Journal of
Developing Country
Studies
(JDCS)

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CARI

International Journal of Developing Country Studies
ISSN 2958-7417 (online)
Vol. 7, Issue No.2, pp 36 – 52, 2025
www.carijournals.org

Dynamics of Economic Integration and Cycle Synchronization: International Trade Theories Tested in the Cemac Zone

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https://0009-0000-8835-2024

Accepted: 29th Apr, 2025, Received in Revised Form: 29th May, 2025, Published: 29th June, 2025

Abstract

Purpose: This study analyzes the effects of monetary integration through intra-regional trade on the synchronisation of economic cycles in the CEMAC.

Methodology: This study applies a panel data model with specific effects to five of the six countries that make up the Central African Economic and Monetary Community: Cameroon, Congo, Chad, the Central African Republic, and Gabon. The data used come from two sources: The World Development Indicators (WDI) for the analysis of business cycle synchronization, and the UN Comtrade database for bilateral trade data, over a time horizon ranging from 1982 to 2018.

Findings: the findings suggest that, economic and monetary integration within the CEMAC framework has not been accompanied by a synchronization of business cycles.

Unique contribution to theory, practice and policy: From a theoretical perspective, the study of economic integration dynamics and cycle synchronization in CEMAC provides a new perspective by combining several economic theories. Rather than strictly applying Mundell's classical theory, this study adopts a more flexible approach that integrates endogenous criteria specific to African economies. From a political perspective, this topic highlights innovative reforms to improve economic integration in CEMAC, and provides an original approach proposing better coordination between CEMAC institutions and the BEAC for the harmonization of monetary and fiscal policies. From a practical perspective, it proposes the development of transnational infrastructure, likely to promote better connectivity between member countries, which could strengthen trade and improve the synchronization of economic cycles.

Keywords: *Synchronization, Economic Cycles, Trade intensity, CEMAC.*

1. INTRODUCTION

Trade intensity between geographically close countries had been the subject of several free trade agreements, with the objective of economic integration and trade liberalization (Freeman et al., 2019). To this end, several important regional agreements had marked the 1990s. Thus, in 1994, the countries of the franc zone had created economic and monetary unions, one in West Africa, the West African Economic and Monetary Union (UEMOA), the other in Central Africa, the Central African Economic and Monetary Community (CEMAC), in an international context that had been characterized by an economic and financial crisis, marked by the devaluation of the CFA franc. While this wave of regionalization of economies gave rise to legitimate reflection on its potential macroeconomic consequences in various contexts, the economic literature remained divided as to the effects that it might have had on the synchronisation of cycles, and hence on the effectiveness of monetary policy in a community context.

The debate on the theory of optimal currency areas (OCAs) had always focused on the parameters that justified the introduction of a single currency. Some authors had tried to define the criteria for an MCA within the framework of the so-called traditional MCA theory, notably Mundell (1961). Mundell (1961) had considered that candidate countries for monetary integration had to fulfil certain economic conditions that counterbalanced the costs associated with the loss of monetary autonomy. According to this author, three main conditions are retained: the intensification of trade links between the candidate countries, the synchronisation of economic cycles between these countries and the high mobility of the labour factor. Following Mundell (1961), McKinnon (1963) had emphasized the degree of openness of the candidate countries' economies to economic or monetary integration. Kennen (1969) had considered that the diversification of the economies makes it possible to attenuate the asymmetric shocks which affected the candidate countries and thus compromised the viability of the union.

However, emphasizing the fragility of the traditional approach, proponents of the Endogeneity thesis of the optimality criteria of a monetary zone had supported the idea of a positive effect of monetary integration on the synchronisation of cycles (Frankel and Rose, 1998), while Krugman's specialization hypothesis had supported the opposite position. In this second view, the strengthening of trade relations induced by monetary integration had resulted in greater specialization of production according to comparative advantages, less diversification and therefore less synchronized business cycles. The development of the paradigm of the endogeneity of the criteria of an optimal monetary zone thus had reopened the question of the optimality of a

monetary zone, not only to judge the viability of the monetary grouping, but also to determine the economic relevance of such a grouping.

While the different currents of economic theory agree on the essential role of the increase in intra-community trade resulting from the integration process in its dynamics, radical divergences persist as to its potential effect on the synchronisation of cycles.

The examination of such an effect was of extreme importance, as it had revealed the relevance or otherwise of the agreements, and whether increased trade had led to asynchronous or synchronous cycles. The answer to such a concern could be used as a decision support tool to verify the relevance of regional groupings in terms of convergence of economies. The objective of this article was to analyze the effects of monetary integration through intra-regional trade on the synchronisation of economic cycles in the CEMAC. The interest in this zone was justified by the lack of empirical work analyzing the subject. In view of the low level of trade observed in the sub-region, it was argued here that business cycles were asynchronous. While many recent studies had applied instrumental variable models to address this concern, the difficulty of finding instruments outside the model that were sufficiently correlated with the monetary union variable had limited their scope in the CEMAC countries. In this study, we applied panel estimation methods, as they took into account the temporal and cross-sectional dimension of the data. The rest of the paper was organized as follows: the first section analyzed the theoretical and empirical aspects, the second presented the intra-community trade of CEMAC and its specialization patterns. The third section was devoted to the econometric study.

2. LITERATURE REVIEW

2.1. Trade Intensity and Business Cycle Synchronization: An Ambiguous Relationship

The effect of increased trade links on the synchronisation of partner countries' business cycles is theoretically ambiguous. Indeed, a strong synchronisation between cycles is observed when the greater intensity of trade results in an increase in intra-industry trade, whether horizontal or vertical (Fiess, 2005). This will not be the case when the increase in trade results in greater specialization.

2.1.1. Shared theoretical positions

This section highlights the opposition between two approaches to the link between trade intensity and business cycle synchronisation. On the one hand, the hypothesis of endogeneity of the criteria of optimal currency areas and on the other hand the hypothesis of specialization.

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Endogeneity hypothesis of the criteria of the Optimal Monetary Zones

According to Manix Hédreville's representation of a group of candidate countries for a monetary union, whose situation is represented in Graph 1, figure (a) below.

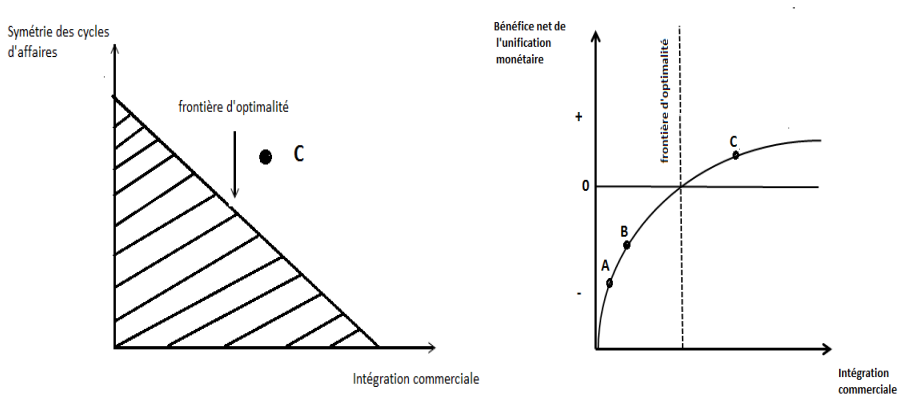


Figure 1. Illustration of the phenomenon of endogeneity of optimality criteria

The universe of pairs (trade integration; cycle correlation) is shown, as well as the optimality frontier. The hatched area below the optimality frontier refers to situations where monetary independence is preferable, which corresponds to the set of points where the net benefit of monetary union is negative. Conversely, the neutral surface above the optimality frontier represents the situation where monetary union is superior to monetary independence. Thus, a group of countries at point C, for example, would benefit from monetary union.

According to the traditional analysis of the theory of optimal currency areas (OCAs), the group of economically irrelevant countries is located at point A, which is upstream of the optimality frontier (Graph 1, Figure b). If this group of countries subsequently decides to form a free trade area, there will be an increase in bilateral trade and business cycle synchronisation. Thus, these countries will move from their initial location to point B, but will still remain to the left of the optimality frontier. If these countries decide, despite not meeting the traditional criteria, to enter a monetary union, a strengthening of trade integration and business cycle synchronization will follow. As a result, the group of countries will now be positioned at point C. The move from point A to point B and from point B to point C indicates an improvement in business cycle synchronization.

The underlying idea behind the endogeneity of optimality thesis is that monetary integration reduces transaction costs beyond the savings associated with the elimination of exchange rate volatility. This would lead to an increase in foreign direct investment, an intensification of intra-regional trade, a strengthening of economic and financial integration and an improvement in the

synchronisation of economic cycles. This first idea exposes the positive link between business cycle correlation and trade integration.

Krugman's specialization hypothesis

Krugman (1993) puts forward an argument against the endogeneity thesis of optimality criteria. He points out that economic, financial and monetary integration allows countries to exploit their comparative advantages and factor endowments. Based on the theory of international trade, he considers that the intensification of trade necessarily leads economies towards specialization. Indeed, the strengthening of trade relations between monetary allies would push them to specialize in the production for which they have a comparative advantage. Economies would then become less diversified and consequently have less synchronized economic cycles. Looking at Graph 1 (Figures a and b), the situation predicted by the specialization thesis is illustrated by the shift from a group of countries initially in an OCA (point C) to a situation where the costs of monetary union are higher (points A or B) because of the asymmetry generated by specialization.

2.1.2. Non-conclusive empirical studies

Following Frankel and Rose (1998), some empirical studies have reached the same conclusions. Indeed, Calderon et al (2007) show that the intensity of trade between developing countries from 1960 to 1999 had a positive impact, but less than that of developed countries on the synchronisation of their economic cycles. Inklaar et al (2008) re-examine the impact of trade on business cycle correlation for OECD countries. They conclude that increased trade promotes business cycle correlation among these countries, but with a smaller impact than that obtained by Frankel and Rose (1998). Duval et al (2014) examine the link between trade integration and business cycle synchronisation for developed and emerging countries between 1995 and 2012. Their results show that trade intensity has a positive impact on business cycle synchronisation during crisis periods. Mbou Likibi (2015) tests the relevance of the trade intensity and business cycle synchronisation relationship in the CEMAC zone. His results show that the low diversification of the different economies seems to be the main reason for the asymmetry of business cycles. Gnimassoun et al (2016) study the long-term sustainability of regional integration in the CFA franc zone. They conclude that monetary unions in the zone hardly promote business cycle synchronization across countries, apart from those related to inflation. Examining the effects of financial integration on business cycle synchronization in the CEMAC, Mbou Likibi (2018) finds that financial integration does not contribute to strengthening business cycle correlation. Cheikh et al (2019) analyze the evolution of the degree of synchronisation of real growth cycles in the WAEMU, concluding that the key determinants of the synchronization of economic growth cycles are the degree of

synchronisation of the previous period, differences in production structures, inflation differentials and common external shocks.

2.1.3. Intra-Community Trade Intensity and Resorts of Trade Specialization in The Cemac Zone

The aim here is to highlight the weakness of trade intensity in the sub-region, and then to show that trade specialization has rather exogenous resorts in the CEMAC.

Low intensity of intra-community trade

The states of the Economic and Monetary Community of Central Africa (CEMAC) hardly trade with each other, according to statistics drawn up by experts from the United Nations Economic Commission for Africa (ECA). Trade transactions within this part of the continent, which has no less than 160 million inhabitants spread over 6.6 million km2, represent only 3.5% and their imports, particularly of agri-food products, are estimated at two thousand billion CFA francs per year, compared with the continent's total trade. In order to assess intra-CEMAC trade, we rely on a comparative study of intra-subregional trade between CEMAC and six (6) other targeted Regional Economic Communities (RECs) (ECCAS, ECOWAS, COMESA, SADC, UMA, WAEMU). The table below provides an overview of the low level of intra-CEMAC trade.

Table 1: Evolution of CEMAC trade in relation to other RECs

Zones	X				Y				Z			
	%		rank		%		rank		%		rank	
	E	**I**	**E**	**I**	**E**	**I**	**E**	**I**	**E**	**I**	**E**	**I**
CEMAC	1.6	3.1	6e	6e	3.4	13.2	6e	6e	1.5	3	6e	6e
ECOWAS	7.5	10.4	3e	2e	13.3	14.2	4e	5e	6.8	5.7	4e	4e
ECCAS	0.8	2.4	7e	7e	3.2	15	7e	3e	0.7	1.9	7e	7e
COMESA	6.9	5.8	4e	4e	16.1	14.8	1er	4e	7.5	10.4	2e	2e
SADC	11.7	14.8	2e	1er	14	17.8	2e	2e	11/6	14.8	1er	1er
WAEMU	13.5	10	1er	3e	13.5	28.4	3e	1er	3.8	9.9	3e	3e
UMA	3.3	3.9	5e	5e	5.2	6.7	4e	7e	0.1	3.9	5e	5e

Notes: Table based on data from UNCTAD Handbook of Statistics, 2012 and Statistical, African yearbook, 2012. E: Exports; I: Imports X: Percentage of individual exports and imports to total intra-community exports and imports Y: Percentage of intra-community exports and imports to total African exports and imports Z: Percentage of intra-community exports and imports to total world exports and imports.

Trade specialization with exogenous resorts

International specialization in the CEMAC countries is not driven by Krugman's logic according to which the intensification of trade leads economies to specialization. It was gradually built around a sort of "original sin", and throughout the process of destruction-restructuring of national economies around the objectives of the colonizing metropolis initiated during the colonial period. Within this framework, the specialization of the CEMAC countries was built around a limited number of cash crops which still represent the bulk of exports and constitute the basic material for the industry of the Western partner countries. At the same time, this limited group of countries accounts for over 70 per cent of the zone's imports. This situation makes the CEMAC countries subject to variations in demand from the countries of the North and the volatility of world prices. This dependence is all the more burdensome as the standard of living and development capacity of CEMAC countries are closely linked to foreign trade. Such an environment can result in a lack of synchronisation of economic cycles in CEMAC countries.

3. Methodology

The purpose of this section is to specify the model to be estimated, and then to present the main results.

3.1. Econometric specification of the model and presentation of the data

The analysis of the link between trade intensity and the synchronisation of economic cycles, through classic instrumental variable models, gives contrasting results. Under these conditions, it is not easy to find instruments outside the model that are sufficiently correlated with the monetary union variable (Glick and Rose, 2002; Baldwin, 2005). The solution could then lie in the use of panel estimation methods, which have several advantages (Baltagi, 2001; Sevestre, 2002). Firstly, by taking into account the temporal dimension of the data, in addition to their cross-sectional dimension, the estimation of panel data makes it possible to trace the dynamics of behavior and their possible heterogeneity. Secondly, it reduces the risk of collinearity between the explanatory variables, since they are expressed in two dimensions. Finally, panel estimation techniques make it possible to take into account unobservable characteristics specific to each individual that may be correlated with some of the explanatory variables. It should be noted, however, that the fixed-effects panel model has a disadvantage relating to the loss of the important degree of freedom and does not allow for the estimation of the effect of time-invariant variables. The panel data model with specific effects which corrects these shortcomings is retained and presented as follows:

$$\theta_{ijt} = \psi\theta_{ijt-1} + \beta IC_{ijt} + \gamma SPECIA_{ijt} + \alpha_{ij} + \lambda_t + \varepsilon_{ijt} \quad (1)$$

With θ_{ijt} the degree of synchronisation of economic cycles between country i and partner j in period t. The intensity of bilateral trade is measured by the variable IC_{ijt} , introduced by Frankel and Rose (1997, 1998) and adopted by several authors such as Gruben et al. (2002), Baxter and Kouparitsas (2005). It is calculated on the basis of the following ratio:

$$IC_{ijt} = \frac{X_{ijt} + M_{ijt}}{PIB_{it} + PIB_{jt}}$$

Where X_{ijt} represents the exports of country i to country j in year t; M_{ijt} the imports of country i from country j in year t, PIB_{it} and PIB_{jt} represent respectively the gross domestic products of countries i and j in year t. The parameters ψ , β and γ are the regression coefficients to be estimated. The sign of β indicates the existence or not of an endogeneity phenomenon of Optimal Currency Zones. A positive coefficient means that the convergence effect (Frankel and Rose 1997, 1998) dominates, while a negative coefficient implies the primacy of the divergence effect (Krugman 1993). Individual fixed effects α_{ij} capture the unobserved characteristics of the sampled countries, which helps overcome omitted variable bias. Time-specific effects λ_t, on the other hand, capture time shocks that affect the level of the product. $SPECIA$ is the specialization variable, which refers to the pioneering work of Kenen (1969), who shows that the more diversified the productive structures of economies, the lower the probability of asymmetric shocks. To account for the level of specialization, we use the specialization index of Krugman (1990). The construction of this index for CEMAC makes it possible to identify three sectors of activity: the primary sector, which includes agriculture, livestock, hunting, fishing, forestry, and the extractive industry. The secondary sector consists of manufacturing, construction, and public works. Finally, the tertiary sector includes market and non-market services.

So we will have:

$$SPECIA = \sum_{n=1}^{N} \left| \Gamma_{n,i} - \Gamma_{n,z} \right|$$

With $\Gamma_{n,i} = \frac{PIB_{i,t}}{PIB_{cemac,t}} * PIB_{n\,i\,t,}$ and $\Gamma_{n,Z} = \frac{PIB_{z,t}}{PIB_{cemac,t}} * PIB_{n\,z\,t,}$

$PIB_{i,t}$ being the real gross domestic product of country i at date t, $PIB_{cemac,t}$ the real gross domestic product of the CEMAC zone at the same date. $PIB_{n,i,t}$ is the weight of sector n in the product of country i at date t, $PIB_{z,t}$ is the real gross domestic product of the CEMAC zone without that of country i and $PIB_{n,z,t}$ is the weight of sector n in the real gross domestic product of the CEMAC zone without that of sector n of country i at date t. The calculation of the differences in sectoral structures of each country and the zone is done by taking the sum of the absolute values of the differences between the proportions of the sectors in the added value. This index ranges from 0 to 2. If it is 0, it means that the sectoral structures are identical. And the more it increases, the more the specializations between the countries studied and the zone increase. Regarding the measurement of the degree of synchronization of cycles, proposals have been suggested by several researchers. We can cite the correlation coefficient method, the concordance index proposed by Harding and Pagan (2006) and the quasi-instantaneous correlation measure proposed by Abiad et al. (2013). For the correlation coefficient method, we see that this measure is more adequate, insofar as it allows us to observe a difference between the degree of cyclical transmission and the correlation of GDP between countries. Therefore, we are interested here in the use of the correlation index, in order to determine the degree of cyclical synchronization between the CEMAC economies. Thus, we will have θ_{ij} , the synchronization of cycles, measured through the calculation of correlations between the cyclical components of certain macroeconomic variables.

$$\theta_{ij} = \frac{Cov(x_i, x_j)}{\sigma_{x_i}\sigma_{x_j}}$$

These components are obtained by applying filtering techniques (Hodrick and Prescott filter, 1980) to statistical series that allow to distinguish trend and cycle. Thus, $Cov(x_i, x_j)$ represents the covariance between the cyclical components of real GDP of countries i and j. $\sigma_{x_i}\sigma_{x_j}$, the standard deviations of the cyclical components of real GDP of countries i and j. The integration of the synchronization dynamics, not taken into account in the model of Frankel and Rose (1997, 1998),

allows to specify the econometric model that analyzes the phenomenon of endogeneity of the optimality criteria of a monetary zone as follows:

$$Ln\left(1-\theta_{ijt}\right)=\psi Ln\left(1-\theta_{ijt-1}\right)+\beta LnIC_{ijt}+\gamma LnSPECIA_{ijt}+\alpha_{ij}+\lambda_{t}+\varepsilon_{ijt} \quad (2)$$

By integrating the deviation from perfect synchronization $1-\theta$, the negative sign of the parameter β and its significance demonstrate a strong presumption of the endogeneity phenomenon of OCAs. This means that the economies studied actually evolve from point A to point B (case of a proposed union), or from point B to C (case of an existing union) in Manix Hédreville's Figure 1 (Figure b).

The study focuses on five of the six countries that make up the Central African Economic and Monetary Community, namely: Cameroon, Congo, Chad, Central African Republic, and Gabon. Equatorial Guinea was excluded due to the unavailability of data for the study period. Our sample is well suited to this study insofar as CEMAC, belonging to the franc zone, is a monetary union that is about fifty years old, which allows us to test the convergence of economic cycles and the ex-post phenomenon of endogeneity.

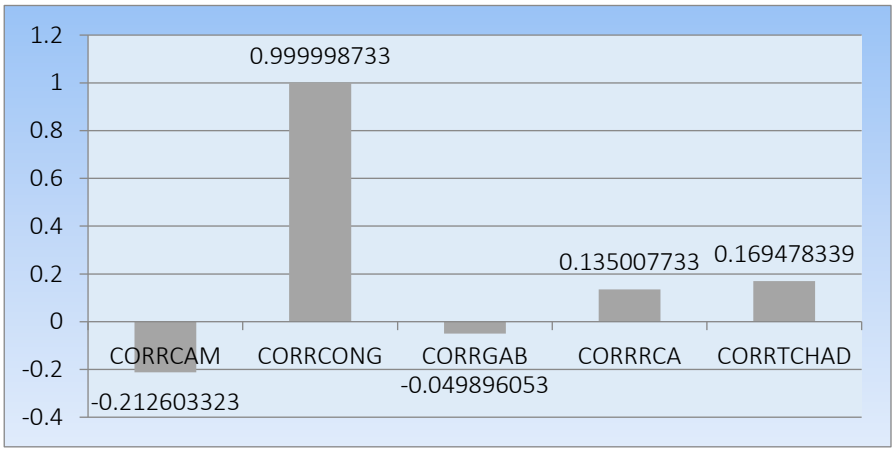
The data used come from two sources: real GDP in dollars (base 2000) from 1982 to 2018, for the analysis of the synchronization of economic cycles come from the World Bank database, World Development Indicators (WDI). Data on bilateral trade, for the measurement of trade intensity, come from the UN Comtrade database.

3.2. Findings and discussion

3.2.1. Descriptive Analysis

This analysis is conducted first by CEMAC member country, then by country pairs.

Correlation Analysis by CEMAC Country



Note: CORR CAM: Cameroon correlation; CORR CONG: Congo correlation; CORRGAB: Gabon correlation; CORRRCA: Central African Republic correlation; CORRTCHAD: CHAD correlation.

Figure 2: Correlations of economic cycles in CEMAC

Graph 2 above, obtained from the Hodrick and Prescott (HP) filter, presents the levels of synchronization of the economic cycles of each of the CEMAC countries in relation to the economic situation of the sub-region as a whole. It suggests the following comments: the evolution of the correlation of the economic cycles of Cameroon and Gabon seems to go in the opposite direction to that of the whole of CEMAC, with a coefficient of -0.212603323 for Cameroon and -0.049896053 for Gabon. In addition, Congo Brazzaville stands out as the country whose economy is highly correlated with that of the entire sub-region, with a correlation coefficient of 0.999998733. These finding align with those of Mbou Likili (2015) and Mpabe Bodjongo et al. (2018).

Hasty observations of Figure 2 could lead to the assumption that the economic cycles of countries such as Cameroon and Gabon are asynchronous with those of the CEMAC zone. Taking the analysis further, we incorporate a country-pair approach to identify potential similarities, like Nenghem Takam (2024).

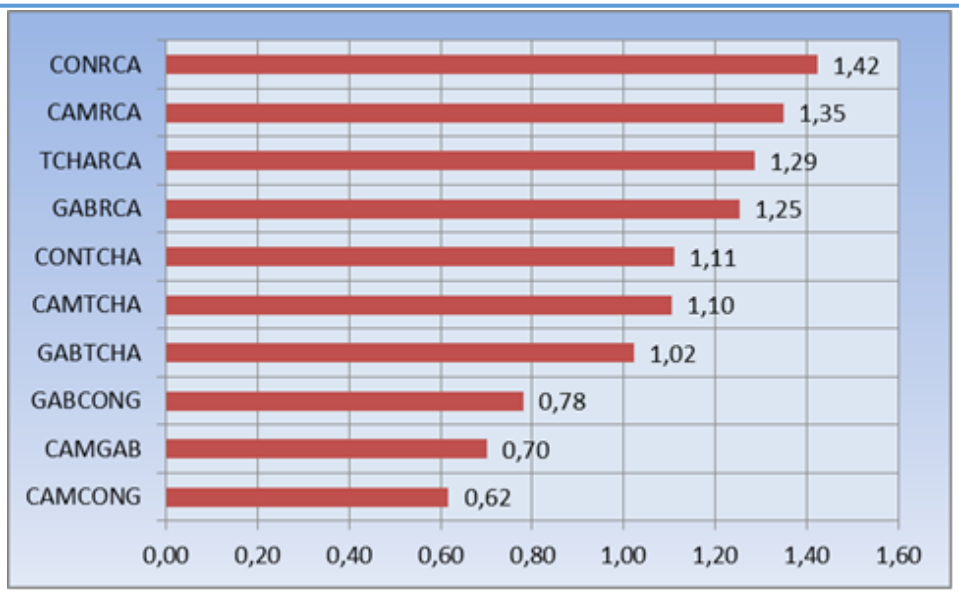


Figure 3: Correlations of Economic Cycles by Country Pairs in the CEMAC

Note: CAMCONG: Cameroon-Congo pair; CAMGAB: Cameroon-Gabon pair; GABCONG: Gabon-Congo pair; GABTCHA: Gabon-Chad pair; CAMTCHA: Cameroon-Chad pair; CONTCHA: Congo-Chad pair; GABRCA: Gabon-Central African Republic pair; TCHARCA: Chad-Central African Republic pair; CAMRCA: Cameroon-Central African Republic pair; CONRCA: Congo-Central African Republic pair.

An analysis of synchronization levels by country pair gives us the results shown in Figure 3 above. This figure illustrates the average deviation from perfect cycle synchronization for each country pair. Cameroon and Congo are the countries with the closest production cycles, followed by Cameroon and Gabon, and the Gabon-Congo pair. These results suggest that countries are moving closer together in trade, reflecting trends toward synchronization between groups of countries such as Cameroon-Gabon-Congo, which could constitute the core of this sub-region. These results are consistent with those of Kamdoum Kamwa (2020). Overall, economic cycles in the CEMAC zone appear to fluctuate asymmetrically. Correlation analysis thus highlights several facts that should be compared with the results of econometric estimations.

3.2.1. Econometric Estimations

Taking into account the fact that in 1994, the franc zone countries created economic and monetary unions, in an international context of economic and financial crisis, marked by the devaluation of the CFA franc, we analyze the effects of trade intensity on the synchronization of economic cycles

in three stages. First before the signing of the CEMAC treaty (1982-1994), then after its establishment (1995-2018), and finally over the entire study period (1982-2018).

Table 2: Estimate for the two sub-periods 1982-1994 and 1995-2018

Variables	Coef Period from 1982-1994	P>|z|	Coef Period from 1995-2018	P>|z|
Ln (1- θ_{ij}) Ln (1- θ_{ij})	0.8043574	0.000	1.049129	0.000
Ln1. $LnIC_{ij}$	- 0.0267688	0.120	0.0002913	0.033
LnSPECIA	- 1.941568	0.000	- 0.665975	0.007
Constant	24.7704	0.000	0.8783463	0.006

We note, in view of Table 2 above, that trade intensity tends to increase the deviation from perfect synchronization. In other words, trade intensity did not favor the rapprochement of the economic cycles of the countries of the sub-region during the period of the Customs Union of Central African States (UDEAC). However, we note a phenomenon of specialization of economic structures, because the coefficient relating to it is significantly negative. The second periodic tranche (1995-2018) gives practically identical results. Trade intensity aggravates the deviation from perfect synchronization of economic cycles, because its coefficient is positive and insignificant. The phenomenon of sectoral specialization observed in the first period continued even after the establishment of the Central African Economic and Monetary Community. Over the entire study period (1982–2018), we obtained the results shown in Table 3 below:

Table 3: Estimate for the period from 1982 to 2018

Variables	Coef Period from 1982-2018	P>|z|
Ln (1- θ_{ij}) Ln (1- θ_{ij})	0.9813562	0.000
Ln1. $LnIC_{ij}$	0.002348	0.229
LnSPECIA	-0.3287238	0.000
Constant	4.227594	0.000

Analyzing synchronization over the entire study period yields identical results to those of the first two phases. Trade intensity does not reduce the gap in the synchronization of business cycles; on the contrary, this gap is exacerbated as economies become more specialized. The use of a single currency and the strengthening of sub-regional economic integration have not been able to improve the level of synchronization of the economic cycles of member countries. On the contrary, a divergence of these cycles has been observed. These results are in line with those of Mbou Likibi (2015), who conclude that an asymmetry of business cycles exists, as well as those of Gnimassoun et al. (2016), who also conclude that monetary unions in the franc zone have difficulty promoting the synchronization of economic cycles.

4. Conclusion

In this article, we analyzed the effects of monetary integration on the synchronization of economic cycles between five countries in the CEMAC zone. The results reveal not only a significant asynchronization of the economic cycles of the countries studied, despite a slight tendency toward clustering observed when analyzing synchronization by country pairs, but also a lack of the effect of trade intensity on the synchronization of economic cycles. This result supports Krugman's (1993) hypothesis in the CEMAC. But, contrary to the author's explanation, specialization is not linked to intra-community trade, but to the extroverted character of national productions, based on the needs of the markets of industrialized countries. In light of these results, it can be said for the time being that economic and monetary integration within the CEMAC framework has not been accompanied by a synchronization of business cycles. Based on the findings about economic cycle synchronization and trade integration in CEMAC region, here are some tailored recommendations across theory, practice and policy.

5. Recommendations

Theoretically, future research could develop or adapt models that better capture asymmetrical convergence patterns within economic unions, especially in regions where partial synchronization occurs among subsets of countries. Building on the pairwise approach, theoretical frameworks should factor in bilateral interactions and spillover effects to explain. In addition, the organizations should encourage member states to harmonize macroeconomic data collection and make it publicly accessible for consistent monitoring of economic cycles and shocks. They should also promote joint infrastructure or industrial projects between all countries to reinforce their economic co-movements and create a nucleus of stability in the sub-region. Policy makers should create tiered integration strategies: develop policies that recognize convergence disparities and allow for differentiated integration timelines among member states. They should harmonize trade and fiscal

policies: focus first on deepening trade and budgetary coordination among more synchronized economies to build institutional momentum before extending to the broader CEMAC zone. Targeted capacity building is essential to help support weaker economies with technical assistance and institutional reforms to bring their cycles more in line with the regional trendsetters.

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