



Role of Globalization and Education Defining the Incidence of Entrepreneurship

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Abstract

Globalization aided by education moderates the market prospects to achieve economic growth. When economic, political, and social forces of globalization gain traction with the skilled individuals, entrepreneurial results reach out. Policymakers are still searching for a context where regional policies can turn globalization to foster long-term entrepreneurship opportunities. The literature on entrepreneurial phenomena is incomplete and uncertain as to how globalization forces establish a nonlinear mechanism to promote the entrepreneurial process and does education intervenes in this relationship. This study adds on the theory for identifying how education can moderate the globalization forces on the entrepreneurial process. The results showed that quality of education moderates the economic and political globalization to boost entrepreneurship.

Keywords Variable returns model · Internationalization · Financing · Education quality

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Introduction

Policymakers and researchers have accepted the role of entrepreneurship development towards social-economic development (Hall et al., 2010). Along with social-economic contribution and local and regional dynamics of entrepreneurship, the process could be fostered based on the following factors: availability of finance, limited liability, low taxes and duties, tax incentives, and trade with low tariffs (Isenberg, 2010; Khan et al., 2005; Roni, 2003). Studies have focused on the entrepreneurship process that could be enhanced by taking initiatives such as availability of finance, low-interest rates, low taxes, tariffs reduction, and tax rebates (Khan et al., 2005). Independently to the local, regional dynamics, the role of globalization that is limitedly studied is essential for developing a broad context of entrepreneurial development (Coulibaly et al., 2018). However, the least focus is given on the individual cognitive processes such as competencies and skills based on education quality that govern intentions and behaviour to become an entrepreneur.

Entrepreneurship development requires environmental conditions and economic factors (Roni, 2003). Regional innovation system research demands to link the competitive education programs for personal development necessary for entrepreneurship development (Audretsch & Belitski, 2017). An effective education system develops personality behaviour and individual traits necessary for entrepreneurship in a region. Studies have focused on national-level dynamics that influence entrepreneurship and innovation (Nelson, 1993). However, individual factors are also important in developing entrepreneurship, especially human competencies (Polas et al., 2021).

The quality of the education system recognizes the importance of human capital development that transform skills into entrepreneurial competencies. Individuals with higher skills levels are more encouraged and motivated than those with poor skills (Tsai et al., 2016; Williams & Rhodes, 2016). Knowledge, skills, and competencies are creative traits for new startups (Kor et al., 2007; Liang et al., 2017). The education system develops an objective approach to develop business management skills such as individuals could control their emotions such as fear of failure. Individuals with capabilities will be creative, and also, they will realize business opportunities. Capability on the entrepreneurship intentions and fear of failure stopped the individuals from going forward (Cacciotti & Hayton, 2014).

Independently to the macro- or micro-levels, entrepreneurship needs to be closely linked with education, skills, and abilities (Arshed et al., 2021; Kaur & Bains, 2013). An interactive knowledge-based training develops an entrepreneurial culture where people could become entrepreneurs with a strong desire to become entrepreneurs (McClelland, 1961). Therefore, they will promote innovation in new startups (Davies, 1991).

A holistic approach in a broader global context, entrepreneurship development has captured the world's attention, especially in Europe (Acs et al., 2014). In this regard, Shrader et al. (2000) demonstrated the relationship between globalization and entrepreneurship as current research emphasizes global entrepreneurship (Mathews & Zander, 2007), and our study is looking at this relationship with the

moderating effects of individual capabilities. Globally, entrepreneurship is getting attention in research as an advancement of global technologies has reduced the cost of information, which is also the major determinant of entrepreneurship (Acs & Preston, 1997; Audretsch & Thurik, 2001; Dunning, 1993).

In the entrepreneurial process progression, globalization comes with opportunities to create economic profits. In order to exploit these business opportunities, training-based programs, promoting entrepreneurial education, vocational training programs, and the role of incubators centres have wide scope to develop human competencies and skills. Therefore, global factors could transform local business opportunities as international dynamics affect local entrepreneurship dynamics. Individuals' perception of the threat and opportunity is the cognitive phenomena, which classifies the individual's decision-making for entrepreneurship (Krueger Jr & Dickson, 1994).

The aim of this study is to cover the methodological and theoretical gap of linking individual competencies and skills developed in a local and regional education system with business opportunities opening in the context of globalization. Therefore, it requires developing dynamic models to analyse multilevel factors that interact, translating into new business ideas.

Literature Review

Globalization and Entrepreneurship

As an increasingly global economy, organizations focus on better manufacturing operations, labour markets, improved competition in marketing activities, and technology. The economies at different levels of development have opened their borders for foreign investments and free trade of goods and services (Sagagi, 2007). Different scholars have defined globalization in different ways, but from the perspective of business and economics is defined as the free trade of economic goods and resources. The definition of globalization by Baker (1996) is a driving force of societies into global coordination and creating a market for the exchange of products and services internationally with no border limits. From a business perspective, globalization is defined by (Ajayi, 2003; de Arruda & Enderle, 2004; Sagagi, 2007) as the combination of national economies through trade and capital flows, opening new markets, the subtraction of capital control, possible by trade liberalization, and the technology development. As defined by Adenuga (2003), globalization develops a global market where all the economies can run their business for growth.

Fischer and Strandberg-Larsen (2016) defined globalization as the combination of concepts, ideas, capital, persons, images, values, and traded products across the domestic borders as the consequences of higher interdependency of economic and political factors. Due to the increased globalization, businesses have started their operations globally with less trade barriers, which can also improve the transportation system, communication systems, logistics, and technologies; this also has provided benefits to buyers and sellers to exchange products globally efficiently (Andersson & Wictor, 2003; Carasco & Singh, 2009; Harford, 2007; Knight & Cavusgil, 1996).

Globally, entrepreneurship is the major focus, which has drawn the attention of the countries (Akpór-Robaro, 2004). Globalization is directly linked with entrepreneurship with its positive and negative effects. The major positive effects of globalization are that it develops entrepreneurship by identifying business opportunities and faster accessibility of resources. With its negative effects, it is claimed that globalization also destroys the creativity of the people in the underdeveloped nations as they depend more on developed countries (Akpór-Robaro, 2004; Nickels et al., 2002; Pearce et al., 2003). The effect of globalization on entrepreneurship worldwide depends on the policies and industrial developments of the nations (Akpór-Robaro, 2004).

Knowledge and Skills Affecting the Intentions to Become an Entrepreneur

There are numerous factors to promote entrepreneurship, including environmental conditions and economic factors (Roni, 2003). Individual factors are also important in developing entrepreneurship, especially human competencies (Polas et al., 2021). Perceived capability is the assessment of the skills and abilities of the individual. Perceived capability is the basic element of individual performance, and it determines their intentions. Individuals with higher skills levels are more encouraged and motivated than those with poor skills (Tsai et al., 2016; Williams & Rhodes, 2016). The perceived capability directly connects with the trust in oneself to start their own business and become creative (Kor et al., 2007; Liang et al., 2017). Individuals who fear failure hinder their entrepreneurial abilities to avoid risk in life. Despite the problems, if individuals have higher perceived capabilities, they will be more willing to take risks and become creative. Research has also demonstrated the effects of perceived capability on entrepreneurship intentions, and fear of failure stopped the individuals from going forward (Cacciotti & Hayton, 2014).

If the individuals fear failure and expect embarrassment, it stops them from doing something creative and taking initiation (Huggins & Thompson, 2014; Shepherd & Patzelt, 2011). Therefore, assessing one's capabilities leads them to become entrepreneurs and achieve their goals (Cheraghi et al., 2014). Individuals with higher perceived capabilities develop mental happiness (Koellinger et al., 2013). Additionally, the assessment of the perceived situation affects the individual courage. The commitment of the individuals with their work and initiation creative business leads towards the economics developments at national levels (Dutton & Jackson, 1987; Sund, 2013). Morris et al. (2013) determined that perceived competence affects the perceived capability which develops sustainable entrepreneurship. Individuals who believe in their skills and abilities can have good intentions for sustainable entrepreneurship (Koellinger et al., 2013; Tsai et al., 2016).

For the country's economic growth, skills and abilities of entrepreneurs are significant that are developed through knowledge and education quality (Kaur & Bains, 2013). People can become entrepreneurs if they desire and need to achieve (McClelland, 1961). Entrepreneurship is promoted with the people's desire for achievement as it results in the economy's growth by raising innovation (Davies, 1991). Shrader et al. (2000) demonstrated the relationship between globalization and entrepreneurship as currently, the

research emphasizes global entrepreneurship (Mathews & Zander, 2007), and our study is looking at this relationship with the moderating effects of perceived capabilities. Globally, entrepreneurship is getting attention in research as an advancement of global technologies has reduced the cost of information, which is also the major determinant of entrepreneurship (Acs & Preston, 1997; Audretsch & Thurik, 2001; Dunning, 1993).

Human competencies are very significant in the development of societies and economies. Competencies are the collection of capability, knowledge, and attitude, and they are learnable, changeable, and achievable with time, training, and experiences (Khan et al., 2020; Solesvik, 2019), and these skills are essential to becoming an entrepreneur to run successful and smooth business setup. Human competencies and perceived capabilities are the potentials and abilities that make them able to achieve the desired results of the actions (Arshed et al., 2021; Morris et al., 2013; Robles & Zárraga-Rodríguez, 2015).

The abilities, mindset, and thinking of the individuals involved in the global business affect globalization and make it successful (Gupta & Govindarajan, 2002). Individuals with a positive mindset to global capabilities can develop a global mindset for businesses (Murtha et al., 1998). Multiple organizational factors develop a global mindset besides external environmental factors (Kobrin, 1994), such as organization's develops abilities in the individuals to work into the different cultures and markets through globalization.

Globalization provides opportunities for the business to grow, and the people who have the capabilities to handle the global factors can develop their business at international levels with the promotion of entrepreneurship. The individual's perception of the threat and opportunity is the cognitive phenomena that classify the individual's decision-making for entrepreneurship (Krueger Jr & Dickson, 1994). Global Entrepreneurship Monitor (GEM) has described the above two cognitive perceptions as the major factors directly linked with the individuals' readiness to initiate a business at a global level (Kelley, 2013). As perceptions of opportunity and threat are the determinants of perceived competencies (Chell, 2013) and perceived opportunity and fear of failure have not been studied before with the perspective of entrepreneurship, and perceived capabilities have not been studied as moderators on the relationship between globalization and entrepreneurship.

Optimistic and Pessimistic Sides of Globalization Promoting Entrepreneurship

There is a bright and dark side to globalization. Globalization promotes entrepreneurship as it increases entrepreneurship and economic independence, and all the countries involved in the global business get prosperity and development. However, other than these bright features of entrepreneurship, there are also dark features, such as economic manipulation, reducing the individual's creativity, and majorly due to globalization, the developing countries are dependent on the rich ones. However, the experience of globalization by each country is different depending on their national policies and rules and their individual perceived capabilities. Globalization is a mixture of benefits and losses (Akpór-Robaro, 2012).

Literature has described that globalization promotes entrepreneurship in numerous ways. First, due to globalization, competition has risen in the global markets,

forcing the producers and business practitioners to stay updated and fulfil the customer's desires. Secondly, globalization has removed market obstacles, and local entrepreneurs are producing new products and targeting global customers in the global markets. In this way, global entrepreneurs are increasing their product effectiveness by adopting competitive productivity methods. Third, the major significant advantage of globalization is that it has improved the products and services quality globally as the competition among the rivals are based on the product and service quality at the international levels to meet international consumer's requirements (Nickels et al., 2002; Pearce et al., 2003). In the global markets, individuals with strong perceived capabilities, who think they have the skills and abilities to be creative and compete in the global markets, can develop entrepreneurship.

According to the Creative Destruction Theory, innovative entrepreneurial activities promote economic growth in developing countries. There are multiple outcomes of involving in disruptive market activities. It also includes entrepreneur's evolution and success (Aldrich & Martinez, 2007). Entrepreneurship significantly influences developing countries due to its global reputation and innovative developments (Öner & Kunday, 2016). Developing countries are also playing a significant part in promoting entrepreneurship as they provide cheap labour services, which is more than half of the other world countries' labour cost (Bailey, 2015). FDI in China and India is increasing as they produce a third of each job, and their university graduates provide 20% of the labour services. Human capital and human commitment are the major determinants of entrepreneurship as human research and developments by human capital have increased the investment returns, opportunities, and the organizational cost has also decreased (Acs & Audretsch, 1988; Kirzner, 2009; Williamson, 2005).

Globalization causes many challenges with the benefits as well, such as liberalization of markets, strong competition, low revenue, cyclical crises, down domestic job market, non-tariff obstacles for trade, spread of pandemics, and security issues. The least developed countries do not have enough competencies to deal with the globalization challenges (HDR, 2002; Subrahmanya, 2007). Research is focusing more on the advantages of globalization as Audretsch (2003) presented the two major developments of globalization, including improvements in the innovation and clusters which happened due to the collaboration of multiple nations for the economic activities, and the other advantage is the local, regional cluster developments by the innovative firms. As different regions have come closer together through collaboration in economic activities, it has caused strong competition among the organizations and the regions. Due to globalization, entrepreneurs have access to world markets to get production ideas to provide quality products in the local markets. Immigrants from global markets provide knowledge and ideas to local entrepreneurs in developing markets, as globalization has made it possible to transfer knowledge and technologies globally (Hameed et al., 2021). However, if we look at the dark side of globalization, it discourages the creativity and innovation of the local citizens as they can get products from global markets at low prices, so they cannot enhance their productivity skills (Arshed et al., 2022). Globalization has made the local entrepreneurs compete in the global markets with the entrepreneurs from

developed countries who have more resources and facilities, and their production cost is also low (Akpór-Robaro, 2012).

Trade theory states that globalization decreases inequality, as trade theory focuses on an open trade in global markets, minimizing inequality. Trade theory has discussed trade among the countries and now focuses on the organizations. It focuses on the role played by the organizations in globalization through trade with other nations. This is the way to reduce the fixed trade cost and uncertainties, resulting in welfare, innovation, and increased productivity (Ciuriak et al., 2015). There are several benefits of open trade, and the major is the decrease in inequality as the income comes to local countries and their income levels get increased.

Globalization is the major determinant for entrepreneurs to produce quality products. As globalization is rising, it forces innovation and creativity research and effective production techniques and processes, which is only possible when individuals think they have cognitive abilities and perceived competencies to be entrepreneurs. Due to the market competition in global markets, the product prices are not rising much, which is favourable for the entrepreneurs and customers as entrepreneurs can get their production materials at a low cost (Nickels et al., 2002). Due to globalization, producers and entrepreneurs can easily access global markets for technologies and materials. The transfer of advanced technologies is also possible for production purposes due to the possibility of global mobility (Akpór-Robaro, 2012). In Nigeria, a study was conducted by Akpór-Robaro and Erigbe (2019), which resulted in that globalization has both positive and negative impacts on entrepreneurship and affects differently in different markets. However, globalization has more positive impacts on entrepreneurship than negative ones.

The economic theory focuses on growth and poverty reduction by promoting competition, specialization, incentives for macroeconomics, scale economics, and innovation. Poverty and globalization have a negative relationship (Bergh & Nilsson, 2014). Economic activities are beneficial to cover financial transactions. The modern theory of financial globalization has focused on reducing global financial transactions and emerging markets. Developing countries will get higher capital inflows in this way (Gabaix & Maggiori, 2015). National savings, level of development, productivity, and organization's quality are all factors that affect financial globalization.

A study was conducted on the low-income African countries by Dreher (2006) and Rao and Vadlamannati (2011), which emphasizes the effects of globalization on social, economic, and political growth and development, and concluded that globalization impacts positively on economic growth as it increases innovation and creativity. Akpór-Robaro and Erigbe (2019) conducted a study in OIC countries to analyse the influence of economic globalization on economic development and growth to compare developed and developing countries and demonstrate that globalization has more positive impacts on developed countries. Globalization also has indirect effects on the complementary reforms on development. Globalization promotes social developments by developing human capital. If the individuals have competencies and skills, they will have more involvement in the global business to promote entrepreneurship.

A study conducted by Jones (2006) and supported by European Commission (2004) stated that globalization influences an entrepreneur's decision-making

process, which is proceeded by his abilities. If an individual has skills, global knowledge, and abilities to initiate globally, globalization will promote entrepreneurial activities. Knight (2000) stated that globalization had developed motivation and commitment in organizations to be involved in entrepreneurial activities by focusing on quality products, innovative marketing approaches, and specialized business operations. Knight (2000) also found that globalization encourages organizations to perform better in global places.

The empirical studies had focused on the role of globalization on the entrepreneurial prospects of the country while discussing the conditions which determine their positive and negative effect. However, the empirical investigation of how the globalization effects can be managed is overlooked. This study adopts the cognitive abilities of individuals as a major factor in managing external information from globalization and incorporates it as the role of education in the study.

Conceptual Model

The theoretical model of this research focuses on the model of variable effects of globalization on entrepreneurship which change because of size of globalization. The variable effect hypothesis leads to three types of outcomes: (1) linear effect (positive or negative), (2) U-shaped effect, and (3) inverted U-shaped effect. Here, literature is mixed interns of how globalization affects entrepreneurship. A study by Arshed et al. (2021) assessed the variable effects of education on entrepreneurship using the Haans et al. (2016) framework. For the case of U-shaped or inverted U-shaped effect, this study seeks to find a threshold point or region for every nation that defines an optimal point where the globalization climate favours the process of entrepreneurship. If the study confirmed U shape, this shows that excessive globalization open doors for entrepreneurship and if it is inverted U shaped, it showed that excessive globalization bring unnecessary competition from abroad which discourages entrepreneurship. This study proposes that the quality of education enables individuals to tackle the available information to start their venture (Hameed et al., 2022). Hence, this study also added the moderator to the globalization entrepreneurship relationship in education quality as a national level policy intervention assessing using (Haans et al., 2016) framework.

Data and Methods

Variables and Data Sources

Table 1 discusses the variables which are deployed in this study in order to achieve the research objectives.

Estimation Equation and Model

The following are two equations estimated in this study: the data comprises unbalanced panel data of 149 countries between 2008 to 2018. The Panel Feasible

Table 1 Construction of Variables

Variables (symbols)	Definition	Source
Economic globalization (EG)	“It is an index comprising of the flow of trade and finances and restrictions on trade and finances.”	Gygli et al. (2019)
Social globalization (SG)	“It is an index comprising of the flow and restrictions related to personal contact, information flows and cultural proximity to other countries.”	Gygli et al. (2019)
Political globalization (PG)	“It is an index comprising the number of embassies, international memberships, UN security council participation, and international treaties.”	Gygli et al. (2019)
Necessity entrepreneurship (NECE)	The proportion of entrepreneurs who are necessity driven	Bosma et al. (2022)
opportunity entrepreneurship (OPP)	The proportion of entrepreneurs who are opportunity driven	Bosma et al. (2022)
Quality of education system (QES)	The degree to which the education system meets the needs of a competitive economy? 1 = not well; 7 = very well.	Schwab (2019)
Firm technology absorption (FLT)	The extent to which businesses adopt the latest technologies? 1 = not at all; 7 = to a great extent	Schwab (2019)
Financing for entrepreneurs (FFE)	The availability of financing via debt or equity to SMEs	Bosma et al. (2022)

Generalized Least Square (FGLS) model to allow the variation of standard errors across the cross-sections (Arshed et al., 2021) which is used in this study. The estimation equations had used the quadratic specification of EG, SG, and PG as proposed by Arshed et al. (2021) to allow for variable effects. This quadratic specification can be used to find the threshold effects of globalization on both opportunity and necessity entrepreneurship. Several studies have used this approach to find the thresholds (Arshed et al., 2022; Wang et al., 2021). Further, this study has added the quality of education (QE) as a moderator to the quadratic relationship, expecting that education will improve the capabilities to start a new business plotted using Dawson (2014) method. Lastly, the model controls firm-level technology absorption (FLT) and financing availability for entrepreneurs (FFE).

$$\begin{aligned}
 NECE_{it} = & \alpha_1 + \beta_1 EG_{it} + \beta_2 EG_{it}^2 + \beta_3 SG_{it} + \beta_4 SG_{it}^2 \\
 & + \beta_5 PG_{it} + \beta_6 PG_{it}^2 + \beta_7 QE_{it} + \beta_8 EG * QE_{it} \\
 & + \beta_9 SG * QE_{it} + \beta_{10} PG * QE_{it} + \beta_{11} FLT_{it} \\
 & + \beta_{12} FFE_{it} + \varepsilon_{it}
 \end{aligned}$$

$$\begin{aligned}
 OPP_{it} = & \alpha_1 + \beta_1 EG_{it} + \beta_2 EG_{it}^2 + \beta_3 SG_{it} + \beta_4 SG_{it}^2 \\
 & + \beta_5 PG_{it} + \beta_6 PG_{it}^2 + \beta_7 QE_{it} + \beta_8 EG * QE_{it} \\
 & + \beta_9 SG * QE_{it} + \beta_{10} PG * QE_{it} + \beta_{11} FLT_{it} \\
 & + \beta_{12} FFE_{it} + \varepsilon_{it}
 \end{aligned}$$

Estimation Results

Descriptive Statistics

Table 2 reports the descriptives of the variables used in the study. Here, we can see that the mean value is greater than the standard deviation for all the variables, confirming that they are underdispersed. This property entails that the data follows some pattern and ensures that the mean value is a better representative than an over-dispersed variable.

Table 2 Descriptive statistics of variables

Statistic	EG	SG	PG	NECE	OPP	FFE	QES	FLT
Mean	62.48	68.10	73.96	7.13	47.70	2.54	3.92	4.92
Median	62.45	70.42	77.23	5.69	47.31	2.48	3.72	4.88
Std. dev	15.55	16.07	18.19	5.19	12.70	0.43	0.94	0.72
Skewness	-0.12	-0.62	-1.16	1.78	0.02	0.25	0.39	0.04
Kurtosis	2.11	2.51	4.41	5.56	2.47	2.54	2.34	2.16

Table 3 Correlation matrix

	OPP	NECE	EG	SG	PG	FFE	QES	FLT
OPP	1.00							
NECE	-0.11	1.00						
EG	0.34	-0.44	1.00					
SG	0.36	-0.50	0.85	1.00				
PG	0.07	-0.44	0.23	0.32	1.00			
FFE	0.38	-0.33	0.42	0.31	0.18	1.00		
QES	0.48	-0.34	0.56	0.57	0.18	0.49	1.00	
FLT	0.48	-0.35	0.59	0.62	0.28	0.45	0.67	1.00

Table 3 provides the correlation between the selected variables. Here, opportunity entrepreneurship (OPP) is positively associated, and necessity entrepreneurship (NECE) is negatively associated with all independent variables.

Table 4 provides the estimation result of the opportunity and necessity entrepreneurship model using the FGLS model. Based on the sample of 423 country-year observations. The *F* test is significant in both models. This shows that the globalization model successfully explains the necessity entrepreneurship. The intercept that is positive for both models shows that while independent variables are constant, there is a positive trend in entrepreneurship across the countries and time. This accounts

Table 4 Regression estimates

Model Variables	Opportunity entrepreneurship		Necessity entrepreneurship	
	Coefficient	Prob	Coefficient	Prob
EG	1.58	0.01	-0.27	0.00
EG ²	-0.01	0.00	0.005	0.00
SG	4.18	0.00	-0.22	0.10
SG ²	-0.03	0.00	-0.002	0.06
PG	-5.64	0.00	-0.22	0.04
PG ²	0.03	0.00	-0.0004	0.41
EG*QES	0.04	0.66	-0.09	0.00
SG*QES	-0.08	0.54	0.12	0.00
PG*QES	0.18	0.06	0.04	0.00
QES	-14.10	0.09	-5.93	0.00
FFE	3.85	0.00	-1.04	0.00
FLT	-5.42	0.00	-0.58	0.00
Intercept	119.2	0.00	58.47	0.00
Regression statistics				
Sample size	423		423	
Cross sections	85		85	
<i>F</i> test (Prob)	10942 (0.00)		643 (0.00)	

for the increase in awareness and experience in the general public because of knowledge availability.

The controlling factors show that a 1% increase in the financing to entrepreneurs (FFE) increases opportunity entrepreneurship by 3.85% while decreasing necessity entrepreneurship by 1.04% on average. This shows that ease of financing helps individuals venture into innovative ideas, thus increasing opportunity entrepreneurship. Further, a 1% increase in the firm level technology absorption (FLT) decreases opportunity entrepreneurship by 5.42% while decreasing necessity entrepreneurship by 0.58% on average. Technological advancement cultivates an education system that creates new business opportunities (Owen-Smith & Powell, 2004). This is because when a firm absorbs technology, it also motivates intrapreneurship. Financial support, education, skills, and competencies are also essential for entrepreneurship (Sirine et al., 2019).

The shape is determined by the coefficient value while assessing the quadratic effects of three dimensions of globalization. For the case of economic globalization, it is following inverted U-shaped relationship with opportunity entrepreneurship, while it has U-shaped relationship with necessity entrepreneurship. Audretsch (2003) explained the interaction process among countries that help them globalize their industrial clusters. This means that at low levels of economic globalization, residents of the country can benefit the gains from trade and financial flows leading to the entrepreneurship of opportunity and decreasing necessity entrepreneurship, but with the increase in economic globalization, there is an increase in competition from abroad in the form of FDI or superior products which will diminish the opportunity entrepreneurship.

Nijkamp (2003) recognized the importance of social environment, and individual knowledge and competencies are important factors for entrepreneurship. Therefore, global social factors increase opportunities in the form of inverted-U shaped relations while reducing the necessity entrepreneurship. This points to the notation that

Fig. 1 Quadratic fit of opportunity entrepreneurship and economic globalization

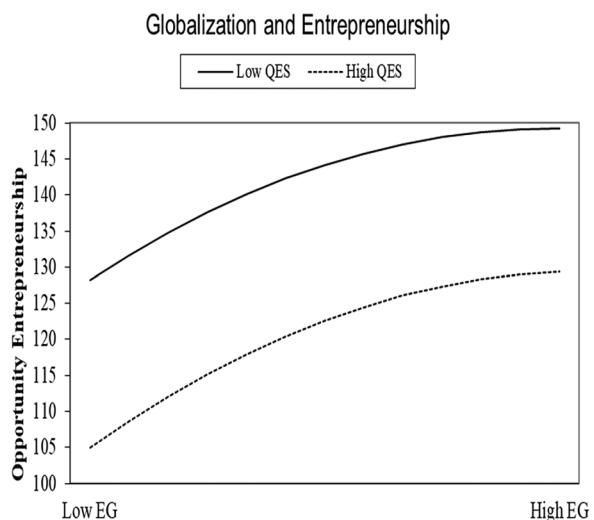
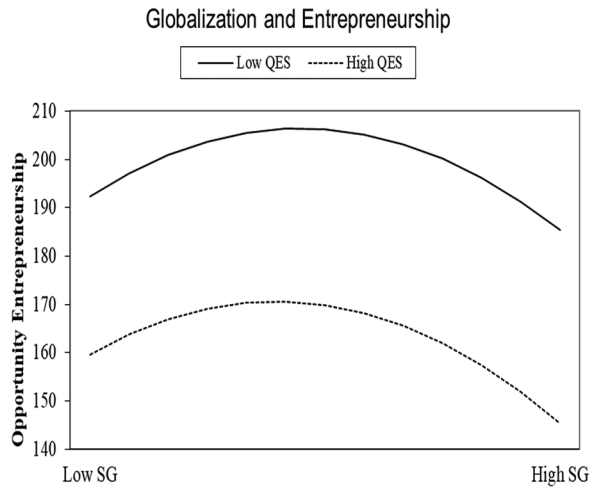


Fig. 2 Quadratic fit of opportunity entrepreneurship and social globalization



when the countries are moving towards social integration with the world, it tends to build a network of trust and confidence that build resources that are shared towards new opportunities as ideas are shared across cultures. This inadvertently reduces the proportion of people who are becoming necessity based entrepreneurs.

Global political constraints also put pressure on new business opportunities due to a lack of established related laws. Moreover, Akpor-Robaro and Erigbe (2019) found the influence of economic globalization on economic developments and growth. Once the processes mature under the government’s supervision, new growth of opportunities turns into growth. As government knows, innovators have an important contribution to the country’s overall growth (Muhammad et al., 2019). Lastly, it shows a U-shaped relationship with opportunity entrepreneurship and negative with necessity entrepreneurship for political globalization.

Lastly, while discussing the moderating effect of quality of education (QES), it can be seen that overall it has a negative effect on both types of entrepreneurship. This shows that better education increases the quality of the individual as a labour

Fig. 3 Quadratic fit of opportunity entrepreneurship and political globalization

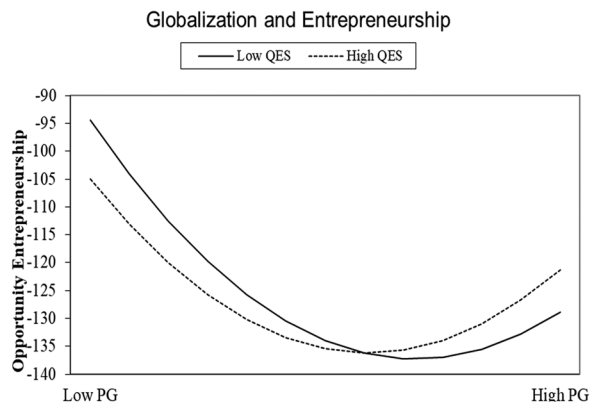
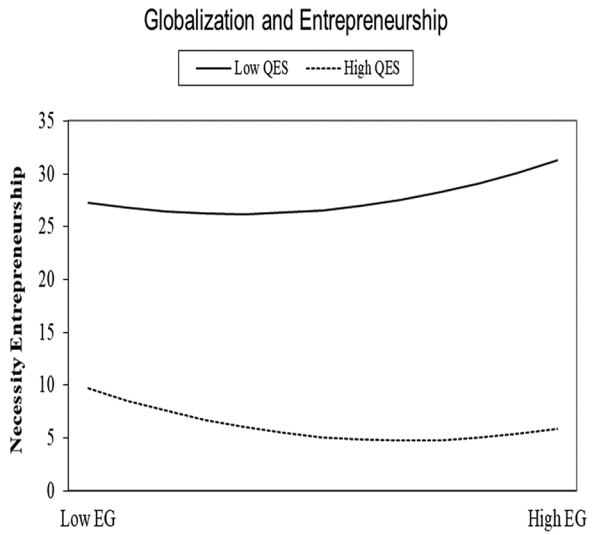


Fig. 4 Quadratic fit of necessity entrepreneurship and economic globalization



and also makes him more risk-averse, which increases intrapreneurship (employed labour) rather than entrepreneurship.

For the case of opportunity entrepreneurship, QES is positively moderating the economic and political globalization relationship (in Figs. 1 and 3) while negatively

Fig. 5 Quadratic fit of necessity entrepreneurship and social globalization

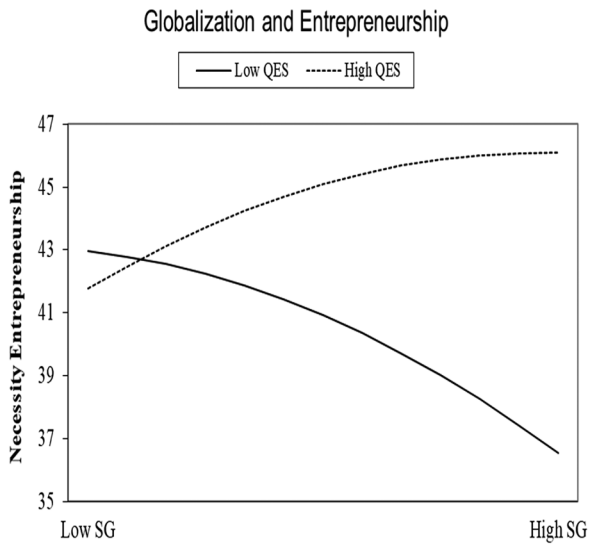
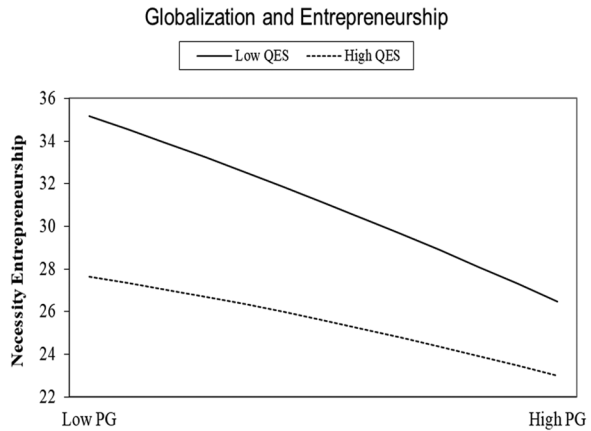


Fig. 6 Quadratic fit of necessity entrepreneurship and political globalization



moderating the social globalization relationship (Fig. 2). Here, Figs. 1, 2, and 3 show that generally, QES reduces the OPP, but for the case of high PG, QES increases OPP.

For the case of necessity entrepreneurship, QES negatively moderates economic globalization (Fig. 4) and positively moderates social and political globalization (Figs. 5 and 6). Here, it is evident that QES is generally decreasing the NECE, but for the case of SG, QES increases NECE.

Conclusion and Policy Implications

This study demonstrates and confirms the relationship between entrepreneurship and globalization in education quality. Moreover, the study develops a new conceptual model previously considered a challenge among policymakers and scholars. This study findings support how trade theory and economic theory show the importance of the globalization process that is essential for entrepreneurial development, which is necessary for reducing inequality through open trade policy. The aim of economic theory focuses on poverty reduction, self-employment, competitiveness, and growth. Globalization conceptualization is aligned with these theories that address how economic and human resources could be utilized for sustainable growth in a region.

Globalization policy gets effective within the context of education policy that develops human resources capable of responding to new business opportunities. Quadratic relationship among variables determines by using a large set of data. The variables used in this study reveal the importance of the existing framework to improve economic scenarios and outlook. Therefore, entrepreneurs will explore new business opportunities rather than they just rely on necessity based entrepreneurship. For instance, digital entrepreneurship fosters global competition where developed and underdeveloped countries participate and compete.

This study presents an ideal policy framework that is not solely based on conventional economic growth models, but it covers the global environment that interacts with local dynamics of quality of education by integrating global institutional,

economic, social, and political factors. Moreover, this connects the education system with the modern learning pedagogies such as entrepreneurial training and development, vocational training programs, public and private incubators centres, digital entrepreneurship, and government support programs. These initiatives have wide policy implications that emphasize the role of education quality in the context of a global entrepreneurial environment in a region that could create a competitive advantage and foster new business opportunities. Further studies are needed to capture the broader context of knowledge-based economic systems that introduce other actors and users who play a vital role in the digital global entrepreneurial environment.

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Author Contribution All authors have equally contributed in the preparation of the study.

Availability of Data and Material All results reported in this research was carried out in R computational environment. Data is publicly available. and sources are discussed in Table 1.

Declarations

Ethics Approval and Consent to Participate This article does not contain any studies with human participants or animals performed by any of the authors.

Competing Interests The authors declare no competing interest.

References

- Acs, Z. J., & Audretsch, D. B. (1988). Innovation in large and small firms: An empirical analysis. *The American economic review*, 678–690.
- Acs, Z. J., Autio, E., & Szerb, L. (2014). National systems of entrepreneurship: Measurement issues and policy implications. *Research Policy*, 43(3), 476–494.
- Acs, Z. J., & Preston, L. (1997). Small and medium-sized enterprises, technology, and globalization: Introduction to a special issue on small and medium-sized enterprises in the global economy. *Small Business Economics*, 9(1), 1–6.
- Adenuga, A. (2003). Information technology and globalization: The challenges of human capital development in Nigeria. *CBN Bullion, July/Sept*, 45–55.
- Ajayi, S. I. (2003). Sub-Saharan Africa: The Myth and the Reality. In E. N. Dinello & L. Squire (Eds.), *Globalization and equity perspective from developing world* (pp. 67–85). Cheltenham, UK: Edward ELgar.
- Akpor-Robaro, M. O., & Erigbe, P. A. (2019). Globalization and indigenous entrepreneurship development in developing economies: A case study of manufacturing and commerce (trade) in Nigeria. *Journal of Small Business and Entrepreneurship*, 7(2), 61–72.
- Akpor-Robaro, M. O. M. (2012). The impact of globalization on entrepreneurship development in developing economies: A theoretical analysis of the Nigerian experience in the manufacturing industry. *Management Science and Engineering*, 6(2), 1–10.
- Akpor-Robaro, M. R. (2004). Introductory notes on the theories of entrepreneurship. *Lagos: Bendona and Associates*.
- Aldrich, H. E., & Martinez, M. A. (2007). Many are called, but few are chosen: An evolutionary perspective for the study of entrepreneurship. *Entrepreneurship* (pp. 293–311). Springer.
- Andersson, S., & Wictor, I. (2003). Innovative internationalisation in new firms: Born globals—The Swedish case. *Journal of International Entrepreneurship*, 1(3), 249–275.
- Arshed, N., Hanif, N., Aziz, O., & Croteau, M. (2022). Exploring the potential of institutional quality in determining technological innovation. *Technology in Society*, 68, 101859.

- Arshed, N., Rauf, R., & Bukhari, S. (2021). Empirical contribution of human capital in entrepreneurship. *Global Business Review, Online First*.
- Audretsch, D. B. (2003). Globalization, innovation and the strategic management of places. *Innovation Clusters and Interregional Competition* (pp. 11–27). Springer.
- Audretsch, D. B., & Belitski, M. (2017). Entrepreneurial ecosystems in cities: Establishing the framework conditions. *The Journal of Technology Transfer, 42*(5), 1030–1051.
- Audretsch, D. B., & Thurik, A. R. (2001). What's new about the new economy? Sources of growth in the managed and entrepreneurial economies. *Industrial and Corporate Change, 10*(1), 267–315.
- Bailey, A. (2015). *Emerging markets — Has HR got it right?* ChapmanCG. Retrieved Online since 30 March 2015.
- Baker, M. J. (1996). *Marketing: An introductory text* (6th ed.). Macmillan Press Ltd.
- Bergh, A., & Nilsson, T. (2014). Is globalization reducing absolute poverty? *World Development, 62*, 42–61.
- Bosma, N., Hill, S., Ionescu-Somers, A., Kelley, D. J., Guerrero, M., & Schott, T. (2022). *2020/2021 Global report*. Global Entrepreneurship Research Association, London Business School, London UK. Retrieved from <https://www.gemconsortium.org/file/open?fileId=50691>
- Cacciotti, G., & Hayton, J. C. (2014). Fear of failure and entrepreneurship: A review and direction for future research. *Enterprise Research Centre, Research Paper, 24*(1), 1–62.
- Carasco, E., & Singh, J. (2009). The evolution of global business ethics conventions. *Global Marketing: Think Globally and Act locally, Studentlitteratur, Lund*.
- Chell, E. (2013). Review of skill and the entrepreneurial process. *International Journal of Entrepreneurial Behavior & Research, 19*(1), 6–13.
- Cheraghi, M., Setti, Z., & Schøtt, T. (2014). Growth-expectations among women entrepreneurs: Embedded in networks and culture in Algeria, Morocco, Tunisia and in Belgium and France. *International Journal of Entrepreneurship and Small Business, 23*(1–2), 191–212.
- Ciuriak, D., Lapham, B., Wolfe, R., Collins-Williams, T., & Curtis, J. (2015). Firms in international trade: Trade policy implications of the new trade theory. *Global Policy, 6*(2), 130–140.
- Coulibaly, S. K., Erbao, C., & Mekongcho, T. M. (2018). Economic globalization, entrepreneurship, and development. *Technological Forecasting and Social Change, 127*, 271–280.
- Davies, S. (1991). The entrepreneurial search for capital: A behavioral science perspective entrepreneurship and rural development. *Journal of Applied Behavior Science, 3*, 237–252.
- Dawson, J. F. (2014). Moderation in management research: What, why, when, and how. *Journal of Business and Psychology, 29*(1), 1–19.
- de Arruda, M. C., & Enderle, G. (2004). *Improving globalization*. Editora FGV.
- Dreher, A. (2006). Does globalization affect growth? Evidence from a new index of globalization. *Applied Economics, 38*(10), 1091–1110.
- Dunning, (1993). *Multinational enterprises and the global economy*. Addison-Wesley.
- Dutton, J. E., & Jackson, S. E. (1987). Categorizing strategic issues: Links to organizational action. *Academy of Management Review, 12*(1), 76–90.
- European Commission, E. (2004). *The EU economy: 2004 review*. European Economy
- Fischer, S. E., & Strandberg-Larsen, M. (2016). Power and agenda-setting in Tanzanian health policy: An analysis of stakeholder perspectives. *International Journal of Health Policy and Management, 5*(6), 355.
- Gabaix, X., & Maggiori, M. (2015). International liquidity and exchange rate dynamics. *The Quarterly Journal of Economics, 130*(3), 1369–1420.
- Gupta, A. K., & Govindarajan, V. (2002). Cultivating a global mindset. *Academy of Management Perspectives, 16*(1), 116–126.
- Gygli, S., Haelg, F., Potrafke, N., & Sturm, J. (2019). The KOF Globalization Index — revisited. *The Review of International Organizations, 14*(1), 543–574.
- Haans, R. F., Pieters, C., & He, Z. L. (2016). Thinking about U: Theorizing and testing U-and inverted U-shaped relationships in strategy research. *Strategic Management Journal, 37*(7), 1177–1195.
- Hall, J. K., Daneke, G. A., & Lenox, M. J. (2010). Sustainable development and entrepreneurship: Past contributions and future directions. *Journal of Business Venturing, 25*(5), 439–448.
- Hameed, K., Arshed, N., Yazdani, N., & Munir, M. (2021). On globalization and business competitiveness: A panel data country classification. *Estudios De Economia Aplicada, 39*(2), 1–27.
- Hameed, K., Arshed, N., Grant, K. A., Munir, M., & Aziz, O. (2022). Forces of dynamic capability and incidence of entrepreneurship: A macroeconomic policy intervention approach. *Journal of the Knowledge Economy, 1–25*.

- Harford, T. (2007). *The undercover economist: Abacus*. Hachette UK.
- HDR. (2002). *Deepening democracy in a fragmented world*. Retrieved from New York, NY.
- Huggins, R., & Thompson, P. (2014). Culture, entrepreneurship and uneven development: A spatial analysis. *Entrepreneurship & Regional Development*, 26(9–10), 726–752.
- Isenberg, D. J. (2010). How to start an entrepreneurial revolution. *Harvard Business Review*, 88(6), 40–50.
- Jones, K. (2006). Chapter 8: Entrepreneurs in the global economy. In M. Minniti (Ed.), *Entrepreneurship: The engine of growth* (Vol. 1, pp. 135–155). USA: Praeger Press.
- Kaur, H., & Bains, A. (2013). Understanding the concept of entrepreneur competency. *Journal of Business Management & Social Sciences Research*, 2(11), 31–33.
- Kelley, D. J., Brush, C. G., Greene, P. G., & Litovsky, Y. (2013). *Global entrepreneurship monitor 2012 women's report*. Global Entrepreneurship Research Association. Retrieved from <https://www.gemconsortium.org/file/open?fileId=48583>
- Khan, E. A., Khan, M. S., & Alam, M. N. (2005). Factors affecting the growth of entrepreneurship in small-scale business. *Business Review*, 5(1), 33–37.
- Khan, M. A., Rathore, K., & Sial, M. A. (2020). Entrepreneurial orientation and performance of small and medium enterprises: Mediating effect of entrepreneurial competencies. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 14(2), 508–528.
- Kirzner, I. M. (2009). The alert and creative entrepreneur: A clarification. *Small Business Economics*, 32(2), 145–152.
- Knight, G. A. (2000). Entrepreneurship and marketing strategy: The SME under globalization. *Journal of International Marketing*, 8(2), 12–32.
- Knight, G. A., & Cavusgil, S. T. (1996). The born global firm: A challenge to traditional internationalization theory. *Advances in International Marketing*, 8(1), 11–26.
- Kobrin, S. J. (1994). Is there a relationship between a geocentric mind-set and multinational strategy? *Journal of International Business Studies*, 25(3), 493–511.
- Koellinger, P., Minniti, M., & Schade, C. (2013). Gender differences in entrepreneurial propensity. *Oxford Bulletin of Economics and Statistics*, 75(2), 213–234.
- Kor, Y. Y., Mahoney, J. T., & Michael, S. C. (2007). Resources, capabilities and entrepreneurial perceptions. *Journal of Management Studies*, 44(7), 1187–1212.
- Krueger, N., Jr., & Dickson, P. R. (1994). How believing in ourselves increases risk taking: Perceived self-efficacy and opportunity recognition. *Decision Sciences*, 25(3), 385–400.
- Liang, C., Chang, C. -C., Liang, C. -T., & Liu, Y. -C. (2017). Imagining future success: Imaginative capacity on the perceived performance of potential agrisocio entrepreneurs. *Thinking Skills and Creativity*, 23, 161–174.
- Mathews, & Zander. (2007). The international entrepreneurial dynamics of accelerated internationalization. *Journal of International Business Studies*, 1–17.
- McClelland, D. C. (1961). *The Achieving Society* (p. 23). Van Nostrand.
- Morris, M. H., Webb, J. W., Fu, J., & Singhal, S. (2013). A competency-based perspective on entrepreneurship education: Conceptual and empirical insights. *Journal of Small Business Management*, 51(3), 352–369.
- Muhammad, S., Muhammad, I., Orangzab, M., Asad Afzal, H., & Rao Aamir, K. (2019). Happiness and globalization: A study in global perspective about entrepreneurship. *Religación*, 4, 36–42.
- Murtha, T. P., Lenway, S. A., & Bagozzi, R. P. (1998). Global mind-sets and cognitive shift in a complex multinational corporation. *Strategic Management Journal*, 19(2), 97–114.
- Nelson, R. R. (1993). *National systems of innovation: A comparative analysis*. Oxford University Press.
- Nickels, W. G., McHuch, J. M., & McHuch, S. M. (2002). *Understanding business* (6th ed.). Irwin, London: McGraw-Hill.
- Nijkamp, P. (2003). Entrepreneurship in a modern network economy. *Regional Studies*, 37(4), 395–405.
- Öner, M. A., & Kunday, Ö. (2016). A study on Schumpeterian and Kirznerian entrepreneurship in Turkey: 2006–2013. *Technological Forecasting and Social Change*, 102, 62–71.
- Owen-Smith, J., & Powell, W. W. (2004). Knowledge networks as channels and conduits: The effects of spillovers in the Boston biotechnology community. *Organization Science*, 15(1), 5–21.
- Pearce, J. A., Robinson, R. B., & Subramanian, R. (2003). *Strategic management: Formulation, implementation, and control*. OH: Irwin/McGraw-Hill Columbus.
- Polas, M. R. H., Raju, V., Muhibbullah, M., & Tabash, M. I. (2021). Rural women characteristics and sustainable entrepreneurial intention: A road to economic growth in Bangladesh. *Journal of Enterprising Communities: People and Places in the Global Economy*.

- Rao, B. B., & Vadlamannati, K. C. (2011). Globalization and growth in the low income African countries with the extreme bounds analysis. *Economic Modelling*, 28(3), 795–805.
- Robles, L., & Zárraga-Rodríguez, M. (2015). Key competencies for entrepreneurship. *Procedia Economics and Finance*, 23, 828–832.
- Roni, N. (2003). Environmental issues of entrepreneurship development: Bangladesh Scenario. *Dhaka University Journal of Marketing*, 6, 159–177.
- Sagagi, M. S. (2007). Globalization and business environment: Critical success factors for corporate leaders in Nigeria. In B. A. Folarin et al. (Ed.), *Environment, Values and Policies in Nigeria: A book of readings*. Ojo: EBAN, LASU.
- Schwab, K. (2019). *The global competitiveness report 2017–2018*. World Economic Forum, Geneva, Switzerland. Retrieved from <https://www3.weforum.org/docs/GCR2017-2018/05FullReport/TheGlobalCompetitivenessReport2017%E2%80%932018.pdf>
- Shepherd, D. A., & Patzelt, H. (2011). The new field of sustainable entrepreneurship: Studying entrepreneurial action linking “what is to be sustained” with “what is to be developed.” *Entrepreneurship Theory and Practice*, 35(1), 137–163.
- Shrader, R. C., Oviatt, B. M., & McDougall, P. P. (2000). How new ventures exploit trade-offs among international risk factors: Lessons for the accelerated internationalization of the 21st century. *Academy of Management Journal*, 43(6), 1227–1247.
- Sirine, H., Yulianto, A. R., Nugroho, A. J. S., & Priyanto, S. H. (2019). Determinants of regional entrepreneurship development: Empirical study of batik clusters in Indonesia. *Diponegoro International Journal of Business*, 2(2), 64–75.
- Solesvik, M. Z. (2019). *Entrepreneurial competencies and intentions: The role of higher education*. Paper presented at the Forum Scientiae Oeconomia.
- Subrahmanya, M. B. (2007). Development strategies for Indian SMEs: promoting linkages with global transnational corporations. *Management Research News*.
- Sund, K. J. (2013). Scanning, perceived uncertainty, and the interpretation of trends: A study of hotel directors’ interpretation of demographic change. *International Journal of Hospitality Management*, 33, 294–303.
- Tsai, K. -H., Chang, H. -C., & Peng, C. -Y. (2016). Refining the linkage between perceived capability and entrepreneurial intention: Roles of perceived opportunity, fear of failure, and gender. *International Entrepreneurship and Management Journal*, 12(4), 1127–1145.
- Wang, M., Arshed, N., Munir, M., Rasool, S. F., & Lin, W. (2021). Investigation of the STIRPAT model of environmental quality: A case of nonlinear quantile panel data analysis. *Environment, Development and Sustainability*, 1–16.
- Williams, D. M., & Rhodes, R. E. (2016). Reviving the critical distinction between perceived capability and motivation: A response to commentaries. *Health Psychology Review*, 10(2), 144–147.
- Williamson, O. E. (2005). Transaction cost economics and business administration. *Scandinavian Journal of Management*, 21(1), 19–40.

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