



A comparative analysis on the entrepreneurial ecosystem of BRICS club countries: practical emphasis on South Africa

Adisu Fanta Bate^{1,2} 

Received: 3 March 2021 / Accepted: 27 July 2021 / Published online: 6 September 2021
© The Author(s) 2021

Abstract

The effectiveness of entrepreneurial activities is not only determined by the quality of entrepreneurs but also by the ecosystem of entrepreneurship. The entrepreneurial ecosystem (EE) that nurtures low-quality “moppets” to highly impactful “gazelles” is being widely debated and on-demand in literature. This study, therefore, is aimed to advance the discussion and make a comparative analysis of the entrepreneurial ecosystem, which has been given a little attention, of BRICS club countries with an especial focus on South Africa, Brazil, and India. Various entrepreneurship-economic growth-related measures including Global Entrepreneurship Index (GEI), Global Competitiveness Index (GCI), Index Economic Freedom (IEF), and Legatum Prosperity Index (LPI) are used to compare the countries’ entrepreneurial ecosystem. Especially, the data set (2012–2018) of GEI was utilized for the analysis. According to GEI and GCI of 2018, China is leading BRICS club in terms of growth and entrepreneurial ecosystem. On the other side, LPI, IEF, and GEI put South Africa’s entrepreneurial ecosystem in a favorable position as compared to Brazil and India. South Africa performs poorly in startup skills, while both the latter ones are better and stand at the same level. This shows that South Africa’s tertiary education, coupled with low skill perception, is less effective in equipping the population to be entrepreneurs as compared to India and Brazil. Whereas Brazil and India are at their worst in internationalizing the country’s entrepreneurs and technological absorption, respectively. South Africa is more like India in product innovation and risk acceptance. On the other side, it is more like Brazil in risk capital, technological absorption, opportunity perception, and in their sluggish economic growth. Overall, South Africa (57th/140 as of 2018) is categorized among those poorly performing countries in terms of start-up skills, networking, technology absorption, human Capital, and risk capital pillars. The government of South Africa needs to primarily work on these bottle-neck pillars to improve its EE. To increase GEI by 5%, it should invest 77% of its extra resource on start-up skills, 18% on risk capital, and 5% on technology absorption. Applying GEI set up, this paper claims to have uniquely contributed to how to make a country comparison on the EE. Further empirical research can be

Extended author information available on the last page of the article

done including all BRICS countries to bolster their development effort and on how to promote EE by tackling the underlying bottlenecks.

Keywords Entrepreneurship · Entrepreneurship ecosystem · Entrepreneurial policy · Global entrepreneurship index · Business performance · Economic growth

JEL Classification M1 · M2

Introduction

The realization of entrepreneurship as an economic variable is not a recent phenomenon and Sobel (2008) points that its origin dates back 300 years ago. Besides its long history, it has been widely discussed related to the economic growth of countries since the time of Schumpeter (1934). According to the Schumpeterian view, entrepreneurs are “agents of creative destruction” those shift market from equilibrium to disequilibrium by introducing new products that lead to obsolescence of existing ones (Schumpeter 1934). On the contrary, Kirzner argued that entrepreneurs are those who work to shift a market from disequilibrium to equilibrium by discovering unnoticed profit opportunities and filling the demand gaps in the market (Kirzner 1973; Sobel 2008). In either way, an inherent nature between entrepreneurship and economic development (Acs et al. 2017a, b, c; Audretsch and Belitski 2016) and business competitiveness (Lafuente et al. 2021) is not susceptible. The studies unveil the contribution of entrepreneurship in an economy (e.g. Acs 2006; Acs and Szerb 2006; Acs et al. 2017a, b, c; Baumol 1990; Leibenstein, 1968). Leibenstein (1968) argues entrepreneurship is a crucial factor in the development process. He also considers entrepreneurship as a driving force of competition that increases market efficiency.

How is entrepreneurship good for economic growth? Acs (2006) answers, first, from the literature that entrepreneurs establish new businesses, and these new businesses, in turn, create jobs, intensify competition with innovative goods, and increase productivity by changing technology. Second, he analyzes GEM data from 11 countries and identifies opportunity entrepreneurship, not necessity entrepreneurship, that has a substantial effect on economic development (Acs 2006; see also Audretsch and Belitski 2016). Entrepreneurship is not always a cause for economic growth, but it could be the effect of the latter. The level of development of countries, for instance being high or middle income, determines the nature of entrepreneurship needed (Acs and Szerb 2006). The importance of productive entrepreneurship, not unproductive and destructive entrepreneurship, on economic growth has been widely embraced (Baumol 1990; Sobel 2008).

Moreover, Acs and Szerb (2006), Audretsch and Belitski (2016), and Brown & Mason (2017) also pinpointed the role that local-based or regional policies play in entrepreneurship. Policy needs to fit with regional contexts. The policy that works for one region may not work for another and there is no one-size-fits-all approach in creating an entrepreneurial society (Brown & Mason 2017; Szerb et al. 2016).

Knowing the general contexts of an economy, where entrepreneurship flourishes is an issue that led to the concept of the *entrepreneurial ecosystem* (hereafter *EE*) (Audretsch and Belitski 2016; Brown and Mason 2017). Brown and Mason advocate local or regional level study, not necessarily industry-wise, for the EE even though they admit national, or global scale study.

An EE is a complex system of interactions amongst individuals/groups within the socio-economic, institutional, and informational context (Audretsch and Belitski 2016). However, the conceptual differences and similarities of EE relative to, e.g., regional systems of innovation, 'knowledge clusters', clusters, and 'innovative milieus' remain unclear (Acs et al. 2017a, b, c; Alaassar et al. 2021; Alvedalen and Boschma 2017; Malecki 2018; Molina and Maya 2017). Nowadays, the entrepreneurial policy targets creating a more supportive EE rather than increasing the size of new firms (Szerb et al. 2016). To enact an effective entrepreneurial policy, measuring the quality as well as quantity of entrepreneurship in a given country is critical for policy input (Szerb et al. 2016; Xie et al. 2021). Most importantly, nowadays, the quality of entrepreneurship gets more focus (Acs et al. 2018), but both high quality and high quantity of entrepreneurship can be achieved by making good interaction and understanding intermediation dynamics of contributing factors (Alaassar et al. 2021; Xie et al. 2021).

Ács et al. (2014) and Szerb et al. (2016) argue that entrepreneurship has not received proper treatment at a country level and its existing measurements, that measure either output, or attitude or framework, do not show the interactions among factors and high-growth potential (Szerb et al. 2016; Ács et al. 2014). For instance, Global Entrepreneurship Monitor (GEM)-Total Entrepreneurial Activity (TEA) (Reynolds et al. 2005) and World Bank's Entrepreneurship Survey could be considered as the output measures that emphasize the creation of new business firms or size of entry into self-employment (World Bank 2011). To this end, Ács et al. (2014) conceived national systems of entrepreneurship (NSE) that portrays the embedded interactions between entrepreneurial attitude, entrepreneurial ability, and entrepreneurial aspiration in each economy and, later, constructed the Global Entrepreneurship and Development Index (GEDI), which is also renamed as Global Entrepreneurship Index (GEI) (Szerb et al. 2016). They, furthermore, explained how GEI is used for national systems of entrepreneurship by taking entrepreneurial performance of the European Union. Following them, hereby, the study aims to examine EE of South Africa in comparison with India and Brazil using the data set of Global Entrepreneurship Index (GEI). The following sections of this article display literature review, methodology, data analysis and discussion, and conclusion, respectively.

Literature review

Definition and concepts of entrepreneurial ecosystem (EE)

Especially, the concept of EE appears in the literature in the 2000s, but it spikes on the literature from 2016 (Malecki 2018). Acs et al. (2017a, b, c) argue that the lineages of EE evolved from regional development and strategic Management. However,

the latter both have ignored the entrepreneurs' value creation and interdependence of various actors in the value creation process, which has led to the birth of EE (Acs et al. 2017a, b, c). It takes over the concepts such as the environment of entrepreneurship or entrepreneurial environment that indicates the mechanisms, institutions, networks, and cultures that support entrepreneurs since 2016 (Malecki 2018). However, the conceptual differences and similarities of EEs relative to, e.g., regional systems of innovation, 'knowledge clusters', clusters, and 'innovative milieus' remain unclear (Acs et al. 2017a, b, c; Alaassar et al. 2021; Alvedalen and Boschma 2017; Malecki 2018; Molina and Maya 2017). Nevertheless, an attempt was made by Autio et al. (2018) to differentiate EE from traditional clusters by their organization around entrepreneurial opportunity discovery and pursuit, by their emphasis on the exploitation of digital affordances, by their emphasis on business model innovation, and by voluntary horizontal knowledge spillovers. As its acceptance increases, various related concepts such as regional EEs (Audretsch and Belitski 2016) and digital ecosystem (Acs et al. 2020; Pizzi et al. 2021) attracted the attention of researchers.

There is no universally accepted definition of EE. It is a complex system of interactions amongst individuals/groups within the socio-economic, institutional, and informational context (Audretsch and Belitski 2016). Brown and Mason (2017) define EE as a set of entrepreneurial actors (both existing and potential), entrepreneurial organizations (firms, venture capitalist, business angels, banks), institutions (universities, public sectors, financial bodies), entrepreneurial process (the business birth rate, number of high growths, levels of blockbuster entrepreneurship and level of entrepreneurial ambition). They further simplify it as a set of interconnected actors in an entrepreneurial environment including the public sector, private sector, financial institutions, academic institutions, infrastructure, potential new markets, and culture (Brown and Mason).

The integral components and actors of EE vary based on the scope under consideration whether city, regional, national or global level. Alvedalen and Boschma (2017) pinpoint that EE lacks a clear analytical framework that shows cause and effect, the way the proposed elements are connected in an EE are not clear, and it remains a challenge what institutions (and at what spatial scale) impact on the structure and performance of, and there is no comparative and multi-scalar perspective of EE as studies often focused on the single regions or clusters. In addition, it should be clear that EE is more than numbers measuring growth, startup creation, and other economic results, and it should not underestimate the cultural, social, and human aspects that influence entrepreneurs (Brown and Mason 2017; Molina and Maya 2017; Spigel 2017).

Also, EE constitutes supportive cultural elements such as attitudes of society towards entrepreneurship in which positive outlooks normalize entrepreneurial risks and increase firm formation. Social elements are at the heart of the ecosystem (Malecki 2018) and they include talents, knowledge, mentors, role models, capital, support services, and networks of entrepreneurs (Lafuente et al. 2021; Malecki 2018) and their interaction determines the success of entrepreneurship (Malecki 2018). In addition, Audretsch & Belitski (2016) stress six domains of the EE (culture, formal institutions, infrastructure and amenities, IT, Melting Pot, and demand). In line with this, if not in more clear terms, Xie et al. (2021) indicate that human capital,

financial capital, innovation capacity, internet infrastructure, physical infrastructure, market potential, and government size as factors of EE. The configuration (Lafuente et al. 2021; Xie et al. 2021) or interaction and intermediation dynamics of these factors (Alaassar et al. 2021) lead to higher entrepreneurial quality and quantity. Among them, ‘human capital’ is the most relevant competitive pillar (Lafuente et al. 2021). Depend on the performance of these factors, an EE can be an embryonic ecosystem or scale-up ecosystem, whereby the former is characterized by a low concentration of high-tech firms, a less developed entrepreneurial culture, less interaction with national actors, and locally focused (Brown and Mason 2017).

The EE is nonlinear (Brown and Mason 2017). It changes over time and its sustainability has to be ensured by building a supportive environment, disrupting normative standards, and reframing the sustainability paradigm (Pankov et al. 2021) and maintaining a sustainable digital platform, and revising business models (Pizzi et al. 2021). In addition, sustainable entrepreneurs engage in political work to strengthen their position and credibility in the sharing economy (Pankov et al. 2021). An EE policy should target entrepreneurial actors, resource providers, entrepreneurial connectors, and entrepreneurial culture or attitude (Brown and Mason). If a policy fails in one, it becomes a challenge to improve the existing programs, deploy resources and ensure sustainability. To conclude, the entrepreneurial culture of a society, formal institutions, public amenities, IT, Melting Pot, demand, innovation capacity, human capital, financial capital, internet and physical infrastructure, market potential, government size, entrepreneurial quality, and quantity are some of the core elements that need to be considered in EE (Audretsch & Belitski 2016; Brown and Mason 2017; Lafuente et al. 2021; Xie et al. 2021).

Methodology

Despite the extant literature, there has been an inconsistency in the definition, the measurement, and the policy domain of entrepreneurship and its ecosystem (Szerb and Acs 2011; Acs and Szerb 2012; Acs et al. 2014). Some of the most well-known measures related to entrepreneurship/business and economic growth are Global Entrepreneurship Monitor (GEM), Global Entrepreneurship Index (GEI), Index of Economic Freedom (IEF), Ease of Doing Business (EDB), Legatum Prosperity Index (LPI), OECD-Eurostat’s Entrepreneurship Indicators (OECD-Eurostat 2007) World Bank’s Entrepreneurship Survey, Kauffman Index of Entrepreneurial Activity (KIEA), Flash Euro-barometer Survey and Global Competitiveness Index (GCI). This study adopts the GEI methodology.

Global Entrepreneurship Index (GEI)

GEI uses five levels for index building:-GEI as super-index that shows country-level entrepreneurship, the three sub-indexes (attitudes, abilities, and aspirations), 14 pillars under sub-indices, 28 variables, and 49 indicators (Acs et al. 2014; Szerb Ko et al. 2016). The pillars are the basic building blocks of the sub-indices and the

value of a sub-index for a given country is the simple average of its penalty for bottleneck (PFB) adjusted pillars for that sub-index multiplied by 100. Then GEI, the super-index, is just the average of the three sub-indices (Szerb et al. 2016). While the aforementioned measures consider mainly individual variables, the GEI blends individual data with contextual institutional factors. PFB methodology helps to quantify how the performance of a national system of entrepreneurship (NSE) is determined by the country's worst-performing pillar and it offers prioritized tips of policy direction to policymakers (Acs et al. 2014; Szerb et al. 2016). However, in addition to arbitrary and subjective choice of variables in index construction, GEI has some limitations in terms of accessing data, since part of the data source is based on GEM indicators that are only partially publicly available (Ács et al. 2019).

All GEM, EBD, and IEF indices do not use weighting variables and penalize for the poorly performing pillars. However, the major shortfall with this kind of single-level measure is that it brings together low-quality "moppets" to highly impactful "gazelles" business types (Nightingale and Coad 2013). Whereas GEI is a weighted measure of entrepreneurship that also addresses the problems of arbitrariness in weighting, and normalizes scores for cross-country comparison, and penalizes for bottleneck pillar/s (Ács et al. 2014). GEI is used by (Audretsch and Belitski 2016) to measure regional EEs, by (Lafuente et al. 2021) to examine the relationship between the EE and business competitiveness, and by (Xie et al. 2021) to assess the effect of the Configuration of factors that lead to entrepreneurial quality and quantity in an EE. In addition, here, in this study, the data set of GEI over 2012–2018 is utilized to measure EE of South Africa as compared to Brazil and India. GEI excel lab solution is utilized for the analysis. The data set and the methodology of the Global Entrepreneurship Index (GEI), which is adopted for this study, are available at <https://thegeidi.org/datasets/>.

Data analysis and discussion

Contextual analysis on the economic growth and challenges of South Africa

Among the Sub-Saharan countries, South Africa is the strongest economy with a better EE (The World Bank in South Africa 2019). However, this does not mean that it is a safe haven for businesses to grow and flourish. Both structural and non-structural factors have been hampering the EE of the country. The ongoing recession, the dominance of large firms, a dual economy that excludes many people from the formal economy, bureaucracy and red tape, inadequate infrastructure, and poor education system are some of the structural factors (SAB Foundation 2017).

The Current Recession- the South Africa economy has been growing slowly and it showed only 0.1% growth in 2016, 1.3% in 2017, 0.8% in 2018 and the World Bank projected 1.3% growth in 2019 and 1.7% in 2020 (The World Bank in South Africa 2019). The growth is by far less than the average of the Sub-Saharan 5% and Ethiopia's 10% growth, the leading one in the region, over a decade (Eshetie 2018). Besides, unemployment is hiked to 27.6% in the 1st quarter of 2019 and a fall in household incomes is realized. As the country exports more to China, the

slowdown of the Chinese economy forced it to reduce the export of raw materials that the country mainly engages in international trade (The World Bank in South Africa 2019). Large firm dominance: besides government-owned big enterprises, the economy of South Africa is highly dominated by large-size companies. The large businesses in South Africa account for 90% of total businesses. In addition, these businesses have already built a long-lasting relationship with customers that put small businesses' effort under challenge when they attempt to enter into the market (McKinsey Global Institute 2016).

Bureaucracy and red tape:—besides the concentration of large firms in the country, the size of the government is wide as it holds key sectors, and insufficient policy attention is given to new start-ups. The country's EE is largely deterred by the administrative procedures and bureaucracy of the government. Corruption and red taping are inherited in the public sector and holding back the economy. The Global Competitive Ranking 2018 shows that the country was brought down, due to bribes and irregular payments, from 53rd in 2016/17 to 91st, 2017/18 (Herrington and Kew 2018). In ease of doing business, no reform has been observed in this country from May 2018 to May 2019 except enforcing contracts that are made easier by establishing a specialized court dedicated to hearing commercial cases and setting national minimum wage (Ease of Doing Business 2019). Infrastructure:—even though South Africa is the best relative to other sub-Saharan countries, its infrastructure such as electricity remains as the challenge for economic growth and the government has singled out infrastructure development as the top focus area since 2012. Later on, in 2015 the president of the country took a new initiative to expand power stations and urged all citizens to save energy (South African Government 2015). Nonetheless, the Global Competitiveness Index report shows restrictive labor regulations, inefficient government bureaucracy, and inadequate energy supply as the three top problematic factors for doing business (Global Competitiveness Index 2015–2016).

The dual economy:—the country looks suffering from social inequality, resource allocation inequality, and wealth inequality. One-third of the working population that include entrepreneurs, do not benefit from the formal sector and face a lack of resources, simply because they are from disadvantaged or underserved communities (SAB Foundation 2017). As the economy is dominated by large firms, the market structure is not suitable for new market entrants, and they cannot penetrate unless investing huge initial capital. As a result of this, the country faces one of the highest wealth inequality rates in the world, as of 2015, 71% of the net wealth of the country is owned by the richest top 10%, while the bottom 60% held only 7% of the net wealth (The World Bank in South Africa 2019). It continues despite the government efforts in reducing inequality and inculcating it in National Development Plan since 2012 (National Planning Commission 2012). The Legatum Prosperity Index (LPI) (2018) report puts the country among the bottom 25% (125th /149) in economic quality, which measures living standards, inclusiveness, anti-monopoly policy, labor force participation, and trade competitiveness.

The education system: even though South Africa marched into democracy in 1990, as we have seen inequality in wealth and social status, there is still inequality in education as the quality of education for poor black learners is poor. The inequality of education is the reflection of the inequality of wealth and rich

parents send their children to better schools. Considering this, the government also took the initiative to narrow down this gap in 2012³. Besides the inequality, the curriculum of education itself matters in creativity and innovation, and other entrepreneurial activities. Even though the GEM report (2016/17) indicates improvement in the areas of entrepreneurship education at school age, entrepreneurial finance, and internal market dynamics, the Global Competitiveness Index 2019 4.0 report shows the country lies far behind from upper-middle-income group average, especially, in human capital and 118th out of 141. Besides, as to the report LPI (2018), the country is among the bottom 26% (123rd/149), which are the worst-performing in terms of safety and security, Table 2.

As we see from Table 2, there are different entrepreneurship-related measures, not limited to this list, that gauge entrepreneurial activities and their economic impact from various points of view. The data in the Table shows the countries' scores and ranks according to each measure in 2018. Measures such as the Global Entrepreneurship Index (GEI), Legatum Prosperity Index (LPI), and Index of Economic Freedom (IEF) put South African's EE in a favorable position as compared to the other two countries. This may show us the existence of a strong correlation among these measures.

Table 1 Institutional and individual variables

Sub-indices	PILLARS		INSTITUTIONAL VARIABLES		INDIVIDUAL VARIABLES	
Entrepreneurial Attitudes	Opportunity Perception	0.41	Freedom	0.54	Opportunity Recognition	0.55
	Start-up skills	0.07	Education	0.21	Skill Perception	0.46
	Risk Acceptance	0.39	Country Risk	0.42	Risk Perception	0.73
	Networking	0.31	Connectivity	0.52	Know Entrepreneurs	0.46
	Cultural Support	0.38	Corruption	0.49	Career Status	0.73
	Entrepreneurial Attitudes	27.7				
Entrepreneurial Abilities	Opportunity Startup	0.35	Governance	0.52	Opportunity Motivation	0.53
	Technology Absorption	0.24	Technology Absorption	0.71	Technology Level	0.38
	Human Capital	0.25	Labor Market	0.63	Educational Level	0.29
	Competition	0.70	Competitiveness and Regulation	0.71	Competitors	0.85
	Entrepreneurial Abilities	32.7				
Entrepreneurial Aspirations	Product Innovation	0.64	Technology Transfer	0.57	New Product	0.79
	Process Innovation	0.51	Science	0.55	New Technology	0.93
	High Growth	0.58	Finance and strategy	0.60	Gazelle	0.73
	Internationalization	0.49	Economic complexity	0.51	Export	0.70
	Risk Capital	0.20	Depth of Capital Market	0.87	Informal Investment	0.30
	Entrepreneurial Aspirations	39.9				
GEI	33.4	Institutional	0.56	Individual	0.60	

Source: GEI Dataset, 2012-2018

Source: GEI Dataset, 2012–2018

Table 2 Comparing EE of South Africa, India, and Brazil by different measures

BRICS countries	³ GEI 2018/140 countries		² GEM 2018-TEA Phase/48		Legatum Prosperity Index/149		⁴ GCI 2018/140		¹ .IEF 2018/180		⁵ EBD 2018/19	
	Score	Rank/140	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank/ 190
South Africa	32.9	57 1st	++	++	60.48	35 1st	60.8	67	58.3	102 1st	66.03	82
Brazil	20.3	98	17.9	11	60.96	65	59.5	72	51.9	150	60.01	109
India	28.4	68	11.4	22	57.32	94	62.0	58	55.2	129	67.23	77

Source: Author's Creation, 2019+ + data not available.

¹<https://www.heritage.org/index/ranking>

²<https://www.gemconsortium.org/report>

³Global entrepreneurship Index 2018 by Ács, Szerb and Lloyd.

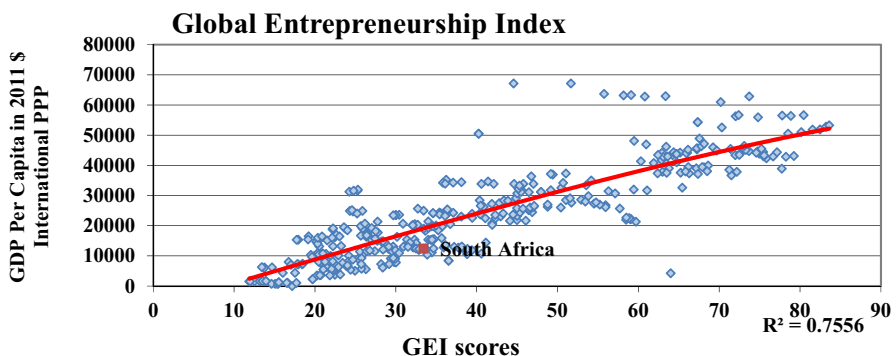
⁴http://reports.weforum.org/global-competitiveness-report-2018/competitiveness-rankings/?doing_wp_cron=1.57498049463815188840789794921875#series=GCI4.
https://www.doingbusiness.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2019-report_web-version.p

Empirical data analysis

The EMPIRICAL ANALYSIS of GEI and its Sub-indices

GEI is composed of three building blocks or sub-indices: entrepreneurial attitudes, entrepreneurial abilities, and entrepreneurial aspirations. Entrepreneurial attitude explains how the population of a country feels about entrepreneurship. Entrepreneurial abilities refer to knowledge and skills needed to start and run a successful business that includes relevant education and technology absorption and the use of existing technologies. Entrepreneurial aspiration indicates the type of business (e.g., high, or low growth) entrepreneurs want to build (Acs et al. 2014; Szerb et al. 2016). The relationship between GEI and GDP per capita is linear (Fig. 1) and, South Africa is below the world average trend line. The GEI ($R^2 = 75.56\%$) considerably explains GDP per capita, Table 3. The entrepreneurial attitude of its population is the weakest among the three sub-indices and drags down the GEI score of the country (see Fig. 2 and Table 2).

Also, when we see from Fig. 2, the time trend of GEI and its sub-indices scores, the entrepreneurial attitude of people has shown a decreasing trend especially since 2014, which has also pulled down the country's GEI scores until 2016. Overall, we see a slightly decreasing trend of GEI scores immediately after 2008 which might be caused by the global financial crisis. The crises, vividly, had a tremendous direct or indirect effect on all over the world economies. Specifically, the South Africa economy had experienced a recession in 2008/09 for the first time in 19 years. The country had lost nearly a million jobs in 2009 alone and the rate of unemployment continued to remain high with 25% (Ravinder and Malindi 2014). In 2015, South Africa is labeled among slow growers of Arab Spring: Tunisia, Egypt, and Libya which experienced slow economic growth and high unemployment despite the spurring development opportunities.



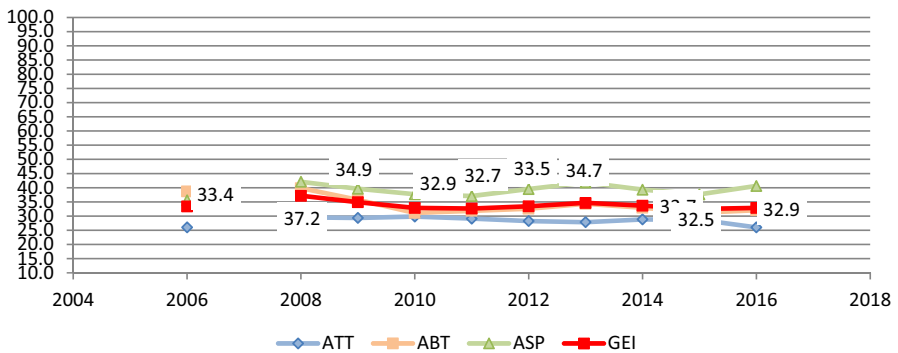
Source: GEI Dataset, 2018

Fig. 1 South Africa's GEI and GDP per-capita relative to World Trends (2016). Source: GEI Dataset, 2018

Table 3 Bottleneck pillars required for improvement

No	Pillar	Required increase in Pillar	Percentage of a new effort
1	Opportunity perception	0.00	0%
2	Start-up skills	0.17	77%
3	Risk acceptance	0.00	0%
4	Networking	0.00	0%
5	Cultural support	0.00	0%
6	Opportunity Startup	0.00	0%
7	Technology absorption	0.01	5%
8	Human capital	0.00	0%
9	Competition	0.00	0%
10	Product innovation	0.00	0%
11	Process innovation	0.00	0%
12	High growth	0.00	0%
13	Internationalisation	0.00	0%
14	Risk capital	0.04	18%

Source: GEI Dataset, 2012–2016



Source: GEI Dataset, 2012–2018

Fig. 2 Performance of South Africa in sub-indices from 2006 to 2018. Source: GEI Dataset, 2012–2018

The unemployment rate has been exacerbated by the low attitude of people towards entrepreneurial activity, coupled with the effect of the crisis. Entrepreneurial attitude pillars, especially, risk capital, networking, cultural support, and startup skills are where the country performs very poorly below the bottom 33% of countries (see Fig. 3). Among the three sub-indices, entrepreneurial aspiration contributes best to the country’s GEI score which implies that the country has a somewhat qualitative and distinctive nature of entrepreneurial activities oriented on high growth (see Fig. 2). Relatively, entrepreneurial aspiration puts the country in a favorable position (43rd), while entrepreneurial attitude and entrepreneurial abilities

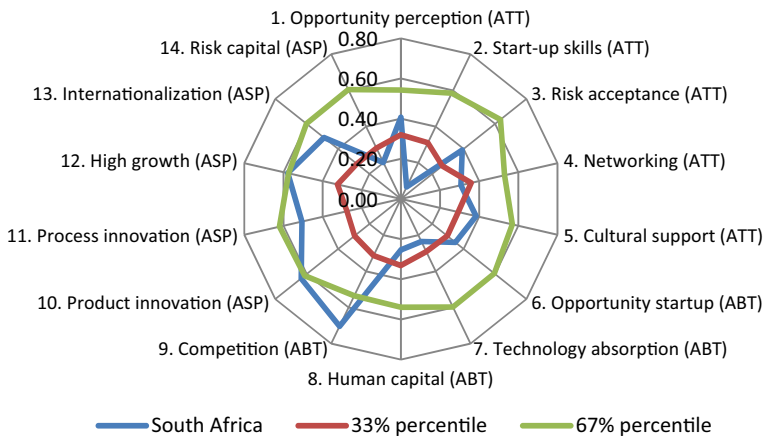


Fig. 3 Position of South Africa in pillar performance against high and low achieving countries. Source: GEI Dataset, 2012–2018

put it in 63rd and 47th, respectively (GEI, 2012–2016). This is not because the start-ups' aspiration is high but because the large firms dominating the economy are growth-oriented (Mckinsey Global Institute 2016).

In Fig. 3, we see that South Africa is, in terms of GEI pillars, in all three categories of countries. The country's market competition value (0.7), which shows entrepreneurial ability, and product innovation (0.61) and high-growth orientation (0.57) indicating entrepreneurial aspiration elevate the country to the top first category countries that perform best in these pillars. However, in terms of the pillar values of startup skills (0.07), risk capital (0.2), and technological absorption (0.24) the country is located under the bottom, third, least performing group countries. Therefore, we cannot say that the EE of the country is bad or good in general. In the area of entrepreneurial aspiration, relatively, it works well, whereas in entrepreneurial attitude area lags and needs to work more on it (see also Table 1).

Even though it is not in the worst situation as compared to other countries, the country performs very poorly in entrepreneurial attitude (27.7) (Table 1). This poor performance is, especially, emancipated from its lowest scores in start-up skills (0.07), followed by the networking pillar (0.31), Table 2. The start-up skill consists of education (0.07), which is the main bottleneck among institutional variables, and skill perception (0.46), which is relatively not the worst individual variable. Thus, this simply implies the fact that the people think that they possess adequate skills to set up and run a business but their educational level shows the presence of deficiency in start-up skills. In GEI, it is assumed that the higher the country's level of education, the more the qualities of its entrepreneurial ventures tend to be (Acs et al. 2014).

Though it is not a quick fix action, to optimize its EE, the government of South Africa needs to work on its tertiary education in a such way that boosts up start-up skills (see also Table 3). The networking pillar denotes both formal and informal ties with other individuals and institutions intending to build social capital. It is

comprised of connectivity (0.52), as an institutional variable and knowing entrepreneurs (0.46), as an individual variable, in the GEI. The latter variable is found to be the lowest as compared to other countries which might be due to loose social ties. As the country of South Africa is hosting a diverse group of people from all over the world, most likely, entrepreneurs fail to know each other so closely.

The other worst-performing pillars are technology absorption (0.24) and human capital (0.25) under entrepreneurial ability; both of these pillars have the weakest scores in individual variables: technology level (0.38) and educational level (0.29), respectively. Human capital is an alternative means to gauge people's start-up skills. In addition, we see that the weakest score on education (institutional level) affects the educational level at the individual level. Hence, one can conclude that the education curriculum of the country has not made individuals competent enough in start-ups. In line with this, due to this poor education, the technological absorption at the individual level has become very poor in the country. Besides, the last bottleneck pillar is risk capital which represents the depth of capital market (0.87), as an institutional variable and informal investment (0.3) as an individual variable. The score of the institutional variable indicates that the country works very well when formal sector capital markets including banks, insurance, and mutual funds. However, informal investors including families, friends, private investors, and foolhardy strangers or business angels are expected to contribute more to start-up companies. Sometimes informal investors contribute more than formal investors, e.g, in Hong Kong with a ratio of 12 to 1; 54 to 1 in mainland China and, hence, their role in filling the resource gap shouldn't be overlooked (Au and White 2010).

Apparently, South Africa performs very pleasantly in market competition (0.7) which consists of market competitiveness and regulation (0.71), as an institutional variable and competitors (0.85), as an individual variable. The country businesses tend to offer differentiated products that make the intensity of competition to be less. That is why we also see, under entrepreneurial aspiration, the high scores of individual variables: new technology (0.79) that shows using technology for less than 5 years and new product (0.93) that shows the size of products that are new at least to some customers. This shows that the healthy market competition in the country has come from ongoing technological improvement and new product development.

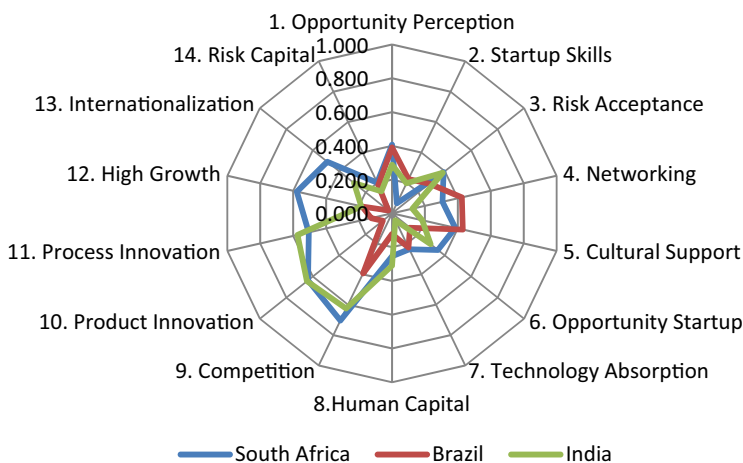
Analysis of the Country's GEI pillar scores in comparison to other countries

Among the BRICS club countries, South Africa, Brazil and India are having closely related competitive positions as their GCI scores are 60.8, 59.5, and 62.0, respectively (see Table 1). In addition, the Legatum Prosperity Index is showing almost the same level of prosperity, especially for South Africa (60.48) and Brazil (60.96), whereas India with a 57.32 score is less prosperous than South Africa and Brazil. In the beginning, BRICS were regarded as countries that were leading the way in terms of growth and the future of consumer demand. However, this narrative seems to have been changed and the club is being a two-speed club: high speed (China and India) and low speed (South Africa, Russia, and Brazil) (Davies 2017). China and India have been growing very fast growth but the other ones, especially South Africa and Brazil, show stagnant or little growth. Until the first quarter of 2017,

the Brazilian economy experienced negative growth for eight consecutive quarters (2 years) (Davies 2017), while South Africa records 0.1% (+Ve in 1st quarter but -Ve in 3rd quarter) growth in 2016 (The World Bank in South Africa 2019). According to the trading economics report (2017), the two countries have suffered from a negative fiscal deficit from 2008 to 2016.

Among BRICS countries if we take the case of Russia, its overall GEI score is 24.7, which is less than the other BRICS members: India (26.3), South Africa, (33.4), and China (35.9), except Brazil (20.4) (Szerb and Trumbull 2018). Followed by South Africa, China is leading the group in terms of this GEI score. This finding is the same with the Global Competitiveness Report of 2019 that shows China as the best performer (28th rank), which takes 13 positions ahead of Russia (43rd), 32 ahead of South Africa (60th), and some 40 ahead of both India (68th) and Brazil (71st) (World Economic Forum 2019).

Comparing the GEI individual components of South Africa with Brazil and India, as shown in Fig. 4, leads the other two in terms of market competition, which shows the level of product or market uniqueness. The deviation between South Africa (0.704) and Brazil (0.395) seems significant. However, South Africa is the worst of all in startup skills (0.066), while Brazil and India are almost at the same level in this pillar. This shows that the quality of tertiary education and vocational training is less effective in equipping the population of South Africa to be entrepreneurs as compared to India and Brazil. South Africa and India coincide in the area of product innovation and risk acceptance, while Brazil and South Africa appear on the same level in risk capital, technological absorption, and opportunity perception. In Fig. 4, South Africa performs very poorly in startup skills, whereas Brazil is at its worst in internationalizing country's entrepreneurs and India in technological absorption. It shows that Indian's start-up activities are non-technology intensive, engage in more



Source: GEI Dataset, 2012–2018

Fig. 4 GEI pillar values of South Africa, Brazil, and India. Source: GEI Dataset, 2012–2018

endogenous technology and less technology transfer from other countries. Notably, as these countries are in the same club called BRICS, they would play better if they work on these bottlenecks and share experiences.

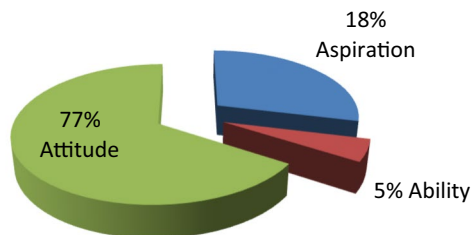
Bottlenecks and Entrepreneurial Policy Implications

Entrepreneurial policy plays an indispensable role in creating a conducive EE. Acs, et al (2016) argue that most Western world policies are found to be ineffective in solving market failures but instead they waste the money of taxpayers and only generate a low growth business with no interest in innovation. The effectiveness of the EE is not only determined by the quality of entrepreneurs but also by the environment- and ecosystem that nurtures new infant ventures into fully flourished ventures (Aution and Thomas 2013). Moreover, Sobel (2008) contends that the amount of productive entrepreneurship depends not on the propensity of the population towards entrepreneurship but the institutional quality and policies, those act as a rule of games. Entrepreneurs need entrepreneurship-friendly policies that make it easier or cheaper for them to start and run a new business (Acs, et al. 2016). Most entrepreneurship policies fail, because there has been little or no coordination across policy areas and bottlenecks are not identified to give priority (Ács et al. 2014).

Table 3 and Fig. 5 show the three sub-indices and pillars with bottlenecks and the number of extra efforts the country needs to alleviate them. If South Africa would like to increase its GEI score by 5%, the country has to invest about 77% of its extra efforts on startup skills, which is the country's main bottleneck and mainly associated with the attitudinal faculty of the population. The next main bottleneck pillar is risk capital which belongs to the aspiration sub-index and needs up to 18% of extra resources to invest. At the last, the remaining 5% efforts are needed to be employed for the ability aspect, where the country relatively performs better.

Without rendering top priority for improving the start-up skills, the country's policy on entrepreneurship will not enable to reap the fruits of productive entrepreneurship, which is expected from a conducive entrepreneurship ecosystem. As we see in Table 2, the start-up skill score (0.07) is composed up of two variables: education

The required extra efforts in subindices to bring 5% improvement in GEI



Source: GEI Dataset, 2012-2016

Fig. 5 Extra efforts required for Bottleneck sub-indices. Source: GEI Dataset, 2012–2016

(0.21) and skill perception (0.46). These scores imply the fact that people think they have the own necessary skills to start a business, but actually, they do not have adequate skills. In the study conducted by SAB Foundation (2017), an empirical attempt was made to address the very cause of poor start-up skills. They highlighted the lack of business skills among entrepreneurs which is resulted from poor networks and lack of effective curriculum on innovation as the main contributing factors for startup skill bottleneck. Therefore, though it is not an investment with a short-term return, the country needs to work on education that focuses on developing business skills as the top policy priority issue, by investing 77% of its extra resource.

The next bottleneck pillar is risk capital (0.2), which constitutes depth of capital market (0.87) and informal investment (0.3). The depth of the capital market is seemingly very strong as it approaches 1 but the informal investment is not, i.e., brings down the pillar score. This implies that formal financial sectors such as banks, insurance, and investment companies are strong and perform well. There is less engagement in informal sectors financial sources such as angel financing, crowd-funding, peer's association, and familial support. This could be because of very poor networking (0.36), which is, especially, resulted from being poor in knowing other entrepreneurs (0.46) (see Table 2). Hence, the government should work on enhancing this informal investment sector, including microfinance institutions, social trading platforms, civic engagement, and spend 18% of its extra resources on it.

Conclusion

South Africa has been an entrepreneurial leader among sub-Saharan countries. However, the country has been experiencing an insignificant economic growth (0.1% in 2016, 1.3% in 2017, and 0.8% in 2018), which is much lower than the 5% growth of Sub-Saharan African countries. In contrary to these countries, the South-African economy is dominated by large firms with a high growth orientation, which affects the growth of small businesses. Besides, the EE of the country is hampered by bureaucracy and red tape, and inadequate energy infrastructure, and a poor education system. Comparing to Brazil and India, South Africa is the worst in startup skills (0.066), while both former ones are almost at the same level. This shows that tertiary education, coupled with low skill perception, is less effective in equipping the population of South Africa to be entrepreneurs as compared to India and Brazil.

Whereas Brazil and India are at their worst in internationalizing the country's entrepreneurs and technological absorption, respectively. South Africa is more like India in product innovation and risk acceptance. On the other side, it is more like Brazil in risk capital, technological absorption, and opportunity perception (Fig. 4). In general, considering the sluggish economic growth of South Africa and Brazil and their performance in GEI pillars, the former one more resembles Brazil than India. However, according to the Index of Economic Freedom (IEF), Legatum Prosperity Index (LPI), and Global Entrepreneurship Index (GEI) scores, South Africa is leading India and Brazil. In addition, the country performs the best in the market competition which is most likely emanated from its best performance in using or developing new products (Table 2). Considering all GEI

countries, South Africa is among those poorly performing countries in terms of start-up skills, networking, technology absorption, human Capital, and risk capital pillars (see Table 2). To improve GEI score and its EE, the South Africa government needs to primarily work on all these five pillars. In addition, if it wants to increase GEI by 5%, the country should invest 77% of its extra resource on start-up skills, 18% on risk capital, and 5% on technology absorption (see Table 3). This study claims to have significantly shed light on the entrepreneurial ecosystem status of, especially, the three cooperative countries: South Africa, India, and Brazil. As this study fails to show the full picture of the club, further empirical research can be done including all BRICS countries to bolster their cooperative development effort by transforming the entrepreneurial ecosystem and on how to promote EE by tackling the underlying bottlenecks.

Acknowledgements I would like to express my deepest appreciation to Prof. Laslo Szerb, for providing access to the GEI data set, GEI excel lab, and advisory support in the analysis. In addition, I would like to indicate that this work is done solemnly by me, Adisu Fanta, who is the only author.

Author contribution There is no co-Author for this research work.

Funding Open access funding provided by University of Pécs. This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Data availability The data set and details of the methodology of the Global Entrepreneurship Index (GEI), which is adopted for this study, are available at <https://thegedi.org/datasets/>

Declarations

Competing interest The author would like to declare that there is no competing interest in the writing and publication of this work.

Disclaimer All the suggestions, views, and interpretations in this article are done by the author and it does not reflect the affiliated institution/s' or anyone else's position or policy.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Acs ZJ (2006) How is entrepreneurship good for economic growth? . *Innovations* 1(1):97–107. <https://doi.org/10.1162/itgg.2006.1.1.97>
- Acs ZJ, Szerb L (2006) Entrepreneurship, economic growth, and public policy. *Small Bus Econ* 28(2–3):109–122. <https://doi.org/10.1007/s11187-006-9012-3>

- Acs ZJ, Åstebro T, Audretsch D, Robinson DT (2016) Public policy to promote entrepreneurship: a call to arms. *Small Bus Econ* 47(1):35–51. <https://doi.org/10.1007/s11187-016-9712-2>
- Acs ZJ, Stam E, Audretsch BD, O'Connor A (2017a) The lineages of the entrepreneurial ecosystem approach. *Small Bus Econ* 49:1–10. <https://doi.org/10.1007/s11187-017-9864-8>
- Ács ZJ, Autio E, Szerb L (2014) National systems of entrepreneurship: Measurement issues and policy implications. *Res Policy* 43(3):476–494. <https://doi.org/10.1016/j.respol.2013.08.016>
- Acs ZJ, Szerb L (2012) The global entrepreneurship and development index 2012. Cheltenham Elgar. <https://www.e-elgar.com/shop/gbp/global-entrepreneurship-and-development-index-2012-9781849808439.html>. Retrieved 02 May 2020
- Ács Z, Szerb L, Lafuente E, Márkus G (2019) The global entrepreneurship index. The Global Entrepreneurship and Development Institute, Washington, DC. USA. <https://doi.org/10.13140/RG.2.2.17692.64641>
- Acs ZJ, Szerb L, Lloyd A (2017) Global entrepreneurship and development index 2017. Springer. <https://link.springer.com/book/10.1007%2F978-3-319-14932-5>. Retrieved 20 May 2020
- Acs ZJ, Szerb L, Autio E, Lloy A (2017) Global Entrepreneurship Index 2017, 254 pages, Publisher: CreateSpace Independent Publishing Platform (Feb 17 2017), ISBN-10: 1541266889 ISBN-13: 978-1541266889
- Ács ZJ, Szerb L, Lloyd A (2018) The Global Entrepreneurship Index 2018. The Global Entrepreneurship and Development Institute, Washington
- Acs ZJ, Szerb L, Song A, Lafuente E (2020) The Digital Platform Economy Index 2020. <https://thegeedi.org/wp-content/uploads/2020/12/DPE-2020-Report-Final.pdf>. Retrieved Mar 2020
- Alaassar A, Mention AL, Aas TH (2021) Ecosystem dynamics: exploring the interplay within fintech entrepreneurial ecosystems. *Small Bus Econ*. <https://doi.org/10.1007/s11187-021-00505-5>
- Alvedalen J, Boschma R (2017) A critical review of entrepreneurial ecosystems research: towards a future research agenda. *Eur Plan Stud* 25:887–903. <https://doi.org/10.1080/09654313.2017.1299694>
- Au K, White S (2010) Hong Kong's Venture Capital System and the Commercialization of New Technology. In: Fuller DB (ed) *Innovation policy and the limits of laissez-faire*. Palgrave Macmillan, London
- Audretsch DB, Belitski M (2016) Entrepreneurial ecosystems in cities: establishing the framework conditions. *J Technol Transf* 42(5):1030–1051. <https://doi.org/10.1007/s10961-016-9473-8>
- Autio E, Nambisan S, Thomas WM (2018) Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems. *Strateg Entrepreneurship J* 12:72–95. <https://doi.org/10.1002/sej.1266>
- Autio E, Thomas L (2013) Innovation ecosystems: implications for innovation management. In: Dodgson M, Phillips N, Gann DM (eds) *The Oxford handbook of innovation management*. Oxford University Press, Oxford
- Baumol WJ (1990) Entrepreneurship: productive, unproductive, and destructive. *J Polit Econ* 98(5 Part 1):893–921. <https://doi.org/10.1086/261712>
- Brown R, Mason C (2017) Looking inside the spiky bits: a critical review and conceptualization of entrepreneurial ecosystems. *Small Bus Econ* 49:11–30. <https://doi.org/10.1007/s11187-017-9865-7>
- Davies M (2017) Emerging market insights: Is South Africa the next Brazil? https://www2.deloitte.com/content/dam/Deloitte/za/Documents/africa/DeloitteZA_Is_South_Africa_the_next_Brazil_Sep2017.pdf. Retrieved 20 Nov 2019
- Ease of Doing Business (2019) Comparing Business Regulation in 190 Countries. <https://openknowledge.worldbank.org/bitstream/handle/10986/32436/9781464814402.pdf>. Retrieved 10 Nov 2019
- Eshetie T (2018) Ethiopia's Manufacturing Industry Opportunities, Challenges and Way Forward: A Sectoral Overview. *Novel Techn Nutr Food Sci* <https://doi.org/10.31031/ntnf.2018.02.000532>
- Herrington M, Kew P (2018) Is there a change in attitude towards the small and medium business sector South Africa 2017/18? <https://www.gemconsortium.org/file/open?fileId=50411> accessed May 01, 2021.
- Legatum Prosperity Index (2018) Rankings: Legatum Prosperity Index 2018. Legatum Prosperity Index 2018. Retrieved April 2020, from <https://www.prosperity.com/rankings>
- Kirzner I (1973) *Competition and Entrepreneurship*. University of Chicago Press, Chicago
- Lafuente E, Alonso-Ubieta S, Leiva JC, Mora-Esquivel R (2021) Strategic priorities and competitiveness of businesses operating in different entrepreneurial ecosystems: a benefit of the doubt (BOD) analysis. *Int J Entrepren Behav Res*. <https://doi.org/10.1108/ijeb-06-2020-0425>
- Leibenstein H (1968) Entrepreneurship and development. *Am Econom Rev* 58(2):72–83
- Malecki EJ (2018) Entrepreneurship and entrepreneurial ecosystems. *Geogr Compass* 12(3):e12359. <https://doi.org/10.1111/gec3.12359>

- Mckinsey Global Institute (2016) Lions on the move: Realizing the potential of Africa's economies. Retrieved Nov.28, 2019, from: <http://www.mckinsey.com/~media/McKinsey/Global%20Themes/Middle%20East%20and%20Africa/Realizing%20the%20potential%20of%20Africas%20economies/MGI-Lions-on-the-Move-2-Full-report-September-2016v2.ashx> on
- Molina V, Maya J (2017) How should an entrepreneurship ecosystem be? Entrepreneurship ecosystems as an artifact of design. Acad Conferences Ltd. 734–741. WOS:000454449400087
- National Planning Commission (2012) National Development Plan 2030: Our future—make it work. Presidency of South Africa, Pretoria.
- Nightingale P, Coad A (2013) Muppets and gazelles: Political and methodological biases in entrepreneurship research. *Ind Corp Chang* 23(1):113–143. <https://doi.org/10.1093/icc/dtt057>
- OECD-Eurostat (2007) Eurostat-OECD Manual on Business Demography Statistics. OECD, Paris
- Pankov S, Schneckenberg D, Velamuri V (2021) Advocating sustainability in entrepreneurial ecosystems: Micro-level practices of sharing ventures. *Technol Forecast Soc Chang* 166:13. <https://doi.org/10.1016/j.techfore.2021.120654>
- Pizzi S, Leopizzi R, Caputo A (2021) The enablers in the relationship between entrepreneurial ecosystems and the circular economy: the case of circularity. *Manag Environm Qual*. <https://doi.org/10.1108/meq-01-2021-0011>
- Ravinder R, Malindi M (2014) Global financial crises and its impact on the South African economy: A Further Update. *J Econ* 5(1):17–25. <https://doi.org/10.1080/09765239.2014.11884980>
- Reynolds P, Bosma N, Autio E, Hunt S, De Bono N, Servais I, Lopez-Garcia P, Chin N (2005) Global Entrepreneurship Monitor: Data collection design and implementation 1998? 2003. *Small Bus Econ* 24(3):205–231. <https://doi.org/10.1007/s11187-005-1980-1>
- SAB Foundation (2017) The entrepreneurship ecosystem of South Africa: A strategy For Global Leadership 2017. Retrieved May 15, 2021, from <https://www.allangrayorbis.org/wp-content/uploads/2017/03/The-entrepreneurial-ecosystem.pdf>
- Schumpeter JA (1934) The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle. Harvard University Press, Cambridge
- Sobel RS (2008) Testing Baumol: Institutional quality and the productivity of entrepreneurship. *J Bus Ventur* 23(6):641–655. <https://doi.org/10.1016/j.jbusvent.2008.01.004>
- South African Government (2015) Energy challenge | South African Government. Retrieved Nov. 28, 2019, from <https://www.gov.za/issues/energy-challenge>
- Spigel B (2017) The relational organization of entrepreneurial ecosystems. *Entrep Theory Pract* 41:49–72. <https://doi.org/10.1111/etap.12167>
- Szerb L, Acs ZJ (2011) The global entrepreneurship and development index methodology. *SSRN Electron J*. <https://doi.org/10.2139/ssrn.1857985>
- Szerb L, Komlósi ÉA, Páger P (2016) Measuring entrepreneurship and optimizing entrepreneurship Policy Efforts in the European Union, CESifo DICE Report 3/2016 (September). pp. 8–23. Retrieved June 20, 2020, from http://www.regscience.hu:8080/jspui/bitstream/11155/1320/1/pager_measuring_2016.pdf
- Szerb L, Trumbull WN (2018) Entrepreneurship development in Russia: Is Russia a normal country? An empirical analysis. *J Small Bus Enterp Dev* 25(6):902–929. <https://doi.org/10.1108/jsbed-01-2018-0033>
- World Bank (2011) New Business Registration Database. World Bank, Washington
- World Bank in South Africa (2019) Overview of South Africa, Retrieved Nov. 28, 2019, from <https://www.worldbank.org/en/country/southafrica/overview>
- World Economic Forum (2019) Global Competitiveness Report 4.0 of 2019. Retrieved Dec.01, 2019, from www.weforum.org/gcr
- Xie Z, Wang X, Xie L, Duan K (2021) Entrepreneurial ecosystem and the quality and quantity of regional entrepreneurship: A configurational approach. *J Bus Res* 128:499–509. <https://doi.org/10.1016/j.jbusres.2021.02.015>

Authors and Affiliations

Adisu Fanta Bate^{1,2} 

✉ Adisu Fanta Bate
adisufanta@gmail.com; BC5DO7@tr.pte.hu

- ¹ Faculty of Business and Economics, Doctoral School of Business Administration, Department of Management Science, University of Pecs, Pecs, Hungary
- ² College of Business & Economics, Department of Management, Wolaita Sodo University, Wolaita Sodo, Ethiopia