

Competitiveness and Its Beyond: Examining the Impact of Exports, Exchange Rates, Inflation, and Government Budget on Economic Growth in BRICS, Iran, Egypt, and Ethiopia (2011-2021)

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Abstract:

This study delves into the paradox surrounding competitiveness, exploring its origins and concepts. The primary objective is to investigate how export competitiveness, exchange rates, inflation, and government budget impacted the economic growth of BRICS+ countries, including Iran, Egypt, and Ethiopia, over the period 2011 to 2021. Utilizing annual time series data, mainly sourced from WDI with additional data from IMF (consumer price index) and Bruegel dataset (real effective exchange rates), we employed the autoregressive distributed lag (ARDL) model to analyze the relationships between the variables. The empirical findings from the ARDL Panel method indicate that exchange rates and exports positively influence economic growth both in the short and long term. On the other hand, inflation has a negative short-term impact but a positive long-term effect on economic growth. Additionally, the government budget exerts a positive impact at short term but negative at long term on economic growth. The significant and negative Error Correction Coefficient (COINTEQ01 = -0.0994) at a 1% level of significance underscores the immediate short-term effects of export competitiveness, real exchange rate, inflation, and budget deficit in the examined countries (BRICS+, Egypt, Ethiopia, and Iran).

Keywords: competitiveness, economic growth, export, exchange rates, ARDL method, BRICS+ countries.

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1. Introduction

On the origins of competitiveness (**Aiginger, Bärenthaler-Sieber, & Vogel, 2013**) affirm that historically, the term has been used mainly to bring out attention to the cost position of countries or firms.¹ In this way, (**Olczyk, 2016**) asserts that the source of international competitiveness theory originate from Dixit and Stiglitz model, ‘the imperfect competition models’, and do not be the property of neoclassical theories of international trade, the used measure is majorly trade performance and export performance.²

On the other side in "Three decades of export competitiveness literature", (**Paul & Dhiman, 2021**) explore the theories in this area, arranged absolute advantage theory of Adam Smith and the comparative advantage theory of Ricardo among theories of competitiveness, consider the Mundell-Fleming model as a theory assuming perfect competition in the market and used in the context of export competitiveness. It is based on the pansy that, the appreciation of exchange rates harms exports and favors imports in small open economies.³

Although two different economic thoughts are mentioned in (**Nair, 2020**). Neoclassical economics and strategic management. To make trade competitiveness measurement the former focuses on trade success and assesses competitiveness using the real exchange rate, comparative advantage indicators and export and import indicators, the latter provides thrust to the firm’s structure and strategy, which is intangible and relatively very difficult to measure without rigid assumptions.⁴

However (**Sigue, 2020**), reported that, in the economic literature, two types of competitiveness are distinct. Price competitiveness, which take no notice in what manner an economy afford to sustain out its competitive performance. Then, non-price competitiveness, considered as structural competitiveness, which take into account the

¹ Aiginger, K., Bärenthaler-Sieber, S., & Vogel, J. (2013). Competitiveness under new perspectives (No. 44). WWFforEurope Working Paper. Page 9.

² Olczyk, M. (2016). Bibliometric approach to tracking the concept of international competitiveness. *Journal of Business Economics and Management*, 17(6), 945-959. Page 956.

³ Paul, J., & Dhiman, R. (2021). Three decades of export competitiveness literature: systematic review, synthesis and future research agenda. *International Marketing Review*.

⁴ Nair, S. T. G. (2020). Does BRICS partnership really matter in price competitiveness and external sector growth?. *Competitiveness Review: An International Business Journal*, 30(5), 577-594.

potential of the economy in terms of activities, and competitiveness with foreign countries, as well as the achievement of a better life for populations.⁵

To the paradox of the origin of competitiveness is added a paradox of its definition. However, **(Krugman, 1994)** used a very hard words addressing international competitiveness of countries: dangerous, obsessive, mislead and elusive. According to him, the definition of country competitiveness poses more problems than that of a firm. Many authors tried to define it in multiple facets; also, several studies undertake this subject.

The purpose of this article is to find the effect that export, the exchange rate, inflation and government budget have on the economic growth of the BRICS + Iran, Egypt, Ethiopia countries.

The interest in the subject comes from the fact that emerging countries with rapid economic growth and export-oriented strategies, namely the BRICS+, are experiencing moments of crisis, losses of competitiveness, and challenges to be taken up in the global sphere.

Number of measures have been constructed by economists, and served as indicators of the competitive position of the country. The most occurring measure of competitiveness used is the exchange rate. However, number of authors have analyzed and furnished a discussion of some commonly used indicators of competitiveness based on consumer price indices, export unit values of manufacturing products, and normalized unit labor costs in manufacturing sector.⁶ On export competitiveness, several researchers have discussed this subject. According to **(Leichter, Mocci, & Pozzuoli, 2010)**, high exports are associated with GDP growth, by the competitiveness of the country. Moreover, the recent expansion of BRICS to become BRICS + countries and with considering export volume as index of competitiveness led us to try to fill this gap by considering a study on the five macroeconomic variables previously reported for the BRICS + Iran, Egypt, Ethiopia between 2011 and 2021.

The following sections of the article are structured as follows: section 2, named literature review, brings together step 1 which is a continuation of the theories presented in the introduction, trying to focus in the different definitions of competitiveness concept, then in the step 2 we presents empirical studies. Section 3 presents the data, methodology and results of the study. Then, Section 4 presents the conclusion.

⁵ Sigue, M. (2020). The determinants of the global competitiveness of the economy: a dynamic panel approach applied to the WAEMU country.

⁶ Marsh, I. W. & Tokarick, M. S. (1994). Competitiveness indicators: a theoretical and empirical assessment. International Monetary Fund, 1994(029), 1-40.

2. Literature Revue

2.1. About competitiveness concept

Divergent views of competitiveness obscured the expansion of an integrated framework, to explain the causes of the differences in economic performance that exist between countries, and have mixed-up the public and scholarly dialogue **(Delgado, Ketels, Porter, & Stern, 2012)**. It is a complex, a multidimensional and relative concept; defining competitiveness is itself a research problem⁷. This term is used in a confusing diversity ways, in academic research and in politics. From this area, some center their interest to be capable in the achievement of certain economic outcomes like exports, foreign direct investment or job creation; whilst others pair it with the ability to realize economic growth indicating a high standard living, reaching these overall outcomes. Equally, in some definitions, it is mentioned with a competitive exchange rate to support a current account surplus, or by balanced budget, a stable unit labor costs, or low wages.⁸

(Hawkins, 2006), displayed a significant number of classifications of the concept, he seted out internal market competitiveness, that lead the level of competitiveness, then external price competitiveness and external cost competitiveness, which does not indicate the current level of competitiveness of an economy, but rather whether it is becoming more competitive or less competitive. Also, stressed that the fundamentals of growth that are considered as a measure of competitiveness, they are as efficient to indicate economic growth at the international trade level, as they are at the domestic level, as well indicate two indices of international competitiveness according to him based on the fundamentals of growth.

According to **(Delgado, Ketels, Porter, & Stern, 2012)**, when they addressed the notion of a competitive nation, they referred to a better business environment, which allow the increase of endowments values. They defined two measures of competitiveness. Macroeconomic competitiveness which was the fulcrum of research on productivity and growth using fiscal and monetary policies, a set of institutions, and investments in the public good that define the economy in an entire context. Moreover, a microeconomic

⁷ Chaudhuri, S., & Ray, S. (1997). The competitiveness conundrum: literature review and reflections. *Economic and Political Weekly*, 32(48), M83-M91.

⁸ Delgado, M; Ketels, C., Porter, M. E., & Stern, S. (2012). The determinants of national competitiveness (No. w18249). National Bureau of Economic Research.

competitiveness which is linked directly with tools that conduct firm productivity and its performance.

(Aiginger, Bärenthaler-Sieber, & Vogel, 2013) Proposed a new definition, as new perspective to the concept of competitiveness, called outcome competitiveness; which is the capacity of a country, region or location, to furnish to its citizens, further more than GDP goals nowadays and in the future. In addition to that, it can be achieved by the consideration of new perspectives called outcome indicators such as Income pillar, Social pillar, Ecological pillar and Life expectancy. Afterwards, in **(Aiginger, 2014)** they considered multiple facets of competitiveness. Started by price competitiveness, used to pull attention to the productivity and the position of firms and countries in term of cost. Then, quality competitiveness (or technology) is about process and ability. Unlike cost competitiveness which interest is at one point in time, the quality of competitiveness evaluates the source of competitiveness and future prospect of firms and countries. That is effectively the principle of sustainability.

To **(Fagerberg, Knell, & Srholec, 2004)** and **(Fagerberg, Srholec, & Knell, 2007)**, on several levels, competitiveness is a relative term, applied to a country it is concerned with the performance of a country in relation to others. It has a dual meaning, it draw connection between the economic well-being of its citizens, evaluated via GDP per capita and commercial performance of the country.

While **(Mulatu, 2016)**, on the concept of competitiveness and its usefulness for policy, critically reviewed the different uses of the concept of competitiveness in international economics. Seeking the usefulness and coherence of the concept of international competitiveness as opposed to the concepts of productivity, comparative advantage and exchange structure. He managed to deduce that there is no common opinion on the concept of international competitiveness, neither on a literary accepted definition.

2.2. Empirical studies

The impact of exports and exchange rates as well as competitiveness index on economic growth is widely used in the literature. Emergent countries known to have a rapid economic growth, and a particular export oriented strategies. The interest of certain macroeconomic variables by governments is evident to maintain their competitiveness on the global exchange sphere, and then avoid multiple crises that can decrease their activities.

Investigating export performance **(Vieira & da Silva, 2021)** used the following variables in the study, namely, exports, the level and volatility of the real effective exchange rate, world imports and prices of commodity. They applied a bounds testing (nonlinear ARDL)

approach to cointegration in BRICS countries between 2000 and 2017. The results show that there is long-term cointegration among all the variables. In the short term, the error correction model show that unlike Brazil the BRICS countries have a very low error adjustment, which means that the long-term equilibrium relationship between the variables in Brazil returns to steady state faster than all other countries.

While **(Bulut & YAŞAR, 2023)**, presented a panel quantile regression method to see the effect in different percentiles on exports in BRICS countries, Turkey, Egypt, Indonesia and Colombia, by the independent variables of the study, growth rate, foreign direct investment, nominal exchange rates and inflation rate, among 1980 to 2020. They found that there is no significant relationship between inflation and export when exports start to increase; on the other side, it has a positive correlation when export volume is high. The results also show a significant effect of macroeconomic factors on export.

Then **(Wei, Ahmada, Drazb, & Oztu, 2022)** in order to survey the existence link between exports, gross domestic product, and exchange rates in Asian countries, over the period of 1981–2016. The authors used panel data within Wald test, and Vector Error Correction Model. The results revealed the importance of export competitiveness to the selected Asian economies, which need a reduction in inflationary pressures and opportune and balanced exchange rate policy, and then allow strong exchange rates to contribute to the development of the economies.

Furthermore, to determine determinant of export performance of Asian countries between 2000 and 2015, **(Oo, Kueh, & Hla, 2019)** adopted an Autoregressive Distributed Lag (ARDL) panel method, the analyses results demonstrated that the export performance of ASEAN countries has significant relationship with determinants of export performance, such as exchange rate, inflation, gross domestic product and foreign direct investment. All the considered variables had significant and positive relationship on export performance but only interest rate has negative relationship and statistically insignificant with export performance.

Then with three major techniques of analyses, a pooled mean group, a generalized moment and dynamic fixed effect **(Ebenezer, Ogujiuba, & Maredza, 2022)** pointed the evidence that 13 countries of Southern African Developing Community (SADC) are facing two major challenges volatility in the exchange rate and inflation. They studied the influence that exchange rate instability can have on the existing link between growth rates and inflation in the region, considered as an economic bloc, for the period of 2000 to 2018. The

observed results reveals negative relationship with economic growth in the region generated by the instability of exchange rate and inflation.

Whilst **(Paudel & Sun, 2020)** used a Cointegration Approach (ARDL), and then the regression analysis method of Hausman and Taylor estimators to study the existed relation during the period from 1990 to 2017 in BRICS countries of long term between export performance, financial development and economic growth. Among the suggestions proposed by the authors, export performance is the way to accelerate economic growth in BRICS countries, as the evaluated results indicated that the considered variables, financial development, export performance and the level of education played a significant positive role in the economic growth of these countries.

The government authorities employ different policies to maintain the stability of certain variables. **(Gan & Cheng, 2019)** demonstrated the fact that when China has changed a new policy, the RMB reform in 2005, it permit to have a positive impact on the improvement of export competitiveness. The appreciation of the RMB significantly increases export sophistication, and the maintaining of export competitiveness need a reconstructing trade competitive advantage, by innovation and technology improvement.

Otherwise, the strategic policies of Russia avoid to the country to be sensitive to crises and win in progress and great power. This upshot is mentioned in **(Hadouga, 2023)** with a study of a retrospective from 2000 to 2022 and the prospect from 2023 to 2033 of Russian economic growth, the author findings indicated positive impact of export on economic growth, during the concerned period.

In addition to the other variables, exports, exchange rates and inflation, this study also undertakes government budget in BRICS+ countries. **(Nazari, Asadi, & Imanian, 2023)** spending a panel model, they tested the effect of government budget deficit on economic growth of 12 OPEC members countries, in the proviso of without uncertainty about oil revenues and production. The application of an ARDL model based on PMG and MG methods between 1997 and 2014, allowed to results that in the long run, both government budget and tax revenue holded negative and significant effect on economic growth, whereas savings and exports showed positive and significant effect on the economic growth.

A similar study conducted by **(Nkrumah, Orkoh, & Owusu, 2016)** found significant negative effect of budget deficit on economic growth. At that point, with a vector error correction model **(Shihab, 2021)** perceived that in the long run, changes in Jordanian government budget deficit do not exert influence on economic growth. While **(Kanchori, 2020)** found a positive link between budget deficit and economic growth; contrary to the

control variables, exchange rates, inflation rates and interest rates, showed negative connection with economic growth in Kenia between 2001 and 2019.

3. Data and methodology

3.1. Characteristics of data

The data used in this study include yearly time series for 11 emergent countries called BRICS+ Iran, Egypt and Ethiopia over the period of 10 years from 2011 to 2021.

In order to check the relationship, five variables were used to make the present analysis, Economic Growth proxied by GDP (current US\$) noted GDP, Exports of goods and services by Export noted EXPRT, Government budget by Budget deficit noted BDEF, Exchange rates, by Real effective exchange rates noted REER then Inflation proxied by Consumer price index noted CPI.

All the major data provided from World Development Indicators (WDI) GDP, Exports, the total of government expenditures and Incomes used to generate the Deficit budget except Real effective exchange rates and Consumer price index, the data were incomplete for all countries. We got CPI from (International Monetary Fund) IMF as monthly data and transformed it into annual data. Instead of the absence of certain data of REER from IMF, WDI, and other known dataset, Bruegel dataset furnished it for all the BRICS+ countries.⁹ The following table summarizes what said below.

Table1. Source of the variables

VARIABLE	PROXY	SOURCE
Economic growth	gross domestic product GDP (current US\$)	WDI (DATA BANK)
Export Competitiveness	exports EXPRT(current US\$)	WDI
Government budget	budget deficit BDEF(current US\$)	WDI
Exchange rates	real effective exchange	BRUEGEL DATASETS ¹¹

⁹ It should be noted that the majority of the data was not complete for Argentina, UAE and Saudi Arabia, and then we eliminated them from the analysis.

¹¹ [Real effective exchange rates for 178 countries: a new database \(bruegel.org\)](https://bruegel.org/dataset/real-effective-exchange-rates-for-178-countries-a-new-database/)

	rates ¹⁰ REER (base= 2007)	
Inflation	consumer price index ¹² CPI	IMF

3.2. Definition of the data

Gross domestic product (GDP) is the additional sum of gross value collected from each resident producers in the economy, adjusted to it, product taxes with the subtraction of the subsidies to the value of the product. Data are in current U.S. dollars. (Metadata glossary of World Bank).

Exports of goods and services (EXPR) exhibit the worth of all goods and services furnished to the rest of the world. Data are in current U.S. dollars. (Metadata glossary of World Bank).

Budget deficit (BDEF) is the **Total Expenditures by the Government** (military, education, health...) minus **Total Income of the government** (taxes, revenue...). Data are in current U.S. (Metadata glossary of World Bank).

Real effective exchange rate (REER) is obtained from the nominal effective exchange rate adjusted by a price, or cost, indicator of the main trading partners. The nominal effective exchange rates is a weighted geometric average of the bilateral exchange rates vis-à-vis these countries, making it possible to assess the evolution of this currency in relation to all of these countries. (Hidane, 2003)

The Consumer Price Index (CPI) consider the changements in the cost of getting a basket of goods and services to the ordinary consumer that can be stationary, or change in precise intervals of time . Data are period averages. (Metadata glossary of World Bank).

3.3. Econometric methodology

The ARDL model autoregressive distributed lag is a mixture of lags, of a scalar dependent variable with lags of a vector of explanatory variables. Its origins comes from the analysis of autocorrelated trend stationary processes, where the common practice is to model the de-trended series as a stationary distributed lag (Cho, Greenwood- Nimmo, & Shin, 2023).

¹⁰ For more precision about another database, see <https://www.bruegel.org/working-paper/timely-measurement-real-effective-exchange-rates>.

The recent autoregressive distributed lag ARDL modelling follow new approach developed by (Pesaran, Shin, & Smith, 1999) and (Pesaran, Shin, & Smith, 2001)), this new approach to cointegration testing namely the bounds test, permit also a small or finite sample size with different order of integration of the variables, I(0) and I(1). To examine the relationship between the variables the log form is implicated, the next Equation is shown as simple linear regression model and represented as follows:

$$LGDP_{i,t} = \alpha_{i,t} + \beta_{i,t} LEXPRT_{i,t} + \gamma_{i,t} LREER_{i,t} + \delta_{i,t} LCPI_{i,t} + \theta_{i,t} LBDEF_{i,t} + \varepsilon_{i,t} \quad (1)$$

Following (Logun, 2020), hypotheses are made by using equation (2), in order to test existence of cointegration relationship between variables. The rejection of the null hypothesis means existence of cointegration between variables.

$$\begin{aligned} LGDP_{i,t} = & \alpha_{i,t} + \sum_{j=1}^k \sigma_{ij} LGDP_{i,t-j} + \sum_{j=0}^k \beta_{ij} LEXPRT_{i,t-j} + \sum_{j=0}^k \gamma_{ij} LREER_{i,t-j} \\ & + \sum_{j=0}^k \delta_{ij} LCPI_{i,t-j} + \sum_{j=0}^k \theta_{ij} LBDEF_{i,t-j} + \sum_{j=0}^k \mu_{1ij} \Delta LEXPRT_{i,t-j} \\ & + \sum_{j=0}^k \mu_{2ij} \Delta LREER_{i,t-j} + \sum_{j=0}^k \mu_{3ij} \Delta LCPI_{i,t-j} + \sum_{j=0}^k \mu_{4ij} \Delta LBDEF_{i,t-j} \\ & + \varepsilon_{i,t} \quad (2) \end{aligned}$$

autoregressive distributed lag is a dynamic single model equation of the same form with the ECM, the reparameterized result gives short-run dynamics (i.e. traditional ARDL) and long run relationship of the variables of a single model. (Nkoro & Uko, 2016).

$$\begin{aligned} \Delta LGDP_{i,t} = & \alpha_{i,t} + \sum_{j=1}^k \sigma_{ij} \Delta LGDP_{i,t-j} + \sum_{j=0}^k \mu_{1ij} \Delta LEXPRT_{i,t-j} + \sum_{j=0}^k \mu_{2ij} \Delta LREER_{i,t-j} \\ & + \sum_{j=0}^k \mu_{3ij} \Delta LCPI_{i,t-j} + \sum_{j=0}^k \mu_{4ij} \Delta LBDEF_{i,t-j} + \varphi_i ECM_{i,t-1} + \varepsilon_{i,t} \quad (3) \end{aligned}$$

Where $i=1 \dots N$ denotes the countries; $t=1, \dots, T$ refers to the time and $\varepsilon_{i,t}$ is an error term. $LGDP_{i,t}$ is the gross domestic product of the different countries at time t ; $LEXPRT_{i,t}$ is the

exportations of the countries at time t ; $LREER_{i,t}$ is the real effective exchange rate of the countries at time t ; $LCPI_{i,t}$ is a consumer price index.

A. Empirical results

The empirical analysis starts with pretesting unit root test summary followed by lag lengths, the condition for applying the ARDL model is to check the stationary of the variables, they must be stationary in order 0 and/ or in order 1, if they are stationary in order 2 the model cannot be applied, otherwise the results will be spurious.

Table2. Panel unit root test summary

		LEVEL		1 ST DIFFERENCE	
		STATISTIC	P VALUE	STATISTIC	P VALUE
LGDP	<i>Levin -Lin</i>	-2.43092	0.0075	-6.27129	0.0000
	<i>Im, Pesaran</i>	0.18984	0.5753	-3.51402	0.0002
	<i>ADF Fisher</i>	13.9313	0.6038	42.0350	0.0004
	<i>PP-Fisher</i>	28.2680	0.0294	39.9242	0.0008
LEXPR	<i>Levin -Lin</i>	-0.61985	0.2677	-6.27129	0.0000
	<i>Im, Pesaran</i>	0.65463	0.7436	-3.51402	0.0140
	<i>ADF Fisher</i>	12.9810	0.6741	42.0350	0.0135
	<i>PP-Fisher</i>	10.4956	0.8395	39.9242	0.6216
LREER	<i>Levin -Lin</i>	-2.80908	0.0025	-7.14317	0.0000
	<i>Im, Pesaran</i>	0.48702	0.3131	-3.26581	0.0005
	<i>ADF Fisher</i>	23.0646	0.1120	40.2801	0.0007
	<i>PP-Fisher</i>	33.2134	0.0069	48.6802	0.0000
LCPI	<i>Levin -Lin</i>	-0.76925	0.2209	-6.18724	0.0000
	<i>Im, Pesaran</i>	0.2066	0.5082	-3.53544	0.0002
	<i>ADF Fisher</i>	12.7377	0.6918	42.0329	0.0004
	<i>PP-Fisher</i>	13.0479	0.6693	42.2710	0.0004
LBDEF	<i>Levin -Lin</i>	-1.79719	0.0362	-6.74163	0.0000
	<i>Im, Pesaran</i>	-0.29987	0.3821	-3.53277	0.0002
	<i>ADF Fisher</i>	18.2274	0.3107	41.5608	0.0005
	<i>PP-Fisher</i>	22.4835	0.1283	44.1121	0.0002

Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. Im, Pesaran and Shin W-stat, ADF Fisher Chi-square, PP-Fisher Chi-square- Null hypothesis: unit root (assumes individual unit root process). Levin -Lin & Chu- Null hypothesis: unit root (assumes common unit root process)

Automatic lags length selection based on Schwarz info criterion: 0 to 2. Newey- West automatic bandwidth selection and Bartlett Kernel. Econometric Software- Eviews 12.

This study applied a set of panel unit root test, to address stationarity properties. The test battery includes the Levin, Lin & Chu, Im Pesaran, ADF Fisher Chi-square, and PP-Fisher Chi-Square tests. Unit root tests make it possible to detect the existence of non-stationarity and its degree.

The result of the tests are presented in Table 1, and reveals that all the series are non-stationary at the levels except LGDP and LREER, which shows a result mostly greater than 5% at *Levin –Lin* and *PP-Fisher*. The stationary condition is met at the first difference for all the variables LGDP, LEXPRT, LREER, LCPI and LBDEF.

Table 3. ARDL Model Method

Long Term Estimation		
Variable	Coefficient	t-Statistic
LEXPRT	1.8030 ***	8.1418
LREER	0.6061 ***	5.6870
LCPI	0.0003	0.0086
LBDEF	-0.3077 ***	-2.9977
Short Term Estimation		
Variable	Coefficient	t-Statistic
ECM	-0.0994 *	-1.7435
ΔLEXPRT	0.2112 *	1.7063
ΔLREER	0.3296 **	2.6421
ΔLCPI	-0.0367	-1.3441
ΔBDEF	0.1969 **	2.4715
Error Correction Coefficients for each country		
Country	Coefficient	t-Statistic
Brazil	-0.2629 ***	-132.8342
China	-0.0876 ***	-97.0162
Egypt	-0.2112 ***	-39.5245
Ethiopia	-0.0811 ***	-26.1631
India	-0.2380 ***	-13.8290
Iran	-0.2519 ***	-41.6942
Russia	-0.0280 ***	-7.3202
South Africa	-0.1102***	-95.3068

Method: ARDL, maximum dependent lags: 1; model selection method: AIC; dynamic regressors; 1lag. Selected model (11111);

Note: respectively ***, **, * represent 1%, 5%, 10% level of significance.

Econometric Software- Eviews 12.

This table show the results of the panel ARDL model estimation. To examine the influence of export competitiveness, exchange rates, inflation and government budget on economic growth we tested the long run and short run impact illustrated in the table.

The results show that, the relationship between GDP growth and export competitiveness (LEXPRT) is positive and significant in the long run. The result means that, a percentage point increase in export competitiveness will lead to 1.80 percentage point increase in GDP (or economic growth) in BRICS + Egypt, Ethiopia, and Iran countries in the long run.

In addition, the results indicate that, real exchange rates (LREER) has a positive association with GDP (economic growth), with the relationship being highly significant at the 1% significance level. This implies that, a percentage point increase in real exchange rate will cause GDP (economic growth) to increase by 0.60 percentage point in the long run. Furthermore, the findings reveal that, inflation (LCPI) has a positive relationship with GDP (economic growth). The result means that, a percentage point increase in inflation will cause GDP (economic growth) to increase by 0.0003 percentage point in the long run. Lastly, the result indicates that there is a negative but highly significant relationship between government budget (LBDEF) and GDP (economic growth) in the long term.

The short run estimation results show that, export competitiveness (LEXPRT) is statistically significant and positively related to economic growth. This implies that, a percentage point increase in LEXPERT will lead to 0.21 percentage point increase in GDP growth in the short run. The results also indicate that, real effective exchange rate (LREER) is statistically significant and positively related to economic growth. This means that, a percentage point increase in exchange rates will result in 0.21 increase in economic growth. Inflation (LCPI) has a negative relationship with GDP growth in the short run, the result means that, a percentage point increase in inflation growth will cause GDP growth to decrease by 0.036 percentage point in the short run. Lastly, the short run results indicate that, budget deficit/ government budget has a positive association with GDP growth, with the relationship being significant at the 5% significance level. Statistically, a percentage point increase in government budget will lead to 0.19 percentage point increase in GDP/economic growth in the short run.

The Error Correction Coefficient (ECM)¹³ as calculated in the model COINTEQ01= - 0.0994, is negative and statistically significant at 1 % level of significance. This ECM term is the adjustment speed parameter or feedback effect derived as the error term of cointegration models. It shows the extent to which the imbalance has been corrected, that is, the extent to which any imbalance from the previous period is adjusted in the dependent variable (Nkoro & Uko, 2016). Thus, it reveals the immediate impact of export competitiveness, real exchange rate, inflation, and budget deficit in BRICS + Egypt, Ethiopia and Iran countries in the short run. Therefore, when there is a shock the speed of adjustment to equilibrium of the variables in these countries is 9.94% in the short term.

The error term coefficients (ECM) corresponding to each country are also negative and statistically significant at 1% level of significance. Our analysis to each country demonstrate that all the countries shown low speeds of adjustment, *Brazil* 26.29%, *China* 8.76% , *Egypt* 21.12%, *Ethiopia* 8.11%, *India* 23.80% , *Iran* 25.19%, *Russia* 2.80%, *South Africa* 11.02% , meaning that the long-run equilibrium relationship among the variables returns to the steady state very slowly.

4. CONCLUSION

The different origins of competitiveness via the literature have led to a multitude research on this subject, manipulating the term competitiveness at the country level and on the international sphere is much more problematic. On this point, the established studies are oriented within a framework of performance of economic means and economic growth, well-being and a good standard of living as a goal. Thus in a modern economy, the determinants of economic growth and competitiveness are roughly the same. (AF, 2019)

The results of the econometric study show that exchange rates and exports positively affect economic growth both in long run, and in short run in the BRICS + Iran, Egypt and Ethiopia countries. However, inflation affected economic growth negatively in the short run, and positively in the long run. Although, government budget affect economic growth negatively in the long run, and positively in the short run.

¹³ A positive coefficient indicates a divergence; while a negative coefficient indicates convergence and the speed of adjustment can be faster or slower, it's depend on the characteristics of each country.

The Error Correction Coefficient (ECM) as calculated in the model COINTEQ01= - 0.0994, is negative and statistically significant at 1 % level of significance. This explains the correction of imbalances that affect economic growth when shock occurs; indicates that the speed of adjustment to equilibrium of variables in these countries is 9.94% in the short term. Thus, it reveals the immediate short-term impact of export competitiveness, real exchange rate, inflation and budget deficit in BRICS+ Egypt, Ethiopia and Iran countries.

The error term coefficients (ECM) corresponding to each country are also negative and statistically significant at 1% level of significance. Our analysis to each country demonstrate that all the countries shown low speeds of adjustment, *Brazil* 26.29%, *China* 8.76% , *Egypt* 21.12%, *Ethiopia* 8.11%, *India* 23.80% , *Iran* 25.19%, *Russia* 2.80%, *South Africa* 11.02% , meaning that the long-run equilibrium relationship among the variables returns to the steady state very slowly.

For policy implications this research provides evidence that exports competitiveness and exchange rates in BRICS+ Iran, Egypt and Ethiopia countries drive positively economic growth , in difference to inflation, it direct economic growth positively only in the long term. Contrary to government budget that conduct it positively only in the short term, and that is in accordance to the neoclassical economists prediction that said a high budget deficit is not necessary interpreted into economic growth in the long term.

The Findings reveals the effectiveness and successfulness of the export-oriented strategies for these countries, and the role of exports and exchange rate to maintain performance, then competitiveness.

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