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EFFECTS OF PROPERTY RIGHTS ON ENTREPRENEURSHIP DEVELOPMENT IN THE CEMAC SUB- REGION

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ABSTRACT

Objective: This article sought to investigate the effects of property rights on entrepreneurship development in the CEMAC Sub- region. **Research Design & Methods:** Data for this study was collected from the World Governance Indicators (WGI) for the six indicators of governance and World Bank data for entrepreneurship development and control variables. Pooled Ordinary Least Squares estimation technique was used to estimate the parameters of the model. **Findings:** The findings from the data analysis revealed that there was a negative and significant effect of democracy (captured by voice and accountability index) on entrepreneurship development in CEMAC. In accordance with theoretical expectation, results from data analysis further revealed that there was a positive and significant effect of government effectiveness on entrepreneurship development in the sub region. Results from the pooled OLS estimation showed that there was a negative and significant effect of control of corruption on entrepreneurship development in CEMAC. **Contribution & Value Added:** The fourth indicator of institutional quality used in this work is political stability. Thus, an improvement of public services by reducing bureaucratic bottlenecks, improvement in the fight against corruption and increasing the level of investments could enhance entrepreneurship development in the sub-region.

Keywords: CEMAC; entrepreneurship; institutions; property rights.
JEL codes: L260
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INTRODUCTION

Entrepreneurship is a multidimensional and interdisciplinary phenomenon. This phenomenon is influenced by different cultural, social, political, economic, and institutional factors and environments. Entrepreneurship has many different types. Opportunity entrepreneurship (OE) and necessity entrepreneurship (NE) are part of a prevalent pair that was introduced by Global Entrepreneurship Monitor (GEM). Each of these entrepreneurs has different motivations; therefore, their motivation structure is different. These types of entrepreneurs are affected by numerous factors and environments, including institutional factors. On the other hand, it is believed that the level of economic development of countries can affect the relationship between the institutional quality and entrepreneurial activities (Samadi & Togha, 2019).

Entrepreneurship is increasingly seen as a key driver of economic development (Baumol, 1990; Minniti & Lévesque, 2008; Wennekers & Thurik, 1999). It fosters innovation, enhances employment creation and ensures more equitable income distribution (Z. Acs, 2006; Baumol, 1990). Due to the beneficial role of entrepreneurship in economic growth and development, scholarly contributions have

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set out to identify its national determinants. Researchers have considered economic, institutional and psychological factors that may explain differences in the levels of entrepreneurial activity.

The role of institutions on economic performances of the countries have been a focuses of many cross countries studies, in recent years. In fact, political, economic and social structures explain the difference in the level of economic development across countries. Hence when it comes to defined institutions each author has its own conception. Lecours (2005) in political science perceived institutions as a superiority of the State, while Scott (1995) in sociology defined institutions as standards cognitive that guide human action.

Rodrik et al. (2004) argued that the quality of institutions influences the decisions of investors before developing economic projects. Kostova (1997) developed the concept of 'country institutional profile' that are the set of relevant institutions established over time and operate in the country. He argued that institutional profile explains the difference in the development of economic activities across countries. He found out three dimensions of institutions namely: regulatory dimension that refers to government policies, while cognitive dimension refers to social norms and a normative institution refers to social values. For these authors, the quality of economic, political, social and cultural aspects of institutions determined the quality of investment that can be made by investors in a given country and later the level of economic development.

It is widely accepted that regulatory institutions have an impact on economic activities. For instance, North & Institutional Changes Institutions (1990) argued that political institution is a legal frame that defines 'rules of the game' and characteristics of the administrative and judicial authorities which implement the rules, that play a central role in the development of economic activities. Thus political institutions affect the regulation of economic activities and therefore influence economic development. North & Institutional Changes Institutions (1990) also argued that the combination of formal and informal rules constrains the actions of economic agents. North institutional economics approach mainly focuses on the integration of institutions into economic theory and the role of State in setting policies that shape the behaviour of economic agents.

The supply side and demand side factors are called direct factors that determined growth. The traditional growth model of Solow (1956) mainly focus on these direct factors. However, since the increasing of literature on the role of institutions in economic development, authors such as Barro (1996) introduced variables of institutions in growth model, to admit the role of institutions on economic development. Meanwhile, some authors such as Próchniak (2013) admit that institutions are factors that affect direct factors and consequently, affected growth. Thus, we can admit that institutions play a central role in economic development of countries. Meanwhile empirical studies on the role of institutions on economic development introduced institutional variables in economic model (Acemoglu et al., 2001; Asiedu & Freeman, 2009; Barro, 1996; Jalilian et al., 2007; Mbulawa, 2015).

The Economic and Monetary Community of Central Africa which the common abbreviation in French is CEMAC includes six countries: Cameroon, the Central African Republic, Chad, the Republic of Congo, Gabon and Equatorial Guinea. These countries are link to each other by the common currency: XAF (CFA Francs) and share same economic area and history. The quality of institutions is this region depend of the evolution of economic activities. After their independence in early1960s, these countries have put in place policies to conduct the countries through developmental programs in order to orient public policies as well as economic policies. These states being endowed with large and diversified natural resources were main economic agents and focusing on the construction of infrastructures including: transportation system, the energy sector, and agro industries firms and exported crops. Broadly after independences, these countries knew economic prosperity and have relative stable institutions.

However, the economic crisis in mid-1980s where state companies became unproductive and were privatized, following with the decrease of the volume of exportations of crops products such as coffee, cocoa, and gasoil on the international market, the increase of external debt, deficit of public budget, and the devaluation of common currency revealed the weaknesses of institutions of different countries of CEMAC region (African Development Bank, 2007). In early 2000s countries of CEMAC zone

adopted economic and social policies and programs in order to promote the development of economic activities and boost economic growth. Despite, these new policies and programs, these countries growth rate remains weak.

The main objective of this paper is to determine the effects of property rights on entrepreneurship development in the CEMAC Sub- region. The rest of the paper is organised as follows: section 2 situates the paper in its proper perspective by reviewing both theoretical and empirical literature on intellectual property right and entrepreneurship. Section 3 discusses the method of data analysis. Empirical evidence on the change and organizational development is reported in Section 4, while Section 5 concludes the paper with some policy implications.

LITERATURE REVIEW

The institutional approach, contexts, and factors, and generally environmental factors, are important incentives for encouraging entrepreneurial activities (Fuentelsaz et al., 2015). One of the important theories in this field is the institutional theory of entrepreneurship. This theory attempts to explain the role of institutional factors (such as bureaucracy, the status of tax system, the status of property rights, social capital, the business environment, fiscal freedom, laws and regulations, social security, corruption, financial capital, etc.) and describes the process of entrepreneurship as well as the role of entrepreneurs in making institutional changes. From the perspective of this theory, entrepreneurial activities and the formation of the motivational structure of entrepreneurs are influenced by formal institutions (such as constitutions, laws and regulations, contracts, etc.) and informal institutions (such as attitudes, beliefs, social norms, etc.). Each of these institutions is influenced by various channels. In what follows, we only look at the role of property rights on OE and NE. It is possible that OE would be followed by a specific discovery or invention. The commercialization of the invention and business startup is the next step that the entrepreneur can do. This will not happen unless the entrepreneur ensures the benefits and returns that will result from this commercialization and business startup for it is possible that their invention has already been copied elsewhere, hence blighting the benefits of their efforts. Thus, if an entrepreneur cannot ensure others of the returns that may follow their investment on his/her, say, startup, he/she cannot be deemed as an OE. Secured property rights affect the motivational structure of individuals and foster entrepreneurship in them. If people's property right is properly defined and secured, individuals will prefer investing in entrepreneurial activities (Fuentelsaz et al., 2015; Whiting, 2001; Zali & Razavi, 2012).

An entrepreneur has an incentive for innovation and entrepreneurship when the benefits of the asset created by them (Rodrik, 2000) and the benefits of exchanging that asset (Estrin et al., 2013) is guaranteed. On the other hand, poor property rights will increase the transaction costs and the risk of entrepreneurial activities for the entrepreneurs. This increased transaction costs and risk will impede innovation and, in turn, prevent the OEs from creating opportunities and NEs from any entrepreneurial activities (Autio & Acs, 2010; Estrin & Mickiewicz, 2011; Fuentelsaz et al., 2015).

According to Anderman & Schmidt (2011) intellectual property right is a group of property which include patent, copy right, trade secrets and trademarks. Trademarks are types of intellectual property ranging from identifiable signs, designs and expressions which distinguish goods/services of one company from those of other companies. It should be noted that signs distinguishing services are known as service marks. Laws relating to trade marks give companies the possibility to make a claim on unique distinguishing signs. Trademarks distinguish companies from other companies in the same sector or industry making it possible for consumers to identify a company through it products or services. Another form of intellectual property right is a patent. A patent gives the owner a legal right to exclude others from making use or selling an invention for a given number of years. This necessitates that owners of inventions make public disclosure of such inventions. In this connection, patent law increasingly creates a property right for particular designs, and new inventions for a given number of years, after which the patent expires. Copy right is another form of intellectual property. This refers to the exclusive and assigned legal right given to the creator or originator for a fixed number of years to print, publish, perform, film or record literally artistic or musical material. This means that the creator of such materials and those they have given authorisation to are the only ones

with the exclusive rights to copy the work. This area of intellectual property law has become increasingly controversial especially with the rise World Wide Web which has increased the volume of original written and creative material to the general public. This has led to some people trying to bypass copyright laws. However, the availability of creative works is promoted through open copyright license. Trade secrets are a fourth type of intellectual property that comprise formulas, practices, processes, designs, instruments, client lists, patterns, which are considered to have economic value. A trade secret is characterized by the following; such information is not known to the general public; gives economic benefit to it holder; holder makes reasonable effort to maintain its secrecy; both civil and criminal penalties go with stealing trade secrets.

Various divisions of entrepreneurship have thus far been introduced. Baumol (1990) divided entrepreneurship into productive, unproductive, and destructive, Dau & Cuervo-Cazurra (2014) into formal and informal, and Reynold into two categories of OE and NE (Fuentelsaz et al., 2015). There are some other classifications. In the present study, the authors zoomed in on the two categories introduced by Fuentelsaz et al. (2015), namely, OE and NE. Opportunity Entrepreneurs are people who seek to discover opportunities and exploit them; what they do is considered a kind of productive entrepreneurship. On the contrary, necessity entrepreneurs, whose effort is regarded as a form of unproductive entrepreneurship, need to be forced to work because they do not have access to other business options. OEs use existing opportunities and seek to increase their income while NEs need resources and do not fight for better working options (Kelley et al., 2012). It, therefore, is clear that each of these individuals has their own motivational structure. This structure is influenced by numerous social, economic, managerial, cultural, political, and institutional factors. Institutional environments play an important role in shaping the motivational structure of people, especially entrepreneurs, in society.

Pathak & Muralidharan (2020) investigated the effects of intellectual property right on technology entrepreneurship using a two stage approach contending that intellectual property right affects technology entrepreneurship through innovation. The analyses revealed that technology entrepreneurship involves entrepreneurs' assess to and use of technology. Though it was found that intellectual property right can constraint assess to technology in general, their use can trigger technology entrepreneurship. In fact the analyses revealed that strong intellectual property right have significant positive impact on technology entrepreneurship.

Research on Complex Panel Data Analysis of the Effect of Intellectual Property Rights on Entrepreneurship in Emerging and Developed Countries has been carried out by Loukil (2020). Entrepreneurship has been identified as a primary driver of economic prosperity and growth. They tried to shed light on how the institutional structure, by focusing on emerging and developed countries, influences the levels of entrepreneurship. More precisely, this study explored the effect on entrepreneurship in emerging and developed countries of intellectual property rights (IPR). Theoretical research found that IPR had a favourable impact on creative entrepreneurs, although its impact on imitators was more unclear. A System Generalized Method of Moments (System GMM) technique was applied to a panel of 28 countries during the period 2005-2012 to empirically test these hypotheses. The level of entrepreneurship was measured by the new entry density of enterprises, while the degree of security of intellectual property rights was measured by the World Economic Forum IPR index. The results showed that IPR had a non-significant effect on new business entries. They concluded that intellectual property rights in developed and developing countries are not an important instrument of industrial policy. In order to spur entrepreneurship, governments can focus on other factors.

Research on intellectual property rights, human capital and the forms of entrepreneurship in developed and developing countries was conducted by Loukil (2020). The paper analysed the single and combined impact on the forms of entrepreneurship in emerging and developed countries of intellectual property rights (IPR) and human capital. For this reason, they used data from the Global Entrepreneurship Monitor for entrepreneurial activity, while the IPR is calculated on the basis of the World Economic Forum's IPR index and the gross enrolment ratio for secondary education is evaluated for human capital. For the period 2009-2013, linear regressions were applied to data for 15

countries. Findings have shown that enhancement of intellectual property rights has little effect on opportunity-based entrepreneurship and adversely affects entrepreneurship driven by need. In addition, raising the level of education makes it possible to boost opportunity-driven entrepreneurship in emerging and developed countries. It does not, however, allow the need for entrepreneurship to be increased. In addition, countries with a higher level of human capital have gained more than countries with lower human capital from developing the IPR system. In short, our study acknowledges the complementary role of intellectual property rights and human capital in rising entrepreneurship of high quality. They concluded that in emerging and developed countries, both intellectual property rights and human capital are effective industrial policy instruments.

With evidence from some factor-driven, efficiency-driven, and innovation-driven countries, Samadi & Togha (2019) conducted a study on the impact of property rights on entrepreneurship. Many variables and contexts, such as organizations, have affected entrepreneurship. Institutions have played an important role in the individual's inclination towards entrepreneurship of need and opportunity. The goal of the article was to investigate the effect of institutional quality (property rights) on entrepreneurship opportunities and needs. Based on unbalanced panel data from 2005 to 2015, the results showed that property rights did not have a major effect on the factor-driven group's opportunity entrepreneurship although it had a negative impact on entrepreneurship of need. Protecting property rights in the efficiency-driven group would provide the ideal backdrop for opportunities for entrepreneurship and minimize need for entrepreneurship, but improving property rights in the innovation-driven group would increase both opportunity and need for entrepreneurship. These findings showed that the effect of property rights on entrepreneurship (opportunity and necessity) depended on the level of countries' economic growth.

A report on human wealth, property rights and entrepreneurship in China was conducted by Sahasranamam & Raman (2018). The aim of the article was to hypothesize the contingent impact on the commitment of individual human and financial resources in entrepreneurship that these improvements in property rights had. Furthermore, this research also investigated whether changes in property rights had a distinct impact on the two forms of entrepreneurship, namely entrepreneurship of opportunity and need. Using the Global Entrepreneurship Monitor (GEM) database, the researchers used logit regression analysis on a two-period model to test these impacts. Contrary to current evidence from Western contexts, this study found that improvements in property rights had a substantial effect on the expenditure of both types of capital in China towards entrepreneurship of necessity. There was minimal research on the phenomenon of entrepreneurial need in economies such as China. The results of this study highlighted that in institutional contexts such as China, the security of property rights is equally important for required entrepreneurship.

A multilevel study of academic entrepreneurship policies on intellectual property rights (Halilem et al., 2017). Using multi-level models for a population of 2,230 professors in 27 universities in Canada (an average of 82 individuals per unit), three characteristics of institutional intellectual property right policy characteristics have been evaluated, namely property rights (ownership regime), control rights (disclosure duty and marketing option), and income-sharing schemes (when marketing) (consulting and commercial agreement). The results indicated that the conduct of academic inventors is affected not by the invention ownership regime, but by the control rights in place and the sharing of income between the university and the academic inventors, contrary to most of the literature. The results have some consequences for the value of an ownership structure and the ineffectiveness of institutional policies that produce conflicting motivations for academic entrepreneurs.

In an empirical study of the use of emerging technologies in entrepreneurship, Laplume et al. (2014) conducted research on the politics of intellectual property rights regimes. The paper explored the relationships between political systems and intellectual property rights regimes that can impact early-stage entrepreneurs' propensity to use the latest innovations available in their projects. They argued that the consequences of intellectual property regimes were mitigated by the existence of the political system of a nation, including the presence of pirate groups promoting limited protection of intellectual property. They merged large-scale cross-country survey data on entrepreneurs and policy (democracy versus autocracy) and intellectual property rights initiatives at country level with a new measure

(created by the authors) estimating the effect of pirate groups. The results showed that as intellectual property rights were improved, entrepreneurs in more democratic (high-level) countries enjoyed higher levels of technology use. In more autocratic (low-polity) nations, on the other hand, entrepreneurs are less likely to use the latest technologies as intellectual property rights are improved. Pirate parties' impact makes the strengthening of intellectual property rights more beneficial for the use of technology in entrepreneurship. These findings contributed to the literature exploring institutional and political determinants of high-value types of entrepreneurship that could impact on the degree to which technology and intellectual property policy-makers regard the interests of entrepreneurs.

Harper (2014) studied how entrepreneurship turns intellectual property systems into property rights as a dynamic adaptive system. The goal of the paper was to provide some components of an evolutionary theory of property rights. The approach highlighted how entrepreneurs produced capital combinations by linking capital goods that were commonly established to include property rights, such as patents, in their production plans. Their acts alter the relationship of complementarity between property rights when they are used in development. They treated the structure of property rights as a dynamic adaptive mechanism that, as it grows, exhibits growing structural complexity. In the property rights scheme, entrepreneurs discovered holes. Businessmen regroup current intellectual property righthouses as they plan development to take advantage of profit opportunities.

In a multilevel study, Pathak et al. (2014) examined the identification of opportunities, intellectual property rights, obstacles to technological adoption and technology entrepreneurship in emerging economies. This study suggested that strong intellectual property rights regimes and other obstacles to the adoption of technology could discourage technology entrepreneurs in emerging economies. Using Global Entrepreneurship Monitor (GEM) survey data on individual-level entrepreneurial activities, they checked the hypotheses that were complemented by national-level datasets on structural variables such as intellectual property rights and technology adoption barriers. The results showed that the identification of opportunities by entrepreneurs at the individual level may be even more relevant in contexts where technological adoption barriers are strong. They have contributed to a growing literature that treats entrepreneurship as a multi-level phenomenon and explores the combined influences of person-centered characteristics and their background on entrepreneurial intentions and behaviors at the individual level, especially on engaging in entrepreneurship in technology. Overall, our analysis found that in developing markets, the variables forecasting technology entrepreneurship may not be the same as those in developed nations.

Autio & Acs (2010) examined the security of intellectual property and the creation of expectations for entrepreneurial development. They developed and tested a multi-level model using real options logic that explained the impact of the intellectual property security regime of a country on the effect of the human and financial capital of a person on aspirations for entrepreneurial development. The results showed that the strength of the intellectual property regime negatively moderates the relationship between the education of an individual and the aspirations for entrepreneurial growth, and positively moderates the relationship between the household income of an individual and the aspirations for growth. Thus, security of intellectual property promotes specialization among differently qualified entrepreneurs. The results backed arguments that without paying attention to the context in which certain behaviours are observed, strategic entrepreneurial behaviours cannot be completely understood.

In order to gain a return on their inventions, entrepreneurs also rely on intellectual property (IP) and also compatibility requirements that enable them to supply specialized components for a shared technology platform (Simcoe et al., 2009). The paper compares the IP tactics of small businesses and major incumbents who report patents to 13 voluntary organizations setting standards (SSOs). These patents have a comparatively high rate of litigation. For small private businesses, following disclosure to the SSO, the risk of filing a complaint increases. The filing rate is unchanged for major public companies. While forward citations for all firms increase after disclosure, the size of this impact for entrepreneurs and incumbents is the same. These results showed that norms maximize the disparity between the incentives of large and small companies to litigate, rather than the relative value of their

patents. They concluded that IP was more vigorously defended until it was integrated into an open platform because specialist technology providers do not seek rents in complementary markets.

Intellectual property rights and the philosophy of entrepreneurship information spillover (Z. J. Acs & Sanders, 2008). They created a paradigm in which greater intellectual property rights security had an inverted U-shaped effect on innovation. Security of intellectual property rights enables incumbent corporations to absorb part of the commercial exploration rents that would otherwise accrue to entrepreneurs. The opportunity to do R&D and generate fresh information would be increased by stronger patent protection. This has had a positive impact on creativity and entrepreneurship. After some point, however, further reinforcement of patent rights would sufficiently reduce returns to entrepreneurship to reduce overall economic growth.

The impact on self-employed entrepreneurship of intellectual property rights (Burke & Fraser, 2005). The significance of IPR regimes for large company innovation has been well reported, but their impact on generally less creative self-employed entrepreneurship has been less understood. The paper tried to estimate the net effect of the various components of an IPR regime, including the political structure, rules, and institutions, as well as the general familiarity and compliance with IPR-related goods. The study showed, cumulatively, that a well-developed IPR regime had a net positive impact on the self-employed market. Since the self-employed sector could have been the only segment of the enterprise base where IPRs can be assumed to have a negative impact, it makes a valuable contribution to our empirical understanding of the welfare effects of IPRs more generally on the enterprise economy.

The research on property rights and entrepreneurship in science was performed by Stephan & Levin (1996). The article looked at the emerging relationship between the incentive system and entrepreneurial interest in research. They drew a distinction between two kinds of rights to land. Basic science is fostered by a reputational rights mechanism; technical developments are fostered by a proprietary rights mechanism and the goods and processes they produce. In terms of the incentives they offer to exchange knowledge in a timely manner, the two types of property rights vary markedly. They argued that university-based researchers in some fields are more likely to "privatize" information today than in the past, swapping reputational rights for proprietary rights, due to a number of factors. Life science activities serve as a case study. It follows a discussion of how privatization impacts fundamental science. Although the evidence is far from complete, we conclude that the drive towards privatization may be more advantageous than basic science for product creation and for scientists engaged in the practice.

METHODS

Data for the study are collected from the World Governance Indicators (WGI) for the six indicators of governance and World Development indicators for entrepreneurship development and control variables. The panel is made up of all 6 member countries of the CEMAC community (Cameroon, Gabon, Equatorial Guinea, Central African Republic, Congo and Chad). The literature on Mundell's theory often suggests that the political stature of a country is completely independent to its entrepreneurship. However, this is not often the case and Bagnai (2010) argues that in many instances, political decisions are never independent from a country's economic interest. The present paper is based on the panel model specification below.

$$LENT_{it} = \beta_0 + \beta_1 VA_{it} + \beta_2 PSTAB_{it} + \beta_3 GEF_{it} + \beta_4 RQ_{it} + \beta_5 RLAW_{it} + \beta_6 COR_{it} + \beta_7 FDI_{it} + \beta_8 INF_{it} + \beta_9 LDCPS_{it} + \beta_{10} LGOV_{it} + \beta_{11} LIND_{it} + \beta_{12} LGDPPC_{it} + \varepsilon_{it}$$

Panel data set is strongly balanced and the Pooled Ordinary Least Squares estimation used to estimate the parameters of the model specified above. This was to account for the short time scope (T = 23) and number of panels (N = 6). In effect, pooled OLS is simply the application of Ordinary Least Squares (OLS) on panel data. Thus, it completely ignores the individual specific effect. However, when the time scope (T) is not long enough and the number of panels is small (N), the pooled OLS is recommended. Also, there are number of benefits associated with using panel data. By combining time

series of cross sections observations, panel data gives more informative data, more variability, less colinearity, more degree of freedom and more efficiency.

Table 1. Definition of Variables

Variable	Definition/Measurement
ENT	Entrepreneurship development captured by private investment
VA	Voice and accountability perception index
PSTAB	Political stability perception index
GEF	Government effectiveness
RQ	Regulatory quality
RLAW	Rule of law
COR	Control of corruption
FDI	Foreign direct investment inflows as a percentage of GDP
LGOV	Logged value of government expenditures
INF	Inflation (consumer price index annual growth rate)
LDCPS	Log of domestic credit to the private sector
LIND	Log of industrialisation which is measured by value added from industrial and manufacturing sector
LGDPPC	Log of GDP per capita which captures economic growth

FINDINGS

On average, entrepreneurship in CEMAC stands at 4.44 with an overall standard deviation of 3.21 indicating very high variability over time and across countries as confirmed by the between and within standard deviations (see Table 2). Values of entrepreneurship vary between 5.42 and 1.51. Also, the mean value of voice and accountability index in the sub region is -1.158149 which shows very poor performance in terms of democratic governance and freedom of expression in the sub region. However there exist very little disparities among countries as revealed by the standard deviation of 0.3668355. The same observation can be made for variables such as government effectiveness, control of corruption, regulatory quality and rule of law with mean values calculated at -1.140008, -1.190134, -1.001645 and respectively. In terms of political stability, the situation seems better of as the mean value of political stability in CEMAC stands at -0.731957 with a standard deviation of more than 0.7 indicating moderate disparities.

Averagely, foreign direct investment in the sub region represents 7.68% of GDP with a standard deviation of 18.02466 depicting high disparities among countries over time. Net inflows of FDI range from -8.589433 to 161.8237 which show that some countries are highly dependent on FDI from growth. Similarly, the average value of domestic credit to the private sector measured as a percentage of GDP is 8.292408 with a standard deviation of 4.370669 indicating moderate variability or dispersion of the variables across countries and over time. The mean inflation rate in the sub region is 4.268552 which is slightly above the required 3% of the CEMAC requirement with a standard deviation of 6.975827 which reveal that there are huge disparities across countries over time. Inflation rate fluctuate between -8.97% to up to 40.73%. Going by government expenditure measured as a percentage of GDP, results from descriptive analysis show that on average, government spending in the sub region represent 11.28% of GDP with a standard deviation of 4.607231 indicating moderate variability among countries over time. Values of government spending evolve from 2.74% to 25.33%.

Recall that the pooled OLS was used to examine the effect of institutional quality on entrepreneurship development in the CEMAC sub region with specific emphasis on property rights captured here with rule of law index, government effectiveness and regulatory quality (see Table 3). Equation 1 provides the result of the main model while equations 2 to 7 provides results of the GMM estimation with interaction variables in order to capture the stepwise moderating effect of rule of law, government effectiveness and regulatory quality on government spending and economic growth respectively.

Table 2 provides a summary of descriptive statistics of variables used in the model specification.

Table 2. Summary of Descriptive Statistics

Variables		Mean	Std. Dev.	Min	Max	Observations	
ENT	overall	4.44e+12	3.21	5.42	1.51	N =	138
	between		3.00	6.79	9.79	n =	6
	within		1.66	3.85	9.73	T =	23
VA	overall	-1.158149	0.3668355	-2.022124	-.3211722	N =	138
	between		0.3465851	-1.78385	-.7396447	n =	6
	within		0.1836751	-1.592392	-.739677	T =	23
GEF	overall	-1.140008	0.3709527	-1.859727	-.199152	N =	138
	between		0.3336763	-1.51393	-.6705756	n =	6
	within		0.2101081	-1.571708	-.4156022	T =	23
COR	overall	-1.190134	0.2628119	-1.960752	-.5712046	N =	138
	between		0.2441342	-1.557871	-.8224989	n =	6
	within		0.1379841	-1.593015	-.8966318	T =	23
PSTAB	overall	-0.731957	0.7558003	-2.699193	.6831978	N =	138
	between		0.7521958	-1.682022	.2738487	n =	6
	within		0.3103121	-1.749128	-.1092792	T =	23
RQ	overall	-1.001645	0.3749376	-1.676723	.1903571	N =	138
	between		0.3539543	-1.416936	-.4049732	n =	6
	within		0.1881837	-1.394582	-.4063144	T =	23
RLAW	overall	-1.169602	0.3712509	-1.913558	-.1678418	N =	138
	between		0.3591374	-1.43656	-.4781085	n =	6
	within		0.1719291	-1.6466	-.7458118	T =	23
FDI	overall	7.682911	18.02466	-8.589433	161.8237	N =	138
	between		7.815472	1.287599	20.75402	n =	6
	within		16.54133	-17.09074	148.7526	T =	23
DCPS	overall	8.292408	4.370669	2.097239	22.05634	N =	138
	between		2.218641	4.941562	10.75516	n =	6
	within		3.869216	1.627772	21.58687	T =	23
INF	overall	4.268552	6.975827	-8.97474	40.72692	N =	138
	between		2.758171	1.900844	9.58129	n =	6
	within		6.502022	-8.261162	35.41418	T =	23
GOV	overall	11.28459	4.607231	2.736065	25.32733	N =	138
	between		2.963268	6.195479	14.59391	n =	6
	within		3.722324	3.884453	26.47571	T =	23
IND	overall	42.7415	24.60017	9.239161	85.53091	N =	138
	between		25.71913	14.48318	76.84392	n =	6
	within		7.065184	18.22783	74.23361	T =	23
FAID	overall	2.95e+08	3.35	-1.16	1.78	N =	138
	between		2.76	2.390	7.82	n =	6
	within		2.20	-5.10	1.48	T =	23
GDPPC	overall	1539597	2061092	139926	8320198	N =	138
	between		2006774	176436	5090764	n =	6
	within		931479.4	2974806	4769030	T =	23

Source: Computed by the author

Table 3. The Effects of Institutional Quality on Entrepreneurship in CEMAC

Variables	(1) Lent	(2) Lent	(3) Lent	(4) Lent	(5) Lent	(6) Lent	(7) Lent
VA	-1.609***	-1.745***	-1.516***	-1.392***	-1.491***	-1.677***	-1.283***
	(0.296)	(0.303)	(0.292)	(0.312)	(0.302)	(0.298)	(0.314)
GEF	1.317***	1.361***	1.106***	1.255***	1.183***	0.0939	5.222***
	(0.202)	(0.201)	(0.214)	(0.202)	(0.216)	(0.834)	(1.480)
COR	-1.208***	-1.329***	-0.912***	-1.109***	-1.233***	-1.221***	-1.142***
	(0.285)	(0.290)	(0.301)	(0.285)	(0.283)	(0.283)	(0.279)
PSTAB	0.176	0.188	0.180	0.167	0.160	0.190	0.107
	(0.126)	(0.125)	(0.124)	(0.125)	(0.126)	(0.126)	(0.126)
RQ	-0.636**	-0.543**	-0.293	1.071	2.532	-0.629**	-0.374
	(0.268)	(0.270)	(0.294)	(0.891)	(1.899)	(0.267)	(0.279)
RLAW	1.350***	-0.515	5.990***	1.272***	1.420***	1.294***	1.268***
	(0.319)	(1.077)	(1.826)	(0.318)	(0.320)	(0.320)	(0.313)
FDI	-0.00697***	-0.00722***	-0.00709***	-0.00611**	-0.00700***	-0.00637**	-0.00646***
	(0.00250)	(0.00249)	(0.00245)	(0.00251)	(0.00249)	(0.00252)	(0.00245)
LDCPS	0.0703	0.0885	0.118	0.0812	0.116	0.0470	0.168*
	(0.0792)	(0.0791)	(0.0797)	(0.0785)	(0.0832)	(0.0803)	(0.0856)
INF	-0.0154**	-0.0129*	-0.00695	-0.0167**	-0.0110	-0.0124*	-0.0119*
	(0.00646)	(0.00655)	(0.00712)	(0.00642)	(0.00693)	(0.00673)	(0.00645)
LGOV	0.161	1.204**	0.104	-0.778	0.118	0.918*	0.101
	(0.114)	(0.587)	(0.113)	(0.481)	(0.116)	(0.514)	(0.113)
LIND	0.0282	0.0482	0.0419	0.0502	0.0886	0.00756	0.0808
	(0.101)	(0.100)	(0.0985)	(0.1000)	(0.106)	(0.101)	(0.100)
LFAID	0.420***	0.419***	0.405***	0.419***	0.416***	0.403***	0.409***
	(0.0399)	(0.0396)	(0.0395)	(0.0395)	(0.0397)	(0.0413)	(0.0392)
LGDPPC	0.175*	0.123	-0.234	0.240**	-0.0745	0.141	-0.167
	(0.0953)	(0.0986)	(0.184)	(0.0995)	(0.176)	(0.0974)	(0.159)
RLAW_LGOV		0.763*					
		(0.421)					
RLAW_LGDPP			-0.349**				
			(0.135)				
RQ_LGOV				-0.746**			
				(0.372)			
RQ_LGDPPC					-0.217*		
					(0.129)		
GEF_LGOV						0.565	
						(0.374)	
GEF_LGDPPC							-0.310***
							(0.116)
Constant	17.36***	15.24***	23.67***	18.80***	20.85***	16.42***	22.20***
	(1.848)	(2.173)	(3.040)	(1.962)	(2.767)	(1.942)	(2.561)
Observations	137	137	137	137	137	137	137
R-squared	0.800	0.805	0.810	0.806	0.804	0.803	0.811

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
Source: Computed by the author

DISCUSSION

Results from this estimation reveal that there is a negative and significant effect of democracy (captured by voice and accountability index) on entrepreneurship development in CEMAC. This finding is contrary to a priori expectation and also contradicts the findings of Chambers & Munemo (2017) who found that voice and accountability promote entrepreneurial activities in 119 countries of the world. However, the negative impact of voice and accountability on entrepreneurship development in the CEMAC countries can be attributed to the failure of member countries to guarantee or

implement democratic institutions and principles that guarantee freedom of expression and encourage freedom of initiative. This may have compromise entrepreneurial intentions. However, further results indicates that at higher government expenditure levels, the negative impact of democracy is watered down which implies that even in less democratic economies, when government resources are properly utilized to build up infrastructures, it will lower the cost of investment and therefore encourage entrepreneurship development.

In accordance with theoretical expectation, results from data analysis further reveal that there is a positive and significant impact of government effectiveness on entrepreneurship development in the sub region. If citizens are more convince that government will design sound policies and implement them, they can make rational anticipation and thus, entrepreneurs may have a prospective vision of what will the future look like if they invest their resources. As such government effectiveness contributes in reducing uncertainty given that citizens can trust the government to stick by the policies it announces. The quality of public and civil services reduces bureaucratic bottlenecks which can be very detrimental to entrepreneurship development. This result is in line with the finding of Sobel & Hall (2008) who claimed that institutions influence economic growth through entrepreneurship development. It also corroborates the new institutional economics paradigm which postulate that sound and quality institutions are vectors of economic growth through the conducive environment they provide for investment both domestic and foreign investment. Once again, this result allows for the rejection of the second hypothesis of the study postulating no significant impact of government effectiveness on entrepreneurship development in CEMAC sub region.

Results from the pooled OLS estimation show that there is a negative and significant effect of control of corruption on entrepreneurship development in CEMAC. This result contradicts the theoretical expectation. In effect, corruption is very rampant in less developed nations such as CEMAC member countries. This outcome simply illustrates a situation whereby the fight against corruption in these countries is not effective. Rather, the fight against corruption has opened further rooms for more corrupt practices which instead of reducing state funds embezzlement and ensuring that limited resources available are properly utilized, agencies put in place to combat the phenomenon have instead participates in dilapidating more state funds with little or no results as per the missions assigned to them. Rather than curving the cancer worm in some cases it may have exacerbated it by creating additional agents in the corruption chain.

The fourth indicator of institutional quality used in this work is political stability. Results show no significant impact of the variable on entrepreneurship development though the coefficient was found to be positive. Though the positive sign of the coefficient is in line with a priori expectation this outcome partially contradicts the results of Chambers & Munemo (2017) who found a positive and significant impact of political stability on entrepreneurship by encouraging the creation of new businesses. This result is not surprising given the fact that entrepreneurs within this region have been operating over decades in a very unstable political environment characterized by post electoral conflict, civil conflicts and other pushes (president overthrown using undemocratic means). Existing entrepreneurs may have developed coping strategies in order to evolve in such business environment.

Results from the present study reveal that the regulatory framework in which entrepreneurs evolve in the CEMAC sub region is detrimental to entrepreneurship development within the sub region given that regulatory was found to compromise entrepreneurship development. This finding is contrary to a priori expectation and shows that CEMAC countries leaders and government have failed to formulate and implement sound policies and regulations that permit and promote private sector development. This result is in line with the finding of Angyie & Annicet (2020) who found that regulatory quality in CEMAC is detrimental to industrial growth of the sub region. This result rather contradicts that of Chambers & Munemo (2017) who found that regulatory quality has a positive significant impact on entrepreneurship.

As expected, results demonstrated that an increase in the rule of law will bring about an increase in entrepreneurship development given that there is a positive significant impact of rule of law on entrepreneurship development in the sub region. When the economic agents and particularly

entrepreneurs are confident in quality contract enforcement, that property rights are guarantee they are likely to invest in the economy given that uncertainty resulting from manipulation of rules and regulations are minimized. This result corroborates the findings of Aidis et al. (2012) who discovered that institutional quality symbolized by respect of property rights encourages entrepreneurship.

Furthermore, there is a negative significant impact of macroeconomic instability (measured by inflation) on entrepreneurship development in the sub region. In other words, increasing inflation is detrimental to the development of entrepreneurial activities within the sub region. This result is in conformity with a priori expectation and show that inflation increases the cost of resources needed to carry out entrepreneurial ventures and thus increases uncertainty which may deter potential investors and even the existing ones. This result contradicts the finding of Naseri & Zada (2013) who found a positive effect of moderate inflation on private investment. In fact, despite the existence of convergence criteria in the CEMAC sub region requiring member countries not to exceed an annual inflation rate of 3%, some member countries have experienced up to 40.73% as shown in the summary of descriptive statistics with and average inflation rate of the sub region over period of study of 4.27% above the 3% prescribed.

In addition, there is a positive significant impact of foreign aid on entrepreneurship development in the CEMAC sub region which in conformity with theoretical expectation. It also confirms the aid positivist approach defended by authors such as Abuzeid & Alabed (2009). In effect, more inflow of aid reduces the level of tax that is imposed on private investors (Herzer & Morrissey, 2009). The main argument here is that a low level of tax increases the net return of investment and facilitates domestic private investment in developing countries. Moreover, inflow of aid augments state income and improves infrastructural development leading to private sector growth. This finding falls in line with those of Herzer & Morrissey (2013); Gyimah-Brempong (1992); and Herzer & Grimm (2012). On the contrary, this outcome is contrary to that of Munemo (2011) who rather noted a negative relationship in the long run. This result further confirms the theoretical evidences of aid literature which states that capital flows finances domestic entrepreneurship of capital shortage countries.

The result further revealed a significantly positive relationship between economic growth and entrepreneurship development in the CEMAC sub region. This result confirms that of Lesotlho (2006) and Odada & Mumangeni (2000) who all found a long run causal effect of GDP on private investment. This result also affirms the multiplier-accelerator principle which links GDP growth to private investment growth. An increase in the GDP of an economy everything being equal will lead to an increase in purchasing power hence encourage more private investment.

CONCLUSION

This paper analyses the effects of institutional quality on entrepreneurship in CEMAC region using panel data and Pooled Ordinary Least Squares estimation used to estimate the parameters of the model. The study aims to verify the hypothesis that fair institutions lead to entrepreneurship in CEMAC region. The results provide evidence that variables of institutions in CEMAC region have an important role in enhancing entrepreneurship. Thus, an improvement of public services by reducing bureaucratic process, an improvement of the fight against corruption and increase of the level of investment could enhance entrepreneurship development in the region.

The results of this study are useful to policies makers and to member states of CEMAC region that any reforms to improve entrepreneurship in the region need to integrate the improvement of the quality of institutions, in order to create a conducive business environment for investors and ensure sustain entrepreneurship development. Despite this contribution, this study has some limitations, mainly the used of one model to estimate long term growth and the limited number of variables and sources of institutional variables. Further researches could integrate more variables and used various sources of data to capture the effect of institutions on entrepreneurship development in CEMAC region.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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