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The Impact of urbanization on banking development: Evidence from the West African Economic and Monetary Union (WAEMU)

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Abstract

The paper aims to investigate the extent to which urbanization and industrialization affect bank development in the WAEMU (West African Economic and Monetary Union). To meet the goal of this study, we used the Pooled Mean Group (PMG) estimator, which requires long run coefficients to be similar but allows short run coefficients and error variances to fluctuate among groups. The sample of the study is composed of 7 countries, with Guinea-Bissau excluded, due to the absence of data on the period from 1980-2016. The results revealed that urbanization has a positive effect on banking development in the WAEMU. This intuitive relationship is linked to the fact that, as the urban population grows, the relative demand for financial services also grows. Also, industrialization has a good impact on banking development. In terms of policy implications, the study calls on governments to create the necessary conditions for successful urbanization to benefit the development of banks in the WAEMU zone.

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Introduction

For decades, urban areas have been regarded as a component of global economic dynamism and modernity (Landes, 1969). In a general economic context, cities are considered engines of economic growth (Dobbs et al, 2012). This is primarily because no country in the world has been able to prosper without the expansion of its cities. This is because cities serve as entry points to worldwide markets as well as hubs for domestic manufacturing and consumption (World Bank, 2009). Also, urban residents spend significantly more than rural residents. China's example is instructive. According to TP (2013), China's urban people spent 3.6 times more per capita than their rural counterparts. It is predicted that each rural citizen who relocates to the city boosts their consumption by $1,600 on average. When this amount is multiplied by the 10 million rural inhabitants predicted to be absorbed by cities in a single year, there will be a considerable rise in consumption, resulting in larger markets and investment opportunities. Thus, it appears that periods of sustained economic growth always seem to be accompanied by strong urbanization (Fay and Opal, 2000). Urbanization entails the concentration of people and businesses, which lowers production costs and allows for economies of scale. Agglomeration increases social and economic contacts, producing a fertile environment for idea, technology, and process innovation (Granoff et al, 2014). As a result, urbanisation would be a critical determinant in entrepreneurship and company performance. (Loughran and Schultz, 2005). However, Robinson (1952) points out that "where enterprise leads, finance follows". Thus, urbanization, while contributing to the development of economic activities, provides specialized human resources and a better developed infrastructure to financial firms promoting the improvement of transaction and information costs (Cavalcante, 2012; Cavalcante et al., 2016). This can contribute to the development of the banking sector (Robinson, 1952; Patrick, 1966). According to the World Bank (2017) report on urbanization in Africa, African cities are destined to play a vital role in the continent's economic growth. Furthermore, the UN Population Division (2010) reports that Africa's population surpassed one billion in 2009, with 40% living in urban areas. It is anticipated to reach 2.3 billion by 2050, with metropolitan regions accounting for 60% of the population. In addition, West Africa had 22 metropolises with more than one million inhabitants in 2010, compared to 10 in 2000. They concentrate 54 million inhabitants, almost as many as the entire urban population of Africa twenty years earlier (56 million in 1990). In WAEMU, the urban population has been growing rapidly since the 1980s. Indeed, the urbanization rate almost doubled between 1980 and 2016, rising from 23.61% to 39.16%. On the other hand, bank credit to the private sector declined between 1980 and 2002, from 26.41% to 10.05%. This decline is more pronounced between 1995 and 2002. It should be noted that over the period 2002-2016, the two variables maintain a positive relationship, i.e., the increase in the urban population seems to be accompanied by an increase in bank credit, and by extension, the development of the banking sector. From the above, one might wonder about the link between urbanization and banking development. The primary goal of this research is to examine the impact of urbanisation on banking development in the WAEMU zone. Specifically, it will aim to: (i) analyse the effect of urban population on banking development and (ii) study the impact of industrialization on banking development. In light of these goals, we propose the following hypothesis: (i) urban population growth promotes banking development and (ii) industrialization has a positive effect on banking development. This study is not without interest. The WAEMU economies are becoming more urbanized every year. Taking advantage of this urbanization remains a challenge. It is in this context that this study assesses the effects of urbanization on banking development, which remains a major problem for developing economies, particularly those of the WAEMU. To our knowledge, very few researches have looked into the impact of industrialization on development. This research aims to fill a gap in the literature. We employ the ARDL model as a methodology to capture the synergistic effect of urbanisation and banking development. The

remainder of the paper is structured as follows. Part 2 provides a quick overview of the hypotheses concerning the relationship between urbanisation and banking development. The third section contains stylised facts about urbanisation and financial development in the WAEMU zone. The data and empirical approach are explained in Section 4. Section 5 presents the findings. Section 6 outlines and finishes the investigation.

2. Review of the literature on the link between urbanization and banking development

This section will cover the theoretical literature on the relationship between urbanisation and banking development, as well as the empirical link between these two factors.

2.1. Theoretical review

The study of the link between urbanization and banking development is relatively recent, but the work on urban development is very old and goes back to Von Thünen in the 1800s. Von Thünen (1820) puts forward the idea that the organization of space is determined on the basis of a trade-off between the cost of land, which increases the closer one gets to the centre, and the cost of transport or access to the central market, which increases with distance from the periphery, so that the productive system will organize itself in this centre-periphery space in the form of concentric circles. This organization will contribute to the development of economic activity and related activities such as the development of financial services. Indeed, according to Lösch's (1954) theory of market areas, a larger area encourages the multiplication of production centres in order to reduce transportation costs. In addition, the process of urban growth by generating massive urban concentration due to industrialization would be able to stimulate economic growth (Catin and Huffel, 2003). This process could also create an economic and social fabric by providing opportunities for education, employment and health services in both developed and developing countries. Champion and Hugo (2004) argue that when urbanization strengthens the economy, there are higher incomes in cities, better education, greater access to social services and information, lower fertility and mortality. Urbanization entails the concentration of people and businesses, which lowers production costs and allows for economies of scale. Agglomeration increases social and economic contacts, producing a fertile environment for idea, technology, and process innovation (Granoff et al, 2014). As a result, urbanisation would be a critical determinant in entrepreneurship and company performance (Loughran and Schultz, 2005). According to Cavalcante et al. (2016), financial enterprises benefit from positive externalities arising from the magnitude of local economic activity, which also accounts for increased clustering of other financial activities. According to Cavalcante (2012), clustering happens when local demand and improved overall expectations result in an increased supply of financial services at reduced prices for financial enterprises and individuals. Hence, while contributing to the development of economic activities, urbanisation provides financial enterprises with specialised human resources and a more established infrastructure, promoting lower transaction and information costs. In terms of financial market size, large local markets improve liquidity and risk sharing (Parr and Budd, 2000). Local banking markets can be distinguished in terms of financial intermediation by risk transformation opportunities, asset maturity (liquidity), and transaction costs. Consequently, efficient local portfolio management has a major impact on financial asset valuation. Furthermore, the dynamics of market size impacts and the interrelationships between enterprises and financial firms are essential aspects in financial connections. The greater the number of enterprises, the more the fixed expenses of functioning financial markets can be shared (e.g., the systems for issuing, paying, and transporting documents). As a result, financial firms gain significantly from being positioned in specific areas. Location economies attract additional contacts, information flows, liquidity, and expertise, all of which can drive financial innovation. All of these mechanisms thus contribute to the development of the banking sector,

understood as the process by which the banking sector gains depth, efficiency, diversification and accessibility.[1] This review of the theoretical literature suggests that urbanization has positive effects on banking sector development. What about the empirical work?

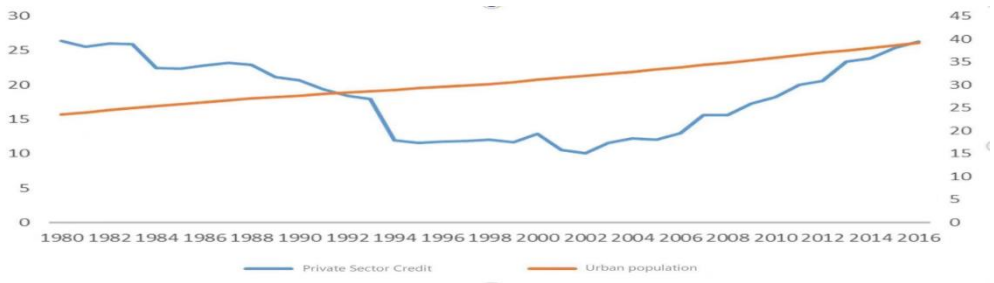
2.2. Empirical review

The empirical literature on the link between urbanization and banking development is not extensive. Some of the work focuses on the effect of urban development on economic activity. Thus, through a spill over effect, related activities may develop. Glosh and Kanjilal (2014) investigate the link between energy, urbanisation, and economic activity in India from 1971 to 2008. Threshold cointegration tests show that variables with endogenous structural fractures have a long-run relationship. The Granger causality test, as modified by Toda and Yamamoto, reveals unidirectional causality from energy consumption to economic activity and from economic activity to urbanisation. Shahbaz (2012) discovered similar relationships between energy usage and economic growth in Tunisia from 1971 to 2008. Additionally, long-run bidirectional causality is demonstrated between financial development and energy consumption on the one hand, and between financial development and industrialisation on the other. As a result, countries should foster the development of a strong and developed financial system capable of attracting investors, stimulating the stock market, and improving the efficiency of economic activity. Based on this work, Shahbaz et al. (2017) examine the relationship between urbanisation, industrialisation, and financial development by taking institutional quality into account. The research spans the years 1970 to 2013 and focuses on India and China. The results reveal that the series have a long-run relationship. Furthermore, financial progress is aided by industrialization and urbanisation. In contrast, a lack of institutional quality and growing government size have a negative impact on financial development. For both countries, the causality study illustrates the bidirectional causality between urbanisation and financial development. Institutional quality is found to be the key factor in enhancing financial development in both countries with a feedback effect.

3. Urbanization and financial development in WAEMU

Urban development in WAEMU is the result of a processual phenomenon. Today's towns are colonial creations that responded to a concern for effective occupation of the territory under the control of military and administrative posts and to the needs created by the development of the forest area. Before colonization, urbanization was based on a small number of settlements. After colonization, the urban system expanded and the secondary towns became more hierarchical. As shown in Figure 1, since the 1980s the urban population has been growing rapidly. Indeed, the urbanization rate almost doubled between 1980 and 2016, rising from 23.61% to 39.16%. Within these urban centers, a financial sector has developed rapidly.

Figure 1: Comparison between private sector credit and urban population in the WAEMU zone from 1980 to 2016



Source: Author, based on WDI data (2017)

[1] This definition is taken from Miesel and Mvogo (2007)

Comparing the evolution of these two variables, we find a constant evolution in the urban population while that of bank credit provided to the private sector - which we use here to measure the level of banking development - shows two trends. Bank credit decreases between 1980 and 2002 and increases between 2002 and 2016. Indeed, bank credit falls from 26.41% to 10.05%. This decline is more pronounced between 1995 and 2002. The decline in bank credit could be due to the crisis that shook the WAEMU financial sector in the 1980s and the repeated military and political crises in Côte d'Ivoire. It should be noted that over the period 2002-2016, the two variables have a positive relationship, whereas over the previous period, i.e., between 1980 and 2002, their relationship is negative. This ambiguity on the relationship between the two variables justifies the conduct of an econometric study.

4. Data source and descriptive analysis of variables

With the exception of Guinea-Bissau, the empirical analysis relies on annual data from WAEMU countries. The study period is determined by the availability of data. The study's data is mostly drawn from the World Development Indicators (WDI) database, and it spans the years 1980 to 2016. The Banking Development Indicator (DBAN) is calculated by dividing bank credit to the private sector by GDP. This ratio emphasises the importance of the financial sector, specifically deposit banks, in financing the economy. The urban population as a percentage of the total population is denoted by URB. The value added by industry as a percentage of GDP is denoted by IND. GDP is defined as real GDP per capita. DEP is the percentage of GDP that the government spends on final consumption. INF is the yearly percentage rate of inflation as measured by the GDP deflator. DPR stands for private property rights. Table 1 shows the descriptive statistics for all variables. The Pearson correlation coefficient matrix is represented graphically in

Table 1:Pearson correlation coefficient matrix

Variables	Obs.	Mean	Std. Dev	Min	Max
DBAN	259	18,23	8,59	3,29	41,87
URB	259	30,83	10,96	8,80	54,86
IND	257	20,64	4,07	11,26	32,82
GDP	252	701,20	354,85	312,19	2001,50
DEP	257	14,99	4,05	0	26,06
INF	259	4,38	7,09	-9,82	46,38
DPR	259	0,69	0,15	0,29	0,91

Source: Author, grounded on WDI data (2017)

Table 1 invites feedback. It demonstrates that, on average, between 1980 and 2016, the level of banking development was 18.23%, the rate of urbanisation was 30.83% of the total population, and the industrial value added was 20.64% of GDP. The average per capita income is approximately $701.20, with a standard deviation of 354.85. The high value of the standard deviation of income reflects a high-income inequality within the WAEMU. As regards public expenditure, on average, it represents a proportion of around 14.99% of GDP**.**

Table 2: Correlation matrix

	DBAN	URB	IND	GDP	DEP	INF	DPR
DBAN	1,00						
URB	0,41*	1,00					
IND	0,08	0,38*	1,00				
GDP	0,53*	0,74*	0,34*	1,00			
DEP	0,09	-0,12	0,12*	0,01	1,000		
INF	-0,04	-0,03	-0,08	0,02	-0,181*	1,000	
DPR	-0,16*	-0,03	0,02	-0,56*	0,152*	-0,075	1,000

Note: *(**) indicates significance at the 5% (1%) level
Source: Author, grounded on data from WDI (2017)

Table 2 reveals that the explanatory variables have a poor correlation. The pair of urbanisation rate (URB) and per capita income (GDP) has the highest correlation coefficient (0.74) but is still significantly below 0.80. The pair DBAN and URB has a correlation coefficient of 0.41. The direction of the correlations between the endogenous and the exogenous variables is consistent with our predictions (except for private property rights). Therefore, the study decides to use all variables in the empirical model because of their theoretical interest.

5. Methodology and Model

The specification of the basic model on which this study is based, as well as the estimating process, are described in this part.

5.1. Model Specification

Our study analyses the effect of urbanisation on banking development in the WAEMU zone. In order to take this into account, we specify a model taking into account some variables related to urbanization used as a variable of interest and other variables likely to influence banking development. As a result, our described model has the functional form:

DBAN=f (URB,IND,GDP,DEP,INF,DPR) (1)

In econometric form, the regression model is as follows:

$$⟦DBAN⟧_{it}=\alpha_i+\beta_1 ⟦URB⟧_{it}+\beta_2 ⟦IND⟧_{it}+\beta_3 ⟦GDP⟧_{it}+\beta_4 ⟦DEP⟧_{it}+\beta_5 ⟦INF⟧_{it}+\beta_6 ⟦DPR⟧_{it}+\varepsilon_{it} \quad (2)$$

where ε_t is the error term. We can now proceed to selecting the proper study model and estimating technique.

5.2. The estimation process

The selection of the model to be estimated cannot be prioritised without first conducting econometric tests. The preliminary econometric tests and estimation technique are presented first in the following lines.

5.2.1. Preliminary economic tests

The empirical analysis is conducted in the following manner. Initially, we use unit root tests on the series to investigate variable stationarity. Second, we use the cointegration test to confirm or reject a potential long-run link between the variables. Lastly, we use the PMG/MG estimators to calculate the long-run coefficients. The sequence of variable integration is tested using the Im, Peseran, and Shin (IPS, 2003) and Maddala and Wu tests (1999). Table 3 shows that only the variables DEP and INF are steady in level at the 5% threshold. Yet, in first difference, all variables are stationary. As a result of the above, there is a presumption of a cointegrating link between the various variables. It is therefore appropriate to apply a cointegration test. The Pedroni (2003) cointegration test is performed for all variables and the results are presented in Table 4.

The results of the Pedroni (2003) cointegration test in Table 4 show that all test statistics have a p-value below the 1% thresholds. As a result, we can conclude that the variables are cointegrated, and the long-term connection will be estimated using an error correction model.

Table 3: Summary of unit root tests

Variables	Level		Primary difference		Decision
	IPS	MW	IPS	MW	
DBAN	1,552	5,650	-8,465**	189,480**	I(1)
	(0,939)	(0,974)	(0,000)	(0,000)	
URB	-0,132	25,234	-1,831*	59,454**	I (1)
	(0,447)	(0,032)	(0,033)	(0,000)	
IND	-0,978	20,530	-14,503**	237,547**	I (1)
	(0,163)	(0,114)	(0,000)	(0,000)	
GDP	1,159	28,828	-8,421*	192,337*	I (1)
	(0,876)	(0,011)	(0,049)	(0,013)	
DEP	-2,296*	25,317*	-	-	I (0)
	(0,010)	(0,031)			
INF	-9,139**	123,341**	-	-	I (0)
	(0,000)	(0,000)			
DPR	0,872	8,063	-8,541**	191,947**	I (1)
	(0,808)	(0,886)	(0,000)	(0,000)	

*(**) means that the unit root hypothesis is rejected at the 5% (1%) level. The Im,-Pesaran-Shin (2003) and Maddala-Wu tests are abbreviated as IPS and MW, respectively.
Source: Author, constructed from WDI data (2017)

Table 4: Result of the Pedroni cointegration test

	Statistic	P-value
Modified Philipps Perron t	3,3515**	0,0004
Philips Perron t	3,1357**	0,0009
Augmented Dickey-Fuller t	3,5758**	0,0002

** indicates significance at the 1% level.
Source: Author, constructed from Pedroni cointegration test results

5.2.2. The estimation technique

The estimation technique used is determined by the circumstances of the econometric tests provided above. If the unit root and cointegration tests pass, the coefficients of equation (2) can be calculated using an autoregressive staggered lag model (ARDL). The Pesaran and Smith (1995)/Pesaran et al. (1999) PMG/MG estimators are a methodological breakthrough that allows for variation in the dynamics of the coefficients. The unweighted average of the coefficients from the many separate regressions is used to calculate the MG estimation. It allows for the coefficients' fluctuation in the long and short term. Pooling and averaging are combined in the PMG. Thus, this strategy imposes an equality restriction on the long-term coefficients while allowing the short-term coefficients to vary among countries. The PMG is a good estimator if the restriction is satisfied, but if there is heterogeneity, this estimator is biased. As a result, equation (2) may be represented as an error-correction ARDL model in which the departure from the long-term relationship influences the short-term dynamics:
Regression 1: The coefficients are homogeneous in the long run but heterogeneous in the short run; this is the PMG estimator:

$$\Delta DBAN_{it} = \phi_i (DBAN_{it-1} - \theta X_{it}) + \sum_{j=1}^{p-1} \lambda_{ij}^{*} \Delta DBAN_{it-j} + \sum_{j=0}^{q-1} \delta_{1ij}^{*} URB_{it-j} + \sum_{j=0}^{q-1} \delta_{2ij}^{*} IND_{it-j}$$
$$+ \sum_{j=0}^{q-1} \delta_{3ij}^{*} GDP_{it-j} + \sum_{j=0}^{q-1} \delta_{4ij}^{*} DEP_{it-j} + \sum_{j=0}^{q-1} \delta_{5ij}^{*} INF_{it-j} + \sum_{j=0}^{q-1} \delta_{6ij}^{*} DPR_{it-j} + u_i + \varepsilon_{it} \quad 3)$$

Or

$$\theta X_{it} = (\theta_1 URB_{it} + \theta_2 IND_{it} + \theta_3 GDP_{it} + \theta_4 DEP_{it} + \theta_5 INF_{it} + \theta_6 DPR_{it}).$$

Regression 2: Unconstrained country-by-country equation (where the average of the coefficients gives the MG estimator):

$$\Delta DBAN_{it} = \phi_i (DBAN_{it-1} - \theta_i^{'} X_{it}) + \sum_{j=1}^{p-1} \lambda_{ij}^{*} \Delta BAN_{it-j} + \sum_{j=0}^{q-1} \delta_{1ij}^{*} URB_{it-j} + \sum_{j=0}^{q-1} \delta_{2ij}^{*} IND_{it-j}$$
$$+ \sum_{j=0}^{q-1} \delta_{3ij}^{*} GDP_{it-j} + \sum_{j=0}^{q-1} \delta_{4ij}^{*} DEP_{it-j} + \sum_{j=0}^{q-1} \delta_{5ij}^{*} INF_{it-j} + \sum_{j=0}^{q-1} \delta_{6ij}^{*} DPR_{it-j} + u_i + \varepsilon_{it} \quad 4)$$

Or

$$\theta_i^{'} X_{it} = (\theta_{1i} URB_{it} + \theta_{2i} IND_{it} + \theta_{3i} GDP_{it} + \theta_{4i} DEP_{it} + \theta_{5i} INF_{it} + \theta_{6i} DPR_{it}).$$

It's worth noting that is the vector of long-run coefficients and is the variation operator between two consecutive dates. The parameters of interest are the adjustment coefficient and the long-run coefficients. That is to be expected and substantial. The results of the regressions of equations 3 and 4 are presented in the next section.

6. Presentation of results and economic interpretations

At this point in the investigation, we show the estimation results. Table 5 shows the findings of the PMG and MG estimates. The Hausman test is advised for deciding between the two models. MThis test is used to determine the difference between MG and PMG. The difference between the calculated MG and PMG coefficients is not significant under the null hypothesis, therefore PMG is more efficient.

Table 5: Results of the regressions with the PMG/MG estimators

Variables	***PMG***			***MG***		
	Coef.	S.E	P-value	Coef.	S.E	P-value
URB	0,743**	0,335	0,027	0,487	1,189	0,682
IND	0,665*	0,335	0,061	0,777	0,623	0,212
GDP	0,030***	0,007	0,000	0,069***	0,025	0,006
DEP	2,117***	0,206	0,000	0,617	0,423	0,145
INF	-0,394***	0,083	0,000	-0,338***	0,121	0,005
DPR	-5,095	24,158	0,833	-71,922	44,248	0,104
Phi	-0,189***	0,072	0,009	-0,425***	0,079	0,000
ΔURB	10,221*	5,687	0,072	-8,758	17,490	0,617
ΔIND	0,034	0,123	0,780	-0,054	0,249	0,828
ΔGDP	-0,017**	0,007	0,017	-0,033***	0,008	0,000
ΔDEP	-0,063	0,248	0,798	-0,012	0,122	0,920
ΔINF	-0,037**	0,018	0,039	-0,020	0,022	0,379
ΔDPR	-2,784	16,595	0,867	23,507*	14,018	0,094
Const.	-17,160***	6,382	0,007	10,219	14,478	0,480

Note: *, ** and *** indicate the non-rejection of the null hypothesis of homogeneity of the short-term coefficients at the 10%, 5% and 1% threshold.
Source: Author, constructed from estimation results

The Hausman test results in Table 6 reveal that the hypothesis of long-term coefficient homogeneity cannot be rejected, implying that the PMG estimates are the most efficient. This was a foregone conclusion for the WAEMU countries, which share the same monetary policy and strive for long-term convergence. As a result, we limit our analysis to the data obtained with the PMG estimators.

Table 6: Hausman test result

Variables	Coefficients		Différence (b-B)
	MG (b)	**PMG (B)**	
URB	0,487	0,743	-0,256
IND	0,777	0,665	0,112
GDP	0,069	0,030	0,038
DEP	0,617	2,117	-1,500
INF	-0,338	-0,394	0,056
DPR	-71,922	-5,095	-66,826

chi2(6) = (b-B)'[(V_b-V_B)^ (-1)](b-B) = 7,19
Prob>chi2 = 0,303

Note: The Hausman test is used to determine the difference between MG and PMG. The difference between the calculated MG and PMG coefficients is not significant under the null hypothesis, therefore PMG is more efficient. The test has a greater likelihood than the 5% cutoff. As a result, the PMG estimator, which is the most efficient under the null hypothesis, is preferred.
Source: Author, constructed from Hausman test results

The results of the econometric analysis of the link between financial development and the explanatory variables used in this study may now be interpreted. In the long run, the coefficient values produced are almost all significant (except for private property rights). The phi adjustment coefficient is similarly significant at the 1% level, indicating that the variables in the equation have a long-run relationship. The value of phi is -0.189, implying that any imbalance caused by a shock is entirely repaired at a rate of 18.9% each year.

According to the findings, urbanisation has a beneficial and considerable impact on banking development in the WAEMU. This finding indicates that an increase in urban population favours banking development. This intuitive relationship is linked to the fact that as the urban population grows, the relative demand for financial services also grows. Cities give people the opportunity to access advanced technologies and better knowledge that can help improve the supply of financial services, including opening bank accounts and applying for credit from banks. This result is consistent with the work of Shahbaz et al (2017) who find that urbanization promotes financial development. Furthermore, the results show that industrialization positively influences banking development in the long run. This positive relationship between industrialization and banking development is explained by the fact that increased industrial activity requires more bank credit to finance investments. This allows the banking sector to grow. This result is in line with Robinson (1952) who states that "where enterprise leads, finance follows". This result also aligns with the work of Shahbaz et al (2017) who showed that industrialization plays a key role in the dynamics of banking sector development in economies. Furthermore, GDP per capita favours banking development in the long run, but appears to exert a negative effect in the short run. The negative sign in the short run is a result contrary to our intuitions. It does not necessarily mean that the increase in GDP per capita is detrimental to banking development. Rather, it indicates that economic agents have difficulties in accessing bank credit in the short run. In the long term. In the long run, access to financial services becomes more apparent. Also, the results reveal that government spending is positively related to banking development in the long run, but the effect in the short run is not significant. This finding is consistent with the work of Mishkin (2009), where the author shows that government size improves financial development in developing countries, especially in the long run. Not surprisingly, we find that inflation is detrimental to banking development. This result is contrary to Nadeem et al (2016) who showed that higher inflation encourages banks to make loans. The problem for these authors may be that they neglected the cost of inflation to borrowers. Finally, private property rights have no significant effect on banking development. This result goes against our intuition. However, we explain it by the fact that our analysis covers two major periods in the socio-political evolution of the countries of the WAEMU zone: a period of "single party" where stability reigned and notably the respect of private property rights, and a period of turmoil since the advent of the "multi-party system".

This is certainly why the relationship between private property rights and banking development is not significant over the analysis period. However, with the new political reforms in the area, it can be expected that the impact of property rights on banking development will gradually be felt.

Conclusion

From 1980 to 2016, this study examined the impact of urbanisation on banking development in the West African Economic and Monetary Union (WAEMU) zone. The methodology is based on the Pooled Mean Group (PMG) estimator. In sum, the results indicate that urbanization has a positive effect on banking development in the WAEMU. This intuitive relationship is related to the fact that as the urban population grows; the relative demand for financial services also grows. Similarly, industrialization positively influences banking development. So, our empirical analysis has underlined the advantages of urbanisation in terms of its beneficial effect on banking development. This study supports the findings of Shahbaz et al. (2017), who discovered that urbanisation enhances long-term financial development in China. In terms of policy implications, the report encourages governments to create the conditions for effective urbanisation in order to boost banking development in the UEMOA zone. At least four topics should be considered: I urban decision-makers' training and education, (ii) city location and subsidy management, (iii) secondary city development, and (iv) the formalisation of the informal economy. The study also encourages governments to pursue and consolidate their industrialization policies.

References

Al-Mulali U., O. L. (2015). The influence of economic growth, urbanization, trade openness, financial development, and renewable energy on pollution In Europe . *Natural Hazards, vol 79, No1*, 621-644.

Alonso, W. (1964). Location and Land Use: Toward a General Thoery of Land Rent. *Harvard University Press*.

Bairoch, P. (1977). *Taille des villes, conditions de vie et développement économique .* Editions de l'Ecole Pratiques de Hautes Etudes en Sciences sociales.

Barrios S., B. L. (2006). Climatic change and rural-urban migration: The case of sub-Saharan Africa. *Journal of Urban Economics 60(3)*, 357-371.

Beall J., F. S. (2009). Cities and development . *Routledge* .

Bertinelli L., S. E. (2003). Urbanization, urban concentration and economic growth in developing countries.

Brakman D, A. T. (1995). Expression of cell surface antigens during the differenciation of HL-60 cells induced by 1. *Leukemia Research, 19(1)*, 57-64.

Brückner, M. (2012). Oil price shocks, Income, and democracy. *Review of Economics and Statistics, 94(2)*, 389-399.

Capozza, D. (1973). Subways and land use . *Evironment and Planing, 5(5)*, 555-576.

Catin M., H. V. (2003). Concentration urbaine et industrialisation . *Mondes en développement (1)*, 87-107.

Champion T., H. G. (2004). Introduction: Moving beyond the urban-rural dichotomy. *New forms of urbanization Beyond the urban-rural dichotomy*, 3-24.

Chen S., R. A. (2014). Carbon cloth stimulates direct interspecies electron transfer in syntropic co-cultures . *Bioresource technology, 173*, 82-86.

Choi W., C. N. (2017). Recent development of two-dimensional transition metal dichalcogenides and their applications. *Materials Today, 20(3)*, 116-130.

Cotten, A.-M. (1974). Un aspect de l'urbanisation en Cote d'Ivoire. *Les cahiers d'outre-mer, vol 27, No 106*, 183-193.

Cronon, W. (1991). Nature's metropolis: Chicago and the Great west. *Norton W. and Company Itd, New York*.

Dogan E., T. B. (2016). CO2 emissions, real outpout, energy consumption, trade, urbanization and financial development: testing the EKC hypothesis for the USA. *Environmental Science ans Pollution Research, vol 23, No2*, 1203-1213.

Duranton G., P. D. (2005). From sectoral to functional urban specialisation . *Journal of Urban Economics, 57*, 343-370.

Eaton J., E. Z. (1997). Cities and Growth: Theory and Evidence from France and Japan. *Regional Science and Urban Economics, XXVII*, 443-474.

Eeckhout, J. (2004). Gibrat's law for (all) Cities. *The American Economic Review, 94(5)*, 1429-1451.

Fay, M. a. (2000). Urbanization without Growth: A not so uncommon Phenomenon . *World Bank Working Paper 2412*.

Fujita. (1999). On the evolution of hierarchical urban systems 1. *European Economic Review, 43(2)*, 209-251.

Fujita M., T. J. (2001). Agglomeration and growth migration and knowledge externalities . *Kyoto University Institute for Economic Research WP, 531*.

Gabaix X., I. Y. (2004). The evolution of city sizes ' distribution in Herderson J.V et Thisse J-F. (eds). *Handbook of regional and urban economics, Vol.4, Elsevier Science B.B, Amsterdam*, 2341-2376.

Ghorra-Gobin. (2001). *Réinventer le sens de la ville: les espaces publics à l'heure globale.* Paris: L'Harmattan Incorporated.

Gibrat, R. (s.d.). Les inégalités économiques. *Librairie du Recueil Sirey, Paris*, 1931.

Glosh S., K. K. (2014). Long-term equilibrium relationship between urbanization, energy consumption and economic activity, empirical evidence from India. *Energy, vol 66*, 324-331.

Gungor H., S. A. (2017). Energy consumption, finance and growth: The role of urbanization and industrialization in South Africa. *International Journal of Energy Economics and Policy, vol 7, No3*, 268-276.

Henderson, A. (2010). IL-35-mediated induction of a patent regulatory T cell population . *Nature Immunology, 11(12)*, 1093.

Hotelling. (1929). Stability in Competition. *Economic Journal, vol.39*, 41-57.

Im K., P. M. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics, 115*, 53-74.

Ioannides Y., O. H. (2003). Zipf's Law for Cities: An Ampirical Examination . *Regional Science and Urban Economics, 33*, 127-137.

Kalecki, M. (1945). on the Gibrat distribution. *Econometrica 13*, 161-170.

Kao, C. (1999). an application of estimation and interence in panel cointegration . *Oxford Bulletin of Economics and statistics, 61(S1)*, 691-709.

Khalil J., I. U. (2016). impact of interest rate on private sector credit: Evidence from Pakistan. *Jinnah Business Review, 4(1)*, 47-52.

Kim, S. (1999). Regions, Resources and Economic Geography: sources of US regional comparative advantages. *Regional Sciences and Urban Economics 29*, 1-32.

Komal R., A. F. (2015). Linking financial development economic growth and energy consumption in Pakistan . *Renewable and Sustainable Energy Reviews, vol 44*, 211-220.

Krugman P. (1993). First nature, second nature and metropolitan location . *Journal of Regional Science 33*, 129-144.

Krugman, P. (1991). History vs expectations. *Quartely Journal of economics 106*, 651-667.

Levin A., L. C. (2002). Unit root tests in panel data: asymptotic and finitesample propreties . *Journal of Econometrics, 108*, 1-24.

Levine R., B. T. (2000). Finance and the sources of Growth. *Journal of financial economics, vol 58, No 1-2*, 261-300.

Lewis, W. A. (1954). economic development with unlimited supply of labour. *the manchester school of Economic and social studies 47(3)*, 91-139.

Liddle, S. (2013). The gateway to the profession: Assessing teacher preparation programs based on student achievement . *Economic of Education Review, vol 34* , 29-44.

Losch, A. (1954). The economics of location: Translated from the second rev. German ed. by william H. Woglom with the assistance of Wolfgang F. Stolper. *Yaye University Press*.

Loughran T., S. P. (2005). Liquidity: Urban versus rural firms. *Journal of Financial Economics, 78(2)*, 341-374.

Lucas, R. (1993). Making a Miracle. *Econometrica, 61(2)*, 72-251.

Mansfield, E. (1962). Entry, Gibrat's law, innovation and the growth of firms. *The American Economic Review 52*, 1023-1062.

Marshall, A. (1920). Principles of Econmies. *London: Macmillan (8th ed)*.

McKinnon, R. I. (1973). Money and Capital in Economic Development . *Washington DC: Brookings Institution* .

Mills, E. (1967). An Aggregate Model of Resource Allocation in a Metropolitan Area. *American Economic Review, paper and proceedings, Vol.57, No, 2 pp*, 197-210.

Mishkin, F. (2009). Is monetary policy effective during financial crises? *American Economic Review, Vol 99, No 2*, 573-577.

Banque Mondiale. (2017). *Rapport sur l'urbanisation en Afrique: pour soutenir la croissance il faut améliorer la vie des habitants et des entreprises dans les villes.* Washington.

Moomaw R., S. A. (1996). Urbanization and Economic Development : a bias towards large cities. *Journal of Urban Economics 40*, 13-37.

Muhammad Shahbaz, M. B. (2017, Septembre 2). financial development, industrialisation, urbanisation et role of institution: a comparative analysis berween India and China.

Pedroni, P. (1999). Critical Valiues for Coinegration Tests in Heterogeneous Panels with Multiple Regressors . *Oxford Bulletin of Economics and Statistics, 61*, 653-670.

Pesaran M., S. Y. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics, vol 16, No 3*, 289-326.

Pesaran, M. H. (1995). Estimating Long-run Relationship from Dynamic Heterogeneous Panel. *jounal of Econometrics, 68(1)*, 79-113.

Pesaran, M. H. (1999). Pooled Mean Group Estimation of Dynamic Heterogeneous Panels. *Journal of American Statistical Association, 94(446)*, 621-634.

PotterJ., E. S. (1998, Novembre 10). Inverted bag cheese server. *U S. Patent No 5,833, 120*.

Potts, D. (2009). the slowing of sub-saharan Africa's urbanization. *evidence and implications for urban livelihoods. Environnement and Urbanization 21(1)*, 59-253.

Predhol, A. (1928). The Theory of location in its relation to general economies . *Journal of Political Economy, vol. 36*, 371-390.

Quigley, L. (2008). Emotional and sexual infidelity. *Journal of Marital and Family Therapy 34(4)*, 461-468.

R, T. (1983). La higiène social marxista como cienta . *La Habana, Cuba: Instituto de Desarollo de la Salud*.

Ranis G., a. F. (1961). A Theory of Economic Development . *American Economic Review, vol 51*, 533-565.

Ravallion M., C. S. (2007). New evidence on the urbanization of global poverty . *Population and Development Review, vol 33, No 4*, 667-701.

Ravenstein, E. G. (1885). the laws of migration. *Journal of the statistical society of London 48(2)*, 167-235.

Redford, A. (1926). Labour migration in England 1800-1850. *Mancheste: Manchester University Press*.

Rosenthal S., S. W. (2004). Evidence on the nature and sources of agglomeration economies. In. *Handbook of regional and urban economics, 4 Elsevier*, 2119-2171.

Shahbaz, M. (2012). Does financial development increase energy consumption? The role of industrialization and urbanization in Tunisia. *Energy Policy, 40*, 473-479.

Shaw, E. S. (1973). Financial Deepening in Economic Growth . *New York: Oxford University Press*.

Spence M., C. A. (2009). Urbanization and Growth .

Sutton, J. (1997). Gibrat's Legacy. *Journal of Economic Litterature, vol.XXXV,*, 40-59.

Torado, M. P. (1970). Migration, unemployment and development countries: a two-sector analysis. *American Economic Review 60(1)*, 42-126.

UN-HABITAT. (2010). *The state of African cities 2010: Gouvernance .* Nairobi, UN Habitat: inequalities and urban land markets .

Von, T. (1826). Isolated State. Pergamon Press, Oxford.

weber, A. (1909). Uber den standort der industrien, Tubingin, traduction anglaise: Theory of the location of industries. *Chicago university press*.

Westerlund, J. (2007). Testing for error correction in panel data. *Oxford Bulletin of Econometrics and Statitics, vol 69, No 6*, 709-748.

Wheaton W., S. H. (1981). Urban concentration, agglomeration economies, and the level of economic development . *Economic development and cultural change, 30(1)*, 17-30.

Wingo, J. (1961). An economic model of the utilization of urban land . *Papers in Regional Science, 7(1)*, 191-205

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