

## The Determinants of Trade between World Emerging and African Emerging Economies

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### Abstract

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This study investigates the key determinants of trade between African emerging economies and world major emerging economies by using the gravity model of international trade. The latter includes BRICS countries plus Turkey, Mexico, and the Philippines while the earlier includes 15 African economies. The main objective is to identify the core macroeconomic and socio-cultural factors of bilateral trade between both sides. Importer and exporter-fixed effect is used in order to efficiently test the impact of many dummy variables. The results illustrate that the core form of the gravity model, GDP, and distance, explains the bilateral trade. Minerals production, rather than petroleum production, affects the level of bilateral trade. Moreover, sharing a common religion and a common language have a positive impact whereas ODA size, economic freedom, and overall trade volume are not statistically significant. Furthermore, more corrupted African emerging economies have higher bilateral trade with the world major emerging economies than less corrupted African economies.

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**Keywords: Emerging Economies, Bilateral Trade, African Emerging**

### 1. Introduction

Economically and politically the influence of emerging countries, especially BRICS (Brazil, Russia, India and China and South Africa), is rapidly increasing. Their shares in international trade and Foreign Direct Investment position have also remarkably increased. They have been engaged in official and non-official development cooperation with many countries in the last couples of decades even though their part as development actors has been lately acknowledged.

So far, the terms emerging markets and emerging economies are not clearly defined. Since the origin of the term in the 1980s by a World Bank economist Antonie Van Agtmael, Emerging economies are defined and more characterized by what they are not rather than what they are (Tiku, 2014). Some label these countries based on quantitative factors, such as GDP or GDP per capita, population statistics or growth rates whereas others put forward qualitative factors such as governance and level of democracy or socioeconomic factors such as literacy, health, and the status of women and children. By and large, it indicates markets that are growing fast and may "emerge" and become richer soon (Ciravegna et al., 2013). But, they are certainly not developed markets like North America, Japan, and Europe. They are mostly characterized by higher economic growth than developed nations but they have less developed or less transparent political and financial institutions and lack of governance predictability.

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Most of these nations have also less record of rule-of-law and limited property rights, and a widely perceived risk of doing business (Tiku, 2014; Logue, 2011; Booth, 2014). In simple words, “emerging economies are low-income, rapid-growth countries using economic liberalization as their primary engine of growth” (Hoskisson et al., 2000).

Fast economic growth is the core indicator of a country's emergence. Recently, countries which recorded fast economic growth and multidimensional changes in their economy have joined the emerging economies or emerging markets club. From 2001 to 2015, the world average economic growth was around 2.55% while the average rate for developing economies was 5.42%. Developed economies, on the other side, recorded a growth of 1.48%. However, the average growth of the world major emerging economies (BRICS plus Turkey, Mexico, and the Philippines) was 5.31%. Specifically, China and India recorded an average of 9.61% and 7.32% economic growth rates in the last 15 years while the United States and EU recorded 1.78% and 1.27% growth rates in the same period respectively. The other world emerging economies such as Philippines (5.16%), Turkey (4.14%), Russia (3.68%), South Africa (3.02%) and Brazil (2.74%) also had higher growth rates than the world average (UNCTAD, 2016) These figures prove that developing countries, in general, had higher economic growth rate than developed economies and emerging economies had better performance than developing economies.

In terms of Foreign Trade, for instance, the exports of developing economies in total increased by 102% in the last 11 years (2005-2015) while the same account for developed economies increased only by 42%. However, emerging economies have also augmented their export by around 100% in the same period. Correspondingly, the import of goods and services of developing economies have increased by 122% from 2005 to 2015 whereas the imports by developed economies have increased by 35%. Emerging economies imports increased by 115%. The average growth rate of imports and exports show that developing economies exports grew by 9.93% annually while that of developed economies grew by 5.49% on average in between 2001 and 2015. Imports have also expanded by almost similar proportion in the same years. The developing economies' share of export of merchandise trade was 32% in 2000. In 2015, it reached 44% while developed economies share declined from 66% to 53%. Similarly, the share of export from emerging economies reached 46% in 2015 from 31% in 2000. BRICS share of merchandise trade (export), for example, increased from 7% in 2000 to 19% in 2015.

Even though it is not equivalent to BRICS, many African countries have also realized a significant economic progress since 2001. The average economic growth of the continent in the last 15 years was around 4.53%. This is because of very high growth achieved by several countries. Some African countries, classified as either emerging or frontier markets, such as Ethiopia, Rwanda, and Mozambique have recorded very high economic growth. Their 15 years' average economic growth was 8.95%, 7.83%, and 7.77% and respectively. Moreover, a total of 52 African countries have above the world average economic growth rate (2.55%) in the specified time span.

On the other hand, the total exports of goods and services of Africa to the world market have increased by 30% from 2001 to 2015. The imports of the continent have also augmented by 113% in these years. Specifically, the export size of Rwanda, Sao Tome and Principe, Ghana, Tanzania, Uganda, and Ethiopia have significantly multiplied; at least increased by 300%. Similarly, the imports of some countries such as Rwanda, Ethiopia, Mozambique, Sao Tome and Principe, and Uganda have increased by four times. Such increments are more than the rates of China, India and the other world emerging economies did in the last 15 years.

Therefore, in this study, considering these notable and mounting economic growths, the relationships between world emerging, and African emerging and frontier markets from the perspectives of Foreign Trade are investigated in detail. The major determinants of Foreign Trade in the last 15 years are assessed. Apart from the introduction, the study has four sections. Section 2 reviews related literature on the topic while Section 3 introduces the methodology of the paper. Section 4 is a presentation of the result of the estimation and the last section is the conclusion.

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

One of the basic characteristics of emerging economies was their continuous growth rate and enriched engagement in international trade especially since the beginning of this century. They are now competing with advanced economies in the areas of foreign trade by producing relatively cheaper products.

As a result, they are becoming important trade partners of African countries. Some studies are available in this area. However, it is important to remark that most of the studies conducted on this topic address either a single emerging economy such as China and India or the overall economic partnerships of Africa and the specific world emerging economies rather than explicitly assessing the trade connections.

Nowak (2016), for instance, studied the China-Africa and India-Africa trade between 2000 and 2014. She used a descriptive approach of the data collected from UN Comtrade Database. The results show that China and India's trade with 54 African nations has increased 21 and 13 times respectively in the study period. The main reasons for such big increment are, first, the development of South-South Cooperation, second, intensified diplomatic relations with the continent, and finally linking trade with development assistance. She argues that the increasing economic diplomacy and political support of China to many African countries since the time of struggle for independence have paved the way for China to create a strong economic tie with the continent. China has cooperated with many African countries without any consideration for their democratic institutional development and human right records. Similarly, she argues that India followed the same approach to create economic cooperation with Africa. The country supported some countries politically and economically through its credit and grant scheme.

Adolph et al., (2016) studied how the trade of African countries with China is affecting their labor; they called it The Shanghai Effect. Their study is mainly on how the exports from Africa to China are affecting labor practices in Africa. They defined the Shanghai Effect as an indicator of how trade with China is pushing African countries to follow the lower labor standards of China. Methodically, the study assessed the regulatory standard changes in Africa because of exports to China. They used a data of 49 African countries' exports to China from 1985 to 2010. They argue that exports of these countries to China have a negative impact on their labor practices and they presented it to support their argument that the practices of export destinations affect labor standards of the exporting nations. They supported their conclusion by using liner panel data model estimation on a country's aggregate exposure to export partner's labor standards effects on its own standards and another estimation on what conditions and in which countries is this effect significant.

In a similar way, Villoria (2009) studied the relationship between China's export expansion and the manufacturing terms-of-trade of selected African countries. The study deals with two major issues; first how China affected global prices of manufactured goods and second the opportunity that China created for many countries to import lower-priced goods. By selecting some African countries, the study analyzed the balance of both side; the negative impact and opportunities created for African countries by the expansion of China's manufacturing. He argues that China has significantly reduced the prices of major goods such as textile, wearing apparel and footwear. This, in return, affected the exports of many African countries. On the contrary, they also get price benefits of importing Chinese goods. However, his estimation shows that the terms of trade of African countries have declined higher than the decrease in import prices.

Renard (2011) assessed the overall trade and investment of China in Africa starting from the historical development of its engagement and its policy. The study primarily shows the comprehensiveness but at the same time the concentration of Chinese trade with Africa. China's import and exports are concentrated in few countries and the imports from Africa are mainly oil and agricultural products. However, the study indicates that China's FDI in Africa is strongly linked with trade and development assistance. Accordingly, as the investment of China increased in the continent, the trade was also increasing in parallel. Chinese investment in selected African countries has created a great deal of trade too. He argues that China, with its state-owned firms, is investing in Africa for the purpose of re-exporting and utilizing the local market. Thus it is creating investment and increasing trade volume at the same time. Moreover, Chinese investment and trade have a benefit in creating industrialization and economic growth but created a tough competition for many African countries to export their products except raw materials.

Likewise, Samake and Yang (2014) investigated that there is a strong link between trade, investment and economic growth in between BRICS and low-income countries (LICs). They used a global vector autoregression (GVAR) model to investigate business cycle transmission from BRICS to LICs through trade, FDI, technology and exchange rates mean. They found that bilateral trade and FDI have strong linkage with economic growth of LICs in general and Africa in particular in a persistent manner. Especially, commodity-exporting countries are benefiting more in such transaction.

However, they suggest that the impact of BRICS countries on the continent needs attention since its impact in the long-run may not be predictable. Macroeconomic changes in these emerging economies may influence the economic growth of African countries.

In the contrary, Kaplinsky (2013) argues that China's FDI and trade in Africa are the main reasons why both absolute and relative poverty have been grown in Sub – Saharan African Countries in the last couple of decades. He supported his claims by some reasons.

First, he believes that, because of China-induced commodities price boom, African countries are being forced back once again into commodities-dependence. These countries are forced only to concentrate on ores, minerals, oil and gas which are characterized by very capital-intensive and have historically proved few spread-effect to the wider economy. Second, some of these commodities in Africa are easily misappropriated and have led to widespread conflicts and civil wars in many African economies. Third, it made states to be dependent on that income and forget tax collection thus lost popular legitimacy. Finally, he argues that the supposition of Chinese economic engagement on corruption in the continent has enabled African governments to be more corrupted and govern without rule of law. Tan-Mullins et al. (2010) have also supported this criticism. However, he also investigated the positive impact of Chinese FDI and trade in Africa in terms of creating economic opportunities and poverty reduction in the continent.

Vickers (2013) assessed that, with the coming of new economic world powers such as the BRIC countries, Africa has been in changing circumstances of economic cooperation in the last couple of decades. BRIC and other raising powers are hoping to gain access to Africa's abundant resource and growing markets in order to facilitate their own economic progress. However, Brazil, China, and India are in competition with the established powers to gain better status and influence and thus critically need the fellowship of African states. Therefore, he argues that the relationship between African and the emerging economies is not only economic but also important in diplomatic viewpoint.

Kragelund (2011) also studied the association between the donation of BRIC countries to African states and their trade and investment. His analysis of the non-traditional donors to Africa specifies the new strategies of these nations into Africa by integrating donation and trade and investment. He argues that the old donors of Africa had also the similar approach of engagement in Africa. Old donors, such as Britain and France, have been engaged in infrastructural development and aid. The only difference between the old donors and the new donors, emerging economies, is the manner how they manage their projects and the requirement they set. The traditional donors have a lot of criteria to donate including human rights, democratic institutional development and a lot of policy-related requirements, unlike China or India.

On the other side, Elu and Price (2010) investigated the technological impact of China's presence in Sub-Saharan Africa. They argue and accepted the idea of Geda and Meskel (2008) that the growth of China's exports is harming Africans. Besides, trade openness with China has no effect on the growth rate of total factor productivity for Sub – Saharan African firms. Accordingly, they argue that trade with China is not a long-term living standard changing factor for Africans. However, they believe that productivity-enhancing technology transfer is one of the benefits Africa is gaining from China's economic presence. But they do not accept that FDI inflow into Africa from China is enabling technology transfer but only at selected sector and only at firm levels.

In contrary, Hanauer and Morris (2014) did their study on Chinese engagement in Africa. According to them, Chinese engagement in Africa is not only natural resources oriented. Its interest also includes trade, security, diplomacy and soft power. It is also argued that the high-level donation of China to Africa is poorly understood and misquoted in the press. Even though Chinese engagement is a friendlier model, based on equality, mutual respect, and benefits, it is facing criticism. However, in general, African citizens and governments hold positive views towards Chinese works in Africa with special emphasis on infrastructural development. They also argue that Chinese and the US interests are not contradicting in Africa. Rather, Chinese engagement in Africa helps African and US investors even though US investment is in high technology. Schiere (2011) also supports the engagement of China in Africa and its role in industrialization and infrastructure development in the continent.

In a similar manner, Cabral et al. (2016) investigated the nature of Brazil's influence in agricultural development in Africa under the concept of South-South cooperation beyond trade and FDI in Africa. They specifically assessed Brazil's development cooperation program called More Food International (MFI). They asked why family-farming of Brazil could not expand into the continent and benefit Africans.

Their answer based on the cases of three African countries shows that family farming is effective in Brazil because it is determined by history, geography and class-based power struggles. Moreover, it is supported by modern technology, commercial opportunities, and political advocacy. In Africa, on the other hand, countries adopt their own interpretations of family farming and the whole MFI development cooperation program of Brazil in Africa. However, the success of the program, in general, is not yet studied.

On the other hand, Özkan (2010), argues that Turkey started to cooperate with African states as part of its strategy to diversify allies. According to him, the country is paying attention to decrease economic reliance on traditional trade partners such as the EU and Russia. He believes that Turkish opening to Africa is happening because of domestic transformation and global political economy changes. He argues further that after the economic crisis in 2009, Turkey's economic relations with Africa gained a new momentum in order to reduce the impact of the crisis. In terms of development cooperation, Turkey is strongly supporting African countries through the Cooperation and Development Administration of Turkey (TIKA).

### 3. Methodology

#### The Gravity Model

In this study, the traditional gravity model with various variables is employed. This model helps to assess the main determinants of trade between the African emerging and world emerging economies. The basic form of the gravity equation of international trade is:

$$T_{AB} = \frac{GDP_A^\alpha GDP_B^\beta}{D_{AB}^\theta}$$

Where,  $T_{AB}$  indicates bilateral trade between country  $A$ , and  $B$ ;  $GDP_A$  and  $GDP_B$  indicate the economic size of country  $A$  and  $B$ , and  $D_{AB}$  indicates the bilateral distance between the two countries. The parameters  $\alpha$ ,  $\beta$ , and  $\theta$  are often estimated in a log-linear reformulation of the model (Bergeijk and Brakman, 2010).

The theory behind the gravity model is that big nations in economic size have bigger foreign trade between each other. They also have the capacity to attract large shares of other countries' spending because of their range of product types. Moreover, according to the gravity model, it is expected that as distance increases, the trade amount between any two countries is, other things equal, diminishes (Krugman and Obstfeld, 2009). In this study, an improved gravity model is used with the following equation:

$$\begin{aligned} \ln BilTrade_{WAEt} = & \beta_0 + \beta_1 \ln GDP_{WEt} + \beta_2 \ln GDP_{AEt} + \beta_3 \ln Dist_{WAE} \\ & + \beta_4 \ln PI_{AEt} + \beta_5 \ln ODA_{AEt} + \beta_6 \ln AllTrade_{AEt} + \beta_7 \ln Petrol_{AEt} + \beta_8 \ln Mineral_{AEt} \\ & + \beta_9 \ln PI_{WEt} + \beta_{10} \ln AllTrade_{WEt} \\ & + \beta_{12} ComRelig_{WAE} + \beta_{13} ComLang_{WAE} + \beta_{14} BilAgre_{WAE} \\ & + \beta_{15} CPI_{AEt} + \beta_{16} InEFI_{WEt} + \beta_{17} InEFI_{AEt} \end{aligned}$$

Where:

$BilTrade_{WAEt}$ :	Bilateral trade between world and African emerging in year t
$GDP_{WEt}$ :	GDP size of the world emerging in year t
$GDP_{AEt}$ :	GDP size of the African emerging in year t
$Dist_{WAE}$ :	Distance between the capital city of the world and the African emerging
$PI_{AEt}$ :	Per capita income of the African emerging in year t
$ODA_{AEt}$ :	Official Development Assistance to the African emerging in year t
$AllTrade_{AEt}$ :	Overall trade volume of the African emerging in year t
$Petrol_{Aft}$ :	Petroleum production in the African emerging in year t
$Minerals_{Aft}$ :	Major minerals production in the African emerging in year t
$PI_{WEt}$ :	Per capita income of the world emerging in year t
$AllTrade_{WEt}$ :	Overall trade volume of the world emerging in year t
$ComRelig_{WAE}$ :	Common religion in the world and the African emerging (Dummy)
$ComLang_{WAE}$ :	Common language in the world and the African emerging (Dummy)

$BilAgre_{WAE}$ : Trade Agreement between both sides (Dummy)  
 $CPI_{AET}$ : Corruption Perception Index of the African emerging in year t  
 $EFI_{AET}$ : Economic Freedom Index of the African emerging in year t  
 $EFI_{WET}$ : Economic Freedom Index of the world emerging country in year t

The equation has five groups of variables. The first line indicates the core form of the gravity model with only GDP sizes and distance. I

in the second and third lines, additional related macroeconomic characters of the African and world emerging economies are included. In the fourth line, dummy variables of having a common religion, common languages, and having any type of trade agreements are integrated. The last line forms corruption perception index of the African economies and economic freedom indexes of both partners.

In addition to the core variables of the gravity model, this study emphasizes the socio-cultural factors, the importance of natural resources and economic performance of the partners. Accordingly, the dummy variables of a common religion and a common language form the socio-cultural factors. Besides, one of the arguments in the literature is that the need for a natural resource in general and petroleum and minerals, in particular, is the major determinant of trade with Africa both from the old and new partners (Fung and Garcia-Herrero 2012; and Ngouhouo 2013). Therefore, the dummy variables of  $\log Petrol$  and  $\log Mineral$  help to test this hypothesis. Moreover, the  $EFI$  helps to test if economic freedoms, including property rights, fiscal freedom, government spending, business freedom, trade freedom and some other issues have an impact on the bilateral trade (Yu, 2010; Abidin et al. 2013; and Narayan and Nguyen, 2016).

### Sampling and Data

In this study, the evaluation of major rating agencies or organizations such as IMF, FTSE, MSCI, S&P, Dow Jones, Russell and Columbia University EMGP are assessed. Accordingly, Brazil, China, India, Mexico, the Philippines, Russia, South Africa, and Turkey are commonly categorized as emerging economies. These are simply BRICS plus Turkey, Mexico, and the Philippines. They can be simply abbreviated as BRICS + TPM in this study and called as major emerging economies of the world.

An index is developed by using latest data to identify African emerging economies. The major criteria used in the index are economic size, income, FDI flow, export diversification, health, education, employment, commercial infrastructure, corruption, political stability, level of household and government consumption, and economic freedom. Thus, 15 African countries have higher rates than the others to be considered as African emerging economies. Therefore, in this study, the term African emerging refers to Egypt, Mauritius, Nigeria, South Africa, Botswana, Burkina Faso, Cape Verde, Ethiopia, Ghana, Namibia, Morocco, Rwanda, Seychelles, Tanzania, and Zambia.

The data for the years 2001-2015 are used. The major data sources are the World Bank database, IMF database, United Nations Conference on Trade and Development (UNCTADSTAT), UN COMTRADE, and various similar sources. The detail sources of data for each variable are presented in Appendix 1.

### Estimation Techniques

The determinants of trade, intra-industry trade and FDI between African Emerging Economies and the World Emerging Economies (BRICS+TMP) are estimated for each country separately. Panel data OLS with importer and exporter dummy fixed effects are estimated by using STATA 13. Using the Breusch-Pagan Test, a heteroskedasticity is assumed in some of the models. Therefore, robust standard errors are used in all models to minimize the problem. Moreover, in order to minimize autocorrelation a *vce(robust)* procedure is followed.

### 4. Results

Primarily, the results indicate that the core concept of the gravity model habitually articulates the nature of trade between African emerging and the world emerging economies. An increase in the GDP size of Russia, India and South Africa created additional trade with African emerging economies whilst an increase in the GDP size of Philippines is on the contrary. On the other hand, an increase in the GDP size of the African emerging economies shrinks a trade with China and South Africa but increase a trade with Brazil.

This implies that these countries' trade is higher in smaller economies than the biggest African emerging economies. Nevertheless, in some estimations, the per capita income is inversely associated with trade volume. This has two connotations. The first one is that the world emerging economies are trading more with African emerging economies of bigger size regardless of their per capita income level.

Secondly, and most notably, when the GDP and per capita income of the world emerging economies have positive and negative signs respectively, the elasticity of substitution of the importable goods exceeds unity (see, Bergstrand, 1985; Chen; Novy, 2011). Its economic inference is simply when the GDP of the world emerging economies increases, their per capita income increases. This in return might force them to prefer to trade more with other richer countries with better preferences than the African partners.

This is consistent with the findings of Martinez-Zarzoso (2003). Therefore, the trade of BRICS+TMP with Africa is not growing proportionally to their income. Distance, which is another vital factor in the core gravity model, has mostly an expected negative coefficient. This indicates that as distance increases between two partners, their bilateral trade declines. There is very strong evidence to hold up that far-away African emerging economies are making a lower bilateral trade than the others with Russia, India, China, Turkey, and the Philippines. Contrarily, there is evidence that shows Brazil and South Africa have higher bilateral trade with African countries near to them. There is no evidence to conclude about Mexico's bilateral trade.

Alongside GDP, per capita income is the other factor to take a look at. Incidentally, there is no substantiation which suggests an increase in per capita income on both sides at the same time motivates a bilateral trade and to assert high-income countries trade each other more than the others. However, there is evidence that as the per capita income of Russia, India, South Africa, and Turkey increases their bilateral trade with the African emerging economies is declining. This shows that either their bilateral trade with the African partners is not growing proportionally with their per capita income or as the income of the world emerging economies increases, they are shifting their trade with other high-income countries.

In the other side, a step up in the per capita income of the African emerging economies is negatively linked with the bilateral trade of Turkey and Mexico and positively associated with South Africa's bilateral trade volume. In fact, it is also negatively linked to five world emerging economies' cases even though it is statistically insignificant only in the cases of Russia and India. Generally, it implies that either the bilateral trade of the world emerging economies is lower in countries with better per capita income or an improvement in per capita income of some African emerging economies is enabling them to trade with advanced economies than emerging economies.

The other noteworthy factor of trade is the endowment and production of natural resources. Unfortunately, there is fairly weak statistical evidence to support bilateral trade is determined by the level of petroleum production. This is one of the most unexpected results. This can be because of the fixed amount of petroleum production in the African emerging countries. Since their daily or monthly production amount is fixed, it may not vary with their overall bilateral trade. On the other hand, minerals production is strongly linked with the bilateral trade of India, Turkey, and Mexico. These countries bilateral trade significantly increases when the mineral production of the African economies increases. Considering the positive coefficient in the cases of China, South Africa, and the Philippines, we can say that natural resource is one of the determinants of bilateral trade between the major world emerging and African emerging economies. This also leads us to accept the argument that China, India and other emerging economies are engaged in Africa for the purpose of getting minerals and petroleum. The works of Chakrabarti and Ghosh (2013), Fung and Garcia-Herrero (2012), Cheung et al. (2012), and Vickers (2013) found such relationships.

Preferential trade agreements or any other economic agreement at any level may also determine the bilateral trade. In this aspect, however, it has a mixed result. South Africa and Turkey have higher trade with African emerging countries which signed a bilateral agreement though Brazil and Philippines's agreement has an opposite outcome. These all results are statistically significant at least at 5% confidence level. China and Russia have no any trade agreement with African emerging economies and there is no evidence for the cases of India and Mexico.

It is also hypothesized that culture may also affect bilateral trade; for example, sharing the same religion or language. There is strong statistical evidence that Brazil has higher trade with African emerging countries having the same language but different religion. Russia and Turkey do not share the same language but trade more with religiously different African countries than those share similar religion.

Besides, sharing the same religion is a factor for South Africa's bilateral trade with the other African emerging economies. China shares no religion and no common language with its African associates. But generally, the result supports the point of view of Anderson and Wincoop (2003) that trade is determined not only by geographic distance but also by language, sharing boundaries, religion and other similar socio-cultural differences and similarities.

Finally, corruption is noticed to be a significant trade determinant. African emerging economies which improved the level of corruption in the last decades had higher bilateral trade volume with Brazil and China but not Mexico.

Generally, Brazil, Russia, China and Philippines's bilateral trade seems to be higher with more corrupted African emerging economies than the less corrupted one while the other world emerging economies' trade is on the contrary. This is again consistent with the findings of Sanfilippo (2010), Kolstad and Wiig (2009), and Fung and Herrero (2012) which investigated that the presence of the major emerging economies, such as China, in Africa is high in more corrupted countries. For the other variables, overall trade, economic freedom index, and ODA there is no statistical evidence indicating they are determinants of bilateral trade between African emerging economies and most of the world emerging economies.

To recapitulate, Brazil's bilateral trade with African emerging economies is largely determined by GDP, per capita income, economic agreement, common language, and common religion. Russia's trade is also determined by GDP, distance, per capita income and religion. Besides, Indian bilateral trade is mainly affected by GDP, per capita income, mineral production, and ODA while China's bilateral trade is determined by GDP, distance, and level of corruption. This result is very analogous to the conclusion of Fung and Herrero (2012). GDP, distance, economic agreement, and religion are the principal determinants of South Africa's bilateral trade with the other African emerging economies while Turkey's trade is affected by distance, per capita income, overall trade volume, economic freedom, mineral production, economic agreement, and religion. The economic agreement also affects the Philippines's trade in addition to language, distance, per capita income and distance. Mexico's bilateral trade is less explained by the gravity model. Moreover, China's less number of factors in the estimation indicates that the country is expanding its trade regardless critical socio-economic factors. The details of the estimation are presented in Table 1.

**Table 1: Estimation Results of Bilateral Trade**

Independent Variables	Dependent Variable (logTrade)							
	Brazil	Russia	India	China	S. A.	Turkey	Mexico	Philp.
logGDP_WE	0.189 (4.383)	26.454** (10.204)	17.255*** (4.976)	20.281 (16.241)	5.039* (2.904)	6.726 (4.127)	0.696 (3.351)	-17.095* 8.802
logGDP_AE	0.733* (0.438)	0.204 (0.476)	-0.056 (0.370)	-0.613** (0.288)	-1.360** (0.606)	0.009 (0.113)	0.974 (0.736)	0.938 (0.981)
logDist	87.809*** (25.810)	-39.04*** (10.457)	-13.886* (7.897)	-57.77*** (12.070)	2.512** (0.819)	-0.551** (0.212)	330.638 (326.894)	-92.188* (47.635)
logPI_WE	0.141 (4.469)	-25.67** (10.227)	-19.19*** (5.821)	-20.402 (16.734)	-4.997* (2.748)	-6.825** (3.325)	-1.102 (3.548)	20.404* (10.351)
logPI_AE	0.225 (0.480)	-0.688 (0.587)	-0.205 (0.417)	0.458 (0.323)	1.197* (0.625)	-0.678*** (0.204)	-1.379* (0.816)	-0.686 (1.032)
logAllTrade_WE	---	2.376 (5.054)	-2.629 (1.669)	-8.015 (6.226)	-0.315 (1.627)	-5.386** (1.708)	----	1.058 (1.138)
logAllTrade_AE	---	0.682 (0.483)	-0.435 (0.359)	0.547* (0.312)	-0.319 (0.328)	0.438* (0.187)	----	-0.103 (0.604)
logEFI_WE	-2.877 (3.346)	-1.685 (2.886)	-3.566* (2.001)	0.927 (1.367)	-0.969 (1.986)	-0.143 (1.315)	-2.232 (2.983)	3.812 (4.055)
logEFI_AE	-0.426 (1.714)	1.159 (1.642)	0.466 (1.024)	1.231 (0.850)	-1.944 (1.584)	-4.969*** (1.335)	3.433 (2.359)	2.398 (2.367)
logPetrol	0.062 (0.052)	-0.032 (0.051)	0.032 (0.028)	0.012 (0.028)	0.041 (0.038)	-0.022 (0.031)	-0.056 (0.057)	-1.623 (2.143)
logMinerals	-0.481 (1.089)	-2.069 (4.677)	3.989** (1.749)	8.927 (6.503)	2.064 (1.626)	6.560*** (1.161)	1.026* (0.543)	1.704 (2.197)
EcoInt_Dum	-14.86*** (3.093)	----	-1.182 (1.159)	----	3.515** (1.260)	2.794*** (0.355)	-11.256 (10.094)	-0.014** (4.095)
logODA	----	-0.085 (0.128)	-3.328** (1.674)	0.065 (0.100)	-0.096 (0.103)	0.086 (0.120)	----	0.081 (0.194)
CoLang_Dum	83.571*** (24.260)	----	-0.071 (0.122)	----	1.269 (1.658)	----	----	-6.592** (9.589)
CoRelig_Dum	-28.389** (10.106)	-7.39*** (3.261)	---	----	2.158*** (0.557)	-0.448** (0.199)	-45.273 (52.804)	-29.667 (21.313)
logCPI_AE	-1.2682* (0.593)	-0.402 (0.520)	0.037 (0.414)	-0.972** (0.379)	0.005 (0.545)	0.830 (0.523)	1.407* (0.718)	-0.242 (1.059)
<b>Observations</b>	426	422	424	424	394	415	426	424
<b>R<sup>2</sup></b>	0.897	0.8603	0.9189	0.9512	0.8901	0.8379	0.8046	0.7604

## Conclusion

The estimations give predominantly comparable results for all world emerging economies in consideration. Generally, the results indicate that economic sizes of African emerging and world emerging economies and distance between the capital cities of both sides are important factors of bilateral trade. Besides, socio-cultural factors such as sharing common religion and language are affecting trade. Moreover, natural resources endowment, specifically minerals production, is a critical factor of trade between African emerging and world emerging economies.

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## Appendix

**Table 2: Variables and Sources of Data**

Variables	Stands for	Sources of Data
LogDist	Distance	<a href="https://www.distancecalculator.net/">https://www.distancecalculator.net/</a>
LogGDP_AE	GDP of African emerging	<a href="http://unctadstat.unctad.org/EN/">http://unctadstat.unctad.org/EN/</a>
LogGDP_WE	GDP of world emerging	<a href="http://unctadstat.unctad.org/EN/">http://unctadstat.unctad.org/EN/</a>
LogPI_WE	Per Capita income of world emerging	<a href="http://unctadstat.unctad.org/EN/">http://unctadstat.unctad.org/EN/</a>
LogPI_AE	Per Capita income of African emerging	<a href="http://unctadstat.unctad.org/EN/">http://unctadstat.unctad.org/EN/</a>
LogAllTrade_We	Overall Trade of world emerging	<a href="http://unctadstat.unctad.org/EN/">http://unctadstat.unctad.org/EN/</a>
LogAllTrade_AE	Overall Trade of African emerging	<a href="http://unctadstat.unctad.org/EN/">http://unctadstat.unctad.org/EN/</a>
LogODA_AE	ODA to the African emerging	<a href="http://databank.worldbank.org/data/home.aspx">http://databank.worldbank.org/data/home.aspx</a>
LogPetrol	Petroleum production	<a href="http://databank.worldbank.org/data/home.aspx">http://databank.worldbank.org/data/home.aspx</a>
LogMinerals	Mineral production	<a href="http://databank.worldbank.org/data/home.aspx">http://databank.worldbank.org/data/home.aspx</a>
LogEFI_WE	Economic Freedom Index of world emerging	<a href="http://www.heritage.org/index/">www.heritage.org/index/</a>
LogEFI_AE	Economic Freedom Index of African emerging	<a href="http://www.heritage.org/index/">www.heritage.org/index/</a>
LogCPI_AE	Corruption Perception Index of African emerging	<a href="http://www.transparency.org">http://www.transparency.org</a>
ComReligDummy	Major common religion	<a href="https://en.wikipedia.org/wiki/Religions_by_country">https://en.wikipedia.org/wiki/Religions_by_country</a>
BilAgreDummy	Trade/economic agreements	<a href="https://www.wto.org/english/tratop_e/region_e/region_e.htm">https://www.wto.org/english/tratop_e/region_e/region_e.htm</a>
ComLangDummy	Major common language	<a href="https://en.wikipedia.org/wiki/Category:Languages_by_country">https://en.wikipedia.org/wiki/Category:Languages_by_country</a>
LogFDIpos_WE	FDI positions of world emerging in African countries	<a href="http://elibrary-data.imf.org">elibrary-data.imf.org</a> and unctad Bilateral FDI report, 2014