

# Culture and Entrepreneurship: an Empirical Analysis in sub-Saharan Africa

*Culture et l'entrepreneuriat :  
une Analyse Empirique en  
Afrique Subsaharienne*

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**Abstract:** This study analyzes the effect of culture on entrepreneurship in Sub-Saharan Africa (SSA) using a panel of 45 countries over the period 1991 to 2018. Using the two stage GMM, results show that (a) British legal origins negatively relate to entrepreneurship unlike the French legal origin; (b) Muslim and Protestant religions positively influence entrepreneurship whilst the Catholic and other religions rather negatively associate to entrepreneurial activity in SSA; (c) the number of official languages spoken in a country negatively affect entrepreneurship and (d) ethnic fragmentation has no impact on entrepreneurship in SSA. The study thereon recommends that entrepreneurship education should be put in instated from basic levels of education with the aim of mitigating the negative effect of some religious orientations on entrepreneurship.

**Keywords:** Entrepreneurship, Culture, Instrumental variables.

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**Résumé :** Cette étude analyse l'effet de la culture sur l'entrepreneuriat dans un panel de 45 pays d'Afrique sub-saharienne (ASS) sur la période 1991-2018. En utilisant la technique d'estimation GMM en deux étapes de Kripfganz et Schwarz (2019), les résultats indiquent que (a) l'origine légale britannique est négativement liée à l'entrepreneuriat contrairement à l'origine légale française ; (b) les religions musulmanes et protestantes influencent positivement l'entrepreneuriat alors que la religion catholique et les autres religions sont plutôt négativement associées à l'activité entrepreneuriale en ASS ; (c) le nombre de langues officielles parlées dans un pays affecte négativement l'entrepreneuriat et (d) la fragmentation ethnique n'a aucun impact sur l'entrepreneuriat en ASS. L'étude recommande que l'éducation à l'entrepreneuriat soit mise en place dès les niveaux d'éducation de base dans le but d'atténuer l'effet négatif de certaines orientations religieuses sur l'entrepreneuriat.

**Mots clés :** *Entrepreneuriat, Culture, Variables instrumentales.*  
**JEL Code:** M13, M14.

## 1. INTRODUCTION

Could the differences in the level of entrepreneurship across Sub-Saharan Africa (SSA) countries be explained by culture? According to Naminse *et al.* (2019), entrepreneurship is defined as a multidimensional concept encompassing a range of business activities from the process of “creative destruction” to innovative creation of additional value in existing or new organizations. It is also defined as an attempt to start a new business or venture creation (Global Entrepreneurship Monitoring Report, 2014). Since Schumpeter (1912), entrepreneurship has remained topical given its importance regarding wealth creation and undertaking new entrepreneurial endeavors (Baumol, 1990). Thus, it is a lever on which any government can act to enhance inclusive development efforts through innovation, productivity and job creation (Aparicio *et al.*, 2016). In addition, entrepreneurship has proven to ameliorate wellbeing in developing nations in general and SSA in particular (Bruton *et al.*, 2013; Hoang *et al.*, 2014), particularly rural poverty (Nagler and Naudé, 2017). The level of entrepreneurial activity in SSA region remains a major concern. The 2018 World Economic Forum report shows that the healthiness of the ecosystem of entrepreneurship in SSA has been ameliorating at a slow rate when compared to other regions of the world. Consequently, identifying factors susceptible toward promoting or hindering entrepreneurship should be of interest to policy makers and academicians.

Literature groups factors that affect business creation of innovation into economic factors (Wennekers *et al.*, 2002), psychological traits of individuals (Baron, 2000) and formal or informal institutions (Veciana *et al.*, 2008). In the past decade, the attention has gradually been moving towards profound culturally inclined factors or long-term history of na-

tions (Nunziata and Rocco, 2018; Valliere 2019). Culture is defined as the set of a nation's "informal institutions"<sup>3</sup> that encompasses people's attitudes, beliefs, values and norms, determined by ethnic, social and religious groups and adopted across generations (Klein and Klein, 2017; Guiso et al., 2006). Religion, ethnicity, language colonial past or particular habits and values therefore characterize culture (Guiso et al., 2008). However, even though the reality of culture is a consensus amongst economists, the extent to which it affects economic issues remains an open debate (Shahzavar, 2019).

A review of literature on the relationship between culture and entrepreneurship divulges different approaches. First, research on this relationship is dominated by the concept of a national culture. A multitude of scholars such as Shane (1993), Morris et al., (1994) analyzed this relationship using the national cultural perspective of Hofstede (1980, 2001). Valliere (2019) argues that culture is a monolithic property of nations which consist of cultural dimensions (i.e., uncertainty avoidance, individualism/collectivism, masculinity/femininity, long term vs. short-term orientation). Though Hofstede dimensions are useful in identifying the different criteria of culture relative to entrepreneurship, they reflect cultural characteristics from a general view point and fail to classify societies with respect to their specific entrepreneurial culture (Abzari and Safari, 2009). Secondly, some authors rather analyze how specific elements of culture affect the level of entrepreneurial activity (religion, ethnic diversity and language diversity). Davis (2013), Nunziata and Rocco (2018) show that religion dictates a variety of individual behavior and decisions regarding entrepreneurship. Sobel et al. (2010) and Smallbone et al. (2010) purport that the difference in entrepreneurial activity across regions could be explained by ethnic diversity. Galbraith and Benitez-Galbraith (2009) focus on ethno-linguistic diversity and reveal that it is associated with higher levels of entrepreneurial activity.

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<sup>3</sup> Informal institutions are institutions that are known but not laid down in writing and they tend to be more persistent than formal rules (North, 1997).

This approach however suffers from inability of establishing a unified theoretical framework that contextualizes culture and explains the diverse findings. For instance, Davis (2013) reveal that the Muslim religion encourages entrepreneurial activity while Zingales (2006) argue that Muslim teachings hinders entrepreneurship development. Therefore, we can say that the literature on the effects of culture on entrepreneurship indicate that this is contingent on cultural dimensions or elements.

Despite several studies exploring the relationship between various aspects of culture and entrepreneurship (Lee and Peterson 2000; Mueller and Thomas 2000; Stephan and Uhlaner 2010; Autio *et al.*, 2013), this subject is not consensual. Therefore, new empirical investigation is necessary. This article aims to study the effects of cultural elements on entrepreneurship in SSA countries. Specifically: (i) appraise whether countries with fewer number of official languages tend to be more enterprising than those with many languages in SSA (ii) investigate the impact of Catholic, Protestant, Muslim and other religious on entrepreneurship in SSA (iii) analyze the impact of British and French legal origins on entrepreneurship in SSA countries and (iv) investigate the impact of ethnic diversity on entrepreneurship in SSA.

Two reasons justify the relevance of this paper. The first reason being that it extends cultural dimensions (Hofstede, 1980; 2001; Grohmann, 2018) to go beyond standard western advocated view Darley and Blankson (2019) to encompass the African reality. This study extends standard analysis by adopting cultural elements that convey the different values of culture (Alesina *et al.*, 2003). The focus is placed on the legal origin and number of languages spoken in a country due to insufficient literation on these two variables. This measurement is of great importance given the complex and heterogeneous African cultural context (George *et al.*, 2016). In this regard, Cogneau and Dupraz (2015) had earlier affirmed that, countries in SSA are essentially characterized by the predominance of their cultural institutions, such as

strong religious fragmentation (Alésina et *al.*, 2003), numerous ethnic groups (Alesina and la Ferrara, 2005) and several official languages for some of them. In this paper, our analysis is carried out on a panel of SSA countries which to the best of our knowledge has received very little attention. Secondly, this article presents an interest from a methodological point of view, which lies on the measure of culture. Studies carried out so far on the elements of culture apprehend culture using religion and ethnic fragmentation. This paper includes the colonial origin and the number of official languages spoken. Likewise, this paper uses the recent technique of the time-invariant regressors of Kripfganz and Schwartz (2019) in dynamic panel data which is adapted to the evaluation of "time-invariant" variables like cultural variables.

The rest of the paper is organized as follows. Section 2 presents the methodological framework. Section 3, the estimation of effect of cultural elements on entrepreneurship and discuss the results. Section 4 concludes the paper's conclusion.

## 2. MODEL SPECIFICATION, ECONOMETRIC METHODS AND DATA

### 2.1. Model specification

The model relies on the empirical study of Sobel et *al.* (2010). The referenced model is represented in equation one:

$$\text{self\_emp}_{it} = \beta_0 + \beta_1 \text{self\_emp}_{it-1} + \beta_2^k \text{cult}_{it}^k + \beta_3^j X_{it}^j + \varepsilon_{it} \quad (1)$$

where  $i = 1, \dots, N$  denotes the individuals,  $t = 1, \dots, T$  is the time dimension indicator and  $k = 1, \dots, N$  represents the indicator of a given cultural variable while  $j = 1, \dots, N$  stands for the indicator of a given control variable. *Self\_emp* denotes self-employment, the proxy of entrepreneurship, which is the dependent variable.  $\beta_0$  denotes the constant; *cult* represents the set of alternative cultural variables which include reli-

gion, legal origin, ethnic fragmentation and linguistic diversity, captured by the number of official languages spoken in a country.  $X$  denotes the vector of control variables.  $\beta_i$  is the coefficient of the variables and  $\varepsilon_{it}$  the error term.

## 2.2. Econometric methods

To estimate the model, we use the two stage GMM developed by Kripfganz and Schwarz (2019). The conventional fixed-effects (FE) estimator is inconsistent in this case for two main reasons. Firstly, FE estimates are based on characteristics that vary over time whereas our variables of interest are time-invariant variables. Secondly, there is the risk of unobserved heterogeneity due to time-varying characteristics and a possible endogeneity between some variables. Consequently, this justifies the choice of the Kripfganz and Schwarz (2019) two stage GMM which: (i) accounts for the robustness of the specification errors that result from the exogeneity hypothesis and (ii) enables the capture of the real effect of the time-invariant variables usually omitted by other methods. This is done by the implementation of sequential estimators for linear conception data models with the analytical correction of the second stage standard error. Stage one consists of running a regression of the dependent variable with only time-varying regressors using the one or two stage GMM and thereon validating post-estimation statistics by undertaking an autocorrelation test of the residuals. Since it is a sequential equation, time-invariant variables are systematically suppressed. Given that the effect of static variables is not taken into account, a second regression is carried out in the second stage.

In the second stage, we obtain the first stage predicted/gotten residuals and regress them on the time-invariant regressors by re-specifying a new model that takes into account only the time-invariant variables. In this view, we incorporate the time-invariant variables under the unit-specific effects, and consistently estimate the coefficients. Considering the residuals from the first stage, only the Hansen (1982) test is required for the validity of the over-

identification restrictions of the second stage. At this stage, the usual standard errors are invalid and need to be corrected, this justifies the main purpose of the new regression command released by the authors. Though instruments can be used at both stages, this method is more efficient than the usual GMM and instrumental variables in that when estimating all coefficients simultaneously, an incorrect classification of the regressors might lead to a biased and inconsistent estimation of the coefficients (Kripfganz and Schwarz, 2019).

### 2.3. Data

The sample studied is a panel of 45 SSA countries<sup>4</sup> over the period 1991-2018. The panel database is obtained by compiling data from different sources. The data on official languages spoken in the different countries was obtained primarily while the rest were obtained secondarily.

#### 2.3.1. *Dependent variable*

Entrepreneurship is perceived as self-employment rate (*self\_emp*) in accordance with the study of Hofstede et al. (2004) and Block et al. (2018) also use this measure. Self-employment is measured by the number of self-employed<sup>5</sup> as a percentage of the total employment in a country. The data on self-employment are extracted from WDI. Several indica-

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<sup>4</sup> Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo Republic, Ivory Coast, Djibouti, Equatorial Guinea, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia, Zimbabwe.

<sup>5</sup> According to WB, 2019, a self-employed worker is a worker who is working on his own account or with one or a few partners or in cooperative, holds the type of jobs defined as a "self-employment job." Which is a jobs where the remuneration is directly dependent upon the profits derived from the goods and services produced.



tors of entrepreneurship provided by different institutions have been used in literature. Some measures of entrepreneurship have been developed by the OECD-Eurostat Entrepreneurship Indicators Program. The Global Entrepreneurship Monitor (GEM) also provides various entrepreneurial measures that are constructed on a survey basis, known as the Adult Population Survey. These data are nevertheless rare in the context of developing countries. Another set of entrepreneurial activity indicator proposed in the World Development Indicators by the World Bank's Doing Business report, include Total Business Density, New Entry Density, and Entry Rates. Self-employment appears to be appropriate because it doesn't differentiate between opportunity driven entrepreneurship necessity and opportunity driven entrepreneurship (Lippmann et al., 2005). Thus, it captures entrepreneurship in general. In this vein, Parker (2004) affirms that "at the practical level the closest approximation to the manifestation of entrepreneurship that appears to be suitable will usually be 'self-employment'." In line with this, several authors attributed entrepreneurial activity to self-employment (Lippmann et al., 2005; Sarkar et al., 2018).

### 2.3.2. *Independent variables*

The independent variables used constitute a set of cultural elements. The first cultural variable is religion which is divided into proportion of Catholics (catho80), Muslims (muslim80), Protestants (protmg80) and others (no\_cpm80) obtained from the Legal Origin database (2001). Audretsch et al. (2007) found that that religion shapes the entrepreneurial decision. This is peculiar to Christianity and Islamic religions. The second cultural variable is Legal origin gotten from the Legal Origin database (2001). We distinguished between British (legor\_uk) and French (legor\_fr) legal origins as far as SSA countries are concerned. Considering that legal origin in SSA is considered as qualitative categorical variable with two outcomes, we attributed zero to French origin and one to British origin. The third cultural variable is Ethnic fractionalization (avelf) specified by Madni (2019); this variable captures the multitude and divergence of ethnic groups in an economy. When we talk of "ethnic" "group," it

implies that individuals belonging to these groups have some awareness of group membership and a common origin and culture (Yiriger, 1985). The relationship between ethnic fractionalization and entrepreneurship has not been theoretically established even though some researchers have found some, if not complete support for the view that increasing groups plays a role in entrepreneurship (Aldrich and Waldinger, 2003). The fourth cultural variable is linguistic diversity defined as the range of language skills available within a given population (Smallbone *et al.*, 2010); we used as proxy the number of official languages spoken in a country to capture linguistic diversity (*numlan*), gotten primarily after a review of the history SSA countries.

### 2.3.3. *Control variables*

Other covariates include economic growth, the total labor force participation, population density, unemployment, foreign direct investment and trade openness. Economic growth is captured by GDP per capita in line with Audretsch and Keilbach, 2007. Stoica *et al.* (2020) found that entrepreneurship significantly influence the economic growth. Doran *et al.* (2018) indicate that entrepreneurial activities stimulate GDP per capita in high-income countries while it is found to have a negative effect in middle/low-income economies. Other variables used are the total labor force participation as a percentage of total population and the working age population. Population density according to Reynolds *et al.* (2004) has been found to be significantly linked to entrepreneurship rates. They find that while urbanization encourages spillovers, population density in the cities produces externalities and opportunities for increasing returns, consequently affects entrepreneurial initiatives positively. Regarding unemployment, Wennekers *et al.* (2005), Vidal-Suñé and Lopez-Panisello (2013) found a significant and positive relationship between the number of unemployed individuals and entrepreneurial activity. Findings on the impact of foreign direct investment (FDI) on entrepreneurship are conflicting. According to Danakol *et al.* (2016), FDI is a blessing or a curse to domestic entrepreneurship due to the fact that it has both positive and negative spillovers effects on entrepreneurship.

As for trade openness, Sekreter and Dilanchiev (2015) found out that trade openness positively affects entrepreneurship development.

### 3. RESULTS AND ROBUSTNESS

This section presents three main points. The first summarizes descriptive statistics. In the second, we present the results of the different analysis carried out and discuss the results. And finally, the third is devoted to the robustness analysis.

#### 3.1. Descriptive statistics

The summary statistics of the main variables are reported in table 1. In general, between 1991 and 2017, on average about 72% of the population in SSA are self-employed. In terms of legal origins, 33% are from the British legal system and 66% from the French legal origin, while the 1% left are obviously colonies of other European countries. The proportion of ethnic fragmentation is around 63.62% suggesting a diversification of countries in SSA. Regarding religion, 25.02 % of the population are Catholics, 31.97% Muslims, 12.19% Protestants and 20.01% of the population in SSA belong to other religions. In terms of linguistic diversity, the average number of languages is two.

**Table 1: Descriptive statistics of variables**

<b>Variables</b>	<b>Obs</b>	<b>Mean</b>	<b>Std.Dev.</b>	<b>Min</b>	<b>Max</b>
British legal origin	1260	.3333	.4716	0	1
French legal origin	1260	.6667	.4716	0	1
Proportion of Catholic	1260	25.0244	24.1945	0	95.9
Proportion of Muslim	1260	31.8689	34.6198	0	99.8
Proportion of Protestant	1232	12.1909	14.4804	0	64.2
Proportion of other religions	1232	30.3727	20.0108	.1	64.1
Ethnic fragmentation	1232	.6362	.2604	.0133	1
Number of official language	1288	2.1304	3.0056	1	16
Self-employed	1288	72.2705	20.5598	14.129	94.951
Economic growth	1163	1.7399	7.2652	-47.8055	140.5011
Working age population (15-64)	1236	53.5265	4.0745	47.2191	70.7798
Unemployment	1288	8.4467	7.1995	.273	37.94
Trade openness (% of GDP)	1082	67.5376	31.9665	11.466	311.3541

*Source: Authors.*

### 3.2. Main results and discussion

Table 2 presents results for the relationship between culture and entrepreneurial activity in SSA countries. To check for the over identification of the instruments used, we conduct the Hansen test. Accepting the null hypothesis shows that the over identifying restrictions are valid, thus all the instruments are uncorrelated with the error term. This then implies that our instruments are exogenous.

Our results suggest that among the cultural factors, legal origin, religion and linguistic diversity impact entrepreneurship while ethnic fragmentation has no impact on entrepreneurship. The effect of religion depends on the religious orientation while that of legal origin depends on the colonial origin of the country. Regarding the variable religion, the study considers four different religious orientations and their effects on entrepreneurship differ accordingly. This is consistent with the view of Casson (1993) and Stulz and Williamson (2003) who argued that different religions have their own sets of rules (religions teachings) based on the traditions set by their fore fathers. This influences the importance of entrepreneurship because practitioners are unlikely to break away from these traditions.

Our results reveal that the Protestant religion impacts entrepreneurship than Catholic religion. This result is similar to that obtained by Luca and Lorenzo (2017) when investigating the effects of Protestantism versus Catholicism on the decision to become an entrepreneur within the religious minorities in the former Holy Roman Empire. Weber (1905) argued that while Protestantism highlights the development of economic security, Catholics disproportionately focus on spiritual development. Klandt (1987) earlier confirmed by indicating that a Protestant upbringing had higher chances of leading to an autonomous business activity than a Catholic upbringing. Eaton (2013) concurs that Catholic tradition perceives work as being associated with toil and difficulty while Protestantism, in both its streams of Calvinism and Lutheranism, sees work of whatever kind as honourable,

indispensable, and a service to God. Luther contended that all persons should see their labour as their vocation.

The Muslim religion has a positively significant correlation with self-employment. This result suggests that partakers of the Muslim religion have a very high propensity of getting into business as many authors assert (Davis, 2013; M-Said, 2013; Guemuesay, 2014). Vargas-Hernandez et al. (2010) emphasize that entrepreneurship is part of Islamic culture, since Islam is tied to entrepreneurship through some verses in the Qur'an such as ("*...On earth will be your dwelling place and your means of livelihood for a time.*") (Qur'an 2:36). This result is consistent with Arslan (2000) who contend that there is a high Protestant work ethic scores among Turkish Sufis. Badawi (2006) affirms this, saying that Islam teachings are suited for development in the modern, knowledge-based economy. In this vein, Guemuesay (2014) indicates Islam is an entrepreneurial religion because it enables and encourages entrepreneurial activity.

Considering the variable number of official languages spoken in a country, the relationship is negative and significant (threshold of 5%). Martins (2004) argues that to create an enterprise in a country, the entrepreneur must master the official languages spoken in the country so as to have a better implementation. The difficulties related to language barrier hinder the communication of entrepreneurs and enterprises, especially the micro and small enterprises, thus an impediment to the growth of entrepreneurship. Several languages in a country could discourage broader economic institutional arrangements and trade due to the increased transaction costs associated with multiple languages, (Galbraith and Benitez-Galbraith, 2009). Galbraith and Benitez-Galbraith, (2009) added that a common language generally lessens transaction costs while two groups with different languages may result in increased cross-group transaction and organizing costs to the point where joint trade might be impossible. As earlier explained by Bryson (1990), many languages in a society could decrease social and economic mobility since language differences makes it easier to establish

and institutionalize strong intra-country class structures, thereby increasing the transaction cost between these groups.

Results obtained for legal origin show that, French colonies in general have more self-employed individuals than English colonies, even though this seems surprising given that English colonies have the best Doing Business ranking positions in SSA— which can be explained by their good institutional quality observed from the CPIA<sup>1</sup> report of the World Bank. A possible explanation could be the fact that most French speaking colonies lack the human capital and infrastructure needed to create high-quality jobs and so, they get into entrepreneurship out of necessity. According to Acs et al. (2020) contrary to popular belief, the most entrepreneurial countries in the world are not those that have the most entrepreneurs. So, according to them quality matters more than quantity in entrepreneurship.

This explanation is supported by the U curve relationship witnessed between entrepreneurship and economic growth (Wennekers et al., 2005). Implying that the high level of economic growth and employment witnessed in the English colonies can explain why fewer individuals involve in entrepreneurship in these countries. According to the latter, a country's rate of entrepreneurship decreases as per capita income increases. This happens up to a certain level of output, and from this said point, entrepreneurial activity starts increasing with an increase in output. The left part of this curve indicates the negative relationship between entrepreneurship economic growth and self-employment earlier explained. This is explained in terms of opportunity cost of self-employment relative to expected returns on investments (Lucas 1978) within the working population. Finally, the

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<sup>1</sup> CPIA is the Country Policy and Institutional Assessment produced by the WB which rates countries against a set of 16 criteria grouped in four clusters: (i) economic management; (ii) structural policies; (iii) policies for social inclusion and equity; and (iv) public sector management and institutions.

results on ethnic fragmentation show that it is not significant.

An analysis of the other covariates indicates that GDP (economic growth) and foreign direct investment relate negatively and significantly in most of the models. This shows that high levels of GDP and FDI in a country does not encourage entrepreneurial activity. This relationship was positive and significant for labor force participation rate in all the models. For unemployment and working age population (15-64), we observe a negative and significant relationship with entrepreneurship in all the models. Concerning the variable trade openness (% of GDP), the relationship was insignificant in all the models.



**Table 2 : Results**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>_first</b>						
L.Self-employed	1.031*** (0.007)	1.029*** (0.007)	1.030*** (0.006)	1.029*** (0.007)	1.031*** (0.006)	1.033*** (0.007)
Economic growth	-0.017*** (0.002)	-0.016*** (0.002)	-0.016*** (0.002)	-0.016*** (0.002)	-0.017*** (0.002)	-0.018*** (0.002)
Working age population (15-64)	0.090*** (0.018)	0.088*** (0.018)	0.095*** (0.016)	0.088*** (0.018)	0.095*** (0.016)	0.097*** (0.019)
Unemployment	0.085*** (0.013)	0.082*** (0.013)	0.081*** (0.012)	0.082*** (0.013)	0.085*** (0.012)	0.088*** (0.013)
Trade openness (% of GDP)	-0.001** (0.001)	-0.001** (0.001)	-0.001** (0.001)	-0.001** (0.001)	-0.001** (0.001)	-0.002*** (0.001)
Foreign direct investment	-0.002*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)
Labor force participation rate	0.029*** (0.007)	0.028*** (0.007)	0.028*** (0.007)	0.028*** (0.007)	0.029*** (0.007)	0.025*** (0.008)
Constant	-0.098*** (0.011)	-0.096*** (0.012)	-0.099*** (0.010)	-0.096*** (0.012)	-0.100*** (0.010)	-0.100*** (0.011)
<b>_second</b>						
British legal origin	-0.004** (0.002)					

Proportion of Catholic		-0.024***				
		(0.009)				
Proportion of Protestant			-0.012***			
			(0.005)			
Proportion of Muslim				0.006**		
				(0.002)		
Ethnic fragmentation					0.011**	
					(0.005)	
Number of official languages						-0.001**
						(0.001)
Constant	0.002	0.006**	0.002*	-0.002	-0.007**	0.002
	(0.001)	(0.002)	(0.001)	(0.001)	(0.003)	(0.002)
Observations	987	987	972	987	972	1011
Number of countries	42.00	42.00	41.00	42.00	41.00	43.00
Number of instruments (eq 1)	34	33	33	33	34	35
Number of instruments (eq 2)	6	53	7	7	6	7
Hanse J-test P-value (eq 1)	0.4579	0.4555	0.4655	0.4555	0.4690	0.4553
Hanse J-test P-value (eq 2)	0.1894	0.3366	0.4159	0.1675	0.2947	0.1353

*Notes* :  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Huber-White robust standard errors in parentheses.

### 3.3. Robustness analysis

In order to check the robustness of our results, and hence ensure the validity of our results, we use an alternative method of estimation. The Updated Generalized Method of Moments estimator (CUE) is used to carry out our estimation. The results are reported in Table 2 below. Our findings, as shown on table 2 suggest that our earlier results are robust to a change of estimation technique that takes into consideration endogeneity problems. Though the coefficients of our results differ from those of the two stage GMM method of Kripfganz and Schwarz, they have the same signs and significance and thus we draw the same conclusions.

**Table 3 : Results from IV-Continuously-Updated GMM Estimator (CUE)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Economic growth	-0.108*	-0.112*	-0.124*	-0.074	-0.110*	-0.109*	-0.132**
	(0.064)	(0.065)	(0.064)	(0.061)	(0.064)	(0.066)	(0.062)
Working age population (15-64)	-	-	-	-	-	-	-
	2.613***	2.633***	2.574***	2.624***	2.551***	2.615***	2.560***
	(0.098)	(0.091)	(0.097)	(0.089)	(0.099)	(0.099)	(0.100)
Unemployment	-	-	-	-	-	-	-
	1.446***	1.523***	1.505***	1.818***	1.574***	1.549***	1.539***
	(0.072)	(0.065)	(0.065)	(0.075)	(0.063)	(0.063)	(0.065)
Trade openness (% of GDP)	-0.004	0.018	0.012	0.005	0.009	0.007	-0.000
	(0.012)	(0.013)	(0.013)	(0.012)	(0.012)	(0.012)	(0.012)
Foreign direct investment	0.102***	0.048	0.068*	0.049	0.073**	0.070*	0.070*
	(0.037)	(0.037)	(0.035)	(0.039)	(0.034)	(0.037)	(0.036)
Labor force participation rate	0.107***	0.119***	0.126***	0.074***	0.118***	0.105***	0.109***
	(0.017)	(0.020)	(0.022)	(0.014)	(0.020)	(0.020)	(0.018)
British legal origin	-						
	0.032***						
	(0.008)						
Proportion of Catholic		-					

			0.085*** (0.016)				
Proportion of Muslim				0.037*** (0.011)			
Proportion of Protestant					0.211*** (0.031)		
Proportion of others religions						- 0.062*** (0.020)	
Ethnic fragmentation							0.015 (0.016)
Number of official language							-0.002** (0.001)
Constant	2.183*** (0.050)	2.189*** (0.047)	2.123*** (0.055)	2.197*** (0.043)	2.153*** (0.051)	2.166*** (0.057)	2.154*** (0.051)
#Observations	983	983	983	969	969	969	1007
R <sup>2</sup>	0.777	0.781	0.775	0.789	0.777	0.774	0.777
Hansen test probabilities	0.21	0.56	0.42	0.53	0.40	0.41	0.37

*Notes* :  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . Huber-White robust standard errors in parentheses.

#### 4. CONCLUSION AND RECOMMENDATIONS

In this study, we seek to assess the role of cultural norms on entrepreneurship in SSA using a panel of 45 countries over the period 1991-2018. To achieve our objective, we estimated a model in which religion, legal origin, ethnic fragmentation and linguistic diversity serve as explanatory variables to entrepreneurship, captured by self-employment. We are interested in cultural elements because their study in SSA is sparse and the possible challenges of the region's cultural diversity cannot be overlooked. Results indicate that the Protestant and Catholic religions have opposite impacts on entrepreneurship. The Muslim religion also encourages entrepreneurship. French SSA colonies have high entrepreneurial activities than British colonies. Finally, linguistic diversity inhibits entrepreneurship. Ethnic fragmentation was found not have a significant effect on entrepreneurship in SSA countries. It is a strong assumption to generalize the finding on the relationship between the above-mentioned elements of culture and the level of entrepreneurial activity for all SSA countries. This is because they are contingent on issues of institutional quality, the measure of entrepreneurship and the heterogenous composition of SSA countries. This study nurtures a major policy concern, which is to promote self-employment education from primary levels as a possible leeway towards mitigating certain elements of religious-cultural believes that negatively affect the level of entrepreneurship in SSA countries.

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