ISSN: 2288-7709 © 2018 ICMA. http://www.icma.or.kr doi: http://dx.doi.org/10.20482/jemm.2018.6.4.29.

The Impact of Cross-Border Tourism on Bilateral Trade: Evidence from BRICS Countries

¹ Yugang He

1. First Author, Doctoral student, Department of International Trade, Chonbuk National University, Korea, E-mail: 1293647581@jbnu.ac.kr.

Received: October 26, 2018., Revised: December 19, 2018., Accepted: December 22, 2018.

Abstract

Purpose – With the improvement of people's living standards, traveling abroad has become a common way for people to release the pressure of life and work. In economics, this kind of way can affect the international trade. Because of this background, this paper sets BRICS countries as an example to explore the impact of cross-border tourism on bilateral trade.

Research design, data, and Methodology – The annual time series data sets form 1998 to 2016 are used to perform an empirical analysis under a series of econometric approaches such as the Phillips-Perron test and the Engle-Granger two-step test. In this paper, the cross-border tourism and the bilateral trade will be used to conduct an empirical analysis based on the econometric approaches to analyze the impact of cross-border tourism on bilateral trade.

Results – The finding of this paper show that there is a long-run relationship between cross-border tourism and bilateral trade in this sample. Moreover, the cross-border tourism is the Granger causality of bilateral trade. Namely, the cross-border tourism can promote the development of bilateral trade.

Conclusions – In short, the evidences that this paper presents show that the cross-border tourism is a driving factor that impacts the bilateral trade in the sample of BRICS countries.

Keywords: Cross-Border Tourism, Bilateral Trade, BRICS Countries.

1. Introduction

The BRICS countries cited the English initials of Brazil, Russia, India, China, and South Africa. Because the word is similar to the English word (Brick), it is called the "BRIC countries". In 2001, Jim O'Neill, chief economist at Goldman Sachs, firstly proposes the concept of "BRIC", especially in emerging markets around the world. Over time, the role of the BRICS in international economic affairs has become increasingly important. In this paper, we take a new perspective to study the operational mechanism of economic activities within the BRICS countries so as to promote the development of BRICS economies respectively. The new perspective is that we try to explore the impact of cross-border tourism on bilateral trade. In this paper, the cross-border tourism will be represented by the number of tourists from BRICS countries (Brazil, Russia, South Africa and India) to China. The bilateral trade will be represented by export and import between China and BRICS countries (Brazil, Russia, South Africa and India). Meanwhile, the annual time series data sets form 1998 to 2016 are used to perform an empirical analysis under a series of econometric approaches such as the Phillips-Perron test and the Engle-Granger two-step test. Moreover, the cross-border tourism is treated as an independent variable, and the bilateral trade is treated as a dependent variable. Both variables will be used to conduct an empirical analysis based on the econometric approaches to analyze the impact of cross-border tourism on bilateral trade. Based on the empirical analysis, the finding of this paper show that there is a long-run relationship between cross-border tourism and bilateral trade in this sample. Moreover, the cross-border tourism on bilateral trade. Based on the empirical analysis, the finding of this paper show that

border tourism is the Granger causality of bilateral trade. Namely, the cross-border tourism can promote the development of bilateral trade.

To this end, the rest structure of this paper is organized as follows: The second part is a comprehensive review of the literature to show the differences in this article. The third part is the theoretical method research, which lays a theoretical foundation for this paper. The fourth part is based on some appropriate statistical methods to do empirical research to show the results of this paper. The fifth part is a summary of the full paper, and some suggestions will be put forward according to the research results of this paper.

2. Literature Review

As economic integration deepens, the gates of countries have been becoming more and more open. Therefore, the cross-border tourism has become the main way for people to release pressure. Meanwhile, the cross-border tourism has also promoted trade between the two countries. Moreover, this point has aroused many scholars' interests to study the relationship between cross-border tourism and bilateral trade. Their results are listed below.

Wang (2012) selects China and its four trading partners (United states of America, Japan, Germany and Austria) with a annual sample from 1985 to 2010 to study the relationship between inbound tourism and import & export trade. He uses the cointegration test and Granger causality test to test the relationship between inbound tourism and import & export trade. He finds that there is a long-run relationship between them. However, the results of Granger causality test show that the relationship between international tourism and international trade presents a complex and diverse situation due to different countries and stages of development. Cottam (2015) writes a book, called "Hubbell Trading Post: Trade, Tourism, and the Navajo Southwest". In his book, he comprehensively discusses the relationship between trade and tourism. He finds that the relationship between them is ambiguous due to different markets. Tsui and Fung (2016)employ the Engle Granger vector autoregressive model to investigate the causality relationship between Hong Kong and Mainland China, Taiwan, and the United States (US) from 2002-Q1 to 2012-Q4. Their findings show that the business travel does Granger-cause trade volumes between Hong Kong and Mainland China, as well as between Hong Kong and Taiwan. Santana-Gallego, Ledesma-Rodríguez and Pérez-Rodríguez (2016) employ an extension of the gravity model to investigate the relevance of international tourism for international trade. They find that the tourism affects both trade extensive and intensive margin via a reduction of variable and fixed trade costs. More concretely, a 1% increase in tourist arrivals increase the probability of exporting by a 1.25% and raise the volume of exports by a 9%.

Chaisumpunsakul and Pholphirul (2017) analyze the relationship between international trade and international tourism demand in Thailand. Using a dataset of 207 trade partnership countries of Thailand, they find that the degree of trade openness is positively correlated with international tourism demand. A percentage increase in trade share to GDP contributes about 0.046 percent of short-term foreign tourism demand and 0.807 percent of long-term tourism demand in Thailand. The import volume from origin countries' tourists to Thailand also increases the short-term tourism demand by 0.029 percent and the long-term tourism demand by 0.592 percent in Thailand. Wang and Wu (2017) use the means of unit root test, cointegration test and Granger causality test to exploring the interaction between inbound tourism and import & export trade based on the panel data of inbound tourism and import and export trade in 12 leagues in Inner Mongolia from 2004 to 2014. They find that there is a long-term stable equilibrium relationship between inbound tourism and import & export trade in Inner Mongolia, border areas and non-border areas. They also find that the export trade and import trade of Inner Mongolia are the one-way Granger causality for inbound tourism. The export trade and import trade in the border areas are the one-way Granger causality for inbound tourism. Lin and Duan (2017) select the Association of Southeast Asian Nations as an example with a annual time series from 1995 to 2014 to explore the relationship of inbound tourism and trade in import & export goods. They find that there is no causal relationship between them. Chen, Cheng and Song. (2017) also study this topic and achieve the same results. Li, Chen and Liu (2017) find that the bilateral tourism has a positive effect on trade between China and Australia.

Ali, Khan and Khan (2018) take nineteen Asia cooperation dialogue members as an example to explore the dynamics between financial development, tourism, sanitation, renewable energy, trade and total reserves. They employ the panel unit root tests, Kao cointegration test, vector error correction model, and fully modified ordinary

least squares. They find that the tourism has a long-run causality with trade. Liu, Zhu and Zhang (2018) study the interactive relationship between inbound tourism and import and export trade in Yunnan Province, based on the annual data of overseas tourists' inbound tourism and import and export trade volume from 1996 to 2016. They find that the impact of inbound tourism has a greater impact on import and export trade, and the promotion effect is significant. The impact of inbound tourism on import and export trade is mainly positive response, and import and export trade has a significant pulling effect on inbound tourism. They also find that the development of inbound tourism and import trade. Ma, Wang and Wang (2018) also study the relationship between import and export trade and inbound tourism in Xinjiang province. They find that the import & export trade and inbound tourism show different trends. The import & export trade and inbound tourism show different trends. The import & export trade and inbound tourism show different trends. The import & export trade and inbound tourism show different trends. The import & export trade and inbound tourism show different trends. The import & export trade and inbound tourism show different trends.

Through the analysis of the literature above, a large number of scholars use different methods and different samples to study the relationship between them. However, this paper takes the BRICS countries as an example with the sample from 1998 to 2016 to conduct an empirical analysis under a menu of approaches such as the Phillips-Perron test and the Engle-Granger two-step test to explore the relationship between cross-border tourism and bilateral trade. This is also a biggest innovation of this paper.

3. Theoretical Framework

3.1. In Terms of Macroeconomics

With economic globalization and people's living standards improvement, the cross-border tourism has become a self-relaxation and a way of entertainment. Due to the rapid development of cross-border tourism, some economic variables has been changed such as bilateral trade, transnational investment and so on. Among them, the impact of cross-border tourism on bilateral trade is a hot issue which causes a great deal of interests to experts and scholars. As a matter of fact, the cross-border tourism and bilateral trade are two interrelated systems. From a macroeconomic perspective, we can analyze and predict the bilateral trade or tourism flows between two countries based on the gravity model. In other word, the intensity of cross-border tourism and bilateral trade flows have a positive effect on population, GDP, real income, ratio of manufacturing industry to GDP and so on between two countries. Conversely, the intensity of cross-border tourism and bilateral trade flows have a negative effect on unemployment, inflation, distance, partner competition and so on between two countries. More intuitively, the dynamic relationship between cross-border tourism and bilateral trade can be expressed as [Figure 1] shows:



Figure 1: Driving Mode of International Trade and Cross-Border Tourism Relations

Note: DI stands for the degree of manufacturing industrialization; DSID stands for the degree of service industry development; Arrow stands for the flow direction.

3.2. In Terms of Microeconomics

From the perspective of microeconomics, the interaction and mechanism between tourism and trade are more complicated. Kulendran & King (1997) & Kenneth Wilson (2000) provide the tourism and trade interaction models. Based on their models, this paper proposes a new model about the tourism and trade between the two countries. Their dynamic relations as [Figure 2] gives:



Figure 2: Cyclic relation between Cross-Border tourism and bilateral Trade

[Figure 2] indicates that the business tourism triggers the bilateral trade. Then, the bilateral trade can increase residents' interests and concerns to trading countries. Next, the concerns and interests can drive non-business tourism to partner countries. After that, the non-business tourism can promote the growth of bilateral trade. Hereafter, the bilateral trade can promote the business tourism. Such repeated cycle has promoted the simultaneous growth of cross-border tourism and bilateral trade.

Actually, the dynamic relationship between cross-border tourism and bilateral trade is much more complicated. Until today, the causality between both of them is still unconfirmed. According to different scholars' achievements, the bilateral causality between both of them exists. Namely, the cross-border tourism can trigger the bilateral trade. Meanwhile, the bilateral trade can promote the cross-border tourism. An one-way causality between both of them also exists. In other word, the cross-border tourism can trigger the bilateral trade can promote the cross-border tourism. An one-way causality between both of them also exists. In other word, the cross-border tourism can trigger the bilateral trade can promote the cross-border tourism. Some scholars' achievements show that there is no causality between both of them. Said differently, both of them can not interact each other. Based on their uncertainty of the relationship between crossborder tourism and bilateral trade, this paper sets the BRICS countries as an example to explore the relationship between both of them.

4. Empirical Analysis

4.1. Variable Description

In this paper, the data sets of the BRICS countries from the year of 1998 to 2016 will be employed to perform an empirical research. The amount of export between China and BRICS countries (Brazil, India, South Africa and Russia) and the amount of import between China and BRICS countries (Brazil, India, South Africa and Russia) stands for the bilateral trade. The number of inbound tourists from the BRICS countries to China stands for the cross-border tourism. All these datum are source from the National Bureau of Statistics of China and the World Bank. Intuitively, these variables will be shown in <Table 1>.

Table 1: Variable Description					
Variable	Abbreviation	Definition	Source		
Brazil's export	BEX	Export between China and Brazil	NBSC		
Brazil's export	BIM	Import between China and Brazil	NBSC		
Brazil's tourism	ВТ	inbound tourists from Brazil to China	WB		
Russia's export	REX	Export between China and Russia	NBSC		
Russia's export	RIM	Import between China and Russia	NBSC		
Russia's tourism	RT	inbound tourists from Russia to China	WB		
South Africa's export	SAEX	Export between China and South Africa	NBSC		
South Africa's export	SAIM	Import between China and South Africa	NBSC		
South Africa's tourism	SAT	inbound tourists from South Africa to China	WB		
India's export	IEX	Export between China and India	NBSC		
India's export	IIM	Import between China and India	NBSC		
India's tourism	IT	inbound tourists from India to China	WB		

Note: NBSC stands for the National Bureau of Statistics of China; WB stands for the World Bank.

4.2. Stationarity Test

Phillips and Perron (1988) purpose an approach to test the stationarity of time series. That is, it is called the Phillips-Perron test which is a kind of a unit root test. it is employed in time series analysis to verify the null hypothesis that the time series is integrated of order one. It establishes on the Dickey–Fuller(DF) test:

$$\Delta y_t = (\rho - 1)y_{t-1} + \varepsilon_t \tag{1}$$

Where the null hypothesis is that ρ is equal to one. Δ is the first difference operator. Like the augmented Dickey-Fuller test, the Phillips-Perron test addresses the issue that the process generating data for y_t might have a higher order of autocorrelation than is admitted in the test equation-making y_{t-1} endogenous and thus invalidating the Dickey-Fuller t-test. Whilst the augmented Dickey-Fuller test addresses this issue by introducing lags of Δy_t as regressors in the test equation, the Phillips-Perron test makes a non-parametric correction to the t-test statistic. The

test is robust with respect to unspecified autocorrelation and heteroscedasticity in the disturbance process of the test equation. The results of Phillips- Perron Test show in <Table 2>.

Variable	Adi t-Stat	•	Proh *		
	Auj. t-otat	1% level	5% level	10% level	1100.
log BEX	-1.250	-3.857	-3.040	-2.661	0.629
log BIM	-2.052	-3.857	-3.040	-2.661	0.264
$\log BT$	-0.991	-3.857	-3.040	-2.661	0.733
log REX	-1.580	-3.857	-3.040	-2.661	0.472
log RIM	-2.814	-3.857	-3.040	-2.661	0.077
$\log RT$	-2.3657	-3.857	-3.040	-2.661	0.164
log SAEX	-1.426	-3.857	-3.040	-2.661	0.547
log SAIM	-1.286	-3.857	-3.040	-2.661	0.612
log SAT	-1.183	-3.857	-3.040	-2.661	0.701
log IEX	-1.824	-3.857	-3.040	-2.661	0.358
log IIM	-2.273	-3.857	-3.040	-2.661	0.190
log IT	1.788	-3.857	-3.040	-2.661	0.999

 Table 2: Results of Phillips-Perron Test (Their Own Level)

Note: *MacKinnon (1996) one-sided p-values.

<Table 2> indicates that the null hypotheses $\rho = 1$ in $\Delta y_t = (\rho - 1)y_{t-1} + \varepsilon_t$ are non-rejected at 5% significant level. Namely, all these variables are non-stationary. Therefore, all these variables need to be performed the difference until all of them become stationary. The results of the first difference gives in <Table 3>.

Variablo	Adi t-Stat		Test critical values			
Variable	Auj. i-Stat	1% level	5% level	10% level		
$\Delta \log BEX$	-3.357	-3.887	-3.052	-2.667	0.028	
$\Delta \log BIM$	-3.379	-3.887	-3.052	-2.667	0.027	
$\Delta \log BT$	-3.228	-3.887	-3.052	-2.667	0.036	
$\Delta \log REX$	-4.092	-3.887	-3.052	-2.667	0.007	
$\Delta \log RIM$	-3.094	-3.887	-3.052	-2.667	0.045	

$\Delta \log RT$	-4.578	-3.887	-3.052	-2.667	0.022
$\Delta \log SAEX$	-5.246	-3.887	-3.052	-2.667	0.000
$\Delta \log SAIM$	-3.766	-3.887	-3.052	-2.667	0.014
$\Delta \log SAT$	-4.102	-3.887	-3.052	-2.667	0.007
$\Delta \log IEX$	-3.418	-3.887	-3.052	-2.667	0.035
$\Delta \log IIM$	-3.071	-3.887	-3.052	-2.667	0.048
$\Delta \log IT$	-4.178	-3.887	-3.052	-2.667	0.006

Note: *MacKinnon (1996) one-sided p-values. Δ denotes the first difference.

<Table 3> indicates that the null hypotheses $\rho = 1$ in $\Delta y_t = (\rho - 1)y_{t-1} + \varepsilon_t$ are rejected at 5% significant level. Namely, all these variables are stationary. In summary, all these variables are the process of I(1).

4.3. Long-run Effect Test

The cointegration relationship test is a combination of temporal and spatial dynamics based on the autoregressive analysis of time series variables. It mainly focuses on the long-run relationship between these variables (cross-border tourism and bilateral trade of BRICS countries). In this paper, the Engle-Granger two-step method will be used to explore the long-run relationship between these variables. Assume that cross-border tourism (CBT_t) and bilateral trade (BT_t) are non-stationary and cointegrated, then a stationary linear combination of them gives:

$$BT_t - \beta CBT_t = \varepsilon_t \tag{2}$$

where ε_t is stationary.

If we knew the value of ε_t , we could just test it for stationarity with something like a Dickey-Fuller test, Phillips-Perron test and be done. But because we don't know the value ε_t , we must estimate this first, generally by using ordinary least squares, and then run the stationarity test on the estimated ε_t series, often denoted $\hat{\varepsilon}_t$. A second regression is then run on the first differenced variables from the first regression, and the lagged residuals $\hat{\varepsilon}_{t-1}$ is included as a regressor. The long-run linear temporal and spatial dynamic relationship between cross-border tourism and bilateral trade of BRICS countries gives in <Table 4>.

 Table 4: Long-Run Effect

Dependent Variable	Equation Number	Long-run Equation			
		$\log BEX_t = 6.517 \log BT_t - 13.820$			
log BEX	1	(1.834)(4.980)			
		[3.554][-2.775]			

Yugang He / The Journals of Economics, Marketing & Management, 6(4), 29-39

log BIM	2	$\log BEX_{t} = 6.011 \log BT_{t} - 12.219$ (2.026)(5.500)[2.967][-2.221]
log REX	3	$\log REX_{t} = 5.216 \log RT_{t} - 13.471$ (1.093)(3.687)[4.773]
log RIM	4	$\log RIM_t = 3.619 \log RT_t - 7.985$ (0.627)(2.114) [5.776][-3.778]
log SAEX	5	$log SAEX_t = 1.934 log SAT_t - 1.932$ (0.232)(0.674)[8.349][-2.867]
log SAIM	6	$\log SAIM_{t} = 2.599 \log SAT_{t} - 3.744$ (0.291)(0.848)
log IEX	7	$\log IEX_{t} = 2.281 \log IT_{t} - 2.029$ (0.268)(0.723)
log IIM	8	$\log IEX_{t} = 1.449 \log IT_{t} - 0.026$ (0.304)(0.819)[4.763][-0.032]

Note: () stands for the standard error; [] stands for the t-Statistics.

<Table 4> indicates the long-run relationship between cross-border tourism and bilateral trade of BRICS countries. From equation one to equation eight, it can be found that the cross-border tourism has a positive effect on bilateral trade between China and Brazil, Russia, South Africa, Indian. Furthermore, all these variables are statistically significant. In other word, the cross-border tourism from Brazil, Russia, South Africa, Indian to China has a long-run relation with Brazil, Russia, South Africa, Indian's export and import to China. In order to keep the analyses above correct and effective, the residuals of the eight equations should be kept stationary. The results of Phillips-Perron Test (Equation's Residual) show in <Table 5>.

	Table 5: Results of Phillips - Perron Test (Equation's Residual)						
Equation			Test critical values				
Number	Adj. t-Stat	1% level	5% level	10% level	Prop."		
1	-6.804	-3.857	-3.040	-2.661	0.000		
2	-5.961	-3.857	-3.040	-2.661	0.000		
3	-3.925	-3.857	-3.040	-2.661	0.010		
4	-3.959	-3.857	-3.040	-2.661	0.009		
5	-3.172	-3.857	-3.040	-2.661	0.040		
6	-5.855	-3.857	-3.040	-2.661	0.000		

0.51.111 Test (Equation's Desidual) -

7	-12.492	-3.857	-3.040	-2.661	0.000
8	-3.325	-3.857	-3.040	-2.661	0.030

Note: *MacKinnon (1996) one-sided p-values.

<Table 5> indicates that the null hypotheses $\rho = 1$ in $\Delta y_t = (\rho - 1)y_{t-1} + \varepsilon_t$ are rejected at 5% significant level. Namely, all these equation's residuals are stationary. In summary, the empirical analyses of <Table 4> are correct and effective.

4.4. Granger Causality Test

The model of Granger causality test gives:

$$BT_{t} = c + \sum_{i=1}^{m} \beta_{i} BT_{t-i} + \sum_{j=1}^{n} \gamma_{j} CBT_{t-j} + \varepsilon_{1t}$$
(3)

$$CBT_{t} = c + \sum_{i=1}^{m} \beta_{i} CBT_{t-i} + \sum_{j=1}^{n} \gamma_{j} BT_{t-j} + \varepsilon_{2t}$$

$$\tag{4}$$

Where c is the constant. β and γ are the coefficients. ε_{1t} and ε_{2t} are the white noises. The null hypothesis is that CBT is not the reason that affects the change of BT. if one of the values of γ_j is non-zero, the null hypothesis will be rejected. Namely, CBT is the reason that affects the change of BT. So does equation (3). The results of Granger causality test show in <Table 6>.

Lag	Country	Null Hypothesis	Observation	F-Statistic	Prob.
		$\log BEX \to \log BT$		3.227	0.076
n	Brozil	$\log BT \rightarrow \log BEX$	17	5.510	0.020
2	Diazii	$\log BIM \rightarrow \log BT$	17	6.765	0.011
		$\log BT \rightarrow \log IMX$		4.368	0.028
		$\log REX \to \log RT$		1.447	0.274
2 Russia	$\log RT \rightarrow \log REX$	47	3.375	0.007	
	Russia	$\log RIM \rightarrow \log RT$	17	2.508	0.123
	$\log RT \rightarrow \log RIM$		3.413	0.036	
		$\log SAEX \rightarrow \log SAT$		0.703	0.514
n	South	$\log SAT \rightarrow \log SAEX$	17	3.239	0.029
2	Africa	$\log SAIM \rightarrow \log SAT$	17	0.709	0.512
	$\log SAT \rightarrow \log SAIM$		3.998	0.008	
		$\log IEX \rightarrow \log IT$		0.485	0.627
2	Indian	$\log IT \rightarrow \log IEX$	17	4.631	0.002
		$\log IIM \rightarrow \log IT$		0.306	0.742

Tab	le 6:	Causal	lity	Test
-----	-------	--------	------	------

Yugang He / The Journals of Economics, Marketing & Management, 6(4), 29-39

		$\log IT \rightarrow \log I$	IIM	3.032	0.047
NT 4 N 4	1 C 41				

Note: \rightarrow stands for "does not Granger Cause".

<Table 6> indicates the Ganger causality between cross-border tourism and bilateral trade. From the example between China and Brazil, it can be found that the number of tourists from Brazil to China is the Granger causality of the import and the export between China and Brazil under the 5% significant level. Namely, the number of tourists from Brazil to China can promote the export and the export between China and Brazil. Meanwhile, the import between China and Brazil is also the Granger causality of the import between China and Brazil under the 5% significant level. That is, the import between China and Brazil can boost the import between China and Brazil. From the example between China and Russia, it can be found that the number of tourists from Russia to China is the Granger causality of the import and the export between China and Russia under the 5% significant level. Namely, the number of tourists from Russia to China can facilitate the export and the export between China and Russia. From the example between China and South Africa, it can be found that the number of tourists from South Africa to China is the Granger causality of the import and the export between China and South Africa under the 5% significant level. Namely, the number of tourists from South Africa to China can facilitate the export and the export between China and South Africa. From the example between China and India, it can be found that the number of tourists from India to China is the Granger causality of the import and the export between China and India under the 5% significant level. Namely, the number of tourists from India to China can stimulate the export and the export between China and India.

The above empirical analysis results basically conform to the current objective facts. For a long time, cultural differences, political policies, and distances between countries have constrained the development of tourism and trade. With the globalization of the economy, the degree of integration between countries has rapidly deepened. This brings great opportunities for tourism and trade development. As a matter of fact, the cross border tourism has an indirect effect on bilateral trade. The reason is that the cross border tourism can accelerate the local country's consumption. Therefore, the consumption will result in more demand of goods. In summary, the cross-border tourism can promote development of bilateral trade.

5. Conclusion

This paper sets the BRICS countries with a time series sample from 1998 to 2016 to explore the impact of crossborder tourism on bilateral trade. Simultaneously, a series of econometric approaches such as the Phillips-Perron test, the Engle-Granger two-step test and so forth are employed to conduct an empirical analysis. The finding of this paper really demonstrate that there is a long-run relationship between cross-border tourism and bilateral trade in this sample. Moreover, the cross-border tourism is the Granger causality of bilateral trade. Namely, the cross-border tourism can promote the development of bilateral trade. Specifically speaking, 1% increase in the number of tourists from Brazil to China will lead to 6.517% increase in the export and 6.011% in the import between China and Brazil. 1% increase in the number of tourists from Russia to China will result in 5.216% increase in the export and 3.619% in the import between China and Russia. 1% increase in the number of tourists from South Africa to China will bring about 1.934% increase in the export and 2.599% in the import between China and South Africa. 1% increase in the number of tourists from India to China will lead to 2.281% increase in the export and 1.499% in the import between China and India.

With the strengthening of the international cooperation of the BRICS countries, as a whole, the BRICS countries play an important role in international affairs. This paper conducts an empirical analysis from the economic activities within the BRICS countries in terms of cross-border tourism and bilateral trade. The empirical evidences that this paper provides indicate that the cross-border tourism is a driving factor that impacts the bilateral trade. Based on this point, Brazil, Russia, South Africa and India's government should open their doors and encourage their citizens to China for sightseeing. Meanwhile, China's government also needs to issue some policies to provide some convenient for foreign tourists.

References

- Ali, Q., Khan, M. T. I., & Khan, M. N. I. (2018). Dynamics between financial development, tourism, sanitation, renewable energy, trade and total reserves in 19 Asia cooperation dialogue members. *Journal of Cleaner Production*, 179, 114-131.
- Chaisumpunsakul, W., & Pholphirul, P. (2017). Does international trade promote international tourism demand? Evidence from Thailand's trading partners. *Kasetsart Journal of Social Sciences*, *39*(3), 393-400.
- Chen, Q., Cheng, C. & Song, J. L. (2017). Research on the Interaction between China and ASEAN Tourism and Trade. *Social Sciences in Guanxi*, 12(10), 1-4.
- Cottam, E. (2015). Hubbell Trading Post: Trade, Tourism, and the Navajo Southwest. University of Oklahoma Press.
- Kulendran, N., & King, M. L. (1997). Forecasting international quarterly tourist flows using error-correction and time-series models. *International Journal of Forecasting*, 13(3), 319-327.
- Kulendran, N., & Wilson, K. (2000). Is there a relationship between international trade and international travel?. *Applied Economics*, 32(8), 1001-1009.
- Li, F. Y., Chen, Y., & Liu, E. H. (2017). Empirical Study on Interactions of SINO-Australia Bilateral Tourism and Trade. Resource Development & Market, 33(6), 721-726.
- Lin, L., & Duan, Y. (2017). An Empirical Study on the Relationship of Inbound Tourism and Trade in Import and Export Goods between Five ASEAN Countries and China. *Around Southeast Asia*, 12(3) 86-92.
- Liu, X. J, Zhu, X. H, & Zhang, S. W. (2018). The Interactive Relationship between Inbound Tourism and Import and Export Trade in Yunnan. *Journal of Yunnan Agricultural University (Social Science)*, 12(3), 76-82.
- Ma, L, Wang, H. L & Wang, C. H. (2018). Research on the Relationship between Import and Export Trade and Inbound Tourism in Xinjiang province. *Journal of Dongguan University of Technology*, 25(1), 26-31.
- Phillips, P. C. B.; Perron, P. (1988). Testing for a Unit Root in Time Series Regression. Biometrika. 75 (2): 335-346.
- Santana-Gallego, M., Ledesma-Rodríguez, F. J., & Pérez-Rodríguez, J. V. (2016). International trade and tourism flows: An extension of the gravity model. *Economic Modelling*, *52*, 1026-1033.
- Tsui, W. H. K., & Fung, M. K. Y. (2016). Causality between business travel and trade volumes: Empirical evidence from Hong Kong. *Tourism Management*, 52, 395-404.
- Wang, G. W. & Wu, T. H. (2017). Regional Differences in the Relationship between Inbound Tourism and Import and Export Trade in Inner Mongolia—An Empirical Test Based on Panel Data of 12 League Cities. *Journal of Arid Land Resources and Environment*, 31(2), 203-208.
- Wang, J. J. (2012). The Empirical Analysis on the Relationship between Inbound Tourism and Import & Export Trade. On Economic Problems, 12(11), 99-103.