Journal of Economics and Development Studies
December 2023, Vol. 11, No. 2, pp. 52-61
ISSN: 2334-2382 (Print), 2334-2390 (Online)

Published by American Research Institute for Policy Development
DOI: 10.15640/jeds.v11n2a6
URL: https://doi.org/10.15640/jeds.v11n2a6

Effects of Trade Openness on Economic Growth in CEMAC

Auguste M'PIAYI & Ferdinand MOUSSAVOU

Abstract

This article examines the effects of trade openness on economic growth in CEMAC using the Auto Regressive Distributed Lag (ARDL) model and data for the period 1990-2020.These impacts were assessed under the control of trade openness, human capital, human development index, inflation, foreign direct investment and corruption. The results of the study indicate that, in the short-term, the human development index and foreign direct investment influence economic growth. On the other hand, trade openness, human capital, inflation and corruption appear to be neutral. Of all these factors, trade openness, human capital and corruption have no long-term effect. These results have important implications for economic policy in Congo-Brazzaville.

Keywords: Trade openness; Economic growth; Panel data; ARDL.

JEL Classification: D3; C22; O55, Q56.

.

Introduction

Trade openness can be seen as the intensity of international trade (Stiglitz, 2007). For Solow (1988), trade openness is a fundamental factor in stimulating economic and social development in both developed and developing countries. Thus, a country's economic development would depend, among other things, on greater openness to trade.

The literature on the effects of trade openness on economic growth has been the subject of several theoretical and empirical studies (Grossman and Helpman, 1990; Levine and Renelt, 1992; Jeffrey and Romer,1999). With this in mind, Grossman and Helpman (1990) conducted research in developed countries. Their results indicated that the level of knowledge accumulation has a positive impact on the link between trade openness and economic growth. In the same vein, the work of Levine and Renelt (1992) shows that the causal relationship between trade openness and economic growth is mediated by investment. Thus, if openness to international trade allows access to investment goods, this will lead to long-term growth. According to Jeffrey and Romer (1990), international openness has an important and significant impact on economic growth.

In the Central African Economic and Monetary Community (CEMAC), the work of the AfDB (2019, 2022) on the impacts of trade opening on economic activity has provided significant lessons. For example, between 2016 and 2017, economic growth was weak, at 0.1% in 2016 and 0.9% in 2017. In 2018, this growth was estimated at 2.4%, rising to 3.4% in 2019. In 2021, this economic activity will recover by 3.1% after a contraction of 0.4% in 2020. This recovery continued in 2022, reaching 4.6% of gross domestic product. These macroeconomic aggregates, which are essential financial indicators of the CEMAC economy, appear mixed.

In CEMAC, empirical research addressing this issue stems from Skoda and Nkot (2017), to our knowledge. With this in mind, this article seeks to answer the following question: does trade openness influence economic growth in CEMAC?

The aim of this article is to study the effects of trade openness on economic growth in the six (06) CEMAC member countries, based on the theoretical and empirical contributions available in the economic literature. The data used via the ARDL model covers the period 1990-2020. To do this, we will distinguish the impact of trade openness as a target variable, from that of the other variables that play the role of control.

This paper is divided into three sections. In the first, we present the literature review on the impact of trade openness on economic growth. In the second section, we will proceed with the empirical work, presenting successively the methodology adopted and the study data. Finally, the last section will present the model estimation procedure, results, interpretations and associated implications.

1. Literature review

1.1. Theoretical review

The issue of trade openness and economic growth is at the heart of debates between the classics (Hume, 1752; Smith, 1776; Ricardo, 1817) and theorists in the structuralist and post-keynesian tradition (Solow, 1957; Linder, 1961; Chenery and Bruno, 1962). Indeed, the classics have analyzed this theme. Hume (1752), for example, shows that the prosperity of nations depends on their precious metals. For Smith (1776), a nation's wealth is measured by the amount of its precious metals. For Ricardo (1817), on the other hand, international trade has a positive and significant impact on economic growth.

In the wake of all this work, an abundant literature inspired by theorists in the structuralist and post-keynesian tradition has taken shape. In this line, Solow (1957) shows that the economy is between two states, in particular, an initial state marked by a weakness of physical capital and a final state where physical capital is abundant.

To analyze this problem, Linder (1961) focuses on the theory of representative demand. He notes that the foreign market is merely an extension of the domestic market, when the latter's solvency is reduced.

For Chenery and Bruno (1962), trade openness alone is not enough to boost economic growth, but the quality of foreign trade must also be taken into account.

1.2. Empirical review

A vast empirical literature explores the relationship between trade openness and economic growth. It uses several types of models (VECM, OLS, ARDL) and econometric techniques (Granger causality tests), and leads to a variety of results. For the purposes of our research, we have grouped these studies into two broad categories: those that show that trade openness has a positive influence on economic growth, and those that show that trade openness has a positive influence on economic growth. Find the effects of trade openness on economic growth to be opposite or mixed.

1.2.1. Research into the positive effects of trade openness on economic growth

In this first category, we can include the work of Harrison (1996), who studied the impact of trade openness on economic growth in developing countries. His results showed a positive and significant relationship between the degree of openness and economic growth. The work of Bruckner and Lederman (2012) confirms this result.

Placed in the context of 158 developing countries, Gries and Redlin (2012) explored the short-and long-term dynamics between the degree of openness and GDP per capita growth over the period 1970-2009. Using panel cointegration tests and error correction models, they attest to a positive and significant causal link between the two variables.

Focusing on sub-Saharan African countries, Sekkach (2021) studied the impact of these countries' openness to international trade on their economic growth. He used the generalized moments methodology with 38 years of data from 1981 to 2019. His results revealed that trade openness has a positive and significant impact on economic growth. For this author, population growth and physical capital were among the main determinants of economic growth.

Tomondji and Mamadou (2021) investigate the effect of trade openness on economic growth in WAEMU countries. They used a panel model based on the Pool Mean Group (PMG) approach. Their results revealed the existence of a positive and significant impact of trade openness on economic growth when the degree of openness is less than 61.2% of GDP.

1.2.2. Studies on the negative or mixed effects of trade openness on economic growth

In this second category, the effects of trade openness exert a negative or mixed influence on economic growth. Included in this category are the works of Jin (2004), Ekodo and Nkot (2017), Zahonogo (2017), Guei and Le Roux (2019) as well as Youssef and Abdellatif (2019). In this vein, in 2004, Jin analyzed the impact of trade openness on economic growth in China. Using the share of trade in GDP, he found that trade openness has a significant negative impact on growth in China's inland provinces.

Ekodo and Nkot (2017) address the effect of trade openness on economic growth in the CEMAC zone. To test their hypothesis that trade openness negatively affects economic growth in the CEMAC, they use the Dynamic Panel Generalized Method of Moments (GMM) and the period 1967-2016.Their results revealed that these countries do not benefit from trade openness.

Zahonogo (2017) conducts study on the effect of trade openness on economic growth in sub-Saharan African countries over the period 1980-2012. He finds that above the 134.2% threshold, trade openness has a negative effect on economic growth in these countries.

In the countries of the Community of West African States (ECOWAS), Guei and Le Roux (2019) analyzed the link between trade openness and economic growth. These authors highlighted a negative and significant relationship between trade openness and economic growth. They justify this finding by pointing to the weakness of ECOWAS states in taking advantage of export diversification, a necessary condition for sustaining economic growth.

The relationship between trade openness and economic growth has also been investigated by Youssef and Abdellatif (2019) in developing countries (DCs) over the period 1982-2016. These authors used Generalized Moment Models. Their results showed that the effect of trade openness depends on how this openness is captured. In particular, the delayed opening rate seems to have the most impact on per capita income growth.

This study has also produced mixed results, or none at all, on economic growth. For example, Ben (1993) conducts an econometric study in which he attempts to analyze the effects of trade openness on economic growth. He confirms that it is only in open economies that unconditional convergence is observed.

In a study published in 1995, Coe and Helpman (1995) examined the effects of trade openness on economic growth in a sample of 22 industrialized countries. Using cointegration techniques, they argue that growth is driven by technology and induced by trade openness.

As for Awatef (2018), the relationship between openness, human capital and economic growth remains ambiguous. In other words, the link between trade and technological transmission does not clearly result in significant revenue for the national economy.

2. Study methodology and data

2.1. Empirical Model Specification

From the empirical literature on the effects of trade openness on economic growth, several works emerge, notably, Ekodo and Nkot (2017) as well as Behanzin and Konte (2021). These works used, among others, the Generalized Moment Tests (GMM) and the AutoRegressive Distributed Lag (ARDL) model with the Pool Mean Group (PMG) estimator.

In order to achieve the objective of this work, we will use an econometric approach based on the empirical work of Behanzin and Konte (2021) to analyze the effects of trade openness on economic growth. These authors used the AutoRegressive Distributed Lag (ARDL) specification, whose equation is as follows:

$$Lo(PIBH_t) = Log\ (OUV_t, OUV^2_t, POA_t, EXPY_t, TCHR_t, FBCF_t, CIFSP_t) \quad (1)$$

Where ***t*** is the time index, α and β are the unknown parameters to be estimated. ***PIBH*** represents domestic product per capita, ***OUV*** indicates trade openness, ***OUV²*** means trade openness squared and ***POA***, the share of the working population in the total. The variables ***EXPY, TCHR, FBCF*** and ***CIFSP*** indicate, respectively, the export sophistication index, the real exchange rate, gross fixed capital formation and the share of credit to the private sector in PIBH.

The choice of this model in CEMAC is dictated by practical considerations. This model seems better placed to capture country-specific effects such as the quality of trade openness, which could influence economic growth in the CEMAC zone.

Unlike the Behanzin and Konte (2021) model, our econometric model is built on the assumption that trade openness can influence economic growth. We have therefore extended our model to include the following control variables: human capital, human development index, inflation rate, foreign direct investment and corruption. These data were selected for their theoretical and empirical role in the effects of trade openness on economic growth.

Our model can be rewritten as follows:

$$PIBH_t = f\,(OUV_t, KH_t, IDH_t, TINF_t, IDE_t, CORRUP_t) \qquad (2)$$

Applying the general form of the ARDL model on the variables retained in this work, the specified model translates as follows:

$$\Delta PIBH_t = \alpha_0 + \sum_{i=1}^{p} \alpha_{1i}\Delta PIBH_{t-i} + \sum_{i=0}^{q} \alpha_{2i}\Delta OUV_{t-i} + \sum_{i=0}^{q} \alpha_{3i} KH_{t-i} + \sum_{i=0}^{q} \alpha_{4i}\Delta IDH_{t-i} +$$
$$i=0q\alpha 5i\Delta TINFt-i+i=0q\alpha 6iIDEt-i+i=0q\alpha 7i\Delta CORRUPt-i+\beta 1PIBHt-1+\beta 2OUVt-1 +$$

$$\beta_3 KH_{t-1} + \beta_4\, IDH_{t-1} + \beta_5\, TINF_{t-1} + \beta_6\, IDE_{t-1} + \beta_7\, CORRUP_{t-1} + \mu_t \qquad (3)$$

With Δ: the first difference operator; α_0: the constant; $\alpha_1 \ldots \alpha_7$, short-term effects;
$\beta_1 \ldots \beta_7$: long-term dynamics; $\varepsilon \sim (0, \square)$ error terms; ***(p, q)***: optimal lags; ***i:*** country-of-origin index;
t: time index; α and β: unknown parameters to be estimated.

The endogenous variable is ***PIBH***. This variable is considered an indicator of the economic performance of a country.

The exogenous variables are: trade openness (**OUV**), which measures the importance of trade and, more indirectly, trade restrictions. A positive (Winters, 2004; Kongand al., 2020) or negative (Jin, 2004; Ramzan and al., 2019; Guei and Le Roux, 2019) relationship is predicted between trade openness and economic growth. Human capital (**KH**), represents the secondary education enrollment ratio. According to neoclassical theory and endogenous growth theory, the impact of human capital on growth should be positive (Lucas, 1988; Romer, 1990; Alaya and al., 2009; Moussavou, 2021). The Human Development Index (**IDH**) is a composite statistical index designed to assess the rate of human development of the world's countries. According to economic theory, a positive relationship is expected between the IDH and economic growth. Inflation (**TINF**) indicates the general and constant increase in the prices of goods and services over a given period. A negative sign is expected between inflation and growth (De Gregorio, 1993; Fischer, 1993; Bruno and Easterly, 1998). The « foreign direct investment (**IDE**) », variable refers to the export of capital to another country for the purpose of acquiring, setting up or acquiring a stake in a business. This variable is thought to have a positive influence on economic growth (De Soto, 2000; Durham, 2004; Li and Liu, 2005; Zghidi and al., 2016) or a negative one (Bende Nabenda and al., 2001). Corruption (**CORRUP**), which according to the World Bank (2019), is the act of using one's position in charge of a public service for personal gain. A negative relationship is expected between the two variables (Shleifer and Vishny,1993).

2.2. Model data

For our empirical analysis, we selected annual panel data from the CEMAC. The data used in this study come from two (02) sources. The data on gross domestic product per capita (PIBH), trade openness (OUV), human capital (KH), human development index (IDH), inflation (TINF) and foreign direct investment (IDE) are

taken from the World Bank database. The variable measuring CORRUP is derived from the World Outlook database. Table1 present the descriptive statistics of the model variables. Table2 shows the correlation matrix of the variables.

Table1 : Descriptive statistics

Variables	Mean	Maximum	Minimum	Std.Dev.	Obs
PIBH	1,744024	140,48	-36,7777	13,95137	186
OUV	1,285353	5,846737	0,151801	1,064897	186
KH	31,18125	60,058	6,21	16,12715	186
IDH	0,4847849	-703	-2,99	0,1224419	186
TINF	3,82812	42,43968	-11,68611	7,242751	186
IDE	6,927703	161,8238	-8,703069	16,9119	186
CORRUP	2,21147	4	1	-747936	186

Source: author, based on stata 14 softwares.

Table2: Pearson correlation matrix results

Variables	PIBH	OUV	KH	IDH	TINF	IDE	CORRUP
PIBH	1.0000						
OUV	-0,1159	1.0000					
KH	-0,0931	-0,5208	1.0000				
IDH	0,00064	-0,7537	0,8118	1.0000			
TINF	0,0403	0,0683	-0,511	-0,0468	1.0000		
IDE	0,3839	-0,1136	-0,0098	0,1134	0,0931	1.0000	
CORRUP	0,2407	-0,0749	-0,1340	-0,1784	0,1239	0,2650	1.0000

Source: author, based on stata 14 softwares.

Table1 shows that the maximum value of gross domestic product per capita (PIBH) in the CEMAC is 140.48, with a minimum value of -36.7777. Of all the variables used, human capital and foreign direct investment (IDE) have the highest average values. While PIBH, trade openness, human development, inflation and corruption have the lowest mean values.

In terms of standard deviation (Std. Dev.), PIBH, human capital and IDE have the highest values and appear to be more volatile than the others. This implies that the other variables are more closely distributed around their mean and therefore show less variability than PIBH, human capital and IDE. This indicates that the variables selected in this work are much more dispersed around their central mean.

As for the results in Table2, the first column of the table shows a positive correlation between human development, inflation, IDE, corruption and PIBH. On the other hand, there is a negative correlation between trade openness, human capital and PIBH. It is therefore possible to note the absence of a probable multi-colinearity between PIBH and IDE, the inflation rate and corruption.

In the second column, we note a positive correlation between inflation and trade openness, on the one hand, and a negative correlation between human capital, human development, IDE, corruption and trade openness, on the other. Indeed, trade openness is much more favored by inflation.

In the third column, we find a positive correlation between the human development index and human capital. These results reveal a negative correlation between the inflation rate, IDE, corruption and human capital. This indicates a relatively high contribution of human development to human capital.

Column four shows a positive correlation between IDE and human development, with a contribution of 11.34%. However, a negative correlation emerges between the inflation rate, corruption and human development.

The fifth column shows a positive correlation between IDE, corruption and inflation.

In the sixth and seventh columns, the results reveal a positive correlation between IDE and corruption, with a contribution of 26.50%.

3. Model estimation, presentation and discussion of results

3.1. Model estimation procedure

To estimate the econometric model with time series, we first need to study the dynamic properties of the variables. To do this, we perform unit root tests and cointegration tests (Kao, Pedroni).

3.1.1. Unit root tests

To study the stationarity of the series used, we resorted to unit root tests on panel data by Im, Pesaran and Shin and Andrew Levin, Lin and Chu. The main results of these tests are summarized in the table below.

Table3: Unit root test results

Variables		In level						In first différence					
		St-IPS	Pro.	Déc.	St-LLC	Pro.	Déc.	St-IPS	Pro	Déc.	St-LLC	Pro	Déc.
PIBH	Inter	-4,27	0,00	H_0 Rej.	-3,49	0,00	H_0 Rej	-7,97	0,00	H_0 Rej.	-9,88	0,00	H_0 Rej.
	Trend	-4,29	0,00	H_0 Rej	-3,08	0,00	H_0 Rej.	-7,94	0,00	H_0 Rej.	-7,89	0,00	H_0 Rej.
OUV	Inter	-2,43	0,03	H_0 Rej.	0,08	0,53	H_0 Acc.	-6,24	0,00	H_0 Rej.	-6,98	0,00	H_0 Rej
	Trend	-2,46	0,02	H_0 Rej.	-0,05	0,47	H_0 Acc.	-6,31	0,00	H_0 Rej.	-5,92	0,00	H_0 Rej.
KH	Inter	-1,45	0,67	H_0 Acc.	-1,99	0,02	H_0 Rej.	-4,73	0,00	H_0 Rej.	-5,00	0,00	H_0 Rej.
	Trend	-1,99	0,12	H_0 Acc.	-2,88	0,00	H_0 Rej.	-4,84	0,00	H_0 Rej.	-3,94	0,00	H_0 Rej.
IDH	Inter	0,02	1,00	H_0 Acc.	1,42	0,92	H_0 Acc.	-4,95	0,00	H_0 Rej.	-3,27	0,00	H_0 Rej.
	Trend	-2,80	0,00	H_0 Rej	-1,67	0,04	H_0 Rej.	-4,97	0,00	H_0 Rej.	-2,13	0,01	H_0 Rej.
TINF	Inter	-4,49	0,00	H_0 Rej.	-7,54	0,00	H_0 Rej.	-7,14	0,00	H_0 Rej.	-10,84	0,00	H_0 Rej.
	Trend	-4,54	0,00	H_0 Rej	-7,08	0,00	H_0 Rej.	-7,03	0,00	H_0 Rej.	-8,92	0,00	H_0 Rej.
IDE	Inter	-2,82	0,00	H_0 Rej.	-1,87	0,03	H_0 Rej.	-8,25	0,00	H_0 Rej.	-7,12	0,00	H_0 Rej.
	Trend	-4,04	0,00	H_0 Rej.	-2,40	0,00	H_0 Rej.	-8.15	0,00	H_0 Rej.	-5,40	0,00	H_0 Rej.
CORRUP	Inter			H_0 Acc.	-0,80	0,21	H_0 Acc.		0,00	H_0 Rej.	-4,06	0,00	H_0 Rej.
	Trend			H_0 Acc.	-0,43	0,33	H_0 Acc.		0,00	H_0 Rej.	-3,07	0,00	H_0 Rej.

Source: author, based on stata 14 softwares.

The results in Table3 show that the IPS and LLC tests indicate, at a statistical threshold of 5%, that certain series are not stationary in level with trend or intercept. On the other hand, these same series are stationary when the same tests are implemented in first differences. This leads us to conclude that the seven (07) series are affected by a unit root and are therefore not integrated of the same order.

3.1.2. Cointegration tests

In this study, we examine two types of tests: cointegration of Kao residuals and Pedroni's test. These tests are based on the null hypothesis of no cointegration. The results of these tests are given in Tables4 and 5.

Table4: Results of the Kao residual cointegration test

Test	Statistics	P-value
Modified Dickey-Fuller-t	-16,3500	0,0000
Dickey-Fuller-t	-10,3190	0,0000
Augmented Dickey-Fuller	-6,7832	0,0000
Unadjusted Dickey-Fuller-t	-18,2450	0,0000
Unadjusted Dickey-Fuller-t	-10,4150	0,0000

Table5: Pedroni test results

Test	Statistical	P-value
Modified Phillips-Perron-t	0,5323	0,2973
Phillips-Perron-t	-7,0075	0,0000
Augmented Dickey-Fuller	-6,8529	0,0000

The results of the Kao and Pedroni residual cointegration tests shown in Tables4 and 5 confirm that the probabilities associated with the various cointegration tests are below the statistical threshold of 5%. These results allow us to reject the null hypothesis of no cointegration.

3.2. Presentation and interpretation of results

This research first presents the results of the model and then their interpretations.

Model results

The results obtained from the AutoRegressive Distributed Lag model with the Pooled Mean Group estimator for the short and long term equilibrium are represented in Table 6. These results show an adjustment to restore the short- and long-term equilibrium. This adjustment is assessed by the error correction term (ECT). In this study, this ECT (-0.727) is significantly negative and varies between -1 and -2. We conclude that there is a long-term relationship between the explained variable and the explanatory variables. Consequently, the model is validated in its entirety at the 1% threshold.

Table6: ARDL model results

Variables	Short-term coefficients	Long-term coefficients
	Coefficients	Coefficients
ECT	-0,72713331 (-4,84)	
Δ.OUV	-27,13687 (-1,19)	0,6556878 (0,90)
Δ.KH	0,0115975 (0,06)	0,1188152 (1,22)
Δ. IDH	292, 3587 (2,01) **	-50,97474 (-2,30) **
Δ. TINF	0,0327869 (0,40)	0,2211549 (2,92) ***
Δ.IDE	-0,38076 (-4,37)***	0,6335631 (7,67) ***
Δ. CORRUP	-8 ,783381 (-1,17)	0,4773073 (0,40)
Constant	10,57244 (4,51)	
Obs.	180	180

Source: Author, based on stata 14 softwares. Note: ** * p<0.01; ** p<0.05.

Interpretation of results

The results presented in Table6 show that, in the short term, human development and IDE significantly affect economic growth. The maximum risk of error of 5% of non-nullity of the marginal effect is associated with the variable: human development index. For the other variable, the risk of error is only 1%.

The economic translation shows that a 1% increase in human development, all other things being equal, increases growth by 2.01%. This result is in line with economic theory. Consequently, the Congolese authorities need to strengthen human development.

With regard to IDE, the results show that, its 1% increase reduces economic growth by 4.37%. This result is in line with those of Bende Nabenda and al. (2001). In the Congo context, public authorities need to stimulate competition on the local market in order to improve productivity gains.

In the short term, analysis of the results indicates that trade openness, human capital, inflation, IDE and corruption are neutral with regard to economic growth.

In terms of long-term effects, the human development index, inflation and IDE have an impact on economic growth. Human development has a negative impact on economic growth. A 1% increase in this index implies a 2.30% drop in economic growth. This finding contradicts the work of economic growth theorists.

Inflation has a positive and significant effect on economic growth. A 1% rise in inflation translates into a 2.92% increase in economic growth. This finding corroborates those of McCandeless and Weber (1995) as well as Ghosh and Phillips (1998). However, it contradicts those of DeGregorio (1993), Fischer (1993) and Bruno and Easterly (1998), who argue that inflation has a negative impact on growth. In the context of this research, it is justified by the fact that inflation increases forced savings and therefore economic growth.

Moreover, IDE explains growth positively and significantly at the 1% threshold. When IDE increases by 1%, economic growth rises by 7.67%. This result corroborates those of De Soto (2000), Durham (2004), Li and Liu (2005) as well as Zghidi and al. (2016). In the Congo context, it suggests that public authorities should engage in a policy of IDE attractiveness.

In the long term, results show that trade openness, human capital and corruption do not influence economic growth.

In both the short and long term, econometric results show that human development and IDE affect economic growth. Trade openness, on the other hand, does not. This result was demonstrated by Ekodo and Nkot (2017), who argue that CEMAC countries do not benefit from trade openness.

Conclusion and policy implications

This article contributes to the analysis of the effect of trade openness on economic growth, based on the case of the CEMAC countries, using data for the period 1990-2020, extracted from the World Bank database and that of World Outlook. The originality of this contribution lies in the attention paid to the adequacy between the data and the tools used. This is reflected in the diversity of the tests applied and the use of the ARDL model.

The results of this study point to four (4) major facts: (1) the magnitude in the short term, of the positive effect (marginal effects of +2.01%) and in the long-term, of the negative effect (marginal effects of -2.30%) of the human development index; (2) the target variable, trade openness, has no impact on economic growth in the short and long term; (3) the magnitude in the short term of the negative effect (marginal effects of -4.37%) and in the long term of the positive effect (marginal effects of +7.67%) of foreign direct investment; (4) the "inflation" variable which in the short term has no impact on economic growth, but in the long term positively influences economic growth (marginal effects of +2.92%).

As a consequence of these results, some implications for economic policy can be proposed. The one linked to the lack of effect of the target variable recommends activating decisions that favor trade openness in order to benefit from it.

Another implication is the negative long-term impact of the human development index. This finding suggests that public authorities need to strengthen this index.

However, two results appear incongruous and require further, in-depth investigation in future work. These are the positive long-term effect of inflation on economic growth, and the negative effect of human development on economic growth.

Bibliography

African Development Bank (2022). Central African Economic Outlook, 118p.

African Development Bank (2019). Central African Economic Outlook, https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/2019AEO/PER_201Afrique_centrale.pdf, 60p.

Alaya, M., Nicet-Chenaf, D., Rougier, E. (2009). Under what conditions do FDI stimulate growth? Developing Worlds, 4, (14), 119-138.

Awatef., G. (2018). Macroeconomic study of the relationship between openness and growth: case of Tunisia, International Journal of Economics & Strategie Management of Business Process, 13, 69-122.

Behanzin, T., Konte, M. (2021). Impact of trade openness on the budget balance in WAEMU, Economics Bulletin, 41(3), 1642-1654.

Ben, D. (1993). Equalizing Exchange Trade: Liberalization and Income Convergence, Quarterly Journal of Economics, 108,653-679.

Bende- Nabende, A., Ford, J., Slater, J. (2001). FDI, Regional Economic Integration and Endogenous Growth: Some Evidence from Southeast Asia, Pacific Economic Review, 6(3), 383-399.

Bruno, M., Easterly, W. (1998). Inflation crises and long-run growth, Journal of Monetary Economics, 41 (1), 3-26.

Chenery, H.B., Bruno, M. (1962). Development alternatives in an open economy, Economic Journal, 72(1), 70-103.

Coe, D.T., Helpman, E. (1995). International R &D spillovers, European Economic Review, 39, 859-887.

DeGregorio, J. (1993). Inflation, taxation and long-run growth, Journal of Monetary Economics, 31 (3), 271-298.

De Soto, M. (2000). Capital Flows and Growth in Developing Countries: Recent Empirical Evidence, OECD Development Centre Working Papers, 160.

Durham, J. B. (2004). Absorptive capacity and the effects of FDI and equity foreign portfolio investment on economic growth, European Economic Review, 48, 285- 230.

Ekodo, R., Nkot, S. C. (2017). Foreign direct investment and foreign trade in Cameroon, Journal of International Business and Economics, 5 (1), 20-32.

Fischer, S. (1993). The role of macroeconomic factors in growth, Journal of Monetary Economics, 32(3), 485-511.

Ghosh., P. (1988). Warning Inflation may be harmful to your growth, IMF, Staff Papers, 45, 672-710.

Grossman, M., Helpman, E. (1990). Comparative advantage and long-run growth, American Economic Review, 80, 796-815.

Guei, K., Le Roux, P. (2019). Trade openness and economic growth: Evidence from the Economic Community of Western African States region, Journal of Economic and Financial Sciences, 12.

Harrison, A. (1996). Openness and Growth: A Time Series, Cross-Country Analysis for Developing Countries, Journal of Development Economics, 48, 419-447.

Hume, D. (1752). On the Balance of Trade, McMaster University Archive for the History of Economic Thought.

Jeffrey, A., Romer, D.H. (1999). Does Trade Cause Growth? American Economic Review, 89(3), 379-399.

Jin, J.C. (2004). On the relationship between openness and growth in China: Evidence from provincial time series data, The World Economy, 27(10), 1571-1582.

Kong, Q., Peng, D., Ni, Y., Jiang, X., Wang, Z. (2020). Trade openness and economic growth quality of China: Empirical analysis using ARDL model, Finance Research Letters, 38 (1544), 6123.

Levine, R., Renelt, D. (1992). A Sensibility Analysis of Cross-Country Growth Regressions, American Economic Review, 82(4), 942-63.

Li, X., Liu, X. (2005). Foreign Direct Investment and Economic Growth: An Increasingly Endogenous Relationship, World Development, 33(3), 393-407.

Linder, S. (1961). An Essay on Trade and Transformation, John Wiley and Sons, New York.

Lucas, R. E. (1988). On the mechanics of economic development, Journal of Monetary Economics, 22, 3-42.

McCandless, J.G.T., Weber, W.E. (1995). Some Monetary Facts. Federal Reserve Bank of Minneapolis, Quarterly Review, 19, 2-11.

Moussavou, F. (2021). Foreign direct investments and economic growth in Congo-Brazzaville: A study by the vector approach with error correction (VECM) for the period from 1980 to 2016, RIELF, 6 (1), 213-233.

Ramzan, M., Sheng, B., Shahbaz, M., Song, J., Jiao, Z. (2019). Impact of trade openness on GDP growth: Does TFP matter? The Journal of International Trade & Economic Development, 28 (8), 960-995.

Ricardo, D. (1817). On The Principles of Political Economy and Taxation, Rod Hay's Archive for the History of Economic Thought, McMaster University, Canada.

Romer, P. M. (1990). Endogenous technological change, Journal of Political Economy, 98(5).

Sekkach, A. (2021). Assessment of the impact of trade openness on economic growth: Case of Sub-Saharan Africa, Post-Print hal-03492216, HAL.

Smith, A. (1776). An Inquiry into the Nature and Causes of the Wealth of Nations, History of Economic Thought Books, McMaster University Archive for the History of Economic Thought.

Stiglitz, T. (2007). Principles of modern economics, Brussels/Paris, de Boeck, 940.

Solow, R. (1957). Technical change and the aggregate production function, Review of Economics and Statistics. 39(3), 312–320.

Solow, R. M. (1988). The theory of growth and its evolution, French Journal of Economics, 3(2), 3-27.

Gries, T., Redlin, M. (2012). Trade Openness and Economic Growth: A Panel Causality Analysis, Working Papers CIE 52, Paderborn University, CIE Center for International Economics.

Tomondji, D, T, B., Mamadou, A, K. (2021). The impact of trade opening on economic growth in WAEMU, RIELF, 6 (2), 25.

Winters, A. (2004). Trade liberalization and economic performance: An overview, The Economic Journal, 114(493).

Youssef, B., Abdellatif, C. (2019). Openness, human capital accumulation and economic growth, European University.

Zahonogo, P. (2017). Trade and economic growth in developing countries: Evidence from sub-Saharan Africa, Journal of African Trade, 3 (1-2), 41-56.

Zghidi, N., Sghaier, I., M., Abida, Z. (2016). Does Economic Freedom Enhance the impact of Foreign Direct investment on Economic growth in North Countries? African Development Review, 28 (1), 64-74.