

## DIASPORA FINANCE, FOREIGN DIRECT INVESTMENT AND TRADE FLOWS IN THE BRICS COUNTRIES

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### Abstract

The literature suggests demonstrable links between the presence of diaspora and increased trade just as countries are increasingly mobilising more diaspora finance to improve investment and trade. This paper deployed ARDL model to determine the effects of DIF and FDI on trade in the BRICS countries for 42 years (1980 – 2022). Results show heterogeneous short-run effects of DIF and FDI on trade in BRICS. Similarly, there are mixed long-run effects for Brazil, China and South Africa but not be ascertained for Russia and India. The implication is that DIF and FDI are appropriate strategies for short-run export growth and import control in the BRICS countries but are not appropriate for long-run export-oriented policy in Russia and import-control strategies in Russia, China, India and South Africa. In practice, therefore, the countries should incorporate diaspora finance and FDI only in their short-run export-growth and import control strategies, while only Brazil should do so in both the short- and long-run in order to benefit more from trade.

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## 1. Introduction

Historically, 1870 – 1914 marks the first phase of trade and finance globalisation, while the second phase is 1914 – 1971, with the third being 1989 until date. The current phase witnesses tremendous interconnectedness, capital and labour mobility among countries, particularly in economics, technology, communication and finance. There is the emergence of innovative digital platforms with opportunities that support inclusive global marketplace participation by entrepreneurs at various scales of business enterprise. Diaspora workers and entrepreneurs seize opportunities to play critical roles in facilitating trade and investments between their home and host countries (Arif, 2019).

Over 272 million people and their descendants constitute the large number of diasporas, who are connected with family members back home (United Nations, 2019), and contribute significantly to the progress of their home countries through remittances (Newland & Tanaka, 2010; Plaza & Ratha, 2011; IFAD, 2019). In the 2020 global COVID-19 pandemic, migrants and diasporas provided finance to stimulate recovery from the pandemic (Kalantaryan & McMahan, 2020; Official Development Assistance, 2021). In addition remittances constitute a source of tax revenue to governments (Abdih, Chami, Dagher & Montiel, 2012; Sayeh & Chami, 2020).

The literature explains that co-existence of people of similar cultural origin improves trade flows by helping to overcome informal trade barriers like culture and transportation costs (Peri & Requena-Silvente, 2010). Similarly, developing countries' diasporas contribute to develop export of home countries through remittances and purchases of locally produced goods – ethnic trade (Plaza & Ratha, 2011; Boly, Coniglio, Prota & Seric, 2014). Countries contextualise the desire to attract increases in net investment finance flows in addition to trade, given their leadership approach, cultural orientation, economic philosophy, global events and natural phenomena (Hill, 2014). Migrants' remittances and foreign direct investment (FDI) are two major sources of international finance. These have accounted for significant proportion of the amounts of cross-border financial flows the world over.

Available data show that annual aggregate flows of remittances in recent times exceed either Official Development Assistance (ODA) or FDI (Gelb *et al.*, 2021). Moreover, diaspora investors create more backward linkages with local suppliers than non-diaspora investors (Amendolagine, Boly, Coniglio, Prota & Seric, 2013), and diaspora firms experience better export performance than purely local ones (Boly *et al.*, 2014). Thus, economic relevance of diaspora finance transcends mere foreign capital inflows. Arif (2019) noted that though the strong Commonwealth's diaspora community plays a catalytic role in driving trade and investment among member countries, increasing opportunities in higher-growth markets in home countries is not yet adequately linked to the trade strategy and, thus, much potential still remains untapped, especially in the developing countries.

Recent literature documents paucity of diaspora investment flows data and shortage of quality evidence of trade and development outcomes of diaspora finance initiatives (Gelb, Kalantaryan, McMahan & Perez-Ferdinandez, 2021). For instance, Manzoor, Safdar & Momoodu, (2021) focused on the determinants of international migration in BRIC countries. Despite the investment potential of diaspora finance, remittances seem to be the only example of the wider range of channels through which migrants and diasporas invest in home countries. Yet, little is documented in the literature (Gelb, 2016). Thus, the literature seems to play down on knowledge-based diaspora initiatives like mentoring, financial literacy and sharing skills, which contribute significantly to investments in home countries (Gelb *et al.*, 2021). Perhaps, this is because such initiatives do not involve financial transfers.

The discourse on international movement of capital has received considerable scholarly attention as issues bothering on remittances, FDI, foreign portfolio investment (FPI) and foreign aids have all been empirically examined. Though the discussion keeps getting extended as research agenda demands, data on the use of remittances seems unavailable and, thus, makes it difficult to determine how much of remittances are used for investment purposes to enable appropriate consideration of diaspora investment finance (Tavakoli & Maja, 2017). Consequently, available studies on DIF suggest that greater proportions of the remittances are spent on immediate consumption needs of households. The International Fund for Agricultural Development (IFAD, 2017) found that 75 per cent of remittances are spent on food, clothing and electronic equipment, with only 25 per cent spent on education, healthcare and investments in other income-yielding assets. The 25 percent for human capital and income-yielding assets closely approximates the concept of diaspora investment finance (Tavakoli & Maja, 2017) and, thus, ameliorates the definitional and computational challenges of measuring the concept.

The importance of diaspora investment finance in economic progress increases the interests of countries, especially for economic recovery after disruptions to global supply chain, investment, trade and knowledge transfers like the COVID-19 pandemic. Although there are studies on economic effects of diaspora investment finance, most focus on African and Asian countries (Plaza & Ratha, 2011; Boly et al., 2014; Dadush, 2015; Arbouch & Dabush, 2020). This leaves a knowledge gap in the case of Brazil, Russia, India China and South Africa (BRICS).

Therefore, this paper examines how diaspora investment finance and foreign direct investment affect trade in the BRICS countries. The reason is because literature suggests strong connections among variables (Newland & Plaza, 2013). The strategic importance of the BRICS in diaspora finance and FDI destinations in the developing world justifies the focus of this study. Moreover, their economies have evolved through policy initiatives that targeted import control and export orientation strategy (Makwiramiti, 2011), and the issue of international migration heavily concerns BRICS. For instance, China and India have the highest number of international students in the US (Wildavsky, 2012). About 1.3 million Russians have obtained permit to migrate to the West since 1991 (Vishnevsky, 2006). Migration from the BRICS nations to the US has increased significantly since 1990. Moreover, the bloc consists of rapidly developing countries of strategic importance across the Americas, Europe, Asia and Africa (Chaudhury, 2009), and an emerging pivotal centre in the global economy (Qobo, 2011; Shasha, 2011).

## **2. Review of Related Literature**

Smith (1776) explained that a country could benefit from international trade based on absolute advantage in the production of goods – per unit input yields larger output volume compared to its trading partners. Thus, a country should engage in trade if it has absolute cost advantage over its trading partners (Atoyebi, Akinde, Adekunjo, & Femi, 2012; Nayak & Rahul, 2014). However, Ricardo (1817) upheld comparative cost advantage principle as the basis of mutually beneficial trade relation, if relative costs of production differ in the countries. Therefore, trade benefits should be determined by a country's opportunity cost of production relative to its trading partners. Modern trade anchors on this principle (Bernhofen & Brown, 2018). Therefore, contrary to Smith's theory, countries benefit from trade without having absolute cost advantage (Bernhofen & Brown, 2018). Similarly, Ohlin's (1933) and Hecksher's (1949) emphasised factor endowment in trade relations. Hecksher-Ohlin posited that labour-abundant but capital-deficient countries should produce and export labour-intensive products and import capital-intensive products, and vice versa.

Recardo's and Hecksher-Ohlin's theories portend some considerable relevance to trade relations in the BRICS countries for their abundant labour relative to capital. Thus, DIF and FDI are part of capital in the BRICS countries (Hartmann, Zagato, Gala & Pinheiro, 2021; Caglar, Zafar, Bekun & Mert, 2022). Diaspora population comprises emigrants and their descendants in foreign countries, with historical lineage and cultural ties (Kotabe, Riddle, Sonderegger, & Taübe, 2013). Due to advancements in information and communication technology and improved transportation networks, migrants now interact with, and impact their homelands more efficiently. Diasporas remit money home directly to families for various needs (Ratha, 2011), and contribute to their countries' development (Boly, Coniglio, Prota & Seric, 2014; Dadush, 2015; Arbouch & Dadush, 2020).

The literature suggests a positive correlation between diasporas' size and FDI inflows (Leblang, 2010; Javorcik, Ozden, Spatareanu & Neagu, 2011). Migrants' ethnic bias for home goods reflect their choice of investment location, and directly affect FDI inflows, skill, technology and information to home countries. Migrants provide endearing consumer tastes, labour availability and general business information about their home countries to residence countries' investors (Kugler & Rapoport, 2007). Migrants invest in existing firms or set up new businesses in their home countries as diaspora entrepreneurship to complement FDI, and those in top managerial positions in foreign multinational enterprises influence FDI decision-making in favour of their home countries (Riddle, 2008). This is particularly important in times of global shocks like the COVID-19 pandemics that shrank global demand and imposed constraints on remittance-recipient countries to export their way out of the crisis (Sayeh & Chami, 2020).

Empirical literature associates diaspora foreign direct investors with creating backward linkages with local suppliers than non-diaspora investors (Amendolagine *et al.*, 2013). Diaspora firms have higher share of exports in total sales than domestic firms (Boly *et al.*, 2014). They have greater access to information, higher labour productivity and awareness of bilateral and multilateral trade agreements. Moreover, common official language, trade and FDI are the major determinants of migration from the BRIC to OECD countries (Manzoor *et al.*, 2021).

### 3. Methodology and Data Description

#### 3.1 Methodology

We use Autoregressive Distributed Lag (ARDL) model developed by Pesaran, Shin and Smith (2001) to examine how DIF and FDI affect trade flows in BRICS. The ARDL is appropriate because, amongst other appealing features, it accommodates variables that are integrated of orders zero and one in a linear form. Following the theoretical exposition in the preceding section, the relationship among DIF, FDI and trade in BRICS is thus specified:

$$\Delta TRD_t = \alpha_0 + \sum_{i=1}^{p_s} \alpha_i \Delta EXP_{t-i} + \sum_{i=1}^{p_s} \alpha_i \Delta IMP_{t-i} + \sum_{i=0}^q \beta_i \Delta DIF_{t-i} + \sum_{i=0}^r \delta_i \Delta EXR_{t-i} + \sum_{i=0}^s \chi_i \Delta FDI_{t-i} + \sum_{i=0}^t \phi_i \Delta CTPS_{t-i} + \varphi_1 EXP_{t-1} + \varphi_2 IMP_{t-1} + \varphi_3 DIF_{t-1} + \varphi_4 EXR_{t-1} + \varphi_5 FDI_{t-1} + \varphi_6 CTPS_{t-1} + \varepsilon_t \dots (1)$$

where  $-\frac{\alpha_0}{\varphi_1}, -\frac{\varphi_1}{\varphi_1}, -\frac{\varphi_2}{\varphi_1}, -\frac{\varphi_3}{\varphi_1}, -\frac{\varphi_4}{\varphi_1}$  and  $-\frac{\varphi_5}{\varphi_1}, -\frac{\varphi_6}{\varphi_1}$  are intercept and long-run coefficient

respectively, while  $\alpha_i, \beta_i, \delta_i, \chi_i$  and  $\phi_i$  are short-run coefficients.  $p, q, r, s$  and  $t$  are the first-differenced optimal lags based on the Schwarz Information Criterion (SIC). TRD denotes trade (export and import), EXP is export, IMP depicts import, DIF represents diaspora investment

finance, EXR denotes exchange rate, FDI denotes foreign direct investment and CTPS depicts credit to private sector.

We use DIF and FDI as complements of other forms of non-liquid capital that are combined with the abundant labour for export production in the BRICS countries. We extracted the data from the World Bank (2021, 2022), and assume that the BRICS countries maintain investment-friendly policies.

We impose zero restrictions on the one-period lag of TRD, DIF and other variables to establish a long-run relationship among them (Pesaran *et al.*, 2002). Null hypothesis of no long-run relationship is expressed thus:  $H_0: \varphi_1 = \varphi_2 = \varphi_3 = \varphi_4 = \varphi_5 = \varphi_6 = 0$  against alternative hypothesis of  $H_1: \varphi_1 \neq \varphi_2 \neq \varphi_3 \neq \varphi_4 \neq \varphi_5 \neq \varphi_6 \neq 0$ , using the Wald (F-statistic) test. We computed two critical bounds values for the test: the lower value, where variables are assumed to be  $I(0)$  and the upper value where variables are assumed to be  $I(1)$ . F-statistic greater than the upper bound depicts a long-run relationship (cointegration) exists, while for less than the lower bound implies no long-run relationship. The error correction model (equation 2) captures the speed of adjustment to the long-run equilibrium from short-run disturbance in trade flows and diaspora investment finance. The trade and absorptive capacity variables of the economies are in their first difference.

$$\Delta TRD_t = \alpha_0 + \sum_{i=1}^p \alpha_i \Delta TRD_{t-i} + \sum_{i=0}^q \beta_i \Delta DIF_{t-i} + \sum_{i=0}^r \delta_i \Delta EXR_{t-i} + \sum_{i=0}^s \chi_i \Delta FDI_{t-i} + \sum_{i=0}^t \phi_i \Delta CTPS_{t-i} + ecm_{t-1} + v_t, \dots \dots \dots (2)$$

### 3.2 Data description

TRD comprises IMP and EXP. The main independent variable is DIF as 25% of total migrant remittances (IFAD, 2017) and FDI. This 25% mitigates the difficulties associated with defining, computing and measuring the concept of DIF. Other key variables are measured as percentage of GDP. The control variables are EXR (period average of local currency units to US \$1 and CTPS percentage of GDP, and used to gauge the absorptive capacity BRICS' domestic economies.

The data are annual series from 1980 to 2022, and the scope covers the rising remittance inflows, which exceeded ODA and close to FDI (World Bank, 2021). All data are extracted from the World Bank's World Development Indicators (WDI, 2022).

## 4. Results and Discussion

### 4.1 Descriptive Analysis

Results of the descriptive analysis are presented in tables 1 and 2, respectively (see Appendix A). The descriptive statistics show that, on the average, the exports- and imports-GDP ratios varied across the BRICS countries during the period covered in this study. Exports accounted for 11.3 percent of GDP in Brazil, 30.7 percent in Russia, 13.9 percent in India, 19.5 percent in China and 27.6 percent in South Africa, while import accounted for 10.8 percent, 22.7 percent, 16.2 percent, 17.4 and 25.5 percent of GDP in Brazil, Russia, India, China and South Africa, respectively. Evidently, Russia had the highest export share of GDP, followed by South Africa. Conversely, South Africa's average import share of GDP was the highest during the period, followed by Russia. Within the BRICS countries, average FDI-GDP ratio was highest in China, followed by Brazil. This provides empirical support that FDI flows more to where there are skilled workforce and superior financial market (Chea, 2011). The standard deviation values show wide spreads in export and import from their mean values. This implies that though the BRICS countries sustained

increases in trade flows during the period, trade flows fluctuated.

There are correlation coefficients between pairwise DIF and exports, and between FDI and exports in only India; moderately high correlation in China, while the correlation is positive weak in Brazil and South Africa, but negative in Russia (see Appendix A, Table 2). Thus suggest diaspora investment finance may be more export enhancing in India and China than Brazil and South Africa, but export retarding in Russia. Though results of the inferential analysis partly substantiate these, it is not appropriate to draw any inference based on descriptive analysis alone.

#### 4.2 Inferential Analysis

The results are in tables 3, 4 and 5 respectively, namely: unit root test (Table 3 in Appendix B, and Table 4), co-integration test (Appendix B, Table 5) and ARDL regression output (Appendix B, Table 6).

**Table 4: Summary of Unit Root Test Results**

Variable	ADF Test <i>I(d)</i>	PP Test <i>I(d)</i>	ADF Test <i>I(d)</i>	PP Test <i>I(d)</i>	ADF Test <i>I(d)</i>	PP Test <i>I(d)</i>	ADF Test <i>I(d)</i>	PP Test <i>I(d)</i>	ADF Test <i>I(d)</i>	PP Test <i>I(d)</i>
	Brazil		Russia		India		China		South Africa	
<i>Ctps</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>
<i>Exp</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>
<i>Lexc</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>
<i>Ldif</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(0)</i>	<i>I(0)</i>
<i>Fdi</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(0)</i>	<i>I(0)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>
<i>Imp</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>	<i>I(1)</i>

Note: See full unit root tests results in Appendix B, Table 3.

Source: Researchers' computations (2023)

The results show that the series are stationary at first difference, *I(1)*, except South Africa's DIF and Russia's FDI, which are stationary at level, *I(0)*. The cointegration test results (Appendix B, Table 5) show long-run relationship between trade flows and DIF in only Brazil and South Africa. In China, only export has long-run relationship with the explanatory variables.

**Table 6a: ARDL Estimation Results: Exports**

**Dependent Variable: Export (EXP)**

Variables	Short-run Estimate				
	Brazil	Russia	India	China	South Africa
$\Delta dif$	0.0197 (0.4526)	5.4516 (1.8285)**	2.8619 (1.0799)**	1.0732 (0.5023)**	-0.9651 (0.9324)
$\Delta ctps$	-0.0152 (0.0132)	-0.3079 (0.0947)***	0.4624 (0.1278)***	-0.0168 (0.0552)	-0.0426 (0.0392)
$\Delta lexc$	1.7967 (0.5391)***	6.0663 (2.7548)**	8.6596 (2.3213)***	0.5732 (1.8471)	6.5897 (2.9841)**
$\Delta fdi$	0.5433 (0.2991)*	-0.7491 (0.4079)*	0.2715 (0.5070)	0.2686 (0.3377)	-0.1067 (0.3263)
$Ect$	-0.2301 (0.1163)*	-0.9428 (0.1524)***	-0.5724 (0.1599)***	0.0737 (0.0903)	-0.3310 (0.1073)***
@trend	0.1370 (0.0659)**	-0.7980 (0.3409)**	-0.8722 (0.2266)***	-0.8430 (0.2036)***	0.0769 (0.1410)

<b>Long-run Estimate</b>					
Variables	Brazil	Russia	India	China	South Africa
Ldif	0.0856 (1.9727)	-	-	-14.5601 (19.2720)	-2.9153 (3.2010)
Ctps	-0.2769 (0.1428)*	-	-	-3.0820 (3.2288)	0.1785 (0.1278)
Lexc	-0.4243 (0.4263)	-	-	-7.7757 (29.0862)	-1.6432 (5.1050)
Fdi	2.3613 (2.1603)	-	-	-3.6445 (6.6096)	-0.3222 (1.0144)
Constant	0.3006 (40.1658)	-	-	417.8338 (500.4954)	56.6704 (47.0389)
@trend	0.5955 (0.2661)**	-	-	11.4376 (12.2398)	0.2323 (0.4227)
F-stat.	16.9030***	24.3887***	177.8360***	107.5708***	13.8111***
Adj. R <sup>2</sup>	0.7654	0.8808	0.9695	0.9515	0.7244
J-B stat.	0.5631	1.1964	3.8235	0.4677	4.8477
p-value	0.7546	0.5498	0.1478	0.7915	0.0886
Breusch-Pagan- Godfrey Heteroscedasticity Test (F-Stat)	1.5541	0.6232	0.9880	0.3199	1.1368
p-value	0.1794	0.7092	0.4573	0.9392	0.3672
Breusch-Godfrey Serial Correlation Lm Test (F-Stat)	0.1300	0.4652	2.2571	0.7181	1.6754
p-value	0.8786	0.6398	0.1221	0.4962	0.2049
ARDL Model	1,0,1,1,0	1,0,0,0,0	1,0,0,0,1	1,0,1,0,0	1,0,1,1,0

Note: \*\*\*, \*\* and \* imply significance at 1%, 5% and 10% respectively. . lexc and ldif are natural logarithm forms of exchange rates and diaspora finance investment respectively. Values in parenthesis - ( ) - are standard errors

Source: Researchers' computations (2023)

**Table 6b: ARDL Estimation Results: Imports**

<b>Dependent Variable: Import (IMP)</b>					
<b>Short-run Estimate</b>					
Variables	Brazil	Russia	India	China	South Africa
Δldif	0.5611	-1.8473	3.8652	0.7040	0.8524

	(0.3021)*	(0.8734)*	(1.7204)**	(0.5357)	(1.1368)
$\Delta \text{ldif}(-1)$	-	-	0.4222 (0.1746)**	-	-
$\Delta \text{ctps}$	0.0014 (0.0060)	0.0014 (0.0406)	0.5449 (0.2045)**	-0.0023 (0.0567)	-0.0557 (0.0434)
$\Delta \text{lexc}$	-0.0497 (0.0591)	0.3141 (1.2378)	8.0909 (3.2803)**	-12.0368 (4.2151)***	1.7830 (3.4787)
$\Delta \text{fdi}$	0.5800 (0.1515)***	0.0895 (0.1820)	0.7187 (0.3482)	0.6824 (0.3587)*	0.0274 (0.3824)
Ect	-0.4116 (0.0856)***	-0.8012 (0.2724)**	-0.6817 (0.2023)***	-0.0774 (0.1106)	-0.4777 (0.1171)***
@trend	-	0.0669 (0.1526)	-0.9987 (0.3482)***	-0.6111 (0.1964)***	0.1679 (0.1703)

### Long-run Estimate

Variables	Brazil	Russia	India	China	South Africa
Ldif	1.3630 (0.6700)**	-	-	-	1.7845 (2.2605)
Ctps	0.0035 (0.0146)	-	-	-	0.1770 (0.0891)*
Lexc	-0.1207 (0.1389)	-	-	-	-9.7041 (4.3399)**
Fdi	1.4089 (0.3188)***	-	-	-	0.0574 (0.7980)
Constant	-19.2663 (13.7309)	-	-	-	-18.7774 (35.1191)
@trend	-	-	-	-	0.3515 (0.3458)
F-stat.	76.2887***	13.7379***	115.1625***	46.1216***	22.7506***
Adj. R <sup>2</sup>	0.9061	0.8009	0.9546	0.9048	0.8169
J-B stat.	0.3477	0.4615	0.2773	1.6025	5.5700
p-value	0.8404	0.7939	0.8705	0.4488	0.0617
Breusch-Pagan- Godfrey Heteroscedasticity Test (F-Stat)	0.9318	2.4752	1.7038	0.6845	1.5619
p-value	0.4727	0.0805	0.1447	0.7016	0.1769
Breusch-Godfrey Serial Correlation Lm Test (F-Stat)	0.4489	0.1267	0.9765	0.9404	0.4392
p-value	0.6423	0.8822	0.3887	0.4025	0.6488
ARDL Model	1,0,0,0,0	1,0,0,0,0	2,0,0,0,0	1,0,1,1,0	1,0,1,1,0

Note: \*\*\*, \*\* and \* imply significance at 1%, 5% and 10% respectively. . lexc and ldif are natural logarithm forms of exchange rates and diaspora investment finance, respectively. Values in parenthesis - ( ) - are standard errors.

Source: Researchers' computations (2023)

The results show that DIF and FDI have heterogeneous effects of on trade flows in the BRICS countries. DIF significantly enhance exports in Russia, India and China, while FDI contributes significantly to exports in Brazil and Russia as evidenced by the standard errors (1.8285, 1.0799,



0.5023, 0.2991 and 0.4079) of the coefficients (5.4516, 2.8619, 1.0732, 0.5433 and 0.7491), respectively. In addition, only Russia and India exhibit domestic economy that promotes exports in the short-run. Exchange significantly enhances exports in the countries, except China.

The effect of DIF on imports is significant in Brazil, Russia and India, but not in China and South Africa. However, the effect of FDI on imports is significant in only Brazil and China. The error correction coefficients provide empirical evidence of different adjustment speeds to long-run equilibrium from short-run disturbance. Hence, the varying effects of DIF and FDI on TRD are due to some peculiarities in economic and trade policies in the BRICS countries as suggested by some previous studies (Boly et al., 2014; Dadush, 2015; Arbouch & Dadush, 2020).

The long-run effects of DIF and FDI on exports are positive but not significant in Brazil; negative and not significant in China and South Africa. Thus, DIF and FDI dampen export in China and South Africa, but promote import in only Brazil in the long run. The long-run effects on export are indeterminate for Russia and India. Similarly, the effects on imports in the long run are indeterminate for Russia, India and China. These imply that DIF and FDI are appropriate strategies for short-run export growth and import controls in the BRICS countries, but not for long-run export-oriented policy thrust in Russia and import-control in Russia, China and India. These contradict some previous findings ((Leblang, 2010; Javorcik, Ozden, Spatareanu & Neagu, 2011), but support Amendolagine *et al.* (2013) and Boly et al. (2014). Moreover, the findings show that BRICS benefit not only from diaspora finance embedded in remittances but also from trade relations that are not strictly anchored on neither absolute nor comparative cost advantages nor factor endowments trade theories. Thus, bridging the gap between theory and practice, trade flows in the BRICS countries are driven more by differences in tastes among the countries and their trading partners.

## **5. Summary, Conclusion and Policy Implications**

This paper shows that diaspora finance, FDI and trade are related in the long run, and that export-GDP ratio is higher in Russia and South Africa than in Brazil, India and China, while import-GDP ratio is greater in South Africa and Russia than other countries. Similarly, FDI-GDP ratio is higher in China and Brazil, but DIF and FDI correlate highly with export in only India. The effects of DIF and FDI on trade are not similar across the BRICS countries.

We conclude that while DIF and FDI are appropriate short run trade strategies in BRICS, they are not appropriate for long-run export and import strategies in Russia, China, India and South Africa. Consequently, the countries should incorporate DIF and FDI only in short-run trade policies, while only Brazil should do so in both the short- and long-run. With moderate inclination to the Ricardo's and Heckscher-Ohlin's trade theories, BRICS should align with relevant time horizons in their trade policies in order to maximise the gains from trade.

### Conflicts of Interest

The authors have disclosed no conflicts of interest.

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**REFERENCES**

- Abdih, Y., Chami, R., Dagher, J. and Montiel, P. (2012). Remittances and institutions: Are remittances a curse? *World Development*, 40(4), 657–666.  
<https://doi.org/10.1016/j.worlddev.2011.09.014>.
- Amendolagine, V., Boly, A., Coniglio, N. D., Prota, F. and Seric, A. (2013). FDI and local linkages in developing countries: Evidence from Sub-Saharan Africa. *World Development*, 50, 41-56.  
<https://doi.org/10.1016/j.worlddev.2013.05.001>.
- Arif, Z. (2019). Diaspora holds huge potential to facilitate trade and investment  
<https://unctad.org/news/diaspora-holds-huge-potential-facilitate-trade-and-investment>.
- Arbouch, B. M. and Dadush, U. (2020). The Moroccan Diaspora and Public Policy (Issue March). Policy brief 20-13, Policy Centre for the New South.  
[https://media.africaportal.org/documents/Moroccan\\_diaspora\\_and\\_public\\_policy.pdf](https://media.africaportal.org/documents/Moroccan_diaspora_and_public_policy.pdf).
- Atoyebi, K. O., Akinde, J. O., Adekunjo, F. O. and Femi E. (2012). Foreign Trade and Economic Growth in Nigeria: An Empirical Analysis. *American Academic & Scholarly Research Journal*; 4(5), 1 - 12.
- Bernhofen, D. M. and Brown, J. C. (2018). Retrospectives: On the Genius behind David Ricardo's 1817 Formulation of Comparative Advantage. *Journal of Economic Perspectives*; 32(4), 227–240.  
doi=10.1257/jep.32.4.227.
- Boly, A., Coniglio, N. D., Prota, F. and Seric, A. (2014). Diaspora investments and firm export performance in selected sub-Saharan African countries. *World Development*, 59, 422-433.
- Caglar, A. E., Zafar, M. W., Bekun, F. V., Mert, M. (2022). Determinants of CO2 emissions in the BRICS economies: The role of partnerships investment in energy and economic complexity. *Sustainable Energy Technologies and Assessments*; 51.
- Chaudhury, D. R. (2009). BRIC aims to create a just and equitable world order. *International Affairs*, 55(1), 51–56.
- Chea, A. C. (2011). Sources of global private capital flows : What developing countries can do to attract , Manage , and retain global private capital flows to finance economic growth and sustainable development. *Business and Economic Research*, 1(1), 1–20. <https://doi.org/10.5296/ber.v1i1.99>.
- Dadush, U. (2015). Diaspora , Development , and Morocco. Policy paper 2015, OCP Policy Center.  
<https://media.africaportal.org/documents/OCPPC-PP1518v4.pdf>.
- Gelb, S., Kalantaryan, S., McMahon, S. and Perez-Ferdinandez, M. (2021). Diaspora finance for development : from remittances to investment. <https://doi.org/10.2760/034446>.
- Hartmanna, D., Zagato, L., Gala, P. and Pinheirof, F. L. (2021). Why did some countries catch-up, while others got stuck in the middle? Stages of productive sophistication and smart industrial policies. *Structural Change and Economic Dynamics*, 58, 1–13.
- Hill, C. W. L. (2014). *International business: Competing in the global marketplace* ((10th Edition). Boston: McGraw-Hill/Irwin.
- International Fund for Agricultural Development (IFAD) (2019). Maximising the impact of remittances on <https://www.ifad.org/en/ffr>.

- International Fund for Agricultural Development (IFAD) (2017). Sending money home: contributing to the SDGs, one family at a time.  
<https://www.ifad.org/documents/36783902/4a5640d9-e944-4a8c-8007-a1bc461416e6>.
- Javorcik, B. S., Özden, C., Spatareanu, M. and Neagu, C. (2011). Migrant networks and foreign direct investment. *Journal of development economics*, 94(2), 231-241.
- Kalantaryan, S. and McMahon, S. (2020). COVID-19 and Remittances in Africa. Joint Research Center 9JRC) Technical Report 2020, European Union. file:///C:/Users/user/Downloads/remittances\_in\_the\_context\_of\_covid\_19\_africa\_12062020\_final\_online\_clean.pdf.
- Kotabe, M., Riddle, L., Sonderegger, P. and Taübe, F. (2013). Diaspora investment and entrepreneurship: the role of people, their movements, and capital in the international economy. *Journal of International Management*, 19.
- Kugler, M. and Rapoport, H. (2007). International labor and capital flows: Complements or substitutes?. *Economics Letters*, 94(2), 155-162.
- Leblang, D. (2010). Familiarity breeds investment: Diaspora networks and international investment. *American political science review*, 104(3), 584-600.
- Makwiramiti, M.A. (2011). BRICS: A Friendship of Convenience? Consultancy Africa Intelligence. [http://www.consultancyafrica.com/index.php?Option%4com\\_content&view%4article&id%4789:brics-a-friendship-of-convenience-&catid%487:african-finance-a-economy&Itemid%4294](http://www.consultancyafrica.com/index.php?Option%4com_content&view%4article&id%4789:brics-a-friendship-of-convenience-&catid%487:african-finance-a-economy&Itemid%4294)
- Manzoor, W., Safdar, N. and Momoodu, H. Z. (2021) A gravity model analysis of international migration from BRIC to OECD countries using Poisson Pseudo-maximum likelihood Approach.
- Nayak, D. and Rahul N. C. (2014). A selective review of foreign direct investment theories. Asia-Pacific Research and Training Network on Trade (ARTNeT), Bangkok. Working Paper Series No. 143, March 2014, Bangkok, ESCAP.  
<https://www.econstor.eu/bitstream/10419/103862/1/782793517.pdf>
- Newland, K. and Plaza, S. (2013). What We Know About Diasporas and Economic Development. Migration Policy Institute, September, 1–14.
- Newland, K and Tanaka, H. (2010). Mobilizing diaspora entrepreneurship for development. Washinton DC: Migrain Policy Institute. <https://doi.org/10.4324.9781315646763>.
- Official Development Assistance (2021). Financing to Address COVID-19 Crisis and Prepare for a Sustainable Recovery.  
[https://www.un.org/ldc5/sites/www.un.org.ldc5/files/pdf/stateLDC\\_2021/15\\_stateldc\\_2021\\_g.pdf](https://www.un.org/ldc5/sites/www.un.org.ldc5/files/pdf/stateLDC_2021/15_stateldc_2021_g.pdf).
- Plaza, S. and Ratha, D. (2011) Diaspora for development in Africa, Washington DC: World Bank.  
<https://openknowledge.worldbank.org/bitstream/handle/10986/2295/616380PUB0Dias1351B0EktopOID0182580.pdf?sequence=1&isAllowed=y>.
- Peri, G., and Requena-Silvente, F. (2010). The trade creation effect of immigrants: evidence from the remarkable case of Spain. *Canadian Journal of Economics*, 43(4), 1433-1459.
- Pesaran M., Shin Y, and Smith R (2001) Bound testing approaches to the analysis of level relationship. *Journal of Applied Economics*, 16, 289–326.

- Ratha, D., Mohapatra, S., Ozden, C., Plaza, S., Shaw, W., and Shimeles, A. (2011). Leveraging migration for Africa : Remittances, skills and investments. Washington DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/2300>.
- Riddle, L. (2008). Diasporas: Exploring their development potential. *Journal of Microfinance/ESR Review*, 10(2), 6.
- Sayeh, A. and Chami, R. (2020). The COVID-19 pandemic threatens to dry up a vital source of income for poor and fragile countries. *Finance & Development*, 57(2), 16-19.
- Shasha, D. (2011). Full Text of Sanya Declaration of the BRICS Leaders Meeting. *English News*, April 14. [http://news.xinhuanet.com/english2010/china/2011-04/14/c\\_13829453.htm](http://news.xinhuanet.com/english2010/china/2011-04/14/c_13829453.htm).
- Tavakoli, H. and Maja, C. (2017). Financing the Sustainable Development Goals with Diaspora Investment. [https://thecommonwealth.org/sites/default/files/inline/2017\\_CW\\_FinancingtheSDGswithDiasporaInvestment\\_REPORT.PDF](https://thecommonwealth.org/sites/default/files/inline/2017_CW_FinancingtheSDGswithDiasporaInvestment_REPORT.PDF).
- United Nations. (2019). International migrant stock 2019. United Nations Population Division | Department of Economic and Social Affairs. [https://www.Un.Org/En/Development/Desa/Population/Migration/Data/Estimates2/Docs/MigrationStockDocumentation\\_2019.Pdf](https://www.Un.Org/En/Development/Desa/Population/Migration/Data/Estimates2/Docs/MigrationStockDocumentation_2019.Pdf).
- Vishnevsky, A. (2006). Modernization and counter-modernization in Russia. *Russia in Global Affairs*, 4(2), 8-22.
- Wildavsky, B. (2012). *The great brain race*. Princeton University Press.
- World Bank (2021). Remittance flows register robust 7.3 percent growth in 2021. <https://www.worldbank.org/en/news/press-release/2021/11/17/remittance-flows-register-robust-7-3-percent-growth-in-2021>.
- World Bank (2022). World Development Indicators. <https://data.worldbank.org/indicator/BX.KLT.DINV.WD.GD.ZS>.

**APPENDIX A**  
**Descriptive Analysis Results**

**Table 1: Descriptive Statistics**

<b>Brazil</b>						
	<i>Ctps</i>	<i>Exp</i>	<i>Exc</i>	<i>Fdi</i>	<i>imp</i>	<i>ldif</i>
Mean	52.95579	11.30661	1.249305	2.192146	10.78222	0.166478
Median	45.15932	11.01194	1.759227	1.888456	11.41727	0.160742
Maximum	134.1136	16.87085	3.077475	5.034129	15.48344	0.545724
Minimum	27.68567	6.730210	2.28E-11	0.128665	5.461268	0.010378
Std. Dev.	23.81917	2.658200	1.021817	1.527162	2.757861	0.136409
Skewness	1.827054	0.155592	-0.076941	0.119713	-0.286177	0.567427
Kurtosis	6.588177	2.255748	1.607409	1.543266	1.982971	2.619824
Jarque-Bera	44.80535	1.111694	3.353440	3.723138	2.326644	2.447063
Probability	0.000000	0.573586	0.186986	0.155429	0.312446	0.294189
Observations	41	41	41	41	41	41
<b>Russia</b>						
	<i>Ctps</i>	<i>Exp</i>	<i>Exc</i>	<i>Fdi</i>	<i>imp</i>	<i>ldif</i>
Mean	40.91117	30.71782	33.79524	1.774316	22.72152	0.368857
Median	43.37700	28.95948	29.87513	1.662283	21.32506	0.345424
Maximum	59.96833	62.32246	72.10491	4.502699	48.25460	1.154964
Minimum	16.83777	13.27136	0.991667	0.174541	12.98534	0.025911
Std. Dev.	13.54944	8.555493	19.42788	1.210175	5.472438	0.220763
Skewness	-0.502058	1.462903	0.465347	0.631566	3.207973	1.323069
Kurtosis	1.957509	7.384432	2.542139	2.553721	16.28959	6.275268
Jarque-Bera	1.745863	37.04478	1.165480	2.168554	290.3701	19.94544
Probability	0.417725	0.000000	0.558366	0.338146	0.000000	0.00047
Observations	39	39	39	39	39	27
<b>India</b>						
	<i>Ctps</i>	<i>Exp</i>	<i>Exc</i>	<i>Fdi</i>	<i>imp</i>	<i>ldif</i>
Mean	34.78859	13.91884	38.10206	0.942533	16.17539	2.307330
Median	28.33955	12.55838	43.05543	0.765213	13.43488	2.601089
Maximum	55.25091	25.43086	74.09957	3.620522	31.25929	4.168610
Minimum	20.54346	5.196222	7.862945	0.002584	6.980233	0.742647
Std. Dev.	12.36938	6.695962	19.69783	0.893493	7.852167	1.021781
Skewness	0.409918	0.198675	-0.020535	0.825472	0.450468	-0.109734
Kurtosis	1.390489	1.591065	1.934843	3.151870	1.785936	1.656906
Jarque-Bera	5.573705	3.660934	1.941089	4.695658	3.904631	3.163947
Probability	0.061615	0.160339	0.378877	0.095576	0.141945	0.205569
Observations	20	32	26	29	32	41
<b>China</b>						
	<i>Ctps</i>	<i>Exp</i>	<i>Exc</i>	<i>Fdi</i>	<i>imp</i>	<i>ldif</i>
Mean	105.9229	19.48023	6.082567	2.626082	17.40259	0.171482
Median	105.7875	18.53675	6.644478	2.613162	17.31003	0.156951
Maximum	182.4326	36.03503	8.618743	6.186882	28.44419	0.477223
Minimum	52.62686	5.911612	1.498386	0.029820	6.513236	0.033429
Std. Dev.	32.88275	7.736180	2.206387	1.719437	5.919219	0.092720
Skewness	0.309984	0.350712	-0.755066	0.154960	0.154199	0.930706
Kurtosis	2.417946	2.571103	2.337233	1.931450	2.302922	4.386668
Jarque-Bera	1.235378	1.154742	4.646259	2.114660	0.992589	8.755019
Probability	0.539189	0.561372	0.097967	0.347382	0.608782	0.012557
Observations	41	41	41	41	41	39

**South Africa**

	<i>Ctps</i>	<i>Exp</i>	<i>Exc</i>	<i>Fdi</i>	<i>imp</i>	<i>ldif</i>
Mean	111.8267	27.58309	6.371415	0.933577	25.45276	0.161395
Median	116.7189	28.18824	6.359328	0.553079	25.53051	0.198355
Maximum	160.1248	35.62244	16.45911	5.983101	37.24295	0.261423
Minimum	53.96717	20.70374	0.778834	-0.766120	16.78372	0.045876
Std. Dev.	31.17253	3.615783	4.298244	1.221892	5.004472	0.078079
Skewness	-0.491617	-0.131031	0.625339	2.025394	0.141421	0.212892
Kurtosis	1.837550	2.390963	2.458173	8.443289	2.317466	1.333727
Jarque-Bera	4584.895	1130.907	261.2280	38.27664	1043.563	5.052838
Probability	38869.05	522.9555	738.9962	59.72085	1001.790	0.079945
Observations	41	41	41	41	41	41

Source: Researchers' computations (2023)

**Table 2: Partial Correlation Coefficients Matrix**

<b>Brazil</b>						
Correlation	CTPS	EXP	EXC	FDI	IMP	DIF
CTPS	1.000000					
EXP	-0.058880	1.000000				
EXC	-0.348492	0.636332	1.000000			
FDI	-0.234052	0.398579	0.768458	1.000000		
IMP	-0.234226	0.630730	0.851690	0.809544	1.000000	
DIF	-0.072276	0.524188	0.792546	0.620854	0.776662	1.000000

  

<b>Russia</b>						
Correlation	CTPS	EXP	EXC	FDI	IMP	DIF
CTPS	1.000000					
EXP	-0.911433	1.000000				
EXC	0.698437	-0.518480	1.000000			
FDI	-0.085103	-0.067358	-0.512335	1.000000		
IMP	-0.818214	0.818073	-0.366160	-0.180330	1.000000	
DIF	0.939852	-0.806643	0.736134	-0.126899	-0.769863	1.000000

  

<b>India</b>						
Correlation	CTPS	EXP	EXC	FDI	IMP	DIF
CTPS	1.000000					
EXP	0.926012	1.000000				
EXC	0.825557	0.836042	1.000000			
FDI	0.863798	0.881636	0.752711	1.000000		
IMP	0.920282	0.987010	0.767596	0.881005	1.000000	
DIF	0.958028	0.856349	0.865232	0.795246	0.844984	1.000000

  

<b>China</b>						
Correlation	CTPS	EXP	LEXC	FDI	IMP	DIF
CTPS	1.000000					
EXP	0.476264	1.000000				
EXC	0.593497	0.685547	1.000000			
FDI	0.126097	0.603815	0.758594	1.000000		
IMP	0.496600	0.956713	0.667870	0.602021	1.000000	
DIF	0.855663	0.620418	0.447943	0.148196	0.621901	1.000000

  

<b>South Africa</b>						
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Correlation	CTPS	EXP	EXC	FDI	IMP	DIF
CTPS	1.000000					
EXP	0.295345	1.000000				
EXC	0.755263	0.493464	1.000000			
FDI	0.572808	0.317688	0.410590	1.000000		
IMP	0.602350	0.784968	0.613997	0.471705	1.000000	
DIF	0.789066	0.548123	0.785301	0.400974	0.775377	1.000000

Source: Authors' computations (2023)



**APPENDIX B**  
**Unit Root Test Results**

**Table 3: Unit Root Test (ADF and Philip-Perron (PP) tests)**

<b>Brazil</b>							
<b>Augmented Dickey-Fuller (ADF)</b>				<b>PP</b>			
<b>LEVEL</b>				<b>LEVEL</b>			
	Constant	Constant and Trend	None		Constant	Constant and Trend	None
<i>Ctps</i>	-2.68305*	-2.80701	-0.10548	<i>Ctps</i>	-3.32298**	-3.28489*	-0.74532
<i>Exp</i>	-1.44629	-2.10623	0.44545	<i>Ex</i>	-1.44629	-2.10623	0.46669
<i>Lexc</i>	-2.74448*	-1.87461	-2.91666***	<i>Lexc</i>	-2.63753*	-0.81757	-3.47025***
<i>Ldif</i>	- 8.18162** *	-6.52751***	0.68799	<i>Ldfi</i>	-1.21907	-1.59316	0.92721
<i>Fdi</i>	-1.45308	-2.48329	-0.28954	<i>Fdi</i>	-1.47867	-2.61018	-0.27811
<i>Imp</i>	-0.68855	-3.24702	0.40795	<i>Imp</i>	-0.72174	-3.24702	-0.40795
<b>FIRST DIFFERENCE</b>				<b>FIRST DIFFERENCE</b>			
<i>Ctps</i>	- 3.543501* *	-3.48685*	-3.58197***	<i>Ctps</i>	-8.14606***	-8.03765***	-8.26975***
<i>Exp</i>	- 5.41528** *	-5.38222***	-5.41333***	<i>Ex</i>	-5.35851***	-5.32056***	-5.36078***
<i>Lexc</i>	-1.74718	-2.59477	-1.55183	<i>Lexc</i>	-1.74607	-2.61695	-1.54441
<i>Ldfi</i>	- 3.21032**	-3.91546**	-2.74311***	<i>Ldfi</i>	-4.13462***	-4.09241**	-4.03242***
<i>Fdi</i>	- 6.31111** *	-6.22700***	-6.33047***	<i>Fdi</i>	-6.31111***	-6.22700***	-6.33052***
<i>Imp</i>	- 6.13945** *	-6.20778***	-6.12426***	<i>Imp</i>	-6.14245***	-6.21020***	-6.12426***
<b>Russia</b>							
<b>Augmented Dickey-Fuller (ADF)</b>				<b>PP</b>			
<b>LEVEL</b>				<b>LEVEL</b>			
	Constant	Constant and Trend	None		Constant	Constant and Trend	Break Date
<i>Ctps</i>	- 4.31520** *	-1.18953	1.71558	<i>Ctps</i>	-1.15828	-3.870386	2.03496
<i>Exp</i>	- 4.19166** *	-2.94672	-0.18701	<i>Ex</i>	-4.32195***	-4.46110***	-0.47115
<i>Lexc</i>	-2.80444*	-2.73419	1.72884	<i>Lexc</i>	-2.67505*	-2.72577	1.37975
<i>Ldfi</i>	-1.15073	-1.15073	0.12841	<i>Ldfi</i>	-1.15073	-4.96642***	0.10608
<i>Fdi</i>	-2.2513	-2.09934	-0.98267	<i>Fdi</i>	-2.15418	-1.99508	-0.74315
<i>Imp</i>	- 4.93852** *	-5.53488***	-0.88400	<i>Imp</i>	-4.93839***	-9.56077***	-0.49989

FIRST DIFFERENCE			FIRST DIFFERENCE				
<i>Ctps</i>	-	-6.45036***	-1.45814	<i>Ctps</i>	-2.42434	-2.34038	-1.45814
	3.07173**						
<i>Exp</i>	-	-6.15087***	-6.11316***	<i>Exp</i>	-	-13.06443***	-11.41175***
	6.02488**				10.88506**		
	*				*		
<i>Lexc</i>	-2.98639*	-3.11628	-2.66993**	<i>Lexc</i>	-2.92692*	-3.13967	-2.52781**
<i>Ldfi</i>	-1.31271	-1.40226	-1.61489*	<i>Ldfi</i>	-	-42.03399***	-8.73113***
					11.97377**		
					*		
<i>Fdi</i>	-	-5.57668***	-6.38915***	<i>Fdi</i>	-6.72428***	-10.11779***	-6.69251***
	6.286445*						
	**						
<i>Imp</i>	-	-5.50109***	-5.43841***	<i>Imp</i>	-14.67187***	-14.02302***	-15.22737***
	5.70794**						
	*						

**India**

Augmented Dickey-Fuller (ADF)			PP				
LEVEL			LEVEL				
Constant	Constant and Trend	None	Constant	Constant and Trend	None		
<i>Ctps</i>	-0.07084	-2.77587	1.24583	<i>Ctps</i>	-0.03146	-1.62884	2.10559
<i>Exp</i>	-1.02782	-0.92956	0.74091	<i>Exp</i>	-1.05693	-1.22910	0.60170
<i>Lexc</i>	-2.85271*	-1.30306	2.22708	<i>Lexc</i>	-2.43208	-1.41527	2.85383
<i>Ldfi</i>	0.07726	-2.38886	3.47763	<i>Ldfi</i>	-0.00175	-2.51378	3.15196
<i>Fdi</i>	-1.59388	-2.93138	-0.63401	<i>Fdi</i>	-1.54410	-2.93138	-0.54425
<i>Imp</i>	-0.97137	-0.72474	0.26993	<i>Imp</i>	-1.05155	-1.17984	0.10629
FIRST DIFFERENCE			FIRST DIFFERENCE				
<i>Ctps</i>	-4.65318***	-4.66564***	-4.65637***	<i>Ctps</i>	-5.43039***	-5.43502***	-4.57287***
<i>Exp</i>	-6.39926***	-6.42994***	-6.17769***	<i>Exp</i>	-6.42699***	-6.43263***	-6.24849***
<i>Lexc</i>	-4.43171***	-4.86933***	-2.03371**	<i>Lexc</i>	-4.51899***	-4.95100***	-3.06723***
<i>Ldfi</i>	-6.95393***	-6.83518***	-1.57621	<i>Ldfi</i>	-6.88725***	-6.78952***	-5.54172***
<i>Fdi</i>	-7.16651***	-7.06977***	-7.17700***	<i>Fdi</i>	-7.68113***	-7.55941***	-7.35501***
<i>Imp</i>	-4.65318***	-4.66564**	-4.65637***	<i>Imp</i>	-4.65419***	-4.66564***	-4.65555***

**China**

Augmented Dickey-Fuller (ADF)			PP				
LEVEL			LEVEL				
Constant	Constant and Trend	None	Constant	Constant and Trend	Break Date		
<i>Ctps</i>	0.56246	-1.60572	3.18710	<i>Ctps</i>	0.97507	-1.83091	4.06672
<i>Exp</i>	-1.74530	-0.67166	0.16532	<i>Exp</i>	-1.83241	-0.94215	-0.01409
<i>Lexc</i>	-	-2.03124	1.43090	<i>Lexc</i>	-4.14367***	-2.06275	0.79488
	4.14367***						
<i>Ldfi</i>	-0.96089	-3.81758**	0.76109	<i>Ldfi</i>	-0.66615	-3.80203**	1.33463
<i>Fdi</i>	-2.12452	-1.41989	-0.69059	<i>Fdi</i>	-1.91643	-1.46406	-0.75017
<i>Imp</i>	-2.01051	-1.49867	0.05871	<i>Imp</i>	-1.96421	-1.21162	0.05871
FIRST DIFFERENCE			FIRST DIFFERENCE				
<i>Ctps</i>	-	-5.32787***	-4.32565***	<i>Ctps</i>	-5.09625***	-5.18366***	-4.26416***
	5.27068***						

<i>Exp</i>	-	-4.95109***	-4.73108***	<i>Ex</i>	-4.70809***	-4.95085***	-4.71609***
	4.71912***						
<i>Lexc</i>	-	-5.53608***	-4.11266***	<i>Lexc</i>	-4.40320***	-5.50209***	-4.05897***
	4.43674***						
<i>Ldfi</i>	-	-6.33662***	-6.10206***	<i>Ldfi</i>	-8.39834***	-8.32104***	-7.50773***
	6.42547***						
<i>Fdi</i>	-	-5.13375***	-5.07228***	<i>Fdi</i>	-4.90972***	-5.17001***	-4.97552***
	5.01543***						
<i>Imp</i>	-	-5.06529***	-4.88529***	<i>Imp</i>	-4.77029***	-4.96004***	-4.81135***
	4.85273***						

**South Africa**

Augmented Dickey-Fuller (ADF)				PP		
LEVEL				LEVEL		
	Constant	Constant and Trend	None	Constant	Constant and Trend	Break Date
<i>Ctps</i>	-1.77324	-1.65522	0.87960	<i>Ctps</i>	-1.87845	1.10501
<i>Exp</i>	-2.73649*	-3.80852**	-0.56630	<i>Ex</i>	-2.85172*	-0.57806
<i>Lexc</i>	-1.98159	-3.06393	2.19698	<i>Lexc</i>	-2.18569	1.75355
<i>Ldfi</i>	-0.92462	-3.11430	0.81349	<i>Ldfi</i>	-0.7782	1.35245
<i>Fdi</i>	-4.70138***	-5.46964***	-0.71217	<i>Fdi</i>	-4.67060***	-3.32998***
<i>Imp</i>	-1.73213	-2.54775	-0.38433	<i>Imp</i>	-1.62352	-0.34481
FIRST DIFFERENCE				FIRST DIFFERENCE		
<i>Ctps</i>	-6.42558***	-6.54882***	-6.21544***	<i>Ctps</i>	-6.67396***	-6.21541***
<i>Exp</i>	-6.52834***	-6.41888***	-6.62826***	<i>Ex</i>	-8.34853***	-8.24391***
<i>Lexc</i>	-4.69254***	-4.76221***	-3.83364***	<i>Lexc</i>	-4.49786***	-3.74479***
<i>Ldfi</i>	-4.15224***	-4.09556**	-4.07872***	<i>Ldfi</i>	-4.22631***	-4.07872***
<i>Fdi</i>	-7.96347***	-7.88190***	-8.05550***	<i>Fdi</i>	-18.28213***	-17.82915***
<i>Imp</i>	-6.59888***	-6.54503***	-6.69166***	<i>Imp</i>	-6.62515***	-6.73207***

Note: \*\*\*, \*\* and \* imply significance at 1%, 5% and 10% respectively. *lexc* and *ldfi* are natural logarithm forms of exchange rates and diaspora investment finance respectively.

Source: Researchers' computation (2023)

**Table 5: Bounds Test of Co-integration**

F-stat.	Brazil		Russia		India		China		South Africa	
	Import Equation	Export Equation	Import Equation	Export Equation	Import Equation	Export Equation	Import Equation	Export Equation	Import Equation	Export Equation
	5.6571	4.5991	1.0872	2.2844	0.6891	0.5050	2.4931	4.7015	5.2757	4.8925
Critical Values										
Significance	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
10%	2.45	3.52	3.03	4.06	3.03	4.06	3.03	4.06	3.03	4.06
5%	2.86	4.01	3.47	4.57	3.47	4.57	3.47	4.57	3.47	4.57
2.5%	3.25	4.49	3.89	5.07	3.89	5.07	3.89	5.07	3.89	5.07
1%	3.74	5.06	4.44	5.72	4.44	5.72	4.44	5.72	4.44	5.72

Is there cointegrati on?	Yes	Yes	No	No	No	No	No	Yes	Yes	Yes
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Source: Researchers' computations (2023)