
**MONETARY INTEGRATION AND REGIONAL TRADE IN THE
ECOWAS ZONE: ROLE OF INSTITUTIONAL GOVERNANCE**

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Abstract

This study assesses the effect of monetary integration on intra-country trade in the ECOWAS zone (Economic Community of West African States), conditional on institutional governance in these countries using times series data from 1990 to 2018. Employing an augmented gravity model, the results indicate that monetary integration has a positive effect of about 274% on trade in ECOWAS countries. Better, this effect is multiplied by three when the use of a common currency is associated with institutional governance in these countries. These results indicate that institutional governance has an accelerating effect on the intra-regional trade when the member countries adopt a common currency. In terms of economic policy implications, this study suggests that ECOWAS countries need to ensure that the quality of institutional governance is improved in order to reap the full commercial benefits of monetary integration. Likewise, the inadequacy and poor condition of transport and communication infrastructure must be an integral part of community governance in order to limit the negative effects of geographic distance between countries.

Keywords: Monetary Integration; Intra-regional trade; Institutional governance; ECOWAS

1-INTRODUCTION

Monetary policy has always been a privileged instrument for economic policy in all countries. Even if the main objective of central banks is price stability, the fact remains that monetary policy plays an important role in macroeconomic stability and economic performance. Over the past two decades, several studies have confirmed the positive effects of monetary policy on investment and gross domestic product (Blot and Hubert, 2018; Cloyne and Hürtgen, 2016).

On theoretical basis, this thesis is supported by numerous authors (Tobin 1969; Robinson 1965). However, for the monetarist, monetary policy has no effect on the real sphere or at least has only short-term effects (Friedman, 1968; Sidrauski, 1967; McKinnon and Shaw, 1973; Mundell, 1962). Indeed, monetary policy is ineffective except under flexible exchange rates regardless of the degree of capital mobility. Furthermore, in the short term, variations in the quantity of money can have real temporary effects because of the initial price rigidity. However, under the assumption of price and labor market flexibility, changes in the money supply only have an effect on the general level of prices in the long run. As a result, production and employment are not affected by monetary policy.

The issue of monetary policy and particularly monetary integration is of particular interest to developing countries in the current context of globalization. What is more for West African countries who plan to create a wider monetary union than that which exists. In this case, the monetary union of the West African states gives rise to many concerns about the capacity for

regional integration to generate positive externalities. Barro and Gordon (1983) underlined the beneficial impact of joining a monetary union via the impossibility for a country to use monetary creation to meet its contractual obligations (debt repayment) or even to fill a gap of budget deficit. In addition, economies with price stability problems (high and volatile inflation) would benefit from being part of a monetary union.

The theory of an optimal currency area suggests that there are costs and benefits to forming monetary unions. The main advantage is that it reduces transaction costs, while the main cost is that members lose the ability to use the exchange rate as an instrument for adjusting to asymmetric shocks (Mundell, 1961). Consequently, the positive impact of a monetary union on intra-regional trade is therefore not systematic. A monetary union can generate global positive externalities on the economies of member countries provided that there is labor mobility, price flexibility in the goods, services and labor markets, diversification of goods to exchange, a budget transfer mechanism (Kenen, 1969; McKinnon, 1963).

In particular, the literature on monetary integration stipulates that a monetarily integrated zone can benefit from positive effects on intra-zone trade (Krugman, 1993; De Grauwe, 2009). Indeed, the member countries of the union can save on the transaction costs linked to the exchange of currencies, improve the exchange rate and the transparency of the prices, while facilitating the movements of capital between the members of the union. Dramani (2007) argues that the positive effects of a monetary union are diverse through the reduction of transaction costs and speculative activities, the reduction of uncertainty costs, and the absorption of shocks between member countries of the union.

Empirically, the question of the effects of monetary integration on intra-regional trade is not disputed. However, the importance of the effects continues to be the subject of much controversy. Rose, (2000) shows that countries that are in a monetary zone are three times more likely to trade with each other compared to those which are not. Using different methodologies than Rose's, several other empirical studies confirm the positive effects of monetary integration on intra-regional trade in Europe (Glick, 2017; Cloyne et al, 2016; Glick and Rose, 2016; Cloyne and Hürtgen, 2016; De Souza, 2002; Sohe, 2013; Rose, 2000) and in Africa (Gammadigbe, 2017; Camara, 2015; Bangake and Eggoh, 2008; Masson and Patillo, 2005). However, for others, the effect of monetary integration on intra-area trade is negligible (Costa-i-Fon, 2010).

Empirical literature shows that monetary integration can generate positive effects on intra-area trade, even if these gains are not systematic. However, all of these studies have overshadowed the role that countries' institutional governance could play in the effectiveness of monetary integration policies. Indeed, a review of the empirical economic review in recent decades shows that institutional governance has effects on economic variables such as economic growth, investment, trade (Emara and Johnsa, 2014; Blejer and Khan, 1984; Dago and Diaw, 2018). In the turbulent context of the institutional governance of African countries, it is therefore not excluded that this parameter could affect the relationship between monetary integration and intra-zone trade in the ECOWAS countries.

The purpose of this research is therefore to examine the effects of monetary integration on intra-country trade in the ECOWAS zone conditional on institutional governance in these countries.

The structure of this article is as follows. In section 2 we present a review of empirical work on the links between monetary integration and intra-area trade. The methodology is exposed in section 3, followed by the result and discussion in section 4. Finally, section 5 provides concluding remarks.

2- LITERATURE REVIEW

This section presents the trade situation in the ECOWAS zone, then gives an overview of the work on the effects of monetary integration on the trade of the member countries of the union.

2-1- Trade in the ECOWAS zone

The stylized facts of international trade generally show an under-representation of African nations on the world market with a high proportion of primary products (agricultural products, mineral resources) in their basket of goods. In the ECOWAS zone, there is a strong propensity of states to trade with countries outside the West African economic union. Indeed, trade within the ECOWAS zone represents between 10% and 13% of total trade in the zone while the rate of trade of member countries of the European Union is estimated at more than 60%, and that of developing countries in Asia exceeds 50% of the total trade volume of these countries (UNECA, 2018). An analysis of the trade structure of ECOWAS member countries shows that almost all of ECOWAS's exports are destined for European, American and Asian markets, while imports are dominated by manufactured products from the same sources (Kotchoni and Medenou, 2018). Trade behavior of the countries of the ECOWAS region could be explained by the existence of tariff and non-tariff barriers, products that are not very competitive on the African market and the deficit in communication networks (Olayiwola, 2012).

2-2- Monetary integration and trade

With the lifting of protectionist policies, trade policy has become more than an issue for states. Consequently, monetary integration has become an effective tool of trade policy, especially for developing countries that have an embryonic industrial fabric with relatively less advanced technology than those of industrialized countries. The literature on the contribution of monetary unions to economic variables has seen renewed interest since the creation of the monetary union in the European countries. Authors using different methodologies have analyzed the effects of monetary unions on trade in Europe, Africa and Asia. Even if the results of these studies are still divergent, with analysis based mainly on two current thoughts of optimal monetary zones (ZMO).

The first is that the traditional theory of ZMOs which stipulates that the optimality of a monetary zone rests on ex-ante conditions, i.e. the conditions that prevailed before the formation of the union (Mundell, 1961; McKinnon, 1963; Kenen, 1969). For these authors, the optimality of a monetary zone is conditioned by the mobility of labor in the zone, the flexibility of prices and wages, the coincidence of economic cycles across the zone, the degree of openness to the international nature of the area and the degree of diversification of the economy of each country of the union. The second refers to the theory of endogenous criteria which maintains that a monetary union produces endogenously the conditions of its optimality and therefore that the analysis of the ZMO should be ex-post, particularly the harmonization of the symmetry of the shocks (Frankel & Rose, 1998).

The very first empirical work takes place with the creation of the European Union, the most cited of which is that of Rose (2000). Using a panel gravity model on a sample of 186 countries observed during 5 years period between 1970 and 1990, the latter finds that trade is three times higher within countries using the same currency than those using different currencies. However, a year later, Pakko and Wall (2001) using the same data as Rose through an estimate of a generalized fixed-effects model concluded that monetary union has a less significant, negative effect on intra-zone trade.

Using a large sample of 200 countries around the world, Glick and Rose (2002) still used a panel gravity model to separate the effect of monetary union on bilateral trade before and during membership of two countries to the same monetary union over the period 1948 to 1997. These authors find that bilateral trade doubled when the two countries belong to the same monetary area, while bilateral trade decreases by half when at least one of the two countries leaves the monetary union. Yildirim (2012) studies the effect of monetary union on the macroeconomic performance of 24 OECD countries over the period 1988-2009. Based on the gravity model with Least Squares estimation, he concludes that European monetary union has had a positive effect on trade. However, it shows that monetary union without a policy of financial integration has a negative impact on the economic performance of OECD countries. Very recently, Glick (2017) estimates the effects of the European Economic and Monetary Union (EMU) and the European Union (EU) on trade in the region. Using an empirical gravity model applied to the panel with both time-varying country effects and dyadic fixed effects on a wide range of data (in both countries and overtime), the latter notes that EMU and the EU have each boosted exports significantly.

Other authors have focused on African monetary unions. Bangake and Eggoh (2008) empirically assessed the impact of monetary unions in Africa on trade. By focusing on regional agreements based solely on free trade between the economic and monetary areas in Africa, these authors estimate a panel gravity model for a sample of 35 African countries during the period 1980-2005. Their results suggest that the monetary union of West African countries (WAEMU) and that of Central African countries (CEMAC) have strengthened trade ties between member countries. The results also suggest that the Rose effect is greater in the WAEMU area than in the CEMAC. On the other hand, the latter concludes that regional agreements based solely on free trade have not significantly improved trade compared to countries in monetary unions.

By taking specifically the case of the 16 countries of the economic community of West African states (ECOWAS), Chinweuba (2011) uses a panel gravity model to assess the effects of the WAEMU on intra-regional trade over the period 1994 to 2006. It highlights the existence of a positive but decreasing effect since 1994 of monetary integration on the region's trade. A few years earlier, Iqbal & Khan (2002) had already used two indicators to measure the effects of monetary integration on intra-regional trade in the ECOWAS zone, namely the intra-regional trade ratio and the rate of trade between countries taken two to two of the union. Through a gravity model, the results of the two measures indicate a deficiency in the promotion of trade within the member countries of the union. However, in his study on the impact of regional integration on intra-regional trade in WAEMU countries, Agbodji (2008) concluded that exports from member countries of the union have decreased since 1995 while those between WAEMU countries have experienced

growth. The author concluded that monetary integration in the WAEMU diverts trade more to the rest of the world than commercial creation within the countries of the union.

Some recent work has also looked at the relationship between monetary integration and trade in the ECOWAS region. Gammadigbe (2017) analyzed the effect of regional integration on bilateral agricultural trade in West Africa. Using an augmented gravity model, the author breaks down regional integration into two components (monetary and trade). The results show that the two components each exert significant positive effects on intra-zone trade in agricultural products. However, the impact of monetary integration is higher than that of trade integration on the one hand, and on the other hand, the effect of monetary integration is greater in the monetarily integrated countries. Using the matching technique, Kotchoni and Medenou (2018) conduct a prospective study to predict the effects of the future single currency of the ECOWAS zone on Benin's foreign trade. The authors concluded that a single currency would increase Benin's exports to non-WAEMU ECOWAS countries by 3.91%, but it would increase imports from these countries by 35.54%.

Overall, we note that the empirical literature on the effects of a monetary union on trade is divergent in West Africa, at least as regards the magnitude of the effects. Arguments militate in favor of dissatisfaction with the achievement of the objectives of monetary unions in Africa, particularly their ability to stimulate intra-regional trade. The existing monetary unions on the continent seem to be less efficient compared to those of the European Union and other regions of the globe. Masson and Pattillo (2001) are among the authors who disagree with the thesis that monetary union has an accelerating effect on intra-regional trade in West African countries. Indeed, the latter claim that the beneficial effects of monetary integration on intra-regional trade in these countries are limited by the disparate structure of the economies of West African countries. The authors suggest initiatives that can support the structural convergence of countries in order to improve the efficiency in terms of trade integration of monetary union in the region. This divergence of results in Africa is also explained by the presence of complex relationships between the foundations of monetary union and trade on the one hand, and on the other hand by the fact that the member countries of the union have structures different from non-union countries (Persson, 2000). Furthermore, in the context of African countries, the effects of monetary unions can be conditioned on institutional governance. However, none of the previous studies has examined the influence of this parameter in the estimation of the effects of monetary unions on intra-zone trade in Africa.

3-METHODOLOGY

In this section, we first present the analysis model before specifying the source of the data for our estimates.

3-1-Model of analysis

Most of the work on regional trade has been based on the gravity model of international trade. This model first used by Tinbergen in 1962 is based on the assumption that trade between two nations increases with the gross domestic product and population of the latter, and decreases with transaction costs such as the physical distance that separates these two nations (Eichengreen and Irwin, 1996).

In this article, as in the work of Glick and Rose, (2002); Bangake and Eggoh, (2008); Chinweuba, (2011); Gammadigbe, (2017), we use the gravity model of international trade to assess the effects of monetary integration on intra-regional trade of ECOWAS countries as presented in the following equation:

$$\log X_{ijt} = \beta_0 + \beta_1 \log Y + \beta_2 \log Y_p + \beta_3 \log POP + \beta_4 \log POP_p + \beta_5 \log DIST_{ijt} + \beta_6 CFA_{ijt} + \beta_7 Z + \varepsilon$$

With Y and Y_p represents the gross domestic product of countries i and j respectively; POP and POP_p the total population of countries i and j respectively; DIST_{ij} measures the geographic distance between countries i and j; CFA is a binary variable which takes the value 1 if countries i and j have the West African CFA as their currency, 0 if not; Z a vector of control variables such as language, common border, ε is the error term; i and j any two member countries of ECOWAS and t indicates time.

To take into account the hypothesis of this article according to which the positive effect of monetary integration on intra-regional trade is conditioned by good institutional governance in the ECOWAS member countries, we introduce institutional governance as a moderating variable of monetary integration in the previous model. Consequently, the previous equation becomes:

$$\log X_{ijt} = \beta_0 + \beta_1 \log Y_{it} + \beta_2 \log Y_{jt} + \beta_3 \log POP_{it} + \beta_4 \log POP_{jt} + \beta_5 \log DIST_{ijt} + \beta_6 CFA_{ijt} + \beta_7 CFA_{ijt} * GOUV + \varepsilon$$

With GOUV as an indicator for measuring institutional governance in the country.

3-2-Data and estimations

The data used in this work are secondary panel data that cover the period 1990 to 2018 for a sample of 15 ECOWAS countries including Benin, Burkina-Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Senegal, Guinea Bissau, Guinea, Liberia, Mali, Mauritania Niger, Nigeria, Sierra Leone, Togo. Data on the volume of trade are those of the Trade Department of the International Monetary Fund (IMF). Gross domestic product and population data are from the World Bank database (World Development Indicators, 2019). The data for the variables of institutional governance come from the database of the Worldwide Governance Indicators 2018 (WGI). Language, border and distance data are obtained from the CIA World Factbook. Before estimating the parameters of the model, the integration properties of all the series are verified through the unit root panel tests, namely the test of Im, Pesaran and Shin (2003).

4-RESULTATS AND DISCUSSION

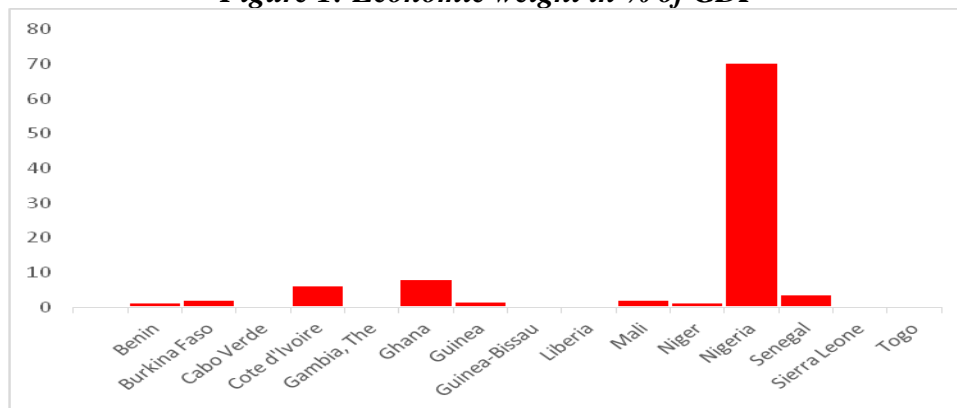
This section is devoted to the presentation of the results and the discussion of descriptive and econometric analysis of the effects of West African monetary integration on intra-regional trade.

4-1- Descriptive analysis

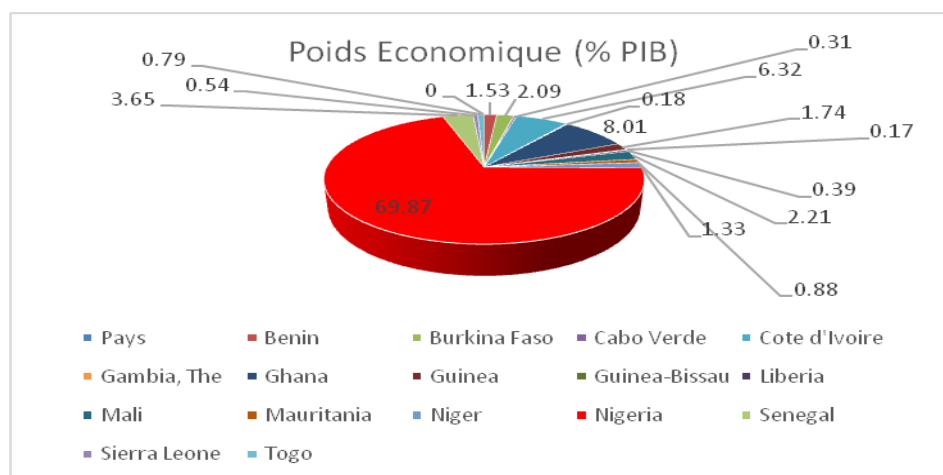
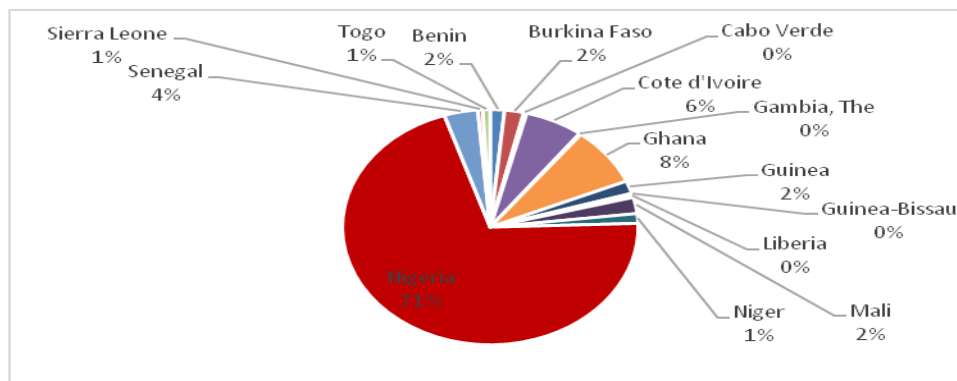
The economic community of West African ECOWAS states is the economic union of 16 West African states which covers an area of 5.1 million km² and has a population of 382 million inhabitants, or almost a quarter of the African population. This region recorded a GDP of around 672 billion US dollars in 2018. Currently, the ECOWAS area uses eight different currencies including the CFA Franc which is used by eight member countries of ECOWAS within the Economic and Monetary Union West African (UEMOA). Demographically, the community is

characterized by the importance of Nigeria, which alone accounts for more than half (51%) of the region's population. This importance of Nigeria is also recognized economically. As shown in Figure 1, the Nigerian economy accounts on average for 70% of the GDP of the ECOWAS community, followed by far by Ghana (8%) and Côte d'Ivoire (6%).

Figure 1: Economic weight in % of GDP



Source : World Development Indicators, 2019



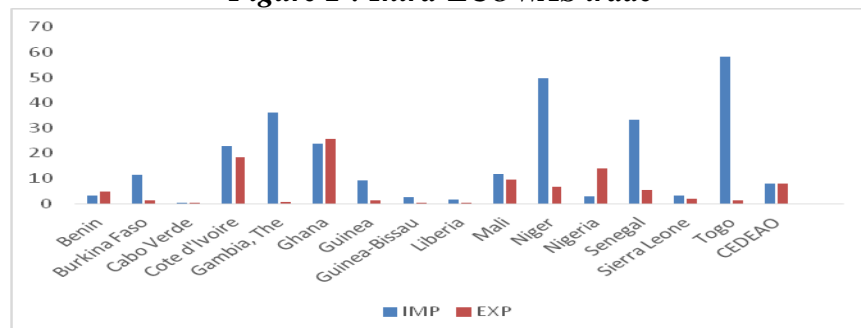
Source: auteur, 2019

In terms of cyclical indicators of economic management, the region is characterized by a dualism. On the one hand, the WAEMU countries that have homogeneous, weak, almost converging indicators such as the inflation rate, the public debt-to-GDP ratio, unlike other ECOWAS countries.

Compared to trade between West African countries, statistics show that they exchange very little with each other, around 10%. The following figure describes the portion of each country's total exports to the West African region. It appears that the majority of ECOWAS countries export outside the area. Only three of the sixteen countries export 50% of their goods through the ECOWAS region. We also note that only the small countries in terms of economic weight export more to the member countries of the region. As a result, in the region as a whole, on average only 7.8% of exports are between the countries of the Union.

On the import side, the situation is similar to that of exports. Figure 3 below shows that ECOWAS countries make only 8% of their imports within the economic zone. Furthermore, only one country makes at least 50% of its imports within the economic zone, and more than half of the countries import less than 20% from the countries of the community.

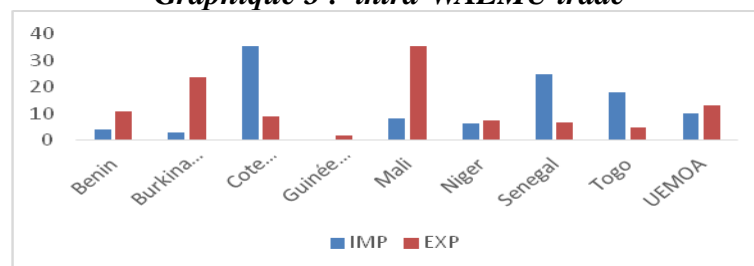
Figure 2 : Intra-ECOWAS trade



Source : UNCTADstat, 2018

With regard to countries with the same currency, namely the CFA franc, we note an average of 10% of imports in the monetary zone against 13% for exports. In this last union, we note that no country realizes 50% of its trade (imports or exports) from the member countries of the WAEMU. However, the volume of trade is relatively better (15%) within the WAEMU countries than the volume of trade in ECOWAS.

Graphique 3 : intra-WAEMU trade



Source : BCEAO, statistiques douanières, 2018

These descriptive statistics already give us the first response to our hypothesis on the effect of monetary integration on intra-regional trade in the ECOWAS region. Through descriptive statistics on trade within ECOWAS and within WAEMU, it seems that the use of a common currency within a union can increase the volume of trade between countries using the same currency. However, this conclusion is not very solid in view of the multidimensional interdependence between the variable differences. Consequently, the use of a multivariate econometric model could give more consistent results.

4-2- Effect of monetary integration on trade in the ECOWAS zone

We present the results of the estimation of the gravity equation by adopting the ordinary least squares approach with fixed effects, with the specification of standard errors robust to heteroskedasticity. However, we first check the stationarity properties of the different series of the model to be estimated.

4-2-1- Unit Root, Cointegration and Hausman Tests

Table 1: IPS unit root test

Variables	p-value	Options	Décision
COM	0,00000	Trend and Intercepts	I(1)
PIB	0,00500	Trend and Intercepts	I(1)
PIBp	0,01604	Trend and Intercepts	I(1)
FRONT	0,00040	Trend and Intercepts	I(0)
POP	0,00000	Trend and Intercepts	I(0)
DIST	0,00000	Intercepts	I(0)
GOUV	0,01100	Trend and Intercepts	I(1)
LANG	0,02500	Intercepts	I(0)
CFA	0,00000	Intercepts	I(0)

Source : auteur, 2019

The results in Table 1 show that only the variables trade, governance and GDP are not stationary at level. However, the first-order differentiation makes them all stationary. Consequently, we can verify the cointegration properties of these series.

Table 2 : Test de cointégration de Kao

	Statistic	p-value
Modified Dickey-Fuller t	-1.1566	0.2237

Dickey-Fuller t	-2.1178	0.0171
Augmented Dickey-Fuller t	-1.4516	0.7033
Unadjusted modified Dickey-Fuller t	-1.6315	0.5014
Unadjusted Dickey-Fuller t	-2.3711	0.0089

Source: auteur, 2019

The results of the Kao cointegration test show that the variables are not cointegrated with each other and therefore, there is no long-term mechanism between these variables. The Hausman specification test applied to the data indicates that the fixed-effects model is the most suitable model (see Table 1, appendix).

4.2.2. Estimation results of the fixed-effects model

The results of the estimation of the fixed effects model are summarized in the table below.

Table 3: Results of the estimation of the fixed effects model

Variables	Coef	p-value
CFA	1,014***	0,002
Institutional governance	0,036	0,763
CFA * Institutional governance	2,074**	0,031
PIB	1,004**	0,011
PIBp	0,904***	0,002
Population	0,146**	0,023
POPp	0,641***	0,000
Distance	-0,916**	0,041
Language	0,329	0,151
Frontier	0,911**	0,046
Constant	0 ,250**	0.060

Source : Author's estimate under Stata

*** (**) indicate the significance at 1% (5%) respectively

The results of the estimation of the international trade gravity model show that apart from the coefficient of the governance, common language variables, all the other variables of the model have significant coefficients with expected signs. Indeed, the coefficient of the variable CFA is positive and significant (+1.01). This shows that the use of the CFA franc by two countries in the ECOWAS region increases the volume of trade between these two countries by 274%, all other things being equal. In other words, countries using CFA in WAEMU are three times more likely to trade with each other compared to their peers in ECOWAS, which do not have the CFA franc as their currency. Even if this effect is very small compared to that of Rose (2000) who found an

effect on intra-regional trade of more than 700%, the fact remains that our results are close to those of Bangake and Eggoh (2008), Agbodji (2008); Gammadigbe (2017) who found effects between 100% and 322%.

Our results also show that institutional governance has no significant effect on trade between ECOWAS countries. However, the use of the CFA franc in the presence of the institutional governance variable gives a positive and significant coefficient (+2.07). Furthermore, this coefficient is higher than that of the CFA variable in the absence of the institutional governance variable. Thus, the use of the CFA conditional on institutional governance between two countries in the ECOWAS region increases the volume of trade between these two countries by 792%. In other words, good institutional governance triples (1.01 to 2.07) the effect of monetary integration on intra-regional trade in ECOWAS countries. This second result shows the more significant effects of monetary union on intra-regional trade in ECOWAS countries. Moreover, this effect is close to Rose's results and makes it possible to conclude that taking into account the institutional governance variable in our gravity model of international trade allows us to better estimate the effects of monetary integration on the intra-regional trade of ECOWAS countries.

In addition, the geographic distance between the countries has a negative effect on trade between these two countries. A geographic distance of one kilometer between two countries leads to a drop in trade by 250%, all other things being equal. This result, which confirms the existing literature, reflects the inadequacy and the poor state of transport infrastructure in ECOWAS countries.

It should be noted that the existence of a common border, the GDP, as well as the size of the population of the countries positively affect the volume of trade between the ECOWAS countries. Finally, the insignificant effect of language in the model could be explained by the fact that most of the trade in West African countries takes place through local languages.

5-CONCLUSION AND IMPLICATIONS

The issue of monetary integration is one of the current challenges of West African countries. The liberalization of international trade makes this region vulnerable with regard to the primary structure of its economy. Faced with this challenge, the countries have decided to join a monetary union in order to take advantage of the positive externalities in terms of its trade. This study set out to estimate the effects of monetary integration within ECOWAS countries. Before the econometric analysis, we first examined through descriptive statistics the volume of imports and exports within ECOWAS countries. The descriptive analysis shows that the ECOWAS countries using the same currency in this case the WAEMU countries have a relatively larger volume of trade with each other relatively with those of other ECOWAS member countries that are not members of WAEMU. The estimates were based on a gravity model of international trade through the use of long series from 15 member countries of the region over the period 1990-2018. After the specification tests on panel data, we retained a fixed effect model which is estimated by the ordinary least squares method.

The results show that monetary integration has a positive effect of around 274% on the trade of ECOWAS member countries. However, this effect is multiplied by three when the use of a common currency is associated with institutional governance in the member countries of the

community. This result indicates that institutional governance has an accelerating effect on the creation of intra-regional trade when the member countries adopt a common currency.

In terms of economic policy implications, this research suggests that ECOWAS member countries must strive to improve the quality of institutional governance in each country in the community in order to reap the full commercial benefits of monetary integration. Likewise, the inadequacy and poor condition of transport and communication infrastructure must be an integral part of community governance in order to limit the negative effects of geographic distance between countries. Finally, the consideration of local languages in the estimation of the gravity model of trade is a research avenue in the context of African countries.

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ANNEX

Table 1: Hausman specification test

(b) fixed	(B) .	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)=			189.78
Prob>chi2 =			0.0000