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Does economic freedom affect entrepreneurship?
Insights from Africa

Folorunsho M. Ajide

University of Ilorin, Kwara, Nigeria
Corresponding author: ajide2010@gmail.com

Article Info	Abstract
	Purpose — Literature suggests that entrepreneurship can serve as a veritable tool for providing decent employment and improving economic prosperity. Therefore, the objective of this study is to examine the impact of economic freedom on entrepreneurship in Africa. **Design/methodology/approach** — The study employs data of 18 African countries covering a period of 2007-2018. The analysis is based on the following techniques: Panel-Corrected Standard Errors (PCSE), generalized method of moments, Hausman–Taylor IV estimator and Driscoll-Kraay standard errors. **Findings** — Finding based on Panel-Corrected Standard Errors (PCSE) technique reveals that economic freedom and its dimensions improve the level of entrepreneurship in Africa. This finding is robust to other alternative estimation techniques. Secured property right, relaxed tax burden, monetary freedom, trade freedom, freedom from corruption, investment freedom, financial freedom, business freedom and labor freedom have positive impact on African entrepreneurship. **Practical implications** — The study, hence, suggests that policy should be implemented to maximize the level of economic and fundamental freedom of citizens to encourage indigenous entrepreneurs in Africa. Quality of infrastructure should be improved as well as simplification of firms' registration procedures. African government also needs to build effective and efficient institutional framework to maintain government integrity in Africa. **Originality/value** — The position of African countries in the nexus between economic freedom and entrepreneurship is rarely discussed in the literature. Hence, this study contributes in this respect and showcases how economic freedom influence the decision to engage in entrepreneurial venture in African perspectives. **Keywords** — economic institutions, startups, Hausman–Taylor IV estimator, Africa

Introduction

Many recent studies trace the level of economic freedom as a measure of conditions for economic prosperity and one of the determinants of entrepreneurship. However, the existing studies supporting this preposition are few and mostly dominated in developed countries (Lihn & Bjørnskov, 2017; Saunoris & Sajny, 2017; Shakya & Plemmons, 2021). The position of Africa is rarely discussed in the literature. Investigating the relationship between economic freedom and entrepreneurship in Africa is very essential and crucial for policy makers and researchers.

Theoretically, the issue of economic freedom is commonly discussed within the framework of economic institution (Baumol, 1990; North, 1991; Schumpeter, 1934). Higher level of economic freedom may improve the level of entrepreneurial decision of economic actors and serves as a motivator for innovative activities. It mobilizes the apparatus for new knowledge creation, technology spillovers, competition and further guarantees efficient allocations of factors in the economy for formation of new entrepreneurial firms (Ajide, Ajisafe, & Olofin, 2019). Notwithstanding these prepositions, few scholars document conflicting findings on the impact of economic freedom on entrepreneurship (Bjørnskov & Foss, 2008, 2016; Chowdhury, Terjesen, & Audretsch, 2015; Saunoris & Sajny, 2017; Shakya & Plemmons, 2021). They also explain that the findings may have something to do with the government regional policy and peculiarity of different institutional conditions in the society. This suggests an empirical question to be answered in the context of African perspectives. Therefore, the objective of the current study is to examine the impact of economic freedom on entrepreneurship in African nations.

The motivation behind this research lies on: (1) the non-availability of data to consider the case of Africa by the previous studies. (2) The empirical assumptions of the nature of entrepreneurship that make findings to be different in developing countries compared to developed economies due to institutional and political environment context. (3) The need for sustainability of African economies as defined in UN sustainable development goals (Dvouletý, Gordievskaya, & Procházka, 2018). (4) And, lastly the ability to achieve the objectives of African union (AU) and Economic Community of West African States (ECOWAS). For instance, economic freedom dimensions such as labour freedom, financial freedom, trade freedom, investment freedom among others are appropriate for the aim of African union and other regional agreements in Africa where goods, services skilled labour and investment can move freely among African nations. Most importantly, free movement of capitals, labour and trade activities are crucial for sustainable development of African countries and enhance the integration of African markets (Miller & Holmes, 2010). Free movement of resources and relaxations of capital control policy can increase the level of African development (Ajide et al., 2019).

Based on this, the novelties of this study are of two folds. First, it provides an empirical evidence into the relationship between economic freedom and entrepreneurship in African perspective, which has received little attention. This paper investigates the relationship by extending the panel-corrected standard errors (PCSE), generalized method of moments (GMM) and Hausman–Taylor/instrumental variable estimation techniques to entrepreneurship function to include economic freedom. Furthermore, to circumvent for omitted variables and regional specific variables, the study includes institutional and regulatory variables (like time required to start business, procedures to register business and quality of infrastructure). This is notable because government integrity and regulatory quality will create conducive business environment for African entrepreneurs towards achieving economic sustainability. In addition, the study not only addresses the issue of cross sectional dependence, but also focuses on the major determinants of entrepreneurship.

Economic freedom can be recognized as an important, institutional environment in growth processes, job creation, value creations and quality of life (Bennett, 2021; Okunlola & Akinlo, 2021). It can be conceptualized within the realm of economic institutions due to its ability to affect economic power, decision of economic actors through their engagement in entrepreneurial startups across different sectors. It involves individual liberties and rights to produce, distribute and consume goods and services. It provides absolute rights of ownership of property and freedom of labour including goods and capital. It involves absence of economic liberty coercion and constraints in the economy (Miller & Holmes, 2010). The role of economic freedom on entrepreneurial startup can be inferred from the Northian institutional theory. Because institution happens to be the rule of the game in the society, it influences individuals and entrepreneurial startups. Economic freedom plays a very important role in encouraging or discouraging risk taking behaviour entrepreneurs. A stable economic institutions lead to economic freedom and at the same time reduces the uncertainty levels in the economic transactions (Baumol, 1990; North, 1991). For instance, property right protection attracts entrepreneurial investment and creates high level of

credibility business environment (Bjørnskov & Foss, 2016). The property right which is one of the key aspect of economic institutions may serve as a motive for engaging entrepreneurial activities (Schumpeter, 1934). Economic institutions change the economic conditions, reduce economic uncertainties and coordinate the level of economic operations in a dynamic manner. It guides the existence of judicial system in protecting individual rights and reduce the level of expropriation in the economic system (Knight, 1921). Monetary freedom involves sound money, stability and predictability of prices. Instability in price system increases the level of monetary policy fluctuations in the future earnings of entrepreneurs (Bjørnskov & Foss, 2008). A society with higher level of economic freedom would favour rapid development in entrepreneurship and economic prosperity (Miller & Holmes, 2010). In a society where economic freedom exists, individual economic actors are free to choose any legitimate activities such as entrepreneurial venture, produce, consume and invest at their own freewill once protected and respected by the state (Díaz-Casero, Díaz-Aunión, Sánchez-Escobedo, Coduras, & Hernández-Mogollón, 2012)

The mixed findings of previous papers in entrepreneurship literature have created further interest to examine the nexus between economic freedom and entrepreneurial startups in African context (Bjørnskov & Foss, 2016; Chowdhury et al., 2015). Bjørnskov and Foss (2008) examine the impact of economic policy proxied as Economic Freedom Index on the supply of entrepreneurship. They find that government size reduces entrepreneurial development and sound money promotes entrepreneurship. Other aspects of economic freedom do not have significant impact on entrepreneurship. Díaz-Casero et al. (2012) document over a period of 2002-2009 that economic freedom is closely related to early stage entrepreneurship. In general, they suggest that entrepreneurship decreases as fiscal freedom and government size increase. But they conclude that entrepreneurship by opportunity increases in innovation-driven economies with small size of government. This is in line with the results of Lihn and Bjørnskov (2017). They establish within 30 OECD countries that political veto players and economic institutions jointly affect entrepreneurship. They discover that larger government spending increases the level of entrepreneurship at lower veto power.

In this vein, the study of Saunoris and Sajny (2017) classifies entrepreneurship into formal and informal entrepreneurship. This provides the opportunity to examine how economic freedom affects the two forms of entrepreneurship. Their results based on cross-country data show that economic freedom promotes formal entrepreneurship after correcting for the possibility of reverse causality among the variables while economic freedom reduces the level of informal entrepreneurial settings. Furthermore, Angulo-Guerrero, Pérez-Moreno, and Abad-Guerrero (2017) examine how economic freedom influences opportunity and necessity entrepreneurship within OECD countries over a period of 2001-2012. The analysis is based on system Generalized Method of Moments estimator. Findings reveal that economic freedom encourages opportunity entrepreneurship and reduces the level of necessity entrepreneurship. Opportunity entrepreneurship benefits from economic freedom due to improved judiciary system, property rights protection, credit regulations, labour freedom and business freedom. The recent study of Shakya and Plemmons (2021) in United States examines the nexus between entrepreneurial startups and economic freedom over a period of 2005 to 2015. Using a post-double–selection LASSO method, the results show that regulatory freedom improves the level of startups in USA while increase in government spending and taxes reduce the level of startups.

In a nutshell, it is very glaring that there few studies examining the nexus between entrepreneurship and economic freedom in advanced countries while the situation of developing countries still remain unknown. Our study intends to shed light on the position of African countries by proposing that there is a significant impact of economic freedom on entrepreneurship in Africa.

Methods

The main objective of this study is to examine the impact of economic freedom on entrepreneurship in Africa. Based on the theoretical prepositions and previous studies discussed in the previous section, we therefore specify the empirical model as:

$$ED_{i,t} = \beta_0 + \beta_1 ECI_{i,t} + \sum_{k=1}^{6} \delta_k X_{k,i,t} + e_{i,t} \tag{1}$$

ED is the entrepreneurship proxied by new business density and *ECI* is economic freedom. In addition, X represents vector of control variables, *i* is the index of countries, *t* is index of time (years) and e_{it} is the error term. The inclusion of control variables is inferred from the economic theory and existing literature. The control variables include: Inflation rate (*IN*), startup requirement (*SP*), Foreign Direct investment inflow (*FD*), GDP per capita growth (*GR*), Time required to register (*TE*) and Quality of Infrastructure (*QINF*). Inflation is used to measure macroeconomic stability. Instability in the economy reduces the rate of return on capital employed and discourages entrepreneurial development. It is expected that higher quality of infrastructure would have a positive impact on new startups in Africa (Abdullah & Chowdhury, 2020; Ajide et al., 2019). It is empirically agreed that economic growth proxied as GDP per capita influences entrepreneurial development in Africa (Adusei, 2016; Ajide et al., 2019). We used time required to register business and number of startup procedures to capture regulatory requirements for setting up business in Africa while FD is used to capture the activities of multinational corporations (Munemo, 2018).

Data of the study covers a period of 12 years (2007-2018) with the use of eighteen (18) African countries including Algeria, Botswana, Gabon, Mali, Mauritius, Morocco, Nigeria, Rwanda, Senegal, Sierra-Loane, South Africa, Tunisia, Uganda, Zambia, Zimbabwe, Tanzania, Lesotho and Namibia. These countries are selected on the basis of data availability. The sources of the data are World Bank development indicators and World Bank Entrepreneurship database. We source for data on economic freedom from The Heritage Foundation Index database and data on quality of infrastructure are sourced from the World Economic Forum Competitiveness Index. The Heritage Foundation index of economic freedom is used to capture fundamental economic rights and freedom of economic actors in an economy. It measures different dimensions of freedom which includes: property right (*PR*), Tax Burden (*TB*), monetary freedom (*MF*), trade freedom (*TF*), government size (*GS*), freedom from corruption also called government integrity (*GI*), investment freedom (*IF*), financial freedom (*FF*), business freedom (*BF*) and labour freedom (*LF*). Individual dimension is assigned a score within a range of 0 (no freedom) to100 (being most free). We calculate the aggregate economic freedom by taking the average score as shown in Equation (2).

$$ECI = \frac{1}{n} \sum_{i=1}^{n} EOI_{j,t} \tag{2}$$

ECI is the aggregate institutional index; n is the number of economic freedom indicator measures; *j* denotes each individual indicator; and t stands for time-series observations. Table 1 summarizes the variables structure and their measurements.

Table 2 presents the descriptive statistics of the variables. New business density is about 2.213 per 1000 adults with a maximum value of 20.09 and minimum value of 0.060. The recorded average value is a welcome development in African continent due to a relative improvement in doing business reforms. Every government in the continent now knows the importance of entrepreneurship and how a conducive environment may help in expanding the hub of African innovation. The inflation rate is 5.57 percent on average with a maximum value of 18.2. Furthermore, the GDP growth rate is approximately 4.41 per capita. This seems to be consistent overtime due to growth in sales of commodities and services in international market (ADB, 2017).

The quality of infrastructure is about 3.67 on a scale of 1-7 points. It has a minimum point of 1.94 but maximum value of 5.62. With this score, we can say most African governments are now investing in infrastructure more than before. This makes most countries in Africa to improve in growth performance. This also increases the total number of new business in the period of study. The aggregate index of economic freedom is 57.45 with a maximum value of 77 on a scale of 100 points. This means that there a reasonable level of freedom in the selected countries which seems to be encouraging entrepreneurial startup as confirmed by the positive association between the two variables in Table 3. The pairwise correlation in Table 3 signifies the potential associations between economic freedom and entrepreneurship which is positive and significance.

Table 1. Variables structure, measurements and sources of data

Variables	Measurements	Sources
Entrepreneurship (ED)	Number of new business registered per 1000 adult population	World Bank Entrepreneurship database.
Inflation rate (IN)	Inflation rate	World Bank Development Indicators
Startup requirement (SP)	Number of procedures to registered business	World Bank Entrepreneurship database/Doing Business
Foreign direct investment inflow (FD)	Foreign direct investment as a percentage of GDP	World Bank Development Indicators
GDP per capita growth (GR)	Growth of Gross domestic product per capita	World Bank Development Indicators
Time required to register (TE)	Number of days required to register business.	World Bank Entrepreneurship database/Doing Business
Quality of Infrastructure (QINF)	Quality of infrastructure index (ranged 1 to 7)	World Economic Forum Competitiveness Index
Economic freedom (ECI)	This is an annual average of Property right (PR), Tax Burden (TB), monetary freedom (MF), trade freedom (TF), government size (GS), freedom from corruption also called government integrity (GI), investment freedom (IF), financial freedom (FF), business freedom (BF) and labour freedom (LF). The aggregate economic freedom is calculated by taking the average score using equation (2)	The Heritage Foundation index

Table 2. Descriptive statistics

Variables	Mean	Std. Dev.	Min.	Max.	Obs
ED	2.213	3.378	0.060	20.090	210
IN	5.579	4.023	2.409	18.219	211
SP	8.333	2.820	4	17	216
FD	3.363	3.033	-0.324	32.301	216
GR	4.414	4.071	-20.598	20.715	216
TE	29.270	23.361	4	105	216
QINF	3.673	0.820	1.947	5.619	184
ECI	57.458	9.118	21.4	77	216
PR	37.674	15.257	5	75	216
GI	35.218	10.867	12.2	64	216
TB	73.605	8.871	44.1	92.5	216
GS	71.218	19.619	0	96.3	216
BF	60.788	12.715	30	83.3	216
LF	60.078	17.307	21.7	91.4	216
MF	72.716	14.105	0	86	216
TF	70.838	9.524	44.8	89	216
IF	49.513	17.390	0	90	216
FF	43.796	15.532	10	70	216

Table 3. Correlation

Variables	ED	IN	SP	FD	GR	TE	QINF	ECI	PR
ED	1.000								
IN	-0.046	1.000							
SP	-0.151*	0.189*	1.000						
FD	-0.150*	0.133	-0.056	1.000					
GR	-0.151*	0.087	0.036	0.159*	1.000				
TE	0.140*	-0.011	0.395*	-0.039	-0.375	1.000			
QINF	0.397*	-0.256*	-0.134	-0.029	-0.085	0.045	1.000		
ECI	0.504*	0.041	-0.137*	0.023	-0.078	-0.349*	0.476*	1.000	
PR	0.672*	-0.106	-0.215*	-0.231*	-0.156*	-0.132	0.449*	0.075*	1.000
GI	0.681*	-0.201*	-0.201*	-0.095	-0.134*	0.016	0.681*	0.681*	0.763*
TB	0.236*	0.287*	0.095	0.093	0.081	-0.376*	0.254*	0.480*	0.159*
GS	-0.049	0.107	-0.036	0.0211*	0.000	-0.375*	0.001	0.453*	0.037
BF	0.392*	-0.072	-0.152*	-0.023	-0.176*	-0.251*	0.659*	0.613*	0.586*
LF	0.163*	0.235*	0.329*	-0.012	0.022	0.070*	0.246*	0.495*	0.268*
MF	-0.002	-0.095	-0.152*	0.062	-0.108	-0.481*	0.147*	0.630*	0.384*
TF	0.345*	0.038	-0.185*	0.060	-0.035	-0.254*	0.439*	0.723*	0.547*
IF	0.408*	-0.055	-0.298*	0.096	-0.015	-0.416*	0.318*	0.820*	0.590*
FF	0.581*	0.085	-0.103	-0.077	-0.016	-0.122	0.374*	0.803*	0.699*
Variables	GI	TB	GS	BF	LF	MF	TF	IF	FF
GI	1.000								
TB	0.124	1.000							
GS	-0.170	0.482*	1.000						
BF	0.629*	0.209*	0.060	1.000					
LF	0.303*	0.258*	0.054	0.178*	1.000				
MF	0.254*	0.163*	0.401*	0.355*	0.171*	1.000			
TF	0.532*	0.243*	0.230*	0.415*	0.322*	0.388*	1.000		
IF	0.551*	0.360*	0.355*	0.369*	0.209*	0.491*	0.681*	1.000	
FF	0.586*	0.292*	0.189*	0.465*	0.322*	0.363*	0.635*	0.904*	1.000

* denotes significance at 5%.
Source: computed by author

This study first estimates pooled Ordinary least Square (POLS) and examines the autocorrelation and heteroscedasticity. The Wooldridge test for autocorrelation reveals the presence of first order autocorrelation in the panel setting. We also present the Likelihood-ratio test confirming the presence of heteroscedasticity in the panel. In addition, the Pesaran's test of cross sectional independence confirms the presence of cross sectional dependence.

Due to the presence of autocorrelation, heteroscedasticity and cross sectional dependence, we implement a Prais-Winsten regression with panel-corrected standard errors (PCSE) in the first instance. However, the main problem of this estimator is the failure to correct for endogeneity and the impact of time-invariant variables. In this study, some variables like the economic freedom, time required to register business and startup business procedures are time invariants. Variables like GDP per capita growth among others are endogenous. As a robustness check on this estimator, the study re-estimates the baseline model using GMM approach along the lines of Arellano and Bond (1991) and Hausman–Taylor/instrumental variable (HT-IV) estimator. The GMM approach is used to address reverse causality/endogeneity issues among the variables. HT-IV estimator has the benefit of capturing the time-invariant variables and also correct for endogeneity (Alhassan & Kilishi, 2019; Hausman & Taylor, 1981).This study takes a further step to examine the robustness of the baseline model via Regression with Driscoll-Kraay standard errors.

Results and Discussion

Empirical Results

In this section, we present the empirical results of the impact of economic freedom on entrepreneurial startups in Africa. Table 5 shows the results of PCSE where the first column presents the baseline results and other column shows the results of individual economic freedom dimension. Starting from the baseline estimate which reveals the aggregate index of economic

freedom (ECI), it could be observed that ECI has a strong and positive impact on African entrepreneurial startup. This suggests that economic freedom is necessary for entrepreneurial development in Africa. In other words, the economic freedom level in a country defines the extent of institutional conditions for entrepreneurial activity to thrive. The higher the degree of freedom in the economic society, the higher the level of economic prosperity and growth through entrepreneurship. This submission is in line with empirical findings of Díaz-Casero et al. (2012) and Lihn & Bjørnskov (2017) in innovation-driven economies.

In relation to the policy variables (that is, individual dimensions of economic freedom), Table 4 reveals that all the ten dimensions have positive impacts on entrepreneurial startups. This implies that trade freedom, financial freedom, labor freedom, investment freedom and others have the tendency to improve the level of entrepreneurial startups in Africa. These dimensions of economic freedom can create an African region where goods and services, skilled labor and investment may freely move for efficient utility within African countries. This supports the submission of Angulo-Guerrero et al. (2017) who explains that high level of capital inflow and trading activities can be assured where there is high level of labor and investment freedom with protection of property rights. In addition, Miller and Holmes (2010) assert that financial freedom improves the level of capital inflows by removing or reducing the level of financial constraints among the entrepreneurs. Furthermore, trade freedom guarantees flourishment of export-import entrepreneurship by removing all categories of capital controls including tariffs and non-tariffs in the international transactions. Economic freedom can improve the level of African entrepreneurship by eliminating unnecessary tax impositions and ensure labor and safety regulations.

Table 4. PCSE results (Dependent variable: ED)

Variables	Baseline	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
IN	-0.025	0.036	0.026	0.002	0.100	0.071	0.067	0.102	0.027	0.083*	-0.050
	(0.485)	(0.195)	(0.210)	(0.930)	(0.145)	(0.342)	(0.370)	(0.140)	(0.675)	(0.077)	(0.244)
SP	-0.286***	-0.118***	-0.108***	-0.182***	-0.314***	-0.299***	-0.342***	-0.305***	-0.258***	-0.223***	-0.188***
	(0.000)	(0.000)	(0.007)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FD	-0.375***	0.005	-0.027	-0.068*	-0.280***	-0.260***	-0.266***	-0.260**	-0.353***	-0.396***	-0.244***
	(0.000)	(0.806)	(0.394)	(0.078)	(0.006)	(0.006)	(0.007)	(0.011)	(0.002)	(0.004)	(0.002)
GR	0.026	-0.026	-0.032	-0.033	-0.048	-0.016	-0.054	-0.052	-0.036	-0.043	-0.048
	(0.781)	(0.281)	(0.185)	(0.222)	(0.591)	(0.861)	(0.554)	(0.624)	(0.673)	(0.571)	(0.614)
TE	0.0693***	0.016	0.004	0.004	0.041**	0.047***	0.039***	0.038***	0.051***	0.066***	0.043***
	(0.000)	(0.147)	(0.662)	(0.505)	(0.012)	(0.003)	(0.011)	(0.026)	(0.001)	(0.001)	(0.001)
QINF	-0.006	0.797***	0.332*	0.734***	0.827***	0.207	0.671***	0.806***	-0.082	0.407*	0.320
	(0.975)	(0.000)	(0.060)	(0.002)	(0.006)	(0.523)	(0.025)	(0.006)	(0.832)	(0.099)	(0.240)
ECI	0.281***										
	(0.000)										
PR		0.077***									
		(0.000)									
GI			0.066***								
			(0.002)								
TB				0.071***							
				(0.001)							
GS					0.010***						
					(0.055)						
BF						0.071***					
						(0.000)					
LF							0.021***				
							(0.015)				
MF								0.001			
								(0.943)			
TF									0.129***		
									(0.000)		
IF										0.102***	
										(0.000)	
FF											0.136***
											(0.000)
Constant	-12.349***	-4.651***	-1.545**	-5.241***	-4.190**	-5.071***	-3.686*	-3.643	-10.654***	-6.287***	-4.958***
	(0.000)	(0.000)	(0.021)	(0.002)	(0.040)	(0.006)	(0.057)	(0.184)	(0.000)	(0.003)	(0.004)
R-sq.	0.537	0.231	0.118	0.242	0.310	0.334	0.314	0.307	0.384	0.470	0.535
Wald (χ^2)	395.90***	59.51***	35.72***	27.99***	240.33***	350.97***	299.61***	276.20***	655.75***	156.24***	340.97
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

*** denotes significance at 1%.

Large trade flows and investment freedom improve access to international price signals which allow African entrepreneurs to take advantages of international opportunities. Our results also demonstrate that well-defined and property rights' enforcements would help in reducing transaction costs which improves the motivation of entrepreneurial venturing in Africa. The results also confirm the study of Zhou (2018) in China. The author document that formal property rights' protection and deregulated market improve the level of entrepreneurial development positively. Among the control variables, only startup procedures (SP), foreign direct investment (FD) and quality of infrastructure are constantly significant in the model. Startup procedures capture the regulation requirement for setting up venture. The coefficient is negative and significant. This implies regulation requirements in most African countries demotivates potential entrepreneurs from taking up entrepreneurial businesses. The coefficients of FD is negative and significant implies that multinational firms discourage local entrepreneurial venturing. This could be due to higher wages offered to local, potential entrepreneurs (Ajide et al., 2019). The baseline model shows R-squared of 53.7 percent revealing the level of model's goodness of fit. This shows that the extent of variations in the exogenous variables are jointly and significantly explained by the model which is 53.7 percent of the aggregate variations in entrepreneurial startups. The Wald test also reveals that the estimated model is statistically significant and overall fitted for the entrepreneurial analysis at 1 percent level of significance.

Robustness Checks

Due to the limitations of our methodology employed, we are unable to address the causality issues among the variables. It is possible that entrepreneurship may influence economic institutional arrangement and further influence policy changes. In this case, economic freedom may be endogenous to entrepreneurial development. We address this issue by re-estimating our baseline model using Hausman-Taylor IV-estimator and first difference generalized methods of moments (GMM).

Table 5. Estimated results (Dependent variable: ED)

Variables	Hausman-Taylor IV-estimator	Difference GMM	Regression with Driscoll-Kraay standard errors
ED(-1)		1.152***	
		(0.000)	
IN	-0.069**	-0.021	-0.025
	(0.030)	(0.527)	(0.404)
SP	-0.010	0.046	-0.286***
	(0.932)	(0.603)	(0.000)
FD	-0.002	0.048***	-0.375***
	(0.965)	(0.000)	(0.001)
GR	0.008	-0.010	0.026
	(0.726)	(0.137)	(0.754)
TE	-0.058***	0.015***	0.069***
	(0.000)	(0.001)	(0.000)
QINF	-0.389*	-0.185***	-0.006
	(0.065)	(0.006)	(0.982)
ECI	0.070**	0.020***	0.281***
	(0.026)	(0.008)	(0.000)
Const.			-12.349***
			(0.000)
	Wald (χ^2)=41.46(0.000)	J-stat=11.798(0.989), AR(1) =-1.707(0.087),AR(2)=-1.081(0.279)	R-squared = 0.5379, Wald (χ^2)=99.10(0.000)

***, **, * denote significance at 1%, 5%, and 10% repectivelly.
Source: computed by author

In Table 5, we present Hausman-Taylor IV-estimator's results which address the problem of endogeneity and most appropriate when there is time-invariant variables in the model. For instance, the startup procedures (SP) and time required to commence business are time-invariant. We further employ first difference GMM estimator for robustness check. This technique also corrects for endogeneity and capture reverse causality among the variables. The Regression with Driscoll-Kraay standard errors is most employed where there is potential possibility of cross-sectional dependence. Nevertheless, these estimators still prove that economic freedom has positive and significant impact on entrepreneurial startup in Africa. That is, after controlling for reverse causality, the results show that economic freedom increases formal entrepreneurship (Saunoris & Sajny, 2017). This implies that economic freedom allows every entrepreneurs to engage productive resources and reduce the number of unproductive ones, thereby ensuring effective utilization of productive resources and improving economic prosperity (Schumpeter, 1942; Sobel, 2008).

It has been widely accepted that entrepreneurial mindset is necessary among the youth and the government incentives to encourage the spirit in our society is very important to achieve sustainable development goals. Entrepreneurship can reduce the level of African poverty, enhance growth and decent jobs for African women and youths. Innovation, infrastructure development and industrialization can be realized through the spirit of entrepreneurial development. However, an accelerated entrepreneurial development is workable where there is conducive business environment including strong institutions. Building a conducive environment for entrepreneurship may require higher level of economic freedom in all its dimensions as shown in this study. The findings of this study shows that economic freedom and its dimensions improve the level of entrepreneurial startups in the selected African countries. This implies that economic freedom can influence the possibility of achieving sustainable growth through entrepreneurship. Economic freedom improves the level of property rights security and choices for businesses including the opportunities therein. Our results show that financial, trade and labour freedom among others are useful in improving the level of African entrepreneurial startups. In this way, economic freedom increases the level of investor's confidence in Africa and paves ways for achieving sustainable growth and economic development. This is in line with the previous studies (Angulo-Guerrero et al., 2017; Saunoris & Sajny, 2017). It implies that policy makers that are interested in reducing unemployment rate, creation of new jobs and improve the level of sustainable development should take institutional framework and economic freedom as policy variables because they have long run implications for the economy (Shakya & Plemmons, 2021).

Conclusion

African policy on liberalization has made the region to be highly integrated. The process has improved the level of economic freedom across every sector of the economy. Despite the fact that there is an increase in the level of integration towards economic freedom, its impact of entrepreneurship is less discussed in the extant literature. In a more specific, the existing empirical findings in developed countries remained inconclusive on the topic. In this study, we examine the impact of economic freedom on entrepreneurial startups in selected countries in Africa over a period of 2007-2018. The study employs a battery of methodologies including PCSE, difference GMM, Hausman-Taylor IV- estimator and, Driscoll-Kraay standard errors' estimating techniques. The results show that economic freedom increases entrepreneurial startups in Africa. This means that economic freedom reduces the barriers in the process of creating new businesses (Bennett, 2021). This finding further motivates us to probe the subcomponents of economic freedom. The results of the subcomponents reveal that secured Property right, relaxed Tax Burden*,* monetary freedom, trade freedom, government size, freedom from corruption (government integrity), investment freedom, financial freedom, business freedom and labour freedom have positive impact on new business creation.

This study has many policy implications as follows. First, the findings suggest that the more the freedom of individuals in controlling their lives with less government intervention, the higher the entrepreneurial development in Africa. This means that government policy needs to be directed

towards increasing the level of economic freedom. With higher level of freedom, there will be an improvement in competitions, efficiency, technology transfer due to the presence of foreign entrepreneurs and labour quality in Africa. These are fundamentally important to improve the African nations' development. In addition, our findings from the individual economic freedom dimension reveals that labour is correlated with higher level of entrepreneurial development. That is, a relaxation of restrictions on hours worked, minimum wages and other stringent policies in labour market can improve the level of African entrepreneurship. This is based on the conventional belief that freedom in labour market can correct the discrepancy in the supply of labour and the demand of African entrepreneurs. It will also enable free movement of skilled labours across African countries, thereby ensuring efficient allocations of factors. It is also worth to mention that government integrity is very important. Accountability and transparency of policy to encourage civil, monetary, investment and financial freedom is important in Africa. This will improve the confidence of domestic and international investors. It will help in the achievement of African sustainable development.

In this study, we are able to provide insights on the nexus between economic freedom and entrepreneurship. However, it should be viewed in the light of its limitations. First, we unable to relate economic freedom to informal entrepreneurial startup. Second, we only consider eighteen African nations in the analysis due to data availability. We encourage the future studies to overcome this shortcoming.

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