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Trade Openness and Economic Growth: Long-run Cointegration Relationship in Democratic Republic of the Congo

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Abstract

The purpose of this study was to estimate the long-run cointegration relationship between trade openness and economic growth in Democratic Republic of the Congo (DRC), concerning period from 1970 to 2019. We add the investment like control variable of trade openness effect. The time series data collected from World Bank (WB). Using Augmented Dickey-Fuller (ADF) test showed that temporal series are non-stationary. Johansen test conducted to long-run cointegration relationship existence between variables. The vector error correction model (VECM) estimation revealed a negative trade openness impact on growth in long-run. In addition, it showed a positive investment impact on economic growth. This confirmed theory about link between investment and growth. This paper adds to current literature a result following that a trade negative impact exists on growth, by examining the connection between these variables, using VECM estimation for DRC. The main result implies that DRC must realize some conditions permitting to approach the theoretical stipulation. We note that investment in infrastructures of domestic activities connection constitute an important condition, which can allow trade openness to increase growth. Moreover, Government must have courage to reduce importations in yielding local goods and services of substitution.

Keywords

Trade Openness, Economic Growth, Investment, Cointegration Relationship, DRC

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1. Introduction

Trade openness is considered like an important growth factor since Smith [1] and Ricardo [2] thinking's. Others searchers confirmed this conclusion [3-6]. However, the recent empirical results in different countries are contradictory. For instance, Gabriel *et al* [7] examined the link between trade openness and growth in sub-Saharan (SSA) countries in period from 1980 and 2017. The countries divided into two broad categories; the low-income countries, and the middle-income countries. The dynamic panel analysis using the techniques of difference Generalized Method of Moments (GMM), and system GMM employed. The empirical results concerning low income countries showed a positive trade openness impact on growth. Hasan [8] examined the connection among the same variables in Bangladesh. He used the data only for period after the trade liberalization in the early 1990s. Both cointegration and Granger causality analysis used to find the short-run and long-run trade openness effects on growth. The result indicated that trade openness has positive and significant effects on growth in Bangladesh. Granger causality analysis told that trade

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openness causes growth in long-run, though not in short run.

Philemon *et al* [9] assessed the effect of political institutions, as captured by government efficiency and the quality of regulation, on the relationship between growth, and trade openness using a sample of five central African countries cover period 1996-2016. Using the Estimator GMM, they found a positive trade openness impact on growth and, in the other hand, they related that government efficiency, and the quality of regulation improves this impact. Katuala [10] verified the validity of some studies following that, there is a significant link between trade openness, and growth in transition countries. He worked on countries members of the Economic Community of Great Lakes (CECGL), during period 2002-2018. Using a dynamic panel model, the results suggest that international trade influenced positively on growth.

Khalid [11] estimated relationship between trade openness and growth in Pakistan. He employed both Johansen and Autoregressive Distributed Lag (ARDL) model, and cointegration together with ECM Techniques for period from 1975 to 2016. The results showed that there exists a short-run and long-run positive and stable cointegration among the variables. Moreover, the Granger causality test also confirmed the bidirectional causality between variables. Alam e*t al* [12] examined the causal link between growth and trade openness for 15 Asian countries over period 1990-2017. They applied panel cointegration, and causality approaches to examine the long-run and causal relationship between variables. Empirical results confirmed the presence of cointegration between variables. They found a positive trade openness impact on growth. The panel VECM Granger causality analysis revealed the bidirectional causality between growth and trade openness. Malefane [13] estimated the dynamic trade openness impact on growth in Botswana. He used the ARDL bounds testing approach. Evidence from results reveals total trade significance, and exports in promoting growth in Botswana.

Farahane *et al* [14] empirically tested hypothesis that trade can act as an engine of growth. They used a panel data for the Southern African Development Community (SADC); a regional integration agreement (RIA) organization. They recall that central objective of whose formation was need to accelerate, foster, and encourage the region's growth. The results indicate that during period covered by this study (2005-2017), export expansion stimulated growth; however more openness to trade reduced it. In addition, they affirm that SADC had not yet brought about any effects on growth, perhaps because of lack of full establishment of the primary instruments for achieving its central objective. Their results lead to three conclusions. Firstly, trade through export expansion appears to be a better solution for SADC to achieve its central objective. Secondly, they conclude that more openness to trade seems to jeopardize growth. Finally, the formation of SADC has not yet brought about the expected gains from a RIA.

Ngouhouo *et al* [15] studied trade openness effect on growth in 29 Sub-Saharan African countries about period from 1996 to 2018. Calculating both, trade openness and institutional quality as composite indexes; the results from GMM system estimation showed a significant enhancing trade openness effect on growth. Shimelis [16] analysed nexus between trade openness and growth, concerning 7 economies from east African countries. Data on relevant variables such as GDP, trade openness index, FDI, population growth rate, official exchange rate and HDI were acquired from secondary sources that constitute a time series of 18 years period covers 2000 to 2018. Data were analysed using constituted a time series of 18 years period. The fixed effects model result suggested that trade openness have negative effects on growth.

Gries *et al* [17] examined nexus between trade and income concerning 167 countries cover period from 1970 to 2011. In addition, they assume that effect is not homogenous for all countries, but rather varies according to development stage and trade openness degree. They apply panel cointegration, Granger causality and panel error correction in combination with Dynamic Ordinary Least Squares (OLS) and GMM estimation. The results suggest a statistically significant positive short-run and long-run global relationship between trade and income. However, when splitting the panel into different income and trade openness groups, a long-run relationship observed only for high income countries, and countries with a relatively high trade openness degree. Ndungo [18] realized a study on Common Market for Eastern and Southern Africa (COMESA) Free Trade Agreement (FTA), where he establishes a nexus between trade openness and welfare. He adopted a partial equilibrium model as the methodological approach. The conclusions revealed that COMESA FTA will be beneficial to the DRC in terms of an increase in exports and consumer welfare gain. Moreover, he discovered that WITS-SMART simulation results indicated that trade will be created in the DRC as a result of the COMESA FTA.

Udeagha *et al* [19] used new developed nonlinear autoregressive distributed lags (NARDL) framework to examine deeply the link between trade openness and growth in South Africa, concerning period from 1960 to 2016. They underlined the asymmetric trade openness influences. The new trade openness proxy is constructed to take into consideration both South Africa's trade share of its GDP, and its relative size of trade in relation to world trade in a specified period. They adopted this novel approach to capture

openness permits the simultaneous testing of short and long-run nonlinearities through positive, and negative partial sum decompositions of trade openness. The results showed that trade openness have short- and long-run asymmetric effects on growth. Bello *et al*., [20] examined link between competition, trade and growth in Nigeria, about period from 1981 to 2015. They used quarterly dataset, while controlling for financial development and institutions. Johansen's cointegration approach and VECM served them as analysis methods. The results indicated that trade openness influences growth than competition, when there is a presence of strong institutions.

Elijah *et al* [21] investigated the dynamic trade openness impact on the growth in Nigerian economy for period covers 1980-2016. Secondary data were sourced, from 2016 Central Bank of Nigeria Statistical Bulletin'. Unit root, cointegration tests, and Error correction model are used. The result revealed that trade openness impacts negatively on growth in both short-run and long-run. Adu-Gyamfi *et al* [22] searched to determine trade openness effects and inflation on the GDP growth for nine West-African Countries for period from 1998 to 2017. They used a secondary data sources derived from the World Development Indicators (WDI) of the WB over period 1998-2017. They employed pooled OLS, Fixed Effects and Random effects test with panel data. The results showed that trade Openness has a significant negative impact on GDP using the pooled OLS and an insignificant impact using the fixed and random effect tests.

Ajayi *et al* [23] examined trade openness effect on growth of Nigeria using data from 1970 to 2016. They analysed secondary data obtained from world development data base, WB and International Financial Statistics, IFS- International Monetary Fund Data Base and Central Bank of Nigeria Statistical Bulletin. They used ADF and Phillip-Peron (PP) unit root tests, and they discovered that all series are non-stationary at level. However, when they took the variables at first difference, results showed that all are I(1) at 5% for ADF and 1% for PP level of significance except the labor input which was not stationary at first difference in ADF. Using the cointegration estimation, and found that trade openness and growth depicted a positive relationship. Kabuga *et al* [24] evaluated trade openness effect on long-run growth in Nigeria for a time series data covering period from 1986 to 2016. Using the Johansen cointegration methodology, the paper found evidence of the existence of co-movement between trade openness, exchange rate and growth in the long-run. Employing both Fully Modified Ordinary Least Square (FMOLS) and Dynamic OLS regression techniques, they also found that trade openness has significant positive impact on growth.

Bayar *et al* [25] analyzed the relationship between trade openness, poverty alleviation and inequality in 11 Latin American countries by employing a panel data analysis. They revealed that trade openness, and financial development affected inequality and poverty negatively in the long-run, while inequality affected poverty positively. Alhakimi [26] assessed trade openness impact on the per capita income of Kuwait. Its findings suggested that trade openness has a negative impact on the per capita income. The results also indicated that other variables also affect the per capita income, such as income distribution, the structure of exports, and trade restrictions.

Abiodun [27] studied relationship between international trade and growth in Nigeria between 1981 and 2014. Varied views were analysed in what way trade contributes to growth or not. He deployed Engle-Granger cointegration test and Single Equation Error Correction Mechanism to assess long-run relationship among the variables. The results revealed a positive relationship between growth and international trade. Keho [28] measured trade openness impact on growth for Cote d'Ivoire over period from 1965 to 2014; in a multivariate framework including capital stock, labor and trade openness as regressors. He used ARDL model, and the Toda and Yamamoto Granger causality tests. The results showed that trade openness have positive effects on growth both in short and long-run. Furthermore, they revealed a positive and strong complementary relationship between trade openness and capital formation in promoting growth.

Mangir *et al* [29] estimated the relationship between trade openness and growth for African countries. They analysed the homogeneity, and cross-sectional dependency tests of the variables to determine appropriate unit roots and cointegration tests. Their data set included 10 Africa countries for period from 1990 to 2015. They employed pool mean group estimator (PMG) under the panel ARDL model framework. The results suggested that an increase in trade openness has positive impact on growth in long-run. Adamu *et al* [30] examined long-run and short-run relationship between industrial production, and trade openness in Nigeria during period from 1986 to 2008 by using quarterly data. They employed ARDL bounds testing methodology. The results of both long-run analysis and short-run error correction model (ECM) indicated that trade openness has a significant, and positive impact on industrial production. The Toda-Yamamoto causality analysis showed that there is one-way Granger causality, running from trade openness to industrial production.

Makun [31] evaluated trade openness effects on growth in Malaysia by applying time-series econometric technique. LSE-Henry's general to specific approach results show significant positive effect of trade openness on growth. Dritsakis *et al* [32] explored the relationship between trade openness, and growth

using data for the thirteen newest European Union members. The study covered period from 1995 to 2013. They applied panel cointegration, and causality approaches to examine the long-run and the causal relationship between the variables. The results a nexus cointegrating vector between trade openness and growth, in this group of the thirteen countries. An error correction model (ECM), followed by the two steps of Engle, and Granger was used to capture the short and long-run dynamics. Growth and trade openness nexus was positive. Finally, the panel Granger causality analysis reveals a unidirectional causal relationship running from trade openness to growth, both in the short and long-run.

Hye *et al* [33] used an endogenous growth model to determine the long-run relationship between trade openness and growth in China. He used the data on period from 1975 to 2009. The ARDL cointegration technique and rolling regression method are used. The empirical findings indicated that trade openness is positively related to growth in long-run and short run. However, results from the rolling window proposed that trade openness is negatively linked to growth only for a number of years. Hye *et al* [34] examine the link between trade openness and growth in India, for period from 1983 to 2009. They used new endogenous growth model theoretical support, ARDL and rolling window regression method in order to determine the short and long-run association between these variables. The results revealed that trade openness impacts negatively on growth in the long-run. But in short run, trade openness is positively related to growth.

Sakyi *et al* [35] quantified trade openness impact on growth, and development of 85 middle-income economies concerning period from 1970 to 2009. They used several heterogeneous panel cointegration techniques that are robust in the presence of non-stationary, endogeneity and cross-section dependence. Which, it offers more reliable results than conventional approaches. The main conclusions of their paper are that there is a significant long-run relationship between trade openness and development, and that this is bi-directional. This implies that higher development tends to increase trade openness and vice-versa. Jawaid [36] examined the comparative effect of three different measures of trade openness on growth in Pakistan by using more rigorous econometric techniques. ARDL method, cointegration and OLS results suggested significant positive long-run relationship between export and growth. In contrast, total volume of trade, and imports had significant negative effect on growth. The addition of variables and results of fully modified ordinary least square (FMOLS) evoked that the results are robust.

Erero *et al* [37] appraised the effects of reducing tariffs through a Computable General Equilibrium (CGE) model of the DRC. The specific DRC Formal-Informal Model (DRCFIM) was a multi-sectorial computable general equilibrium model that captured the observed structure of the DRC's formal and informal economies, as well as the numerous linkages or transmission channels connecting their various economic agents, such as investors, firms, traders, and the government. The parameters of the CGE equations were calibrated to observed data from a social accounting matrix (SAM). In particular, their study drew attention of policy makers to a different employment outcome, when tariffs reduction was taken into consideration. Tariffs reduction increased formal employment, and output but hurt informal producers. It significantly increased the output and employment of the formal sector by raising import competition without providing further opportunities for the informal sector to access foreign export markets. Nonetheless, it induced productivity improvements when local producers survive import competition by seeking importing input-saving technologies and production practices.

DRC following trade policies reform proposed by IMF resulting that, it was very important to increase economy openness generally and trade openness particularly. That's why, it is necessary to examine relationship between its trade openness and growth, which implies some trade policies orientations. We recall that DRC comes to sign the continental free trade agreement. That means that its trade openness rate will augment while there is insufficient empirical results' showing sense of relationship between international trade and growth. That is why this study aims to fill this lack. In contrast to previous studies, we use only data cover period from 1970 to 2019 especially for DRC. This paper adds to existing literature, the result following that there is a significant negative relationship between growth and trade openness, by using VECM estimation for DRC. Clearly, this study purposes to answer the following question: a positive long-run link between trade openness and growth does exist in DRC? The rest of paper is organized like this: Firstly, the data analysis and methodology will be demonstrated. Here, we will show theoretical bases; how and where data are collected. In addition, we will show how method of analysis is led. Secondly, the results will present with interpretations. And thirdly, these results will be discussed before to conclude with some recommendations.

2. Data analysis and Methodology

2.1. Theoretical Bases

Theories of international trade postulate hypothesis that trade plays a crucial role in improving growth, bringing about gains in welfare [38]. Edwards [39] found that there is a significant link between trade openness and growth. Other

researchers concluded that a significant positive impact of trade openness on growth exists [40-41]. This acceptation remains at foundation of persistent controversy. From empirical studies, some authors found a negative relationship [16, 26, 33, 36, 46]. However, others discovered a positive relationship [13, 3-4, 32, 43].

We choose this country because there is results' insufficiency on this question until now there, in the sense that we adopt here; while, it comes to adopt the juridical document of free trade continental zone. It means that DRC hopes to increase its growth by using trade openness policies. That is why; this study aims to clarify opinion by its contribution in the existing literature.

2.2. Econometric Modelling

The time series statistics from WB, covering period from 1970 to 2019 were transformed in quarterly data using quadratic spline. By checking data with the Augmented Dickey-Fuller (ADF) unit root test, the results showed that very variable remain non-stationary. The Johansen cointegration test reveals a long-run relationship between variables. The assessment realized by vector error correction (VEC) model, using E-views 10 analysis software.

Resulting cointegration method, letter Z_t symbolizes a vector that contains diverse variables. The VAR is signified by way of:

$$Z_t = \mu + \sum_{i=1}^{n-1} \Pi_i Z_{t-i} + \varepsilon_t \qquad (1)$$

where Π_i is a $n \times n$ matrix of parameters, μ is a constant term and $\varepsilon_t \approx iid(0, \Omega)$. The VAR system of expression (1) can be redrafted as a vector error correction (VEC) model

$$\Delta Z_t = \mu + \Pi Z_{t-1} + \sum_{i=1}^{n-1} \Gamma_i \Delta Z_{t-i} + \varepsilon_t \qquad (2)$$

where Γ_i is the parameter of short-run coefficients, and Δ is an expression for first difference series. The rank of Π, r determines how many linear mixtures of Z_t are stationary. If $r > 1$, one is able to show the indirect link that exists between variables given a proper economic identification. For the sake of this paper, the vector Z_t comprises the gross domestic product per capita ($GDPC_t$), the investment ($INVESTt$) and the Trade openness (TO_t). The potential cointegrating relation, when standardized by $GDPC_t$, is extracted as:

$$GDPC_t = c + \alpha\, TO_t + \beta INVEST_t + \varepsilon_t \qquad (3)$$

with the cointegrating vector given by $(1, -\alpha, -\beta)$ in this case.

3. Results

3.1. Variables Graph Evolution, Table of ADF and Johansen Tests

Under, the figure 1 shows the graph of variables revealing cointegration tendency.

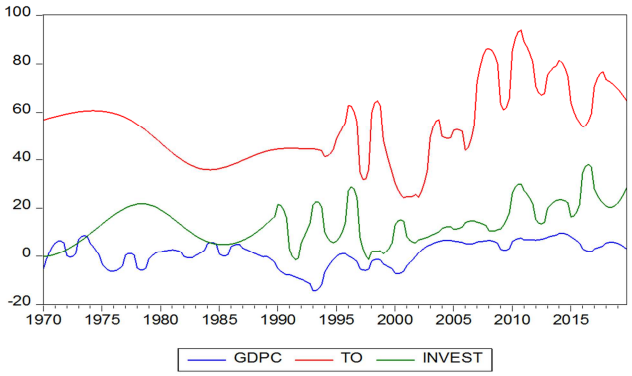

Figure 1. Graph of variables evolutions.

To assess the cointegration relationship, the initial phase consists to use the variables stationarity test. Because Bourbonnais [44] wrote that if they are stationary, the cointegration estimation is impossible. The variables must be non-stationary in the same order. And if this condition is filled, the Johansen test comes to determine the presence of cointegration relationship between variables. ADF unit root test revealed the results in the table 1 below:

Table 1. Output of ADF Unit root test.

Variables	ADF test stat* level	Critical at value 5%	ADF test stat at First dif.	Critical value at 5%	ADF test stat at Second dif.	Critical value at 5%	Integration Order
GDPC	-2.551998	-2.876927	-3.712166*	-2.876927	-10.14549	-2.876927	I(1)
TO	-1.666224	-2.876927	-3.653742*	-2.876927	-8.864897	-2.876927	I(1)
INVEST	-1.937794	-2.876927	-3.832310*	-2.876927	-7.980205	-2.876927	I(1)

Source: Researchers' compilation from Eviews 10

Regarding the results of this table, the condition of cointegration estimation is filled. Then we realized the Johansen test that results are in the table 2 below:

Table 2. Results of Johansen test.

Series: GDPC INVEST TO				
Lags interval (in first differences): 1 to 3				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.136275	48.86979	35.19275	0.0010
At most 1	0.068341	20.15551	20.26184	0.0517
At most 2	0.031538	6.281002	9.164546	0.1701
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.136275	28.71428	22.29962	0.0055
At most 1	0.068341	13.87451	15.89210	0.1011
At most 2	0.031538	6.281002	9.164546	0.1701
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values				

Bourbonnais [44] wrote that when the time series are non-stationary, however they have a cointegrating relationship like in this case; it fits to estimate this association through VECM. These results showed that there is a cointegrating relationship with GDPC normalized. Whence estimation leads to result presented in the table 3 below.

3.2. Cointegration Relationship and Error Correction Model

Table 3. Output of cointegration relation estimation.

Cointegrating Eq:	CointEq1
GDPC (-1)	1.000000
INVEST(-1)	-1.498449
	(0.46017)
	[-3.25629]
TO(-1)	0.346285
	(0.19851)
	[1.74443]
C	4.539302

$$\varepsilon t = 1GDPC + 0.34\,TO - 1.49\,Invest$$

Or again: GDPC $= -4.53 - 0.34$TO $+ 1.49$ Invest

This representation shows a negative long-run relationship between trade openness and growth in DRC. For proof, a trade openness augmentation of ten points drives to GDPC increasing to 3.4 points. The rising of investment at 10 points conducts to GDPC increasing at 14.9 points. This results showed that trade openness does not constitute a growth factor in DRC, like theoretical consideration pretends. The relationship between investment and GDPC confirmed the theory following that investment is an important growth factor.

Error correction model (ECM)

It fits to identify if one cointegration vector exists, and determine the value of recall force towards equilibrium (cointEq1). The result below shows that GDPC constitutes the equilibrium variable in this model, viewed the negative value of cointEq1. The error correction confirmed that DGPC remains the endogenous variable. Moreover, recall force on the way to equilibrium of 0.155479 means that all disequilibrium in this model is corrected by growth economic change after 6 quarters

Table 4. Vector Error Correction Model.

Error Correction:	D(GDPC)	D(INVEST)	D(TO)
CointEq1	-0.155479	0.396040	0.136166
	(0.06867)	(0.12408)	(0.22933)
	[-2.26411]	[3.19170]	[0.59375]

From macroeconomic view, trade openness shocks can constitute a serious problem to stopover. To understand that, we show the reactions of growth from trade openness shocks in the following lines.

3.3. Impulse Function Responses of Growth to Shocks of Trade Openness and Investment

Before to show the reactions of growth to trade openness shocks, stability test were realized and the result is below:

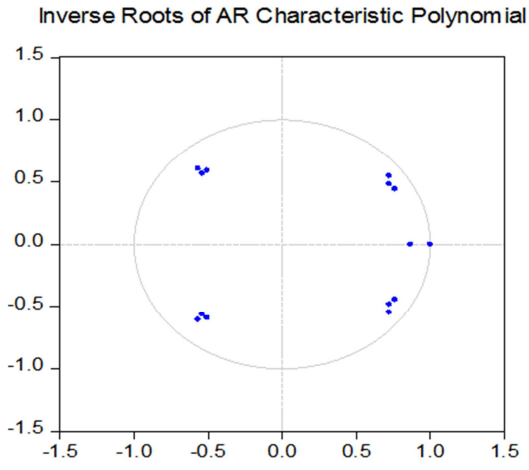

Figure 2. Stability condition of VAR output.

The characteristic roots of lag polynomial associated to VAR concerning cointegration relationship between growth and trade openness dwell in complex plane disc for this model. It means that the VAR estimated is stable, and the condition to analyse the impulses responses is respected. That's why the results are below:

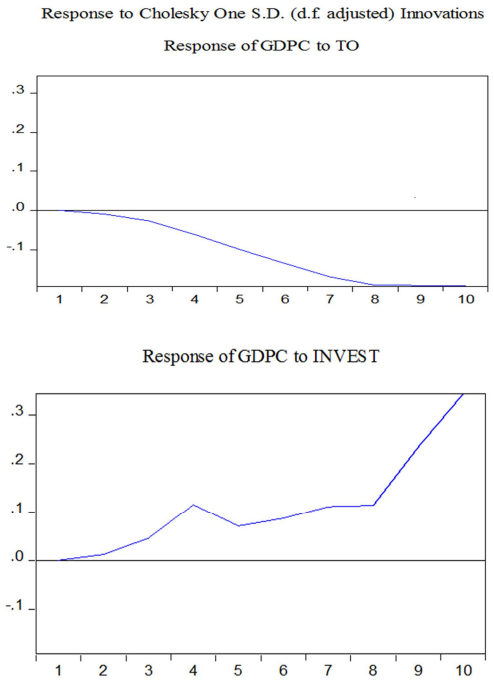

Figure 3. Responses of growth to Trade Openness and Investment.

Investment shock boosts positively growth confirming theory following that investment constitutes an important progress factor in short and long run. However, trade openness shock reduces growth in negative sense, confirming that trade openness constituted economic regression factor in DRC.

3.4. Robustness Test

We change the nexus condition estimation between trade openness and growth. Using real gross domestic growth (RGDG), to see if the parameters will conserve their stability, and the negative result can remain between these variables (TO and GDPC).

Table 4. Vector Error Correction Estimates with RGDG.

Vector Error Correction Estimates	
Cointegrating Eq:	**CointEq1**
RGDP(-1)	1.000000
TO(-1)	2.972421
	(0.99340)
	[2.99217]
INVEST(-1)	-7.302689
	(2.04463)
	[-3.57164]
C	-60.29642

After to use RGDP in the estimation, we see that the results conserve the same tendencies. An important remark remains the negative sense of nexus between trade openness and growth. From this, we conclude that model is robust. It is the same for impulse responses below:

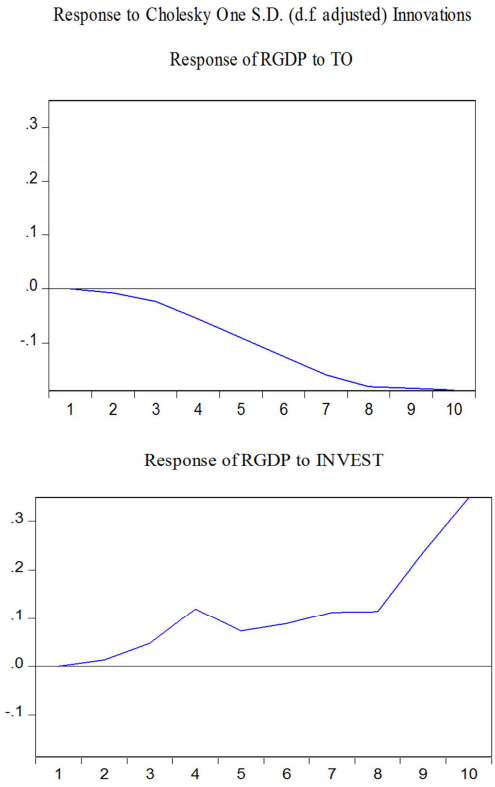

Figure 4. Growth Responses' to trade openness and investment shocks.

The same tendencies remain and incite us to confirm that parameters are robust. That is why verification by portmanteau tests gave following results:

Table 5. The Portmanteau Tests for Autocorrelations confirmed the validity of this model.

VEC Residual Portmanteau Tests for Autocorrelations					
Lags	**Q-Stat**	**Prob.***	**Adj Q-Stat**	**Prob.***	**df**
1	12.39204	---	12.45592	---	---
2	13.83190	---	13.91069	---	---
3	17.75394	---	17.89402	---	---
4	80.93863	---	82.40194	---	---
5	103.4560	0.0000	105.5118	0.0000	15
6	122.3906	0.0000	125.0476	0.0000	24
7	139.1823	0.0000	142.4645	0.0000	33
8	175.7279	0.0000	180.5736	0.0000	42
9	186.0092	0.0000	191.3524	0.0000	51
10	191.5938	0.0000	197.2388	0.0000	60

*Test is valid only for lags larger than the VAR lag order.
df is degrees of freedom for (approximate) chi-square distribution after adjustment for VEC estimation (Bruggemann, *et al.* 2005)

These results show that our model remains stable and valid.

4. Discussion

Many of studies in literature used GMM system conducted to

trade openness positive impact on growth [3, 7, 9]. For instance, concerning the sub-Saharan, two authors found the same results in using the GMM system model [7, 15]. This reality can come from the nature of method perhaps. It is the same for all studies, which used panel cointegration method. They led to trade openness positive impact on growth. We think that these models influence the results possibly. Our result does not corroborate them concerning the positive impact of trade openness on growth. About VECM, the results are contrasted because a result showed a trade openness positive impact on growth [27]. However, others indicated a negative impact on it [14, 21]. Using the same model like them, our finding corroborates their results concerning the negative impact and the model also.

There is a contradiction between results from using ARDL model. Some findings showed positive impact of trade openness on growth [11, 13, 35, 30]. These results are not conformed to ours. However, others findings showed negative relationship between these variables [26, 36]; which are corroborated by the result of our study.

An important remark concerns the contrasted results come from using different models or methods concerning Nigeria. A group of authors found a trade openness positive impact on growth [17, 20, 27], 30]. Though, others found a negative impact of trade openness on growth [21]. That can be justified by difference between periods of these studies and methodologies also.

The important economic problem of DRC remains into activities connection and good governance lack, considered like an ensemble of good decisions to increase growth and distribute it to serve people.

5. Conclusion and Recommendations

The international trade is considered like an important growth factor. However, numerous empirical results contrasted on this relationship. This study purposed to estimate the long-run cointegration link between trade openness and growth in DRC, concerning period from 1970 to 2019. We recall that the beginning of this period coincides to competition theory born, and end coincides to data existence. Using Augmented Dickey-Fuller (ADF) unit root test led to results, which show that time series are non-stationary. The VECM estimation revealed trade openness negative impact on growth. However, investment impacts positively the growth. That confirmed the theory following that; investment constitutes a fundamental growth factor.

The main result implies that DRC must not consider trade openness like a growth factor. It must realize some conditions permitting to approach the theoretical reality. We note that investment in infrastructures of domestic activities connection, high quality of scholar and scientific formations constitute important conditions to allow trade openness to increase growth. Government must have courage to reduce the importations in yielding local goods and services.

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