Economic Globalization, Entrepreneurship, and Inclusive Growth in Africa

Folorunsho M. Ajide[1+], Tolulope T. Osinubi[2], and James T. Dada[2]

[1]*University of Ilorin, Nigeria*
[2]*Obafemi Awolowo University, Nigeria*

Abstract An increasing number of studies are examining the relationship between entrepreneurship and growth. This relationship is controversial, especially for developing countries. Recent improvements in economic growth have led to a focus on growth inclusiveness, which spreads economic opportunities throughout a society. However, studies that focus on the role of entrepreneurship in inclusive growth remain scarce. To fill that gap, this study investigates the dynamic relationship between economic globalization, entrepreneurship, and inclusive growth in 21 African countries using panel econometrics to examine data covering 2006 to 2018. The results reveal that the impact of economic globalization and entrepreneurship on inclusive growth is positive and significant. We find that economic globalization enhances entrepreneurial development, and causality tests show that economic globalization drives inclusive growth. We also find a unidirectional causality from entrepreneurship to inclusive growth. Finally, we observe no direction of causality between economic globalization and entrepreneurship but observe a bidirectional causality between governance and entrepreneurship. We discuss the implications of these results.

Keywords: Africa, causality, entrepreneurship, globalization, inclusive growth

JEL Classifications: L26, O47, O55, F6, F43

I. Introduction

Researchers and policymakers, including international organizations, have recently moved away from the concept of "economic growth" towards that of "inclusive growth" due to the benefits to be derived. Inclusive growth is growth that is equally spread across society and creates opportunities for all. In simple terms, growth is inclusive when it is advantageous to all (Osinubi & Olomola, 2020). Inclusive growth can be achieved through increased entrepreneurial activities and economic globalization. Economic globalization affects both the lifestyle and consumption preferences of economic agents. It affects regional interactions and

+Corresponding Author: Folorunsho M. Ajide
 Lecturer in Economics, University of Ilorin, Ilorin, Nigeria. Email: ajide.fm@unilorin.edu.ng
Co-Author: Tolulope T. Osinubi
 Lecturer in Economics, Obafemi Awolowo University, Ile-Ife, Nigeria. Email: tosinubi@oauife.edu.ng
Co-Author: James T. Dada
 Lecturer in Economics, Obafemi Awolowo University, Ile-Ife, Nigeria. Email: temitope2081@yahoo.com

benefits everyone in a society by moving the gains from the most-developed countries to the least-developed ones such as African nations, thus fostering social equality (Antwi & Kwakye, 2010; Coulibaly et al., 2017; Ifeakachukwu, 2020). Economic globalization also affects the technology, innovation, and socio-political structures of an economy through intensive increases in cross-border trade, information exchange, and foreign direct investment. It strengthens the relationships between developed and developing countries, turning the world into "a big global village" (Coulibaly et al., 2017).

Entrepreneurship gives economic agents access to economic opportunities by which they can harness inclusive growth and increase productivity in the real sector. According to Nica (2020), a healthy economy is characterized by an appropriate level of small and medium-sized businesses and a continuous process of new business creation. Entrepreneurship is also considered a way to minimize poverty through job creation (Ajide, 2021; Legas, 2015). Several studies (Abor & Quartey, 2010; Ajide, 2020a; Ariyo, 2005; Okafor, 2006) have shown that entrepreneurship contributes more than 50% to the job creation and GDP growth in African countries. Despite the growth effect of globalization reported in the literature (Coulibaly et al., 2017), little African evidence concerning the role of economic globalization has been accumulated. Studies tend to concentrate on the impact of entrepreneurship on African growth (Adusei, 2016; Ajide, 2021; Ajide et al., 2019; Peprah & Adekoya, 2020), neglecting the impact of economic globalization on entrepreneurship. Most of these empirical studies on entrepreneurship and growth find a positive link, but little to no evidence has been gathered on the nexus between entrepreneurship and inclusive growth. Economic globalization needs to be considered because of its potential to improve productivity growth and competitiveness in African economies. It has increased African countries' global performance and enhanced the inflow of new technology, social development, human welfare, strengthened specialization, and economies of scale in production (Hassan, 2013). Therefore, the following questions need to be answered: Does economic globalization promote African entrepreneurship, and what is the impact of economic globalization and entrepreneurship on inclusive growth? Our study sheds light on these questions and provides insights into the mechanism by which economic globalization, entrepreneurship, and inclusive growth interact, influence, and depend on one another.

The main objective of this study is to examine the nexus between economic globalization, entrepreneurship, and inclusive growth in African countries. Africa is a developing region facing high levels of unemployment and a growing level of inequality. According to the African Development Bank (AfDB, 2011), Africa has seen substantial but inadequate progress in the fight against poverty and inequality over the last decade. African growth has been tightly concentrated in a few industries and geographic areas, and inequality has become more noticeable. African youth are excluded from the labor market, which has increased the unemployment rate. Similarly, Reinders et al. (2019) maintain that, although most African countries have

reported high growth in the last decade, a significant number of African citizens remain excluded from the benefits of this growth. Only one-third of African countries have achieved inclusive growth and reduced inequality. Approximately 413 million Africans live in extreme poverty, accounting for 41% of Africa's population, while income inequality remains high, with an average Gini index of 0.43 (Bhorat et al., 2016; World Bank, 2019). The unemployment rate in Africa is also high, particularly among women and young people (Van Niekerk, 2020).

This study is novel in several ways. Unlike existing studies, this study examines economic globalization and entrepreneurship from the inclusive growth perspective, which encompasses more than economic growth. The development literature shows that increasing economic growth is not a major concern in less-developed countries, especially in this era of sustainable development goals (SDGs). Researchers and policymakers are more concerned with growth that reduces income inequality, poverty levels, and unemployment. As highlighted by the World Bank (2009), inclusive growth promotes equal opportunities in the economy through equal access to economic resources and markets. Zhang and Wan (2017) explain that inclusive growth comprises growth and equality. It combines economic equality and fair opportunity for all economic agents, allowing them to achieve their economic potential (Asian Development Bank, 2011). This implies that a sustainable development agenda for poverty reduction can be attained only if growth is inclusive. Inclusive growth enables the poor to access basic facilities and economic opportunities. Thus, as Berg and Ostry (2011) argue, analyses of income distribution and growth should not be separated.

Second, this study is novel in examining the dynamic relationship between economic globalization, entrepreneurship, and inclusive growth in Africa. Previous studies in this area have focused only on the relationship between entrepreneurship and economic growth (Adusei, 2016; Ajide et al., 2019; Peprah & Adekoya, 2020). Economic globalization has important implications for inclusive growth, considering its overall importance for entrepreneurship. Entrepreneurship and economic globalization affect inclusive growth by creating new challenges and by changing the roles played by small businesses. Economic globalization encourages economic actors to integrate business ideas and global changes into business models (Radović-Marković et al., 2019; Radovic-Markovic, 2019). It is thus important to consider economic globalization in the link between entrepreneurship and inclusive growth in Africa. Third, this study investigates the feedback effect between economic globalization and entrepreneurship in Africa, an under-researched area in the field of entrepreneurship. Notwithstanding the risk elements involved, economic globalization provides many developmental opportunities for African entrepreneurs. Through globalization, African entrepreneurs have become global players in international markets (Jose et al., 2015; Masoje et al., 2012; Ndidiamaka et al., 2019). Globalization facilitates technology entrepreneurship by driving advances in African innovation. This involves a synergy between established enterprises and new ventures (Prashantham, 2016). Fourth, most studies use the volume

of either capital flows or trade as a proxy for globalization. However, such indicators do not properly capture economic policies (*de jure*; Ahmad, 2019; Bataka, 2019; Bataka, 2021; Samimi & Jenatabadi, 2014). Moreover, these studies do not properly account for economic protection and capital control policies, which are policy-based variables. To overcome these deficiencies, our study explores the KOF economic globalization index proposed by Dreher (2006), regularly updated by Dreher et al. (2008), and revised by Gygli et al. (2019). Furthermore, this study analyzes cross-sectional dependence in the model by adopting appropriate spatial econometric techniques using African data. From a policy perspective, this study provides a guide that can assist in the formulation and design of public policies for maximizing the potential and minimizing the risks of economic globalization in Africa.

The rest of this paper is organized as follows. In Section 2, we discuss related studies. In Section 3, we discuss the study's data and methodology. Section 4 presents the empirical results, and Section 5 concludes the paper.

II. Literature Review

A. Theoretical framework

This study derives its theoretical foundation from the Schumpeterian theory of entrepreneurship, which posits that entrepreneurship plays a key role in economic development. Naudé (2013) argued that this role depends on a nation's stage of economic development, explaining that entrepreneurship is less important during the earlier stages (Toma et al., 2014). Baumol (1990) pointed out that entrepreneurial activities may be productive, unproductive, or destructive across all stages of development. This means that the relationship between entrepreneurship and inclusive growth may be positive or negative. From the neoclassical growth perspective, economic globalization affects inclusive growth through trade integration and foreign investment. Openness to trade may improve growth by strengthening technology transfer and the knowledge economy through the importation of high-tech products (Almeida & Fernandes, 2008; Barro & Sala-I-Martin, 1997; Grossman & Helpman, 1993). Economic globalization enables transfers from rich countries to support developing countries via savings and a reduced cost of capital; this leads to huge investments and increases domestic entrepreneurs' production capacity, thus stimulating inclusive growth (Bataka, 2019; Bloomstrom, 1992; Kumar & Liu, 2005).

Globalization has changed the business environment of most developing countries. Figure 1 shows the interaction between economic globalization, entrepreneurship, and inclusive growth. Economic globalization permits businesses of various sizes in developing countries to have a global focus by acknowledging the presence of national and multinational factors in business

strategies. Pearce and Robinson (2003) suggest that relatively small service firms now possess a unique competitive advantage and can capitalize on large overseas operations to gain international importance (Akpor-Robaro, 2012; Loots, 2003).

Figure 1. Interaction of economic globalization, entrepreneurship and inclusive growth
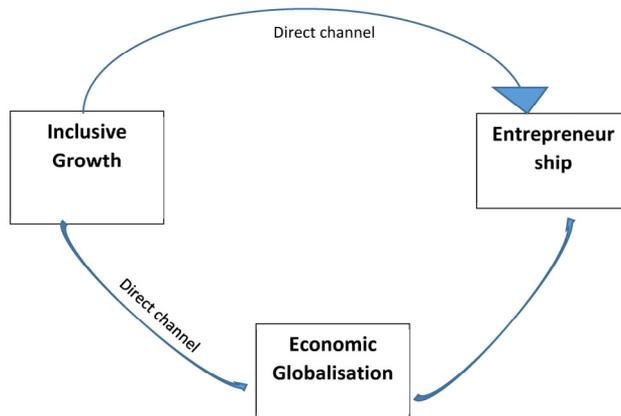
Source: Developed by the authors

In terms of direct channels, economic globalization is said to be a factor in economic expansion, entrepreneurial freedom, prosperity, and inclusive growth. By "inclusivity," we mean growth that enhances shared prosperity and accelerates reductions in poverty and inequality. Inclusive growth promotes equal opportunities among firms and potential entrepreneurs through access to resources and markets created via economic globalization. Inclusive growth can help ensure equity and fairness and provide economic prospects for all citizens and entrepreneurial aspirants (Asian Development Bank, 2011; Zhang & Wan, 2017). On the other hand, economic globalization may suppress creativity, lead to dictatorships, and cause an overdependence on foreign goods and services, which may lead to the economic exploitation of less-privileged countries. Regarding indirect channels, the role of entrepreneurship in promoting inclusive growth cannot be overlooked. Entrepreneurship is often associated with many positive changes in developing economies, such as job creation, innovation, and welfare impacts (Ajide & Osinubi, 2020; Acs & Virgill, 2009; Desai, 2009). Economic globalization enhances entrepreneurial development because it opens developing countries up to economic restructuring, thus accelerating the accumulation of capital and qualified human resources, and strengthening the sociopolitical substructure. Audretsch (2007) explains that globalization has led countries to shift from an industrial to an entrepreneurial model of production. This means that entrepreneurship is an important component of the economic system (Arokiasamy, 2012). This arrangement, in turn, promotes growth inclusiveness in developing countries. The participation of these countries in economic globalization has created economic

opportunities from which benefits can be derived through a better utilization of comparative advantages, advanced technologies, foreign capital, and international financial management (Shangquan, 2000). Furthermore, globalization may improve levels of inclusive growth through the advantages of trade and capital market liberalization, the promotion of competition and scale economies, the fostering of foreign direct investment, and technology diffusion through domestic sectors in the economy (Hammudeha et al., 2020; Obstfeld, 1998). Abdullah (1999) argues that entrepreneurial activities through venture creation are a mechanism for improving the distribution of income, stimulating economic prospects for inclusive growth, and reshaping an economic structure currently heavily dependent on the activities of large firms. The removal of artificial barriers and the inflows of recent technologies for transport, telecommunication, and manufacturing systems have given small businesses and entrepreneurs access to more customers, suppliers, and other market opportunities in domestic and international economies. These phenomena have all fueled the expansion of the entrepreneurial spirit in global economies (Etemad & Wright, 2003).

B. Empirical literature

1. Entrepreneurship: Economic/inclusive growth

Entrepreneurship has been recognized in the literature as a powerful device for poverty reduction (Ajide, 2021; Aparicio et al., 2020; Bloom, 2009; Ghauri et al., 2014), women's empowerment (Datta & Gailey, 2012), and economic and inclusive growth in developing countries (Ansari et al., 2012; Azmat et al., 2015). As suggested by McMullen (2011), the inclusive growth process is possible only where the institutional framework allows individuals to embark on innovative activities and supports the expansion of production by increasing performance and creating employment. Several studies (Hall et al., 2012; Khavul & Bruton, 2013; Suddaby et al., 2018) have shown that entrepreneurship is one way of integrating a society into the economic system, thereby reducing poverty. Most studies on the relationship between entrepreneurship and economic growth have found that it is positive (Audretsch et al., 2017; Feki & Mnif, 2016; Folster, 2000; Hamdan, 2019).

Feki and Mnif (2016) find that entrepreneurship has a positive and significant effect on economic growth in the long run for developing countries using two measures to capture entrepreneurship: new density and potential innovation. Chen et al. (2018) investigate the role of entrepreneurship in the regional development of China, finding that entrepreneurship and Information and Communication Technology (ICT) plays a positive role in the development of the Chinese economy. Stephens and Partridge (2011) and Stephens et al. (2013) find that entrepreneurship has a positive effect on growth for the self-employed and small businesses in the Appalachian region. Folster (2000) examines the impact of self-employed entrepreneurship

on employment growth in Sweden, concluding that self-employment has a positive effect on growth. Applying state-level data, Deller and McConnon (2009) investigate the relationship between microenterprises (one to four employees) and regional economic growth (population, employment, and per capita income), finding that a larger share of microenterprises is positively linked to economic growth, especially in the service sector.

Hamdan (2019) argues that entrepreneurship positively impacts economic growth in the United Arab Emirates using Global Entrepreneurship Monitor (GEM) data to proxy for entrepreneurs. Abosede and Onakoya (2013) also conclude that entrepreneurship contributes to economic growth in Nigeria, especially in the area of inclusive growth. Aparicio et al. (2020) examine the effect of social progress orientation (SPO) on inclusive growth through innovative and opportunity entrepreneurship in 63 countries in an unbalanced panel setting. The findings show that SPO significantly affects innovative and opportunity entrepreneurship. Furthermore, entrepreneurial activity promotes inclusive growth through a reduction in poverty. Applying a survey-based method, Agbalajobi et al. (2018) find that female entrepreneurship contributes enormously to poverty reduction in Nigeria. Jose et al. (2015) investigate the effect of export-oriented entrepreneurship on economic growth in Spain, finding that export-oriented entrepreneurship is important for the economic development of sub-national regions.

However, several studies, such as Salgado-Banda (2007), Wong et al. (2005), and Sabella et al. (2014), find that entrepreneur development fails to bring about economic and inclusive growth. Specifically, Salgado-Banda (2007) concludes that self-employment is negatively correlated with real GDP per capita in OECD countries. Similarly, Wong et al. (2005) conclude that overall entrepreneurial activity does not guarantee economic growth in the way high-growth entrepreneurship does. Furthermore, Sabella et al. (2014) find that entrepreneurship activities have no significant impact on economic growth as a result of economic growth when new jobs are created.

2. Globalization: Economic/inclusive growth

Asongu and Nwachukwu (2016) investigate the effect of globalization on inclusive human development in 51 African countries between 1996 and 2011. Applying panel fixed effects and Tobit regressions, this study reveals that globalization drives inclusive human development in Africa. In a related study, Asongu and Nwachukwu (2017) find that globalization positively affects inclusive human development using instrumental quantile regression. Hammudeh et al. (2020) investigate the effect of globalization on economic growth using data from a sample of 11 countries covering 1980 to 2015. This study focuses on three dimensions of globalization (economic, political, and social) and applies a cross-sectional dependency-autoregressive distributed lags (CS-ARDL) technique. The results establish the presence of a quadratic (nonlinear) U-shaped relationship between aggregate globalization (and its components) and

economic growth for most of the sample. Shittu et al. (2020) examine the impact of foreign direct investment (FDI), globalization, and political governance on economic growth in West Africa, finding that globalization and political governance have positive impacts on economic growth in the region.

Similarly, Olimpia and Stela (2017) examine the relationship between globalization and economic growth in Romania between 1990 and 2013. They find a positive association between aggregate globalization and economic growth, and observe that other components of globalization (except for social components) also have a positive effect. Afzal (2007) investigates the effect of globalization on economic growth in Pakistan from 1960 to 2006, proxying globalization using trade openness and financial integration. The study finds a robust long-run relationship between globalization and economic growth. Ponzio (2005) also finds that globalization enhanced growth in Mexico in the eighteenth century.

Gygli et al. (2019) examine the impact of globalization on economic growth using revised KOF globalization index data, which distinguishes between *de facto* and *de jure* measures of globalization. The findings show that *de facto* and *de jure* globalization influence economic growth differently. Chinedu and Olalekan (2020) investigate the effect of globalization on economic growth in Nigeria from 1970 to 2017, finding that economic globalization has a long-run asymmetric cointegrating effect on economic growth. In a related study, Aremo and Aiyegbusi (2011) conclude that globalization has a negative effect on economic growth in the long run in Nigeria. Ifeakachukwu (2020) examines the tripartite relationship between globalization, economic growth, and income inequality in Nigeria between 1981 and 2018. The author finds that globalization Granger-causes economic growth in the long run. The study also shows that globalization and economic growth are significant determinants of inequality. Focusing on the emerging economy, Loots (2003) investigates whether globalization benefits economic growth in South Africa through trade and financial liberalization. The study reveals that globalization contributes significantly to economic growth in South Africa.

III. Materials and Methods

A. Model specifications and data

Empirical evidence on the impact of globalization and entrepreneurship on development has been examined employing a single equation model (Coulibaly et al., 2017). However, this method cannot be used to investigate simultaneous relationships among the variables, most importantly the two-way linkages between entrepreneurship and inclusive growth on the one hand and that of entrepreneurship and economic globalization on the other. To examine these

relationships, we employed a simultaneous equation panel data model. We estimated equations (1) and (2) following the system equation modeling of Galindo and Méndez (2014) and the estimation procedures of Huynh et al. (2019) and Méndez-Picazo et al. (2012):

$$LINGR_{it} = \partial_0 + \partial_1 LEGLO_{it} + \partial_2 LEN_{it} + \partial_3 CV_{it} + u_{it} \tag{1}$$

where $LINGR_{it}$ is inclusive growth, $LEGLO_{it}$ stands for economic globalization, LEN_{it} denotes entrepreneurship, CV_{it} is a vector of control variables, u_{it} is the error term, subscript i refers to country, t refers to time, and ∂_i is the estimated parameter with $i = 0, 1 \ldots, n$. We specify Equation (2) to examine the impact of economic globalization on entrepreneurship in Africa:

$$LEN_{it} = \partial_0 + \partial_1 LEGLO_{it} + \partial_2 Z_{it} + u_{it} \tag{2}$$

where Z denotes vectors of control variables, and u_{it} stands for the error terms. t is the time index, and the subscript i stands for the index countries. ∂_0, ∂_1, and ∂_2 are the parameters to be estimated.

In equation (1), the inclusive growth equation, we expect economic globalization ($LEGLO$) to have a positive impact on inclusive growth. The same applies to the entrepreneurship variable (LEN). Entrepreneurship is proxied as new business density, sourced from the World Bank Entrepreneurship Database, while economic globalization is sourced from the KOF globalization index (2019). The control variables (CV) in this equation include the aggregate infrastructure quality index ($LAIDI$), sourced from African Infrastructure Development (2019). We convert this variable to a natural log to minimize infrastructural gaps among the countries. The literature indicates that inclusive growth is determined by the quality of infrastructure in an economy (Mutiiria et al., 2020). Inflation (INF) is used as a control variable to proxy for macroeconomic instability. Inflation influences the inclusiveness of growth and development in a society. A higher level of inflation reduces the standard of living (Munemo, 2018; Nica, 2020; Mutiiria et al., 2020). In addition, we control for governance quality (GQ), an important factor that can affect inclusive African growth. It measures the level of governance effectiveness in terms of control of corruption, rule of law, voice, accountability, and regulatory quality (Mutiiria et al., 2020). Ivanyna and Salerno (2021) suggest that policymakers' ability to provide inclusive growth depends on governance quality. This determines the effectiveness of the anti-corruption framework of the government machinery in making decisions in the best interests of citizens. Governance represents the institutional mechanisms and practices through which the government exercises its power. Poor governance quality reduces the ability of the government and its machinery

to ensure inclusive economic growth (North, 1990). Good governance quality improves the effectiveness of fiscal performance by limiting waste and distortion in a society, thereby reducing inequalities and poverty. We measure the composite governance quality using principal component analysis. We employ six governance components-voice and accountability (VOA), political stability and absence of violence (POS), government effectiveness (GOE), regulatory quality (REQ), rule of law (ROL), and control of corruption (COR)-all sourced from Worldwide Governance Indicators (World Bank, 2020). The parameters of the PCA are listed in Table 1.

Table 1. *Principal Components Analysis*

Eigenvalues: (Sum = 6, Average = 1)

Number	Value	Difference	Proportion	Cumulative Value	Cumulative Proportion	
1	5.002167	4.618941	0.8337	5.002167	0.8337	
2	0.383225	0.048321	0.0639	5.385392	0.8976	
3	0.334904	0.181376	0.0558	5.720297	0.9534	
4	0.153528	0.064082	0.0256	5.873825	0.9790	
5	0.089446	0.052717	0.0149	5.963271	0.9939	
6	0.036729	-	0.0061	6.000000	1.0000	

Eigenvectors (loadings):

Variable	PC 1	PC 2	PC 3	PC 4	PC 5	PC 6
COR	0.413944	-0.155675	-0.286299	0.806060	-0.265601	0.046615
GOE	0.420081	-0.349296	-0.200059	-0.113841	0.770629	0.233819
POS	0.372482	0.786285	-0.429750	-0.207485	-0.025561	0.120930
REQ	0.421331	-0.332441	0.128575	-0.441356	-0.547985	0.447602
ROL	0.437170	-0.146553	-0.010456	-0.234884	-0.083781	-0.851531
VOA	0.380528	0.321743	0.822608	0.210457	0.166211	0.055481

(Source) Authors' computation

Table 1 presents the eigenvalues and their respective proportions. The first principal component explains 83.4% of the variance in the distribution, thus making PC1 the best component for the study. Furthermore, the individual contributions of COR, GOE, POS, REQ, ROL, and VOA to the variance of PC1 are 41.39%, 42.0%, 37.2%, 42.1, 43.7, and 38.1%, respectively. This individual variance is used as a weight in generating the governance quality index for the panel of African countries.

In equation (2), the entrepreneurship equation, it is expected that economic globalization (LEGLO) has a positive impact on entrepreneurship (LEN) while the effect on inclusive growth (LINGR) is ambiguous (i.e., negative, positive, or not significant). Munemo (2012, 2018) explains that the quality of growth in Africa does not provide equal opportunities and is not significant. Danakol et al. (2013) show a negative impact, while Bras and Soukiazis (2018)

show that income per capita affects entrepreneurship positively. Wennekers et al. (2005) and Carree et al. (2007) explain that this relationship is complex. Inclusive growth (*LINGR*) is said to be attained when (1) there is an increase in average income per head; (2) there is equality in the distribution of the income or wealth of an economy; or (3) there is a combination of (1) and (2) (see Ali & Son, 2007; Anand et al., 2013; Mutiiria et al., 2020; Paramasivan et al., 2014). An increase in average income is attained through growth. We follow the procedure of Mutiiria et al. (2020) and construct an inclusive growth level index for Africa by adding income per capita growth and percentage change in income inequality. Inequality data are sourced from the Human Development Database, while income growth per capita data are sourced from the World Bank Development Indicators Database. The control variables (*Z*) include *TIME*, denoting the time required to start a business, and *STARTUP*, denoting start-up procedure, used to proxy for the cost of business startup. The long procedure required to start up and formalize a business increases the cost of business startups. The two variables are sourced from the World Bank Entrepreneurship Survey Database and are used to proxy for the institutional requirements for business establishment (Ajide & Osinubi, 2020; Munemo, 2018). Table 2 describes the structure and sources of the data used for the study covering 2006 to 2018. The following countries are considered: Algeria, Botswana, Central African Republic, Gabon, Lesotho, Mali, Mauritius, Morocco, Namibia, Nigeria, Rwanda, Sierra Leone, Senegal, South Africa, Sudan, Tanzania, Togo, Tunisia, Uganda, Zambia, and Zimbabwe. Table 4 presents the descriptive statistics of the variables.

Table 2. *Sources of Data and Variable Measurements*

Variables	Acronym*	Measurements	Sources
Inclusive Growth	*LINGR*	An index constructed by authors after adding two variables: growth in GDP per capita and equality growth (see Mutiiria et al., 2020)	Growth in GDP is sourced from World Bank Indicators while inequality income growth sourced from Human Development Database
Entrepreneurship	*LEN*	New Business Density (new registration per 1,000 people ages 15-64)	World Bank Entrepreneurship Survey(2019)
Economic Globalisation	*LEGLO*	Economic globalisation Index	KOF globalisation index
Governance Quality	*GQ*	This is measured with the help of principal component analysis. We employ the six governance components: Voice and Accountability (VOA), Political Stability and Absence of Violence (POS), Government Effectiveness (GOE), Regulatory Quality (REQ), Rule of Law (ROL), and Control or Corruption (COR)	Worldwide Governance Indicators
Inflation	*INF*	Inflation rate, CPI	World Bank Development Indicators (2019)
Aggregate Infrastructure Index	*LAIDI*	African Infrastructure Development Index (consists of ICT, Transport, Electricity, Water and Sanitation indicators)	African Infrastructure Development Index (2019)

Table 2. *Continued*

Variables	Acronym*	Measurements	Sources
Time required start a business	*LTIME*	Time required to start a business (days)	World Bank Entrepreneurship Survey(2019)
Startup procedure	*LSTARTUP*	Start-up procedures are those required to start a business(number)	World Bank Entrepreneurship Survey(2019)

(Source) Authors' compilation. * *LINGR, LEN, LEGLO, LAIDI, LTIME, and LSTARTUP are converted to natural logarithms.*

Table 3 presents the descriptive statistics for the variables. The statistics show that inclusive growth is approximately 1.58%, with a minimum and maximum of 1.64% and 3.05%, respectively. This value seems to be relatively low compared to developed countries, probably due to the high level of inequality in Africa.

Table 3. *Descriptive Statistics*

	LINGR	LEN	LEGLO	GQ	INF	LAIDI	LTIME	LSTARTUP
Mean	1.5832	-0.3241	3.8615	0.0380	6.4124	2.9597	3.0955	2.0945
Median	1.6496	-0.1743	3.8805	0.0986	5.0000	2.9314	3.2384	2.0794
Maximum	3.0511	3.0002	4.4450	4.5754	37.1422	4.3773	4.6539	2.8332
Minimum	-2.3025	-4.6051	3.3286	-3.9143	-2.4095	1.5871	1.3862	1.3862
Std. Dev.	0.5918	1.4708	0.2243	2.2043	6.7058	0.7184	0.8077	0.3408
Observations	256	256	256	256	256	256	256	256

(Source) Authors' computation

African growth has been less inclusive, with only one-third of African countries achieving growth inclusiveness and poverty reduction (AfDB, 2020). Furthermore, the level of infrastructure in the region is still relatively low, with an average of 2.95% and a minimum value of approximately 1.58%. The inflation rate is about 6.4%, while economic globalization is at 0.038, with a maximum of five points. The standard deviation is 0.22, making it one of the least volatile variables in the dataset. The quality of governance in Africa appears to be very weak. The mean value of the governance index is 0.038, while the level of volatility is 2.20. This means that the key elements of quality governance remain weak. Low levels of accountability, transparency, citizen participation, and corruption control remain major challenges for African governance. This shapes the levels of peace and stability available for entrepreneurial success and economic development. The time required to register a business in Africa is about three days, with a maximum of five days. This reflects major reforms undertaken in some countries, such as Togo, Zimbabwe, and Rwanda.

B. Estimation strategies

In the first stage, we conduct a preliminary analysis involving an assessment of the cross-sectional dependence test (CD) on all the variables using Pesaran's CD test. Owing to the presence of CD, we employ the second-generation panel unit root test-namely, the cross-sectional dependence version of the Im-Pesaran-Shin W-stat (CIPS)-along with first-generation panel unit root tests, such as the Levin, Lin, and Chu (LLC) and Im, Pesaran, and Shin W-stat (IPS) tests. The panel unit root test of the data via the IPS is based on the individual unit root process, and the LLC is based on the common unit root process. For the estimation, we employ the panel-corrected standard error (PCSE), which is more efficient than the traditional panel data estimation in the presence of autocorrelation, heteroscedasticity, and cross-sectional dependence. However, the main problem with this estimator is its failure to account for endogeneity among the variables. We thus also employ a two-stage least square regression (2SLS/IV) in a sensitivity analysis.

The literature suggests that the lagged values of variables such as growth and inclusive growth may impact their current values (Mutiiria et al., 2020; Nica, 2020). This specification is allowed in our simultaneous equations at the level of analysis. This empirical analysis inspired us to adopt Arellano and Bond's (1991) generalized method of moments (GMM) estimator to solve the correlation between the unobserved panel-level effects and the lagged dependent variables. This approach performs better when confronted with endogeneity, heteroscedasticity, and autocorrelation. We use the differenced and lagged level variables of the dependent variables as the instrumental variables. Two types of tests were used to confirm the reliability of the estimates and the validity of the instruments. We used the Sargan test to confirm the validity of the instruments and specifications, and we used the Arellano and Bond test to confirm the hypothesis that the residuals from the estimations are first-order correlated (AR1) but not second-order correlated (AR2).

As a robustness check, the study also employed the panel-spatial correlation consistent (PSCC) standard errors technique, which is robust in the presence of cross-sectional dependence. The PSCC is based on Driscoll and Kraay's (1998) robust standard error and its computed spatial correlation consistent standard errors for linear panel models. To examine the causal relationships between the variables, we employed the pairwise Dumitrescu-Hurlin panel causality test, which is used to obtain insights into the direction of short-run bivariate panel causality. Dumitrescu and Hurlin (2012) recommend using this approach to test for causality among variables under the null hypothesis of homogeneous non-causality against the alternative hypothesis of heterogeneous non-causality.

IV. Empirical Results and Discussion

A. Preliminary test

In this section, we report the results of the CD tests conducted on the variables to determine which unit root tests and estimation techniques should be used. The study conducted CD tests on individual variables via Pesaran's cross-sectional dependence test. The outcomes of these tests are presented in the Appendix (see Tables A and B). The tests reveal the presence of CD in all variables. We also examine the stationarity of the variables before estimating the models; this is crucial to avoid spurious results (Chang et al., 2011; Holtz-Eakin et al., 1988). Because of the presence of CD in all the variables, we decided to employ the second-generation panel unit root test, the cross-sectional dependence version of the CIPS, along with the first-generation panel unit root tests, the LLC and IPS tests. The results are presented in the Appendix (see Table C). They show that the variables do not contain individual unit roots or common unit roots. This means that the null hypothesis of the variables containing the unit root process is rejected. These results confirm that all the variables are integrated of order zero [I(0)]. Thus, the cointegration testing issue is irrelevant. The study therefore employed the panel corrected standard error (PCSE), two-stage least square instrumental variable (2SLS/IV), and dynamic estimation (GMM) techniques.

Specifically, the PCSE technique was implemented because a conventional panel estimator, such as the fixed effect, GLS, and/or random effect, may be unreliable in the presence of cross-sectional dependence. Unlike feasible generalized least squares (FGLS), the PCSE estimator provides accurate standard errors where there is cross-sectional dependence, especially when the time period is at least less than the number of cross-sectional units (N; Beck & Katz, 1995; Ajide & Osinubi, 2020). In this study, our T = 12, and our N = 21, which provides a justification for using PCSE for the analysis in the first instance. The Monte Carlo evaluation of PCSE efficiency of Chen et al. (2009) reveals that, when the number of periods (T) is close to the number of cross-sectional units (N), PCSE performs better (Hazra, 2020; Ikpesu et al., 2019). In addition, we utilized IV-estimation techniques (2SLS/IV and GMM) for our analysis in order to account for potential endogeneity, reverse causality, and other specification errors (El Hamma, 2018; Ferede, 2019; Moor et al., 2020a; Pesaran & Taylor, 1999).

B. Impact of economic globalization and entrepreneurship on inclusive growth

Starting with the static estimation, we present the results of the PCSE and 2SLS/IV estimations of Model 1 in Table 4. The results clearly show that both entrepreneurship and economic globalization have a positive and significant impact on inclusive growth at the 1%

and 5% significance levels, respectively. This result is consistent with that of Coulibaly et al. (2017), who show that entrepreneurship and globalization have a positive and significant impact on GDP per capita. This happens because economic globalization has brought new dimensions into the global space, such as free trade, capital flows, and migration into and out of countries, including technological transfer. These phenomena have exposed individual entrepreneurs to different opportunities in international transactions, thereby improving levels of inclusive growth. Bataka (2019) also shows that globalization improves growth in Africa. Both *de jure* and *de facto* elements of globalization increase African economic growth.

Table 4. *Results of Estimations (Dependent Variable: Log of Inclusive Growth, LINGR)*

Variables	Panels corrected standard errors (PCSEs)	2SLS/IV
LEN	0.0343***	0.4654***
	(0.0069)	(0.0039)
LEGLO	0.3535**	1.7019*
	(0.028)	(0.0551)
GQ	-0.0185	-0.2206***
	(0.402)	(0.0047)
INF	-0.0074	-0.0091
	(0.249)	(0.2677)
LAIDI	-0.2919***	-0.8951***
	(0.000)	(0.0000)
Constant	1.1282*	-2.1291
	(0.069)	(0.5338)
Wald test	99.62***	28.2218***
Prob(Wald test)	0.0000	0.0000
Prob. (J-statistic)		0.1336
No. of countries	21	21

(Source) Authors' computation; figures in parentheses are p-values; *, **, and *** denote significance at the 10%, 5%, and 1% levels respectively.

Table 5 presents the results of the GMM, which are consistent with the results presented in Table 4, with the exception of the control variables, which are now statistically significant. This shows the effectiveness of dynamic panel data estimation. The lagged dependent variable is positive and significant, confirming that the past year's inclusive growth has a positive and significant effect on the current year's inclusive growth. Thus, economic globalization positively affects inclusive growth, which is consistent with the findings of Egbetunde and Akinlo (2015), Olimpia and Stela (2017), and Dada and Awoleye (2018).

Table 5. *Results of Estimation (Dependent Variable: Log of Inclusive Growth, LINGR)*

Variables	GMM	GMM	GMM
LINGR(-1)	0.0570*** (0.0028)	0.0171 (0.1972)	0.0490** (0.0106)
LEN	0.2175** (0.0576)	0.1935*** (0.0064)	
LEGLO	2.2500*** (0.0000)		2.7647*** (0.0000)
GQ	-0.5092*** (0.0001)	-0.0911 (0.6136)	-0.3497*** (0.0004)
INF	-0.0033 (0.5613)	0.0107* (0.0763)	0.0074*** (0.0013)
LAIDI	-0.4386*** (0.0016)	-0.5536*** (0.0000)	-0.4418*** (0.0014)
Prob. (J-statistic)	0.5019	0.2713	0.3072
AR(1)/P-value	0.0012	0.0029	0.0023
AR(2)/P-value	0.1811	0.4281	0.3393
No. of countries	21	21	21

(Source) Authors' computation; figures in parentheses are p-values; *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Entrepreneurship and economic globalization have positive and significant effects, but governance quality (GQ) and infrastructure (LAIDI) reduce growth inclusiveness. This reflects the weak governance levels in Africa; this has been a source of conflict, due to selfish leaders with vested, conflicting interests, and creates poor growth inclusiveness (Dada & Abanikanda, 2021; Nahavandian & Ghanbari, 2004). Overall, the results show that entrepreneurship and economic globalization improve the level of inclusive growth in Africa, which is contrary to the findings of Redding (1999) and Young (1991), who argue that globalization is detrimental to growth, especially when the economy specializes in sectors that have comparative disadvantages (see Barry, 2010; Musila & Yiheyis, 2015). In summary, our results reveal that economic globalization improves economic equality and encourages growth.

C. Impact of economic globalization on entrepreneurship

It has been acknowledged that economic globalization increases cross-border interactions through which developing countries have been integrated with the aim of attaining inclusive growth and development. Economic globalization offers the opportunity to utilize their comparative advantages through entrepreneurial productivity. Table 6 presents the estimation results concerning how economic globalization improves levels of entrepreneurial activity in Africa using the PCSE, 2SLS, and dynamic GMM. The results show that economic globalization has a positive and significant impact on entrepreneurial startups. This means that the economic

dimension of globalization has improved technologies and offered African entrepreneurs the opportunity to enjoy foreign capital and open international markets. Through economic globalization, African entrepreneurial startups have improved amid job creation, innovation, wealth multiplicity, and improved welfare impacts.

Table 6. *Results of Estimation (Dependent Variable: Log of new Business Density, LEN)*

Variables	Panels corrected standard errors (PCSEs)	2SLS/IV	GMM
LEN(-1)			0.4229***
			(0.0000)
LEGLO	3.1206***	4.9347***	0.4107***
	(0.000)	(0.0000)	(0.0000)
LINGR	-0.0459	-0.0096	0.0219
	(0.386)	(0.9460)	(0.6559)
LTIME	0.3657***	3.1561***	0.0516
	(0.003)	(0.0000)	(0.5380)
LSTARTUP	-0.8507***	-5.0016***	-0.7151***
	(0.004)	(0.0000)	(0.0000)
Constant	-11.6193***	-18.4984***	
	(0.000)	(0.0000)	
Wald test	70.81***	42505.48***	
	(0.000)	(0.0000)	
Prob. (J-statistic)		0.450675	0.5953
AR(1)/P-value			0.0963
AR(2)/P-value			0.5481
No. of countries	21	21	21

(Source) Authors' computation; figures in parentheses are p-values; *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

The results also show that startup procedures reduce entrepreneurial development. This finding is in line with the findings in Manum (2018), Ajide and Osinubi (2020), and Ajide (2020b). For the diagnostic indicators of GMM, the probability value of the J-statistic proves the validity of the instruments used in the study. In summary, we find that globalization affects entrepreneurship in the following ways: It encourages trade freedom and open markets for cross-border competition, which improves welfare and encourages African entrepreneurs to be innovative and develop new products. It encourages African entrepreneurs to search for new methods of improving efficiency and increasing product quality (Akpor-Robaro, 2012; Nickels et al., 2002; Pearce & Robinson, 2003).

D. Robustness checks

As a robustness check, we re-estimate the models using the PSCC standard errors technique

to confirm our earlier results. The technique employs OLS/weighted least squares and computes spatial correlation consistent standard errors based on Driscoll-Kraay procedures (Driscoll & Kraay, 1998; Nathaniel & Adeleye, 2021).

Table 7. *Results of PSCC for Linear Model with Driscoll-Kraay Standard Errors*

Variables	Entrepreneurship model	Inclusive growth model
LEN		0.0907**
		(0.0426)
LEGLO	4.4183***	1.1453***
	(0.1679)	(0.3407)
GQ		-0.0011
		(0.0586)
LINGR	-0.1038	
	(0.1012)	
LTIME	0.5790***	
	(0.0881)	
LSTARTUP	-.9167**	
	(0.3890)	
INFL		-0.0088
		(0.0063)
LAIDI		-0.3496***
		(0.0656)
Constant	-17.0473***	-1.7819
	(1.0278)	(1.4727)
Wald test	358.12***	55.25***
(P-value)	(0.0000)	(0.0000)

 (Source) Authors' computation; Figures in ( ) are Driscoll-Kraay standard errors.

Table 7 shows that the coefficients of entrepreneurship (LEN) and of economic globalization (LEGLO) are positive and significant, implying that economic globalization and entrepreneurship have positive impacts on inclusive growth in Africa. The results also confirm that economic globalization has a positive impact on entrepreneurship in Africa. A critical look at the coefficients reveals some interesting results. The significance levels remain unchanged from the earlier results, while improvements are observed in the coefficients. Finally, the overall significance as indicated by the Wald test improves, meaning that the results have a qualitative relevance for African countries.

E. Test for causality

The study also examines the linkages between economic globalization, entrepreneurship, and other variables using Dumitrescu-Hurlin Panel causality tests. One of the benefits of this technique is that it is applicable in the presence of cross-sectional dependence in the panel. The technique

is also appropriate if the number of cross-sectional units (N) is greater than the time (T) dimension (N > T) or if the number of cross-sectional units (N) is less than the time (T) dimension (N < T; Dumitrescu & Hurlin, 2012; Nathaniel & Adedoyin, 2020). Appendix Table D shows the feedback causality among the variables. The result indicates that the variables in this study are intrinsically linked. The link between economic and inclusive growth is especially pronounced, suggesting that economic globalization can drive inclusive growth, especially when the entrepreneurial environment is conducive. The table also shows unidirectional causality, moving from entrepreneurship to inclusive growth. This finding seems to have positive implications, especially if individuals are supported in their efforts to undertake entrepreneurial startups in Africa. Finally, we observe no direction of causality between economic globalization and entrepreneurship but observe bidirectional causality between governance and entrepreneurship. This finding is consistent with the findings of Méndez-Picazo et al. (2012) for 11 developed countries. Governance enforces property rights, including those of entrepreneurs. Inclusive growth allows broad segments of African society to participate in economic activities. This goal may be achieved by facilitating access to financial resources and creating conducive environments in all business areas.

V. Conclusion

This study examines the relationship between economic globalization, entrepreneurship, and inclusive growth in 21 African countries from 2006 to 2018. The study employs PCSE, 2SLS, GMM, and PSCC to analyze the data. The results reveal that the impacts of economic globalization and entrepreneurship on inclusive growth are positive and significant. Moreover, economic globalization improves the level of entrepreneurial development in Africa. Furthermore, causality tests show that economic globalization drives inclusive growth. They also reveal unidirectional causality, moving from entrepreneurship to inclusive growth. Finally, we observe no direction of causality between economic globalization and entrepreneurship but find bidirectional causality between governance and entrepreneurship. These findings imply that economic globalization opens up economic opportunities for individual entrepreneurs and promotes African growth inclusiveness. Economic globalization encourages entrepreneurs to pay attention to quality, which spurs creativity and innovation in their modes of operation. Economic globalization ensures inclusive growth because it lowers the prices of goods and services, which is an ingredient of competition enjoyed by the poor and other consumers. Economic globalization increases levels of entrepreneurial development by granting access to lower production resource costs. This allows African entrepreneurial firms to eliminate elements of production costs.

We recommend that African policymakers implement policies that would encourage economic globalization in order to obtain its benefits. As noted by Nickels et al. (2002), economic

globalization provides entrepreneurs with access to new markets and promotes quality production. It would also help the African population harness modern technology and raw materials for entrepreneurial engagement. This could reduce poverty levels and engage the population in helping to build African economic prosperity. An effective economic globalization policy would allow entrepreneurs to learn new methods and ideas from international competitors. Foreign experts could also move to African regions and provide new knowledge and technology to assist in local entrepreneurial development.

African economic policy reforms should seek the reduction of man-made barriers to international trade, including the relaxation of tariff barriers and the elimination of domestic trade restrictions. African countries need to change their centrally planned economies and hand more responsibility over to private sector players, with the government performing regulatory roles. African nations should actively promote multidimensional policies embracing the greater use of market systems to determine what, how, and for whom to produce. Effective cooperation between African unions and the formulation of regional trade agreements may help to foster economic globalization in Africa. In addition, the real costs of communication and transport need to be checked to foster economic globalization in Africa. It is also important to note that economic globalization creates environmental pollution, which can threaten public health systems. As explained earlier, economic globalization fosters the manufacturing sector, factory building, and tourism development. These activities may lead to unavoidable environmental degradation, which may threaten the environmental health of African citizens. Increasing environmental awareness may be helpful via formal and informal communication systems. Environmental regulations and standards should be implemented, including via the spread of environmentally friendly technologies and practices borrowed from developed economies through economic globalization. The importation of greener technologies should be encouraged in Africa. Environmental regulations should also ensure that high-polluting products are eliminated from economic globalization activities. This can reduce the pollution that may come from economic globalization. Further, effective business regulations and policies should be formulated to ensure that the foreign direct investment flowing through economic globalization does not discourage the creation of new domestic firms in Africa.

One of the main limitations of this study is that, due to data availability issues, we were unable to capture data for all 54 countries in Africa. In addition, some determinants of inclusive growth and entrepreneurship were not considered. Future studies should overcome these limitations by investigating the impact of economic globalization on entrepreneurship in other developing regions.

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Appendix

Table A. *Pesaran's Cross-sectional Dependence (CD) Test*

Variables	CD-Statistics	P-value
LINGR	6.224***	0.000
LEN	15.367***	0.000
LEGLO	3.803***	0.000
GQ	1.91*	0.056
INF	9.435***	0.000
LAIDI	39.731***	0.000
LTIME	29.483***	0.000
LSTARTUP	18.555***	0.000

(Source) Authors' computation,

Table B. *GLS Residual Based Pesaran's Cross-Sectional Dependence (CD) Test*

Residual based Spatial dependence Test	Entrepreneurship model	Inclusive growth model
Pesaran's test of cross sectional independence	3.301***(Pr = 0.0010)	1.255(Pr =0.2094)
Average absolute value of the off-diagonal elements	0.461	0.301

(Source) Authors' computation, Figures in ( ) are P-values

Table C. *Panel Unit Root Tests*

Variables	IPS at level		LLC Test at level		CIPS Test at level		Order of integration
	Intercept	Intercept +Trend	Intercept	Intercept +Trend	Intercept	Intercept +Trend	
LINGR	-4.543*** (0.000)	-4.064*** (0.000)	-4.483*** (0.000)	-2.421*** (0.007)	-2.686**	-2.695**	I(0)
LEN	-2.081** (0.018)	-1.824*** (0.034)	-3.492*** (0.000)	-6.709*** (0.000)	-2.825***	-2.818**	I(0)
LEGLO	-1.854** (0.031)	-1.598* (0.055)	-3.085*** (0.001)	-6.147*** (0.000)	-2.678**	-3.791***	I(0)
GQ	-8.820*** (0.000)	-3.104*** (0.001)	-3.503*** (0.000)	-7.2223*** (0.000)	-2.723***	-2.946***	I(0)
INF	-4.337*** (0.000)	-7.282*** (0.000)	-7.261*** (0.000)	-13.494*** (0.000)	-2.924***	-2.733**	I(0)
LAIDI	-4.962*** (0.000)	-3.166*** (0.000)	-4.906*** (0.000)	-3.117*** (0.000)	-2.722***	-2.634*	I(0)
LTIME	-2.021** (0.021)	-1.498* (0.067)	-8.689*** (0.000)	-6.169*** (0.000)	-2.820***	-2.640**	I(0)
LSTARTUP	-5.601*** (0.000)	-7.402*** (0.000)	-7.464*** (0.000)	-8.132*** (0.000)	-2.637***	-3.089***	I(0)

(Source) Authors' computation; Figures in parentheses are p-values. *,**,***, means significant at 10%, 5% and 1% level. The CIPS Critical values are -2.6, -2.7, -2.89 for 1%, 5% and 10% level.

Table D. *Dumitrescu-Hurlin Panel Causality Tests*

Direction of causality	W-Stat.	Zbar-Stat.	Prob.	Any causality?
LEN → LINGR	2.65269	2.41550	0.0157	Yes
LINGR → LEN	1.24009	-0.16495	0.8690	No
LEGLO →LINGR	2.68596	2.47627	0.0133	Yes
LINGR → LEGLO	4.37287	5.55782	3.E-08	Yes
GQ → LINGR	4.86910	6.46429	1.E-10	Yes
LINGR → GQ	1.38998	0.10886	0.9133	No
INF → LINGR	1.58197	0.45959	0.6458	No
LINGR → INF	1.82195	0.89796	0.3692	No
LAIDI → LINGR	3.13231	3.29164	0.0010	Yes
LINGR → LAIDI	1.89993	1.04040	0.2982	No
LEGLO →LEN	1.57475	0.57590	0.5647	No
LEN → LEGLO	1.69270	0.81091	0.4174	No
GQ → LEN	2.91347	3.24324	0.0012	Yes
LEN → GQ	2.79211	3.00143	0.0027	Yes
INF → LEN	2.27001	1.96117	0.0499	Yes
LEN → INF	2.06935	1.56136	0.1184	No
LAIDI → LEN	2.62805	2.67456	0.0075	Yes
LEN → LAIDI	3.23493	3.88374	0.0001	Yes
GQ → LEGLO	1.58971	0.60570	0.5447	No
LEGLO → GQ	3.51771	4.44716	9.E-06	Yes
INF → LEGLO	1.90773	1.23934	0.2152	No
LEGLO → INF	1.58810	0.60250	0.5468	No
LAIDI → LEGLO	2.14100	1.70413	0.0884	No
LEGLO → LAIDI	2.65196	2.72220	0.0065	Yes
INF →GQ	0.55853	-1.44890	0.1474	No
GQ → INF	2.90415	3.22468	0.0013	Yes
LAIDI → GQ	5.32777	8.05365	9.E-16	Yes
GQ → LAIDI	2.29345	2.00787	0.0447	Yes
LAIDI → INF	3.65483	4.72037	2.E-06	Yes
INF → LAIDI	0.86027	-0.84768	0.3966	No

(Source) Authors' computation