098-7).
- Llorca-Rodríguez, C. M., García-Fernández, R. M. & Casas-Jurado, A. C. (2020). Domestic versus inbound tourism in poverty reduction: evidence from panel data. *Current Issues in Tourism*, 23(2), pp.197-216, <https://doi.org/10.1080/13683500.2018.1494701>.
- Maddala, G. S., & Wu, S. (1999). A comparative study of unit root tests with panel data and a new simple test. *Oxford Bulletin of Economics and Statistics*, 61 (1), pp.631–652, <https://doi.org/10.1111/1468-0084.61.s1.13>.
- Mahadevan, R. & Suardi, S. (2019). Panel evidence on the impact of tourism growth on poverty, poverty gap and income inequality. *Current Issues in Tourism*, 22(3), pp.253–264, <https://doi.org/10.1080/13683500.2017.1375901>.
- Mahadevan, R., Amir, H & Nugroho, A. (2017). How pro-poor and income equitable are tourism taxation policies in a developing country? Evidence from a Computable General Equilibrium Model. *Journal of Travel Research*, 56(3), pp.334–346, <https://doi.org/10.1177/00472875166641781>.
- Mahmoudinia, D, Soderjani, E. S & Pourshahabi, F. (2011). Economic Growth, Tourism Receipts and Exchange Rate in MENA zone: Using Panel Causality Technique. *Iranian Economic Review*, 15(29), Spring 2011.
- Matiza, T. (2019). Blended Finance: A Primer for FDI-led Tourism Growth in Sub-Saharan Africa. *Africagrowth Agenda*, 16(1), pp.4-7.
- Medina-Muñoz, D. R., Medina-Muñoz, R. D. & Gutiérrez-Pérez, F. J. (2016a). The impacts of tourism on poverty alleviation: An integrated research framework. *Journal of Sustainable Tourism*, 24(2), pp.270–98, <https://doi.org/10.1080/09669582.2015.1049611>.
- Medina-Muñoz, D.R., Medina-Muñoz, R. D. & Gutiérrez-Pérez, F. J. (2016b). A sustainable development approach to assessing the engagement of tourism enterprises in poverty alleviation. *Sustainable Development*, 24, pp.220–236, <https://doi.org/10.1002/sd.1624>.
- Mitchell, J. & Ashley, C. (2010). *Tourism and Poverty Reduction: Pathways to Prosperity*. London: Earthscan.
- Njoya, E. T. & Seetaram, N. (2018). Tourism contribution to poverty alleviation in Kenya: A dynamic computable general equilibrium analysis. *Journal of Travel Research*, 57(4), pp.513–524, <https://doi.org/10.1177/0047287517700317>.
- Oviedo-García, M. A., González-Rodríguez, M. R. & Vega-Vázquez, M. (2019). Does sun-and-sea all-inclusive tourism contribute to poverty alleviation and/or income inequality reduction? The case of the Dominican Republic. *Journal of Travel Research*, 58(6), pp.995–1013, <https://doi.org/10.1177/0047287518789272>.

- Pedroni, P. (2004). Panel cointegration: asymptotic and finite sample properties of pooled time series tests with an application to the PPP hypothesis. *Economic Theory*, 20, pp.597–625, <https://doi.org/10.1017/s0266466604203073>.
- Pesaran, M. H. (2004). General Diagnostic Tests for Cross Section Dependence in Panels.
- Pop, I., Kanovici, A., Ghic, G. & Andrei, M. (2016). The economic effects of the mega sport events on tourism in the BRICS countries case. *Amfiteatru Economic Journal*, 18(10), pp.960-975.
- Qi, D. & Wu, Y. (2019). Comparing the extent and levels of child poverty by the income and multidimensional deprivation approach in China. *Child Indicators Research, Springer: The International Society of Child Indicators* (ISCI), 12(2), pp.627-645, <https://doi.org/10.1007/s12187-018-9544-5>.
- Rakotondramaro, H. & Andriamasy, L. (2016). Multivariate Granger Causality among Tourism, Poverty and Growth in Madagascar. *Tourism Management Perspectives* 20, pp.109–111, <https://doi.org/10.1016/j.tmp.2016.08.005>.
- Raspor, A., Stranjancevic, R. & Rodic, B. (2017). Chinese tourists - are they an opportunity for the Slovene and Croatian tourist industry? *Tourism and Hospitality Management*, 18, p.111-125.
- Saayman, M., Rossouw, R. & Krugell, W. (2012). The impact of tourism on poverty in South Africa. *Development Southern Africa*, 29(3), pp.462-487, <https://doi.org/10.1080/0376835x.2012.706041>.
- Scheyvens, R. & Hughes, E. (2019). Can tourism help to “end poverty in all its forms everywhere”? The challenge of tourism addressing SDG1. *Journal of Sustainable Tourism*, 27(7), pp.1061-1079, <https://doi.org/10.1080/09669582.2018.1551404>.
- Scheyvens, R. (2007). Exploring the Tourism-Poverty Nexus, *Current Issues in Tourism*, 10(2-3), pp.231-254, <https://doi.org/10.2167/cit318.0>.
- Shakouri B, Yazdi S. K, Nategian N. & Shikhrezaei, N. (2017). International Tourism and Economic Growth and Trade: Variance Decomposition Analysis. *Journal of Tourism Hospitality*, 6, <https://doi.org/10.4172/2167-0269.1000286>.
- Song, K. N. H & Pyun, J. H. (2016). The relationship among tourism, poverty, and economic development in developing countries: A panel data regression analysis. *Tourism Economics*, 22(6), pp.1174–90, <https://doi.org/10.1177/1354816616669038>.
- Statistics South Africa. (2018). BRICS Joint Statistical Publication 2018 / Statistics South Africa. Pretoria: Statistics South Africa.
- Stoyanova, S. & Tonkin, R. (2018). Office for National Statistics, United ... and Wealth (IARIW), Copenhagen, Denmark, August 20-24, 2018.
- Strydom, A. J., Mangope, D. J. & Henama, U. S. (2019). A critique of the interface between tourism, sustainable development and sustainable tourism in community-based tourism theory. *African Journal of Hospitality, Tourism and Leisure*, 8(5), pp.1-12, <https://doi.org/10.1016/j.jhlste.2017.08.001>.
- Tyagi, N. (2013). Perspectives for strengthening the different avenues of tourism in BRICS countries. *Summer Internship Society*, 4(2), p.16.
- Vanegas M., Gartner W. & Senauer, B. (2015). Tourism and poverty reduction: An economic sector analysis for Costa Rica and Nicaragua. *Tourism Economics*, 21(1), pp.159–182, <https://doi.org/10.5367/te.2014.0442>.
- Vanegas, M. (2014). The triangle of poverty, economic growth, and inequality in Central America: Does tourism matter? *Worldwide Hospitality and Tourism Themes*, 6, pp.277–292, <https://doi.org/10.1108/whatt-03-2014-0014>.
- Wise, N. (2019). Eventful futures and triple bottom line impacts: BRICS, image regeneration and competitiveness. *Journal of Place Management and Development*, 13(1), pp.89-100, <https://doi.org/10.1108/jpmd-10-2019-0087>.
- World Bank, 2019. World Development Indicators. Retrieved from: <http://data.worldbank.org>.
- World Tourism Organisation. (2019). International Tourism Highlights, 2019 Edition. Retrieved from: <https://www.e-unwto.org/doi/book/10.18111/9789284421152>

- World Tourism Organisation. (2020). World tourism barometer. *The UNWTO World Tourism Barometer*, 18(1), pp.1-46.
- World Tourism Organization. (2018). UNWTO/GTERC Asia Tourism Trends, 2018 Edition: China Outbound Tourism Research Institute. Madrid: World Tourism Organization (UNWTO).
- World Tourism Organization. (2019). International Tourism Highlights, 2019 Edition. Madrid: UNWTO, <https://doi.org/10.18111/9789284421152>.
- World Travel & Tourism Council. (2020). Coronavirus brief: 15 April 2020. Retrieved from: https://wttc.org/Portals/0/Documents/WTTC%20Coronavirus%20Brief%20External%2015_04.pdf?ver=2020-04-15-120258-850.
- World Travel & Tourism Council. (2019). Economic impact 2019. Retrieved from: <https://www.wttc.org/-/media/files/reports/economic-impact-research/regions-2019/world2019.pdf>.
- Yang, X. & Hung, K. (2014). Poverty alleviation via tourism cooperatives in China: The story of Yuhu. *International Journal of Contemporary Hospitality Management*, 26(6), pp.879–906, <https://doi.org/10.1108/ijchm-02-2013-0085>.
- Yanga, Y., Zhang, H. & Chen, X. (2020). Coronavirus pandemic and tourism: Dynamic stochastic general equilibrium modelling of infectious disease outbreak. *Annals of Tourism Research*, <https://doi.org/10.1016/j.annals.2020.102913>.
- Zhao, L. & Xia, X. (2020). Tourism and poverty reduction: Empirical evidence from China. *Tourism Economics*, 26(2), pp.233–256, <https://doi.org/10.1177/1354816619863266>.
- Zhao, W. & Ritchie, J.R.B. (2007). Tourism and poverty alleviation: An integrative research framework. *Current Issues in Tourism*, 10(2–3), pp.119–143, <https://doi.org/10.2167/cit296.0>.