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Impact of imports of capital goods on economic growth in Ivory Coast

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One of the challenges facing Ivory Coast is the transformation of its agricultural production. This transformation involves the importation of capital goods. The study analyzed the influence of capital goods imports on the economic growth of Ivory Coast. Initially, a thorough literature review was conducted. Following this, the methodology was detailed, model variables were identified, and estimation was performed. Finally, the results were interpreted, and recommendations for economic policy were proposed. To address these issues, an autoregressive distributed lag (ARDL) model was employed, utilizing the cointegration framework established. The results indicate that, over the long term, imports of capital goods positively contribute to economic growth, albeit to a limited extent. It is advisable to implement measures that support the structural transformation of the agricultural sector by promoting the importation of essential capital equipment for its development.

Key words: ARDL model, economic growth, imports of capital goods.

INTRODUCTION

The well-known Solow model (1956) on economic growth posits that technological advancements enhance the productivity of the factors of production, namely capital and labor. This technical progress, which is the essential source of economic growth in the long run, is supposed to be exogenous in this neoclassical model. In contrast, Romer (1986, 1994) and Lucas (1986) argue that technological progress is not an unforeseen occurrence. Instead, they contend that innovation results from investments in the research and development (R&D) sector, which in turn leads to increased productivity and the development of new goods and services. However, Grossman and Helpman (1991) note that R&D investments are expensive, and developed countries have a virtual monopoly on the production of capital goods necessary to propel the development of the industrial sector. Thus, nearly 80% of the production of capital goods is concentrated in ten countries, according to Mutreja et al. (2018). Development in the manufacturing sector of developing countries is possible only if they import from industrialized countries the capital goods necessary for their industries (Grossman and Helpman, 1991; Mutreja et al., 2018). These conclusions echo the older theory developed by Smith (1776), which stipulates that trade openness allows a country to gain from exchange, particularly by profiting from the know-how or technology transfer incorporated in capital-intensive goods. All these arguments suggest that

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developing economies must engage more in international trade with technologically advanced countries. However, some opposing arguments stress that trade openness can be prejudicial to the economic growth of developing countries. Indeed, Vamvakidis (2002) and Ulasan (2015) found no evidence supporting the assumption that trade leads to economic growth. Additionally, Rigobon and Rodrik (2005) highlight a significant negative impact of trade on income levels. Fénira (2015) notes a weak relationship between trade openness and economic growth. According to a sample of 34 African countries, Vlastou (2010) found that trade openness has a negative impact on economic growth.

Moreover, negative effects from the neutralization of the positive effects of exports could be expected when companies are solely responsible for the assembly of final products. In this case, these companies from less advanced countries hold a weak position in global value chains (Foster-McGregor et al., 2015; Kummritz, 2015; Fagerberg et al., 2018; Hagemejer and Mućk, 2019). This is why Srholec (2007) and Johnson (2014) find it necessary to analyze the effects of a country's exports by observing the share of imported inputs used in the production of exported goods. The importation of capital goods into Côte d'Ivoire is essential for the economic and industrial development of the nation. In 2021, capital goods represented around 30% of the total value of Ivorian imports, with an estimated value of US$3 billion (Central Bank of West African States, 2024). Capital goods include machines, tools, electrical appliances, commercial vehicles, and equipment for various sectors such as agriculture, construction, energy, and manufacturing. The importation of these goods is crucial for supporting industrialization, infrastructure, and agriculture. Indeed, local industries need these goods to modernize their production processes. Additionally, Ivory Coast is making significant investments in its infrastructure (roads, bridges, ports), requiring heavy machinery and equipment. Finally, the agricultural sector, a pillar of the Ivorian economy, is acquiring machines to increase productivity. The World Bank's 2019 report highlights that cocoa from Ivory Coast provides 40% of the global supply, mobilize nearly one million producers, and support the income of five million people, or about one-fifth of the country's population. Moreover, it is the country's leading foreign exchange earner and one of the sectors that contribute significantly to state revenue.

However, Côte d'Ivoire's gains are estimated at only 7% of the total added value of the global cocoa value chain, including 2% from primary processing. It should be noted that the cocoa value chain can be divided into four parts: (I) cocoa bean production; (ii) grinding the beans into paste, butter, and powder (first processing); (iii) the production of industrial chocolate and finished chocolate products (second processing); and (iv) the distribution of these products.

In Ivory Coast, the level of imports of goods and services increased by 1.0% in 2019, compared to 13.8% in 2018, driven by the needs of the economy (Source, year). Thus, CIF (Cost, Insurance, and Freight) imports are composed of petroleum products, which accounted for 19.48% compared to 21.31% in 2018; capital goods at 17.14% compared to 16.39% the previous year; food products at 20.3% compared to 19.99% last year; other current consumer goods at 21.62% compared to 21.22% one year ago; intermediate goods estimated at 17.46% compared to 16.71% in 2018; and other imports representing 4% (Central Bank of West African States, 2024). To propose political measures aimed at enhancing Côte d'Ivoire's benefits from global value chains and supporting economic growth, it is essential to assess the impact of capital goods imports on the country's economic development. Furthermore, unlike most African, Caribbean, and Pacific (ACP) countries, Côte d'Ivoire entered into an Interim Agreement with the European Union in 2007. Under this agreement, Ivory Coast committed to liberalizing 80% of its imports from Europe, while the European Union agreed to immediately eliminate all customs duties on products originating from Ivory Coast. Additionally, the implementation of the African Continental Free Trade Area (AfCFTA) is notable, as Ivory Coast was the ninth country to ratify this agreement, which has been in effect since January 2021.

To identify the principal variables of economic growth in Ivory Coast while accounting for the uncertainty of the model, aspects of recent developments in econometrics of time series, including ARDL modeling and the bounds cointegration test (Pesaran et al., 2001), are employed. This study primarily aims to determine whether imports of capital goods constitute a source of difficulties or opportunities for the economy of Ivory Coast. The study draws inspiration from Keho (2017), which examines the impact of trade openness on economic growth. It employs the cointegration test framework established by Pesaran et al. (2001) and the Toda-Yamamoto causality test. The findings indicate that trade openness positively influences economic growth in both the short and long term. Furthermore, the results highlight a significant positive effect and a strong complementary relationship between trade openness and capital formation as factors driving economic growth in Ivory Coast from 1965 to 2014. Unlike the study by Keho (2017), where trade openness is measured as the sum of real exports per capita and real imports per capita, this study mainly focuses on imports of capital goods.

To achieve the set objective, this article is structured into four points. The first point provides a brief overview of studies related to the impact of imports of capital goods on economic growth. The second point presents the evolution of the variables from the model, which is considered determinants of economic growth in Ivory Coast. The third point focuses on the study of the stationarity and correlation of the implied parameters. Finally, the fourth point involves analyzing the variables

using the ARDL model, which will allow for drawing conclusions regarding their impacts on the economic growth of Ivory Coast in both the short and long term.

LITERATURE REVIEW

The interest shown by researchers in the role of capital goods imports in the process of economic growth is not new. As early as the 1960s, Baldwin (1966) argued that trade in capital goods is a crucial element in the dynamic interaction between international trade and economic growth. Later, Backus et al. (1992), by adding an international dimension to the theory of the real business cycle, underscored the role of investment in explaining economic growth. Lee (1993) drew on Rebelo's (1991) model to first examine a theoretical model of a closed economy in which the capital goods sector determines the long-term growth rate. In this theoretical model, the price of capital goods in terms of consumption goods decreases over time throughout the balanced growth trajectory. The model is then extended to an open economy in which an imported foreign capital good constitutes a key input in the production of domestic capital goods. Boileau (2002) and Raffo (2010) explored price fluctuations in equipment investment to explain trade in capital goods and other aspects of international economic conditions.

More recently, Cavallo and Landry (2018) examined the relationship between capital goods imports and U.S. growth. The authors developed a theoretical model that allows the conclusion that imports of capital goods accounted for 14% of the increase in productivity per hour in the United States since 1975, while capital goods imports played a minor role in the recent weakness of investment in capital goods. Mutreja et al. (2018) demonstrated, using a multi-sector and multi-country Ricardian model, that trade in capital goods contributes to a 40% reduction in income disparity between wealthy and developing nations. Additionally, Raveh and Reshef (2016) highlighted that in developing countries, an increase in capital goods imports leads to a higher demand for skilled labor. Consequently, the composition of capital stock is increasingly characterized by goods that necessitate advanced technical skills.

Concurrent with the theoretical discussions prompted by the emergence of new growth theories, an empirical body of literature has been established to assess the impact of capital goods imports on economic growth in both developed and developing countries. Carrasco and Tovar-Garcia (2021), using a dynamic panel of 19 developing countries, found that imports of goods are positively associated with economic growth. These findings are consistent with the research conducted by Houngbedji (2018), Arawomo (2014), Herrerias and Orts (2013), and Lee (1995). Houngbedji (2018) examined the impact of technology transfer on economic growth within the West African Economic and Monetary Union from 1990 to 2016, demonstrating that the importation of capital goods serves as an effective mechanism for technology transfer, positively influencing the economic growth of these nations. Arawomo (2014), utilizing a sample from various West African countries, employed an ARDL model to arrive at similar conclusions. The results of the cointegrated VAR model used by Herrerias and Orts (2013) are consistent with the hypothesis that the link between trade openness and long-term economic growth passes mainly through imports.

According to empirical results from Lee (1995), utilizing international data from 1960 to 1985, the ratio of imported capital goods to local capital goods in the investment composition has a significant positive impact on per capita income growth rates across all countries, with particularly pronounced effects in developing nations. Brueckner and Lederman (2015) used an instrumental variables approach with a panel of 41 countries in sub-Saharan Africa to study the impact of trade openness on economic growth. They noted that trade openness increases economic growth in both the short and long term. Musila and Yiheyis (2015) examined the case of Kenya and concluded that trade openness positively affects the economic growth rate but does not influence the investment rate.

Contrary to theoretical expectations, some empirical studies indicate that the impact of intermediate goods on economic growth is not clearly defined. Specifically, Lawal et al. (2016) utilized ARDL methodology in their analysis of Nigeria, discovering a negative long-term impact of trade openness on economic growth while noting a positive effect in the short term. In his study on the Belarusian economy, Mazol (2016) demonstrated that the importation of intermediate and capital goods negatively affects economic growth. In the case of Mexico, the economic literature highlighted the weak relationship between exports and economic growth due to the high proportion of imported inputs in the goods produced in the country (Rodil-Marzábal, 2018). Fujii (2000) emphasized that the impact of increased exports on economic growth has been constrained by the dominance of imported products in the intermediate goods market. Furthermore, the presence of exporting companies that primarily focus on assembly hinders the ability to fully realize the positive effects of capital goods on growth (Fujii et al., 2005). Banga (2016) showed that imports of capital goods negatively impact the Indian economy because they do not stimulate employment.

METHODOLOGY

Specification of the theoretical model

The main objective of this paper is to study the impact of capital goods imports on economic growth in Ivory Coast. To achieve this, the study is inspired by a model developed by Keho (2017). According to Keho (2017), models developed by Solow (1956) and Bardhan and Lewis (1970) are utilized. The Solow model (1956)

incorporates capital and labor as the sole inputs. In contrast, the model proposed by Bardhan and Lewis (1970) is an enhanced version of the Solow model, as it accounts for capital goods imports. Both studies are based on a homogeneous and linear Cobb-Douglas production function, which is expressed as follows:

$$Q_t = A_t K_t^{\alpha}\ L_t^{1-\alpha} \quad (1)$$

Q represents the total output or GDP (Groos Domestic Product); K represents the aggregate capital stock; L, represents the labor and A is the technical progress. We hypothesize that technical progress is influenced by imports of capital goods. This leads us to specify $A_t$as follow:

$$A_t = \varphi V_t^{\beta} Z_t^{\theta} \quad (2)$$

Let V denote the imports of capital goods and Z represent the other factors likely to influence the state of technology. By substituting Equation 2 into Equation 1, the following expression is obtained:

$$Q_t = \varphi V_t^{\beta} Z_t^{\theta} K_t^{\alpha}\ L_t^{\gamma} \quad (3)$$

By applying the logarithms to Equation 3, the following econometrically estimable Equation 3 was obtained as:

$$ln\ (Q_t)\ = \varphi_0 + \beta ln\ (V_t)\ + \theta\ ln\ (Z_t)\ + \alpha ln\ (K_t)\ + \gamma l\, n(L_t) + \varepsilon_t \quad (4)$$

$\varphi_0 = \ln(\varphi)$ is a constant. α, β, γ represent the elasticity coefficients and ε the error term. Note that the coefficient β measures the direct effect of the import of capital goods on economic growth.

Estimation method specification of the empirical model

To estimate this model, the Autoregressive Distributed Lag (ARDL) approach developed by Pesaran et al. (2001) is used. The ARDL model is employed to assess the interaction between short-term and long-term variables, owing to its flexibility and straightforward application. This model provides strategies to prevent spurious regressions, effectively capturing both short-term and long-term dynamics. Within this framework, the endogenous variable is explained through its own historical values (the autoregressive component, or AR), as well as through external variables and their historical values (distributed lag component, or DL). By combining the two components, the ARDL model (p, q) is expressed in Equation 5:

$$Y_t\ = \varphi_1 + \mu_1 Y_{t-1} + \ldots + \mu_p Y_{t-p} + \beta_0 X_t + \ldots + \beta_q X_{t-q}\ + \varepsilon_t \quad (5)$$

Note that (μ_0) explain the effect of short term of (Xt) on (Yt). to explain the long-term effect of (Xt) on (Yt) we must calculate (λ) from the long-term relationship:

: Y_t = a + λ+X_t+u avec λ= $\sum\mu_i/\sum$ (1-β_i)

The econometric representation of the ARDL model is expressed in Equation 6 as follows:

$$ln\ (PIB_t) = \beta_0 + \sum_{i=0}^{p} \beta_1 \Delta ln\ (PIB_{t-i}) + \sum_{i=0}^{q} \beta_2 \Delta ln\ (K_{t-i}) + \sum_{i=0}^{q} \beta_3 \Delta \ln(V_{t-i}) + \sum_{i=0}^{q} \beta_4 \Delta ln\ (L_{t-i}) + \mu_1 ln\ (PIB_{t-i}) + \mu_2 ln\ (V_{t-i}) + \mu_3 ln\ (K_{t-i}) + \mu_4 ln\ (V_{t-i}) + \varepsilon_t \quad (6)$$

Note that ∆= fisrt difference operator, β_0 = a constant; $\beta_1 \ldots \beta_4$ = coefficients = shorts-term effects; $\mu_1 \ldots \mu_4$ = dynamics coefficients of long term of ARDL model; ε_t =: error term (white noise).

Definitions and descriptive statistics of variables

According to the literature review, four macroeconomic variables were retained for this study.

Definitions and sources of variables

The data spans the period from 1985 to 2022, encompassing a total of 38 observations. This analysis utilizes GDP in current local currency units, the ratio of inactive to active population as a percentage of the working-age population, and capital stock, all sourced from the World Bank database. The capital stock series is calculated from gross fixed capital formation figures using the following formula:

$K_t = I_t + (1-\delta)K_{t-1}$ with an annual depreciation rate of δ = 6 %. The average growth rate (ρ) of investment over the study period was used to generate the initial level of capital stock in the formn $K_0 = I_0/(\rho + \delta)$. The last variable, called "imports of capital goods compared to GDP", is taken from the database of the Central Bank of West African States (BCEAO). The date is expressed in local currency.

Descriptives statistics on series

Figure 1 shows the evolution of GDP and imports of capital goods over the considered period. In Ivory Coast, the trajectory of economic growth can be categorized into four distinct phases. The first phase, spanning from 1985 to early 1994, was characterized by an economic recession and the implementation of Structural Adjustment Programs advised by the World Bank and the International Monetary Fund. The second phase, beginning in 1995, saw a recovery driven by the devaluation of the CFA franc in January 1994; however, this recovery was interrupted by a military coup in 1999. The third phase, extending from 2000 to 2011, experienced subdued economic growth due to the adverse impact of military and political crises that transpired during this period. Finally, from 2012 until the onset of Covid-19, the Ivorian economy grew at a rapid pace. Indeed, by examining the two curves, a positive correlation can be noted between economic growth and imports of capital goods. Table 1 presents the statistics and the different developments of the dependent variable and the main variable.

Estimation of the model

The first step involves conducting the unit root test to determine the order of integration of the variables. Subsequently, the optimal model is determined by selecting the appropriate lags, followed by performing cointegration tests to examine the existence of long-term relationships between the variables. Finally, the model is estimated (Table 2).

Unit root test

Table 2 reports the calculated statistics (p-values) of the different unit root tests, including the Augmented Dickey-Fuller (ADF) test (1981) and the Phillips and Perron test (1988), for both levels and first differences. According to these results, only GDP is non-

stationary at the level. However, all variables are stationary when considered in the first difference. Since the series are not integrated at the same order (I(1) for GDP and I(0) for the others), it is appropriate to conduct a cointegration test to verify the hypothesis of the existence of long-term relationships among the studied variables.

In the present case, given the heterogeneity in the order of integration of the studied series, the Pesaran cointegration test (2001) is deemed most suitable. The terminal cointegration test developed by Pesaran and Shin (1999) is applicable when the

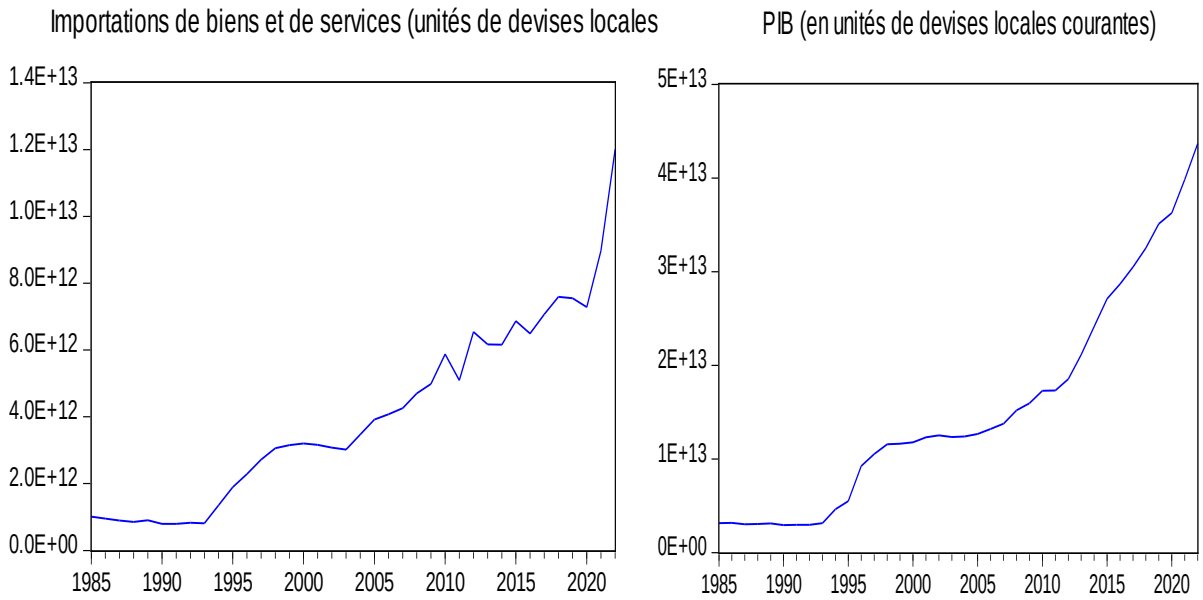

Figure 1. Evolution of variables of interest.
Source: Authors based on data from the World Bank and BCEAO.

Table 1. Descriptives statistics.

	LNPIB1	LNP1	LNMQ1	LK1
Average	30.03995	16.68381	-17.19342	4.685693
Median	30.15364	16.72402	-17.00339	5.072252
Maximum	31.40779	17.15343	-16.01823	5.665713
Minimum	28.70920	16.11450	-22.42344	-0.746564
Std. Dev.	0.877104	0.303897	1.188351	1.176923
Skewness	-0.315278	-0.281535	-3.467207	-2.861897
Kurtosis	1.894590	1.961628	14.78308	13.15041
Jarque-Bera	2.564258	2.209169	295.9680	215.0050
Probability	0.277446	0.331349	0.000000	0.000000
Sum	1141.518	633.9849	-653.3500	178.0563
Sum Sq. Dev.	28.46453	3.417076	52.25063	51.25048
Observations	38	38	38	38

Source: Authors based on data from the World Bank and BCEAO.

Table 2. Summary of the results of the stationarity tests of studied[1]series.

Variable	Level		First difference	
	ADF	PP	ADF	PP

[1] (*), (**) et (***) indicate the rejection of the null hypothesis of the presence of a unit root in the series at the significance level of 10%, 5% and 1%, respectively. Probability values are given in parentheses.

Lpib1	-0.597153 (0.8580)	-2.129287 (0.5132)	-3.554547 (0.0498)**	-2.957231 (0.0042)**
Ln K1	-8.705500 (0.0000)***	-7.327637 (0.0000)***	-4.992701 (0.0004)***	-32.74581 (0.0001)***
lnp	-3.344872 (0.0015)***	-3.189655 (0.0022)***	-4.683458 (0.0006)***	-2.540920 (0.0126)**
LnMQ1	-4.748168 (0.0027)**	-3.347684 (0.0744)*	-7.261610 (0.0000)***	-13.07187 (0.0000)***

***, **, * denotes 1, 5 and 10% level of significance.

Table 3. Results of ARDL bounds test.

Model	ARDL	F-stat (Fischer statistics calculated)
Critical thresholds	ARDL (4, 4, 3, 2) Lower bound	6.326186 *** Upper bound
10%	2.37	3.2
5%	2.79	3.67
2.5%	3.15	4.08
1%	3.65	4.66

Source: Authors based on data from the World Bank and BCEAO.

Table 4. Long term model output.

Variable	Coefficient	Standard deviation	Student statistic	Probability
LK1	2.951672***	0.449539	6.565995	0.0000
LNMQ1	0.091523**	0.033409	2.739471	0.0140
LNP1	-1.190202*	0.622830	-1.910957	0.0730
C	35.375477***	8.441909	4.190459	0.0006

Source: Authors based on data from the World Bank and BCEAO.

series are integrated at different orders, specifically when they are less than or equal to one. The cointegration test procedure of Pesaran et al. (2001) requires that the ARDL model be estimated first.

ARDL bounds test

After estimating the ARDL model, the calculated F value of 6.3266186 exceeds the upper limits of the critical values for I(1) at all significance thresholds. However, the calculated F value is below the upper limits at the 2.5, 5, and 10% significance levels. Therefore, the null hypothesis (H0) of non-cointegration among the variables is rejected, indicating that there is at least one cointegration relationship between the variables. Consequently, the analysis proceeds to estimate the short- and long-term effects. Table 5 shows the results of ARDL bounds test.

Estimation of the ARDL model

In order to choose the optimal ARDL model, Akaike information criterion (AIC) is used. According to this criterion, it comes that the optimal model is: ARDL (4, 4, 3, 2). Long-run elasticities are represented by the estimated long-run coefficients, which are presented in Table 4. All our variables are significant in the long run.

According to the results provided by Table 5, the adjustment coefficient or the restoring force is statistically significant (p-value = 0.000), it is negative (-0.806895) and is between zero and one in absolute value. This guarantees an error correction mechanism, and therefore confirms the existence of a long-term relationship (cointegration) between the variables of the model studied. Also, the following was noted in the short term.

Stability test

Figure 2 illustrates the Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMQ) tests, which are utilized to assess the long-term stability of a model following the ARDL regression. The CUSUM test employs the cumulative sum of the recursive residuals, whereas the CUSUMQ test utilizes the square of the recursive residuals. In this instance, neither the CUSUM nor the CUSUMQ statistics exceed the designated control limits. Therefore, we can conclude that economic growth remained stable throughout the period studied.

DISCUSSION

The long-term dynamics indicate that the coefficient for the variable LNMQ1 is both positive and statistically significant, supporting the hypothesis that imports of capital goods contribute positively to economic growth. This finding contrasts with the conclusions of studies conducted by Lawal et al. (2016), Ulasan (2015), Were (2015), Polat et al. (2015), and Vlastou (2010), but is consistent with the results of Keho (2017), Asfaw (2014), Zarra-Nezhad et al. (2014), and Brueckner and Lederman (2015), who find that trade openness has a positive impact on economic growth. The coefficient is low, indicating that the contribution of imported capital goods to economic growth is not very significant.

This aligns with the economic reality, as growth in Ivory Coast is driven primarily by the primary and tertiary sectors. It is noted that a 1% increase in the capital stock leads to an increase of 2.95% in overall output. However, a 1% increase in the inactive population results in a decrease of 1.19% in overall output.

In the short term, capital stock has a significant positive impact on economic growth in Ivory Coast; however, this effect diminishes following a shift. Additionally, the value of imports of capital goods, when considered with a one-year lag, demonstrates significant effects on the

Table 6. Error Correction Model (ECM) output.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNPIB1(-1))	-0.432277**	0.131045	-3.298685	0.0042
D(LNPIB1(-2))	-0.300429**	0.114184	-2.631099	0.0175
D(LNPIB1(-3))	-0.150015	0.087149	-1.721376	0.1033
D(LK1)	5.550471***	0.530670	10.459373	0.0000
D(LK1(-1))	1.756832*	0.920804	1.907931	0.0734
D(LK1(-2))	0.131886	0.608393	0.216778	0.8310
D(LK1(-3))	-0.105177*	0.051883	-2.027212	0.0586
D(LNMQ1)	0.039860***	0.008238	4.838874	0.0002
D(LNMQ1(-1))	-0.024209**	0.007071	-3.423797	0.0032
D(LNMQ1(-2))	-0.012102	0.007319	-1.653578	0.1166
D(LNP1)	85.510211***	13.133313	6.510940	0.0000
D(LNP1(-1))	-47.967497***	10.039897	-4.777688	0.0002
CointEq(-1)	-0.806895***	0.129085	-6.250880	0.0000
Cointeq = LNPIB1 - (2.9517*LK1 + 0.0915*LNMQ1 -1.1902*LNP1 +				35.3755)

Source: Authors based on data from the World Bank and BCEAO.

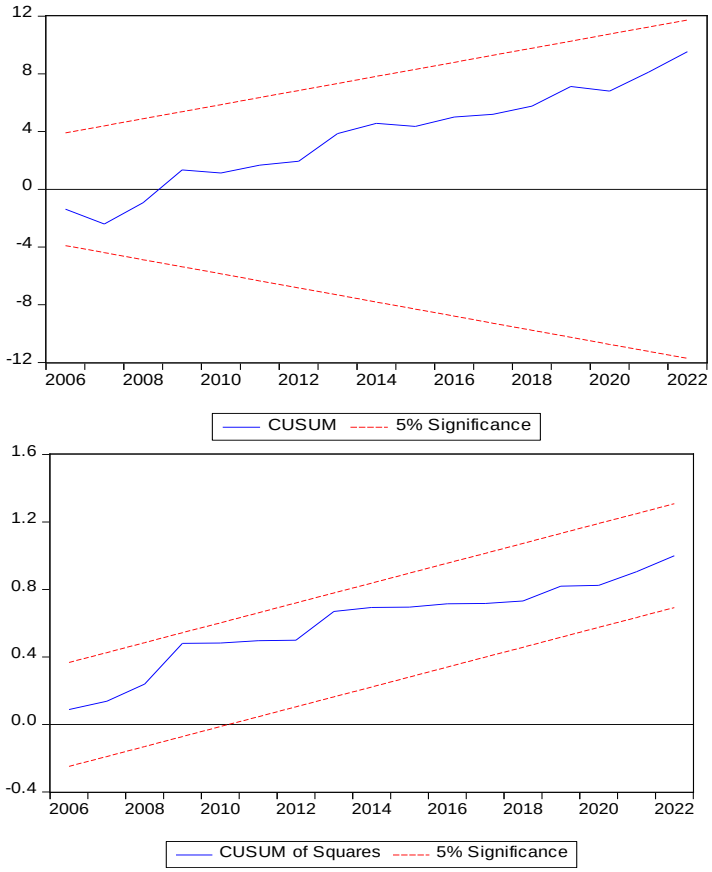

Figure 2. Tests CUSUM *and* CUSUMQ.

economic growth of Ivory Coast. A positive shock to imports of capital goods leads to an increase of 0.04% in economic growth. Conversely, previous imports of capital goods (with a lag of one year or more) negatively affect

economic growth.

Conclusion

The impact of trade openness on economic growth has been a subject of controversy among researchers for centuries. Accordingly, the main objective of this study is to identify the impact of imports of capital goods on the economic growth of Ivory Coast over the period 1985 to 2022. Following Keho (2017), capital stock was incorporated as a control variable in the model. However, in contrast to that study, trade openness in Ivory Coast was measured through imports of capital goods. The ARDL (AutoRegressive Distributed Lag) methodology was employed to examine this relationship. The verification of the cointegration hypothesis among the study variables and economic growth confirms the presence of a long-term relationship with economic growth. The results show a long-term positive correlation between imports of capital goods and GDP, corroborating the findings of Keho (2017), which highlight the importance of capital goods for Ivory Coast. Furthermore, CUSUM and CUSUMQ tests were utilized to demonstrate that the coefficients of the cointegrated ECM model are stable. To effectively benefit from the virtuous effects of capital goods in Ivory Coast, the following recommendations are made:

i) Encourage the growth of the industrial sector by implementing measures that facilitate the import of capital goods, including case-by-case tax relief for companies that are essential to the economic framework. However, a thorough analysis should be conducted to identify which equipment imports or technology transfers genuinely contribute to growth, considering their overall impact, albeit positive, may not be substantial.

ii) Regularly strengthen staff capacities to adapt to new technologies incorporated in imported capital goods. Indeed, the accumulation of physical capital adapts with the necessary skills in the production units to be operated efficiently.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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