LONG-RUN RELATIONSHIP BETWEEN INTEREST RATE SPREAD AND UNEMPLOYMENT IN THE CEMAC REGION: A PANEL DATA ANALYSIS

RELACIÓN A LARGO PLAZO ENTRE LA DIFERENCIACIÓN DE LAS TASAS DE INTERÉS Y EL DESEMPLEO EN LA REGIÓN DE LA CEMAC: UN ANÁLISIS DE DATOS DE PANEL

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Abstract

This paper examines the long-run relationship between interest rate spread and unemployment in the CEMAC region. The data used to carry out this study goes from 1960 to 2013 and are secondary data from the world development indicator database. We use the panel data analysis to carry out this study, our variables of interest turn out to be I (1) and after successfully performing the Johansen cointegration test, we applied the Error Correction Model (ECM) to estimate our parameters. We reached two major conclusions. First, there is cointegration between interest rate spread and unemployment in the CEMAC Region. Second, when considering countries individually, there is such a cointegration relationship for all member countries but Cameroon. Our results also portray that variations of the interest rate spread in the CEMAC region could account for 35 % of variations in total unemployment. An increase in the interest rate spread in the short and long run drives positively and significantly the level of total unemployment in the CEMAC region. Therefore, we proposed some policies measures such as reducing the interest rate spread to encourage investors to take more risks, create more jobs and drive down total unemployment. We also proposed to the government authorities of the CEMAC region to quit the CFA currency zone and join a flexible exchange rate system, so they could have more leverage to control monetary policies.

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Resumen

Este documento examina la relación a largo plazo entre el diferencial de tipos de interés y el desempleo en la región de la CEMAC. Los datos utilizados para realizar este estudio van desde 1960 hasta 2013 y son datos secundarios de la base de datos de indicadores de desarrollo mundial. Utilizamos el análisis de datos de panel para realizar este estudio, nuestras variables de interés resultan ser I (1) y luego de realizar con éxito la prueba de cointegración de Johansen, aplicamos el Modelo de Corrección de Errores (ECM) para estimar nuestros parámetros. Llegamos a dos conclusiones importantes. Primero, existe una cointegración entre el diferencial de tasas de interés y el desempleo en la Región CEMAC. En segundo lugar, al considerar a los países individualmente, existe una relación de cointegración para todos los países miembros excepto Camerún. Nuestros resultados también muestran que las variaciones del diferencial de tipos de interés en la región de la CEMAC podrían explicar el 35 % de las variaciones del desempleo total. Un aumento en el diferencial de tasas de interés en el corto y largo plazo impulsa positiva y significativamente el nivel de desempleo total en la región de la CEMAC. Por lo tanto, propusimos algunas medidas políticas como reducir el diferencial de tipos de interés para animar a los inversores a asumir más riesgos, crear más puestos de trabajo y reducir el desempleo total. También propusimos a las autoridades gubernamentales de la región CEMAC abandonar la zona monetaria CFA y unirse a un sistema de tipo de cambio flexible, para que pudieran tener más influencia para controlar las políticas monetarias.

Palabras clave: CEMAC, Modelo de margen de interés, Desempleo, Modelo de cointegración y corrección de errores.

1. Introducción

The Economic and Monetary Community of Central Africa (CEMAC) is an economic region using a currency known as the CFA franc. This currency is backed by the French government under the aegis of the euro. Today with the globalization of the economies and the vulnerability of the French economy due to the financial crisis, the stability of the CFA franc is no longer guaranteed and therefore stability and control of its interest rate spread don't depend on CEMAC countries but rather on the French government monetary and economic policies.

As a result, the CFA currency is dangling so is unemployment skyrocketing, imputing social unrest in CEMAC economies. To be able to control the unemployment level in the CEMAC region and reach full employment levels, governments and monetary authorities in the region ought to follow common goals and implement sustainable and common monetary and economic policies. This has not been the case so far since the creation of this currency (whose convertibility is neither guaranteed nor managed by CEMAC monetary authorities since the inception of the currency followed by the ratification of the Central African Customs and Economic Union (UDEAC) which later on, became CEMAC.

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Interest Rate Spread (IRSP) in an economy is crucial for growth and development, as numerous authors suggest a critical link between the efficient intermediate and economic growth. Efficient intermediation benefits the real economy by allowing a higher expected return to a saver and providing more opportunities with cheap investable funds (Quaden, 2004). Higher IRS discourages a potential saver and is a barrier for a potential investor since the cost of intermediating between a saver and an investor has strong implications for the effective mobilization of funds. The inefficiency of financial intermediaries causes high intermediation costs and increases the loss of productive funds in the intermediary process. This leads to a reduction in lending, investment, and economic growth.

We study the relationship between monetary policy, as measured by nominal interest rates or inflation, and labor market performance, as measured by unemployment. While this is an old issue, our focus differs from the existing literature by concentrating on the longer run. We are less interested in business cycles, and more in relatively slow-moving trends. One reason to focus on the long run is that it may well be more important from a welfare and policy perspective.

Another reason to focus on the long run is that economic theory has much cleaner implications for what happens at lower frequencies, which are less likely to be clouded by complications such as signal extraction problems and other forms of imperfect information, or nominal stickiness and other rigidities (Berentsen, Menzio and Wright, 2011). We abstract from such complications to focus on the effect of interest rate spread on unemployment. In this study, we use the panel error correction model.

The rest of the paper is organized as follows. Section 2 describes the situation of interest spread in the CEMAC. Section 3 is the literature review followed by the data collection method and analysis of the model (section 4) and finally conclusions and recommendations (section 5).

2. Interest rate spread in the CEMAC region

A key variable in the financial system is the spread between lending and deposit interest rates. When it is too large, it is generally regarded as a considerable impediment to the expansion and development of financial intermediation, as it discourages potential savers with low returns on deposits and limits financing for potential borrowers, thus reducing feasible investment opportunities and therefore the growth potential of the economy (Barajas, 1996). Financial systems in developing countries have been shown to exhibit significantly and persistently larger intermediation spreads on average than those in developed countries (Hanson and Roberto, 1986).

The financial system in CEMAC is bank-dominated and mostly foreign-owned (Saab and Vacher, 2007). Cameroon and Gabon, the two largest economic powers in the subregion, account for about three-fourths of total assets and loans. There are 33 deposit-taking banks in operation in CEMAC as of end-2005, 31 of which are privately owned, and 23 of which are foreign-owned by entities outside CEMAC. Eight banks do not comply with the minimum capital adequacy ratio (8 percent), including five with negative equity. Government ownership of banks in CEMAC is limited and has been declining since the restructuring of the sector in the mid-1990s. At the regional level, as of end-2005, the average government share of bank capital is about 20 percent, while the central Government share of deposits is around 9 percent. In contrast to the situation prevailing in other countries in sub-Saharan Africa (SSA), banks have considerably limited their direct lending to governments. As of the end-2004 (Beck et al., 2005), commercial banks employed relatively few employees (5,700), in a limited number of branches (190, against 120 in 2000). Branch density is limited just reaching the density of Ghana or Nigeria would require a tripling of the number of branches (Saab and Vacher, 2007). There is significant scope for further intermediation in several countries, while other countries seem

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over-extended: Chad and the Central African Republic have loan-to-deposit ratios above 100 percent, reflecting a narrower deposit base and a tighter liquidity situation relative to Cameroon and the Congo, for example. In Cameroon, as a result of past bank restructuring episodes, banks hold a large share of government securities, which tends to limit their capacity and willingness to extend loans.

3. Interest rate spread and unemployment

Crowley (2007) and Barajas, Roberto, and Natalia (1999) define interest rate spread is the difference between the Weighted Average Lending Rate (WALR) and the Weighted Average Deposit Rate (WADR). Wider spreads are always a proxy for an underdeveloped financial system characterized by inefficiency, lack of competition, and higher concentration of the banking sector; among others, and the reverse is also perceived to be true (Demirguc-Kunt and Huizinga, 1999; Mlachila and Chirwa, 2002; Mugume, Apaa and Ojwiya, 2009). Banking systems in developing countries have been shown to exhibit significantly and persistently large intermediation spreads on average than those in developed countries.

However, the difference arises in the causal factors. For example, in Uganda, just like in any other developing country, persistent high intermediation spreads have been of particular concern to the business fraternity and policymakers (Nannyonjo, 2002; Cihak and Podpiera, 2005; Beck and Hesse, 2006; Mugume, Apaa and Ojwiya, 2009). Lending rates continue to ride high while lower rates are being offered on deposits (Mugendawala, 2007).

Others causal factors can be mentioned in a study realized by Ramírez Rocha; Bernal Ponce y Cervantes Zepeda, (2019). They analyzed the differences in the interest rates of microfinance institutions of some countries in Latin America, Africa, Eastern Europe, and Asia. They found that the operating expenses are essential drivers of these interest rates. They also found that

operating expenses, average loan per borrower, real growth GDP, and government effectiveness, are key factors that explain differences in interest rates using apply Hierarchical Linear Modeling to analyze these differences.

Next, Le Gall and Lerou (2004) study the origins of banking crises in sub-Saharan Africa, drawing upon the experience of ten countries during the period 1985 to 1995. The conclusions underscore that the banking crises examined did not represent an entirely special case. Several factors identified in the general literature, including macroeconomic shocks, were highly relevant but note that several of their features were nonetheless specific to this part of the world. These banking crises were the very prototype of endemic crises associated with heavy government intervention in the banking system.

Another study by Da Costa Filho (2017) showed that long-term yields on inflation-linked bonds are driven by yields on 10-year interest rates of United States government bonds and 10-year risk premium, as measured by the Credit Default Swap. Long-term interest rates in Brazil were on a downward trend, following US real rates and stable risk premium, until the taper tantrum in the first half of 2013. From then onwards, real interest rates rose due to the increase in US real rates in anticipation of the beginning of monetary policy normalization and, more recently, due to a sharp increase in Brazilian risk premium. Policy interest rates do not significantly affect long-term real interest rates.

The dependence of African economies means that they are exposed to external shocks that affect the development of government actions. Akinley and Ekpo (2013) examine the macroeconomic implications of symmetric and asymmetric oil price and oil revenue shocks in Nigeria, using the vector autoregressive estimation technique. They find that both positive and negative oil price shocks influence real government expenditure only in the long run rather than in the short run, while examining

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positive and negative shocks to external reserves revealed stronger implications for expenditure in the long run, with positive rather than negative oil price shocks having stronger short and long-run effects on real GDP, and therefore triggering inflationary pressure and domestic currency depreciation.

However, results obtained show that oil revenue shocks are capable of impeding economic growth only in the long run while raising general price levels marginally in the short run after the initial shocks, with evidence of serious threat to interest rate and the domestic currency in the short and medium term, as the volume of imports increases significantly along with the external reserves. Findings on the asymmetric effects of oil revenue shocks revealed that positive shocks to oil revenue stimulate expansionary fiscal posture in the Nigerian economy in the short run-in line with theory, thereby creating inflationary pressure and domestic currency depreciation. The combined implications of these discoveries suggest the need for proper coordination of fiscal and monetary policy for sustainable macroeconomic stability to be achieved. (Akinley and Ekpo, 2013).

To overcome the problem of an external shock coming from European currency and the external financial market, African governments can join a flexible exchange rate system rather that a pegged exchange rate system in which most of these countries are trapped. (Chiatchoua and Sibe, 2015). The relationship between interest rate and unemployment was studied for several years. We are going to present some cases.

In Mexico, Figueroa-Hernández; Pérez-Soto and Godínez-Montoya (2016), the aim of analyzing some macroeconomic variables that affect inflation and unemployment, from 1980 to2015, using a model of multiple linear regression was developed, found a highly significant statistically exchange rate and the interest rate. Unemployment elasticity with respect to GDP and FDI was: $3,44 \times 10^{-6}, -1,2 \times 10^{-4}$ respectively, which indicated that with the 10.0% increase in

each of these, the unemployment rate varies very little. For inflation with interest rate was 1.4%, compared to an increase of 10.0% of this, the inflation rate increased by 14.0%

Mbekeni and Phiri (2019) examine the determinants of unemployment for the South African economy in the post-crisis period over a quarterly frequency period of 2009 to 2018. The determinants are examined for 4 classes of unemployment rates (total, male, female and youth) and we further partition possible unemployment determinants into fiscal, monetary and macroeconomic variables. The estimation results from the employed autoregressive distributive lag models find income tax, repo rates, economic growth, trade, investment, household debt and savings to be significant determinants of unemployment in the post-crisis South African economy and yet we note discrepancies of the significance of these determinants amongst different unemployment categories.

In recent years, much progress has been made studying both labor and monetary economics using theories that explicitly incorporate frictions, including search and matching frictions, non-competitive pricing, anonymity or imperfect monitoring, etc. Models with frictions are natural for understanding dynamic labor markets and hence unemployment, as well as goods markets and the role of money.

However, existing papers analyze either unemployment or money in isolation. One objective here is to provide a framework that allows us to analyze unemployment and money in an environment with logically consistent microfoundations. Although there are various ways to proceed, in terms of different approaches in the literature, here we integrate the labor market model in Dale and Christopher (1994) with the goods market model in Ricardo and Wright (2005). The result is a very tractable framework that makes sharp predictions about many interesting effects, including the impact of interest rates on employment.

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We then consider the issue quantitatively by calibrating the model and asking how it accounts for the above-mentioned observations. Suppose for the sake of a controlled experiment that monetary policy is the only driving force over the period i.e., assume counterfactually that demographics, productivity, fiscal policy, etc. were constant. Given monetary policy behaved as it did, how well can we account for movements in trend unemployment? We find that the model accounts for a sizable fraction of the lower-frequency movement in unemployment as a result of observed changes in trend interest rates. For instance, monetary policy alone can generate around half of the 3-point increase in trend unemployment in the 1970s and about the same fraction of the decline in the 1980s. Money matters. However, we also ask how this prediction is affected by financial innovations and conclude that in the future money may matter less to the labor market.

4. Data collection method and analysis

In this section, we will discuss the methodology and theoretical framework, after running the Error Correction Model method employed to estimate the long-run relationship between interest rate spread and total unemployment in the CEMAC region. This is done after running the unit root and the cointegration tests. Thereafter, we test the econometric validity and accuracy of the results using the Wald test and the F-statistics and its probability. The data we use in this study are collected from the World Bank online database 2014. The period of analysis goes from 1960 to 2013 (53 years) and is done on a panel of 6 countries (Cameroon (CMR), Central African Republic (CAF), Congo (COG), Gabon (GAB), Equatorial Guinea (GNQ) and Chad (TCD)). These countries are chosen on the sole basis of their union (CEMAC) and their economic integration, common monetary, and synchronized economic policy. Finally, we will present the interpretation

of results and give some recommendation after concluding the research.

4.1. Unit root test

The extended version of the Dickey-Fuller test called the augmented Dickey-Fuller test is the test we implement in this study; it is so-called because the regression has been augmented with the lagged changes, Δy_{t-h}. The inclusion of the lagged is intended to clean up any serial correlation in Δy. If a series has a unit root, then, in many cases, the usual large sample normal approximations are no longer valid. In addition, a unit root process has the property that innovation has a long-lasting effect, which is of interest in its own right. While there are many tests for unit roots, we choose to run the Augmented Dickey-Fuller (ADF) test because it is the most popular and easiest to implement Wooldridge (2012).

Table 1 below summarizes the result I of the ADF unit root test, where the variables (interest rate spread and total unemployment are not stationary at level but are at first different) This leads us to test for cointegration.

4.2. Cointegration and Wald Tests

The notion of cointegration applies when two series are I (1), but a linear combination of them is I (0); in this case, the regression of one on the other is not spurious, but instead tells us something about the long-run relationship between them. Cointegration between two series also implies a particular kind of model, called an error correction model, for the short-term dynamics Wooldridge (2012). The error correction coefficient obtains from table 4 is negative and very significant. Interestingly it is different from zero as we can infer after performing the Wald test (table 3 below). Table 2 gives us a Summary of the Johansen-Fisher Panel Cointegration Test. The results imply that there is a cointegration relationship between interest rate spread and unemployment in the CEMAC Region. The cointegration between those variables of interest differs from country to country as we can

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see from the table where there is a very strong cointegration relationship (less than or equal to 1%) for some member countries (Gabon and Equatorial Guinea). The cointegration relationship is considered strong (less than or equal to 5%) for the Central African Republic and weak (between 5% and 10%) for (Chad and the Republic of Congo), while there is no cointegration between interest spread and unemployment for Cameroon (more than 10%). This could suggest that monetary and economic policies instruments applied to those economies are not coordinated as we could have expected in a monetary union (CEMAC); and/or we could also question the level of economic integration between these economies.

Table 1. Summary ADF unit root test of Unemployment and Interest Spread

ADF Unit root test (Unemployment)					
Series: UNT	Method	Levin, Lin & Chu t*	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square
	Statistic	-0.98096	-0.93229	16.0886	26.3392
	Prob.**	0.1633	0.1756	0.1872	0.0096*
Series: D(UNT)	Statistic	-5.28395	-7.25985	68.9334	174.761
	Prob.**	<0.0001*	<0.0001*	<0.0001*	<0.0001*
ADF Unit root test (Interest Spread)					
Series: IRSP	Method	Levin, Lin & Chu t*	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square
	Statistic	-1.08017	0.10560	8.02073	7.58600
	Prob.**	0.1400	0.5421	0.7835	0.8166
Series: D(IRSP)	Statistic	-6.38030	-4.63807	43.3812	66.5427
	Prob.**	<0.0001*	<0.0001*	<0.0001*	<0.0001*
Null: Unit root (assumes common unit root process)					
** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution.					
All other tests assume asymptotic normality. * Reject the null hypothesis at 5% (stationary)					

Source: Calculation of the authors.

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Table 2. Summary of Johansen-Fisher Panel Cointegration Test

Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)				
Hypothesis No of CE(s)	Fisher Stat*. (from Trace Test)	Prob.	Fisher Stat*. (from Max-Eigen Test)	Prob.
None	54.89	<0.0001	36.16	0.0003
At most 1	46.74	<0.0001	46.74	<0.0001

Individual cross section results					
Hypothesis	Country	Trace Test Stat.	Prob**.	Max-Eigen Test Stat.	Prob**.
Hypothesis of no cointegration	CAF	27.1653	0.0006	21.8992	0.0026
	CMR	9.9025	0.2883	7.6420	0.4163
	COG	13.2647	0.1055	10.0993	0.2055
	GAB	35.1398	0.0000	23.3732	0.0014
	GNQ	18.1403	0.0195	11.5704	0.1278
	TCD	12.0361	0.1552	8.2700	0.3519
Hypothesis of at most 1 cointegration relationship	CAF	5.2661	0.0217	5.2661	0.0217
	CMR	2.2605	0.1327	2.2605	0.1327
	COG	3.1654	0.0752	3.1654	0.0752
	GAB	11.7667	0.0006	11.7667	0.0006
	GNQ	6.5698	0.0104	6.5698	0.0104
	TCD	3.7661	0.0523	3.7661	0.0523

* Probabilities are computed using asymptotic Chi-Square distribution

** Mackinnon-Haug-Michelis (1999) p-values

Source: Calculation of the authors.

Table 3. Summary of Wald Test

Null Hypothesis: C(2)=0			
Test Statistic	**Value**	**df**	**Probability**
t-statistic	2.839393	93	0.0056*
F-statistic	8.062153	(1, 93)	0.0056*
Chi-square	8.062153	1	0.0045*
Null Hypothesis Summary			
Normalized Restriction (=0)	**Value**	**Std. Err**	
C(2)	0.091432	0.032201	

*,**,*** reject the null hypothesis at 1%, 5%, 10%

Source: Calculation of the authors.

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4.3.   Error-correction mechanism

So, we decided to run the ECM test in other to assess the long-run relationship between interest rate spread and total unemployment in the CEMAC region. Wooldridge (2012) explained that cointegration between two series implies a particular kind of model, called an error correction mechanism or error correction model, for the long and short-term dynamics the error correction mechanism (ECM) was first used by Sargan and later popularized by Engle and Granger to correct for disequilibrium. An error correction model evaluates the short-run and long-run dynamics in the relationship between the dependent variable (interest rate spread) and the independent variable (total unemployment). An important theorem, known as the Granger representation theorem, states that if two variables (the dependent variable and the independent variable) are cointegrated, the relationship between the two can be expressed as ECM.

That is

$$D(UNT) = C(1) + C(2) * D(IRSP) + C(3) * U_{t-1}$$

$$D(UNT) = -0.027335 + 0.09143 * D(IRSP) - 0.57767 * U(-1)$$

Where U_{t-1} is the white noise error term known as the lagged value of the error term (error correction term or the speed of adjustment). When the error correction term is statistically significant and negative it works to push the dependent variable (total unemployment (UNT)) back toward the equilibrium (Gujarati, 2008). From table 4 below, we can see that statistically, the Error Correction term is highly significant and negative; suggesting that economic growth (UNT) adjusts to interest rate spread with a one-year lag at the rate of 57.8%. Therefore, this model shows that there exists a long-run equilibrium relationship between interest rate spread and total unemployment in the CEMAC region.

Table 4. ECM Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.027335	0.057132	-0.478462	0.6334
D(IRSP)	0.091432	0.032201	2.839393	0.0056*
U(-1)	-0.577674	0.092818	-6.223760	<0.0001*
*,**,*** reject the null hypothesis at 1%, 5%, 10%				

Source: Calculation of the authors.

5. Conclusion

These results from the model suggest that there is a long-run equilibrium relationship between interest spread and unemployment in the CEMAC region, they corroborate with the results of the Johansen cointegration test, where we found that our variables of interest are cointegrated. The speed of adjustment is 58% percent. Also, we can notice from table 2 that in the short run interest spread significantly positively affect unemployment. Meaning that as interest spread continues to increase in the CEMAC region, unemployment is significantly going to increase, putting these economies under stress which could harm economic growth (since economic growth is tightly pegged to the level of unemployment in developing countries). Our determination coefficient is 0.35, meaning that 35% of the variation of total unemployment in the CEMAC region could be explained by variation in interest spread alone. Also, the results from the Wald test are relevant to the fact that our dependents variables are significantly different from zero as we could confirm with the value of

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the probability of the F statistic. Another important test to mention is that of the DW coefficient which is greater than 2 thus, revealing that there is no problem with the autocorrelation of the residues.

6. Recommendations

The model development is fit to give us reliable results in the CEMAC region. We see fit if CEMAC monetary authorities and their respective governments pursue economic integration through the creation of a new currency managed and guaranteed by themselves, and reduce the interest spread gap to boost citizen's propensity to save more, as well as the propensity of investors to take the risk given the reduced cost of money. This could create more jobs and drive down total unemployment. We also think it is time for the CEMAC government authorities to quit the CFA currency zone and join a flexible exchange rate system, so they could have more leverage to control monetary policies.

7. References

[1] Barajas A., Roberto S. and Natalia S. (1999), "Interest Spreads in Banking in Columbia, 1974–96", *IMF Staff Papers*, Vol. 46 (2), p. 196-224

[2] Barajas A. (1996), "Interest Rates, Market Power, and Financial Taxation: An Application to Columbia Banks 1974–1988" (unpublished; Washington: IMF, November)

[3] Beck T. and Hesse H. (2006), "Bank Efficiency Ownership and Market Structure: Why are Interest Spreads so high in Uganda?", World Bank Policy Research, Working Paper 4027, October

[4] Berentsen A., Menzio G. and Wright R. (2011), "Inflation and Unemployment in the Long Run", *American Economic Review*, Vol. 101(1), p. 371-398

[5] Chiatchoua C. and Pegou, S. J. (2015), "Foreing Direct Investment in Sub-Saharan Africa (SSA): An Opportunity for New Developed Countries (NDC)", *Análisis Económico*, Vol. XXX (73), pp. 89-109.

[6] Cihak M. and Podpiera R. (2005), "Bank Behavior in Developing Countries: Evidence from East Africa", IMF Working Papers 05/129, IMF Washington DC

[7] Crowley J. (2007), "Interest Rate Spreads in English-Speaking African Countries", IMF Working Papers, WP/07/101, IMF Washington DC

[8] Da Costa F. and Adonias E. (2017), "What Drives Long Term Real Interest Rates in Brazil?", *Brazilian Business Review*, Vol. 14 (6), pp. 624-635.

[9] Dale T.M. and Christopher A.P. (1994), "Job Creation and Job Destruction in the Theory of Unemployment", *Review of Economic Studies*, Vol 61 (3), p. 397-415

[10] Demirguc-Kint A. and Huizinga H. (1999), "Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence", *World Bank Economic Review*, 13, pp. 379-408

[11] Figueroa-Hernández E.; Pérez-Soto F. and Godínez-Montoya L. (2016), "El desempleo y la inflación en México", *Opción*, vol. 32, núm. 13, pp. 267-300.

[12] Gujarati D. N. (2008), "Basic Econometrics", 5th Edition, McGraw–Hill Irwin, New York

[13] Hanson J. A. and Roberto de R. R. (1986), "High Interest Rates, Spreads, and the Costs of Intermediation: Two Studies", (Washington: World Bank)

[14] Lagos R., and Wright R. (2005), "A Unified Framework for Monetary Theory and Policy Analysis", *Journal of Political Economy*, Vol. 113 (31), p. 463-484

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[15] Mbekeni L. and Andrew P. (2019). "South African unemployment in the post-financial crisis era: what are the determinants?" Munich Personal RePEc Archive, Paper No. 94159, posted 29 May 2019 13:01 UTC, Department of Economics, Nelson Mandela University. Online at https://mpra.ub.uni-muenchen.de/94159/

[16] Mlachila M. and Chirwa E.W. (2002), "Financial Reforms and Interest Rate Spreads in the Commercial Banking System in Malawi", IMF Working Papers, WP/02/6, IMF Washington DC

[17] Mugendawala H. (2007), "Credit Risk And Bank Interest Rate Spreads In Uganda", https://www.scribd.com/document/100298361/Credit-Risk-and-Bank-Interest-Rate-Spreads-in-Uganda-Final-1# (consulté le 14 Septembre 2017)

[18] Mugume A., Apaa J., and Ojwiya, C. (2009), "Interest rate Spreads in Uganda: Bank Specific Characteristics or Policy Changes?", *The Bank of Uganda Staff papers Journal*, Vol 3 (2), pp. 5-21.

[19] *Nannyonjo J. (2002), "Financial sector reforms in Uganda (1990-2000): interest rate spreads, market structure, bank performance and monetary policy", Göteborg: Kompendiet.*

[20] Quaden G. (2004), "Efficiency and Stability in an Evolving Financial System", http://www.bnb.be/Sg/En/Contact/pdf/2004/sp040517en.pdf (consulté le 14 Septembre 2017)

[21] Ramírez Rocha A., Bernal Ponce L. A. and Cervantes Z. M. (2019), "Differences in the interest rates of microfinance institutions in some markets economies: an HLM approach", *Estudios Económicos*, Vol. 34, no. 2, pp. 275-307.

[22] Ricardo L. and Wright R. (2005), "A Unified Framework for Monetary Theory and Policy Analysis", *Journal of political Economy*, Vol 113(3), p. 463-484

[23] Roland D., Françoise Le G. and François L. (2004), "Banking in Sub-Saharan Africa: What Went Wrong?", *IMF Working Paper N° 04/55*.

[24] Samer Y. S and Jérôme V. (2007), "Banking Sector Integration and Competition in CEMAC", IMF Working Papers, WP/07/3, IMF Washington DC

[25] Simeon O.A. and Stephen E. (2013), "Oil price shocks and macroeconomic performance in Nigeria", *Economia Mexicana NUEVA EPOCA*, Vol. 2 (4), PP: 565-624.

[26] Wooldridge J. M. (2012), "Introductory Econometrics: A Modern Approach", 5th Edition, Michigan State University, South-Western: Cengage Learning.