

A Comparison of the Entrepreneurial Performance of Asian-Oceanian Countries via the Multi-Criteria Decision-Making Techniques of Critic, Aras, Waspas, Mairca and Borda Count Methods

Katarzyna Szymczyk

Czestochowa University of Technology, Dąbrowskiego 69, 42-201 Częstochowa, Poland, katarzyna.szyczyk@pcz.pl

Haşim Bağcı

Aksaray University, 68100 Aksaray, Turkey, hasimbagci@aksaray.edu.tr

Ceyda Yerdelen Kaygın

Kafkas University, 36040 Kars, Turkey, ceydayerdelen@kafkas.edu.tr

Dilek Şahin

Sivas Cumhuriyet University, 58140 Sivas, Turkey, dileksahin@cumhuriyet.edu.tr

Abstract: The significance of entrepreneurial activities, in the development of a country, has been increasing at an exponential rate, since the former variable has been repeatedly proven to have a vital effect on economic growth. Within this context, countries periodically publish data related to entrepreneurial activities and undertake regulations that incentivize such pursuits, within their jurisdictions. In light of this, the Global Entrepreneurship Monitor, was constructed to measure and evaluate the countries' level of global entrepreneurship and the ability and hence, the success of entrepreneurial firms' in developing and producing outputs of high quality. In this sense, one can state that the capacity of the aspects that constitute the Global Entrepreneurship Monitor to complement each other plays a vital role in countries' improvement of their entrepreneurial performances. Taking all these into consideration, this study takes into account the Global Entrepreneurship Indicators; tries to identify via the Multi Criteria Decision Making Method their relative importance levels for 34 countries sampled from Asia-Oceania; ranks

those countries' entrepreneurial performances vis-à-vis the aforementioned importance levels through Aras, Waspas and Mairca methods and integrate the scores calculated by these three methods into one embedded ranking via the Borda Count method. The results suggest that while Qatar, United Arab Emirates and Thailand rank as the top three countries, with high levels of global entrepreneurship performance; India, Pakistan, Japan and Malaysia are the last performers.

Keywords: entrepreneurial performance; global entrepreneurship monitor; critic; aras; waspas; mairca and borda count methods

1 Introduction

The main concern of any national and regional economy is to identify the driving forces of economic growth and development. While neoclassical growth theory emphasizes physical capital and labor investments as the backbones of growth, the endogenous growth theory embeds information into this equation. Compared with traditional factors of production like capital and labor, the spill-over effects of information on and to be used by third parties highlight the vitality of the aforementioned variable on economic growth and development. The literature, then, has seen myriad of studies that incorporate other factors, including entrepreneurship, into the neoclassical model [1]. Entrepreneurship has generally been assumed to be a main determinant of economic growth, since it accelerates innovation and facilitates competition among existing companies [2]. It is considered as a crucial tool for economic growth and sustainability [3] and it continues to be one of the most popular concepts in development economics. Schumpeter (1912) expresses entrepreneurship as the start of innovative activities and the release of new products. Kirzner (1973) proposes that the said concept comprises of competitive attitudes that prompts market processes and is a contest of ideas [4]. Zvavahera *et al.* (2018) acknowledge entrepreneurship as the manufacturer of innovative and improved processes and business ideas [5]. Entrepreneurship is generally regarded as the practice of the designation, initiation and execution of a new business and/or process, mostly undertaken by small enterprises. People who establish those are known as “entrepreneurs” [3]. Fundamentally, entrepreneurship expresses an individual’s ability to transform ideas into action. Within this context, the notion also includes creativity, innovation, risk-taking as well as planning and managing of projects in the pursuit of objectives. The concept of entrepreneurship is regarded as a means to “enlarging the economic pie” and generating more income for more people via creating more jobs through facilitating economic activity; instead of simply transferring wealth from one group to another. Within this perspective, entrepreneurs can effectively contribute to the wealth of a society through the institutions prevalent in the country [6]. Entrepreneurship and entrepreneurs,

because of their contribution to creation of new jobs and employment opportunities, emergence of innovations and facilitation of competition and competitiveness, are considered to be the crucial driving forces behind economic growth [1, 7, 8]. The effect of entrepreneurship on the growth of an economy depends on the level of development the economy in question has. Previous research show that the impact differs among developed and developing countries [9]. The three most distinct channels that transform entrepreneurship into economic growth can be put forward as the creation of innovation, the propagation of innovation and competition. Entrepreneurs render significant innovations via entering into markets with new products and production processes [10] [611]. Entrepreneurial activities can influence a country's economic performance in a multitude of ways: (i) entrepreneurs enter into markets with new products, technologies or processes. (ii) they facilitate productivity and competition; and (iii) they accelerate structural transformation [9, 12-15]. Entrepreneurship supports economic performance by introducing innovation, enabling change and facilitating competition [4]. Stel et al. (2005) proposes several predicaments in which entrepreneurship impacts economic growth. Entrepreneurs can render significant innovations by entering into markets with new products or production processes. They can facilitate competition and increase efficiency [11] and also play a significant role in developing information on the applicability of new innovations [9]. In addition, entrepreneurship is defined as an important driving force of employment in both developed and developing countries [16].

Entrepreneurship is essential for a countries' economic development and the formulation of economic policies. Global Entrepreneurship Monitor (GEM) is academic research, initiated by Babson College (US) and London Business School (UK) in 1999 to assess the importance of entrepreneurship on economic growth. The objective of this project is to identify the reasons behind differing levels of entrepreneurial activities among countries. Encapsulating an ever-encompassing information on the subject for more than 20 years, GEM publishes a myriad of global, national and special-themed reports on an annual basis. Within this schedule, the Monitor publishes the country-based entrepreneurship-related data annually and prepares plans and policies for incentivizing entrepreneurship. The Monitor's first research was conducted with a sample of 10 countries and the results were published in 1999 where more than 100 countries have participated in the project ever since. Global Entrepreneurship Monitor evaluates countries vis-à-vis certain criteria related to entrepreneurship and provides both country-themed and global-scaled reports. The centrally-managed project has been regarded as one of the leading entrepreneurship initiatives in the world, as it tries to collect and provide information from a global scale and prepare comprehensive reports that help raise awareness regarding the concept [17].

The objective of this study is to measure the performance levels of 34 countries in Asia and Oceania with regard to the entrepreneurship indicators and exhibit the related importance of those indicators for the time span between 2016 and 2020.

The aim to capture the fastest growing economic area and the biggest continental economy with regard to the GDP based on PPP has played a significant role in the selection of the sample size. China, Japan and India are among the top 10 economies of the world and all focus on high-technology-augmented industries for manufacturing, trade, and eventually growth. This work utilizes 5 different multi-criteria decision-making methods, namely Critic, Aras, Waspas, Mairca and Borda Count.

2 Entrepreneurial Behavior and Attitudes

Entrepreneurship is the ability and the willingness of individuals to perceive new opportunities by rendering new products, production processes, organization methods, product and market combinations to the market, either by themselves or through collective effort [18]. In light of this, one can redefine the concept as the exploration, assessment and utilization process of opportunities to develop new products and services [19]. In other words, entrepreneurship is the transformation of innovative attitudes such as risk-taking, control-focus and autonomy into innovative and target-focused organizations [20].

Entrepreneurship, defined as the initiative to create a new business organization or the enhance an existing business, is seen as a crucial driving force of economic growth since it provides new business opportunities, introduces and promotes innovations, supports structural reforms, facilitates competition by rendering new products and services [21] [22]. Entrepreneurship can improve regional economies, facilitate technological development, increase value creation, create new jobs and accelerate innovation [23]. Therefore, the aforementioned notion is regarded as one of the best economic development strategies of recent times [24].

Entrepreneurial attitudes and behaviors play an important role in the development of entrepreneurship. Attitude, in the most general sense, expresses the beliefs, values and emotions that change over time and can be used to guess people's decisions and actions [25]. Entrepreneurial attitude and behavior are accepted as an increasing function of the values, beliefs and preferences of entrepreneurship [26-28]. An entrepreneurial attitude can turn into an entrepreneurial behavior, where an individual's entrepreneurial attitude is known to bear significance in estimating her entrepreneurial attitude. Entrepreneurial attitude is not simply a matter of personal perception but rather an individual stance vis-à-vis entrepreneurship [29]. Entrepreneurial behavior implies the emergence of environmental signals of business opportunities' resources through differing perceptions [30] [31].

Global Entrepreneurship Monitor (GEM) focuses on three main objectives: to measure the differences between economies with regard to their entrepreneurial

attitudes, activities and aspirations, to identify the factors that determine the characteristics and level of entrepreneurial activities and to facilitate entrepreneurship [32]. Entrepreneurial attitude and behavior indicators are: perceived opportunities, perceived capabilities, fear of failure, entrepreneurial intentions, total early-stage entrepreneurial activity, established business ownership, entrepreneurial employee activity, motivational index, female/male early-stage total entrepreneurial activity, female/male opportunity-driven early-stage total entrepreneurial activity, high job creation expectation, innovation, business services sector, high status to successful entrepreneurs and entrepreneurship as a good career choice [17].

3 Methodology

This study uses multi criteria decision making methods to measure the sampled countries' entrepreneurship levels and compare their entrepreneurial performances. First, the Critic Method was utilized to identify the importance levels of the variables used in this work, since the technique makes use of the correlation matrix that puts forward the interdependencies between the variables. Then Aras, Waspas and Mairca methods are utilized to compare entrepreneurial performances. These techniques are selected because all indicators used to measure the aforementioned dependent variable are positive and favorable. Nevertheless, since there is a possibility that different rankings might arise from these three methods, the outputs are aggregated by the Borda Count Method. In other words, Borda Count Method constructs one ranking by aggregating the outputs of the aforementioned three methods and hence eliminates potential contradictions in interpreting the findings.

4 Findings

For this study, first a data set was constructed by taking into account all the 15 indicators used in Global Entrepreneurship Monitor, which were accessed through GEM's website. The sample selected spans the last five years, between 2016 and 2020, and is comprised of countries in Asia and Oceania. The sample is presented in Table 1.

In the sample presented in Table 1, there are 15 variables and 34 countries, in which some variables and countries are omitted due to incomplete data. Moreover, the variables are abbreviated for practicality purposes.

Table 2
Critic Scores (%)

Variables / Years	2020	2019	2018	2017	2016
PO	7,53118761	6,01291145	5,533251996	5,424265998	5,980638631
PC	7,314432	5,656946	5,977068	6,530255	6,967537
FFR	9,300036	7,815284	7,478274	6,08321	7,247113
EI	8,85482	6,391891	5,006642	5,887213	6,622753
TEA	7,559723	6,853502	6,04077	7,553192	6,441641
EBO	11,19918	12,19903	8,360966	7,567202	7,284261
EEA	9,711992	10,74535	6,748851	7,989906	6,62497
MI	-	-	6,146587	6,427382	7,002205
F/M TEA	7,116784	6,027517	7,281673	5,974508	6,008783
F/M OD TEA	-	-	6,223252	5,571323	7,304324
HJCE	7,976597	9,1473	6,942892	8,154061	7,896626
I	-	-	8,32859	6,89476	5,683329
BSS	9,077192	13,32755	8,629325342	8,679571415	6,010831181
HSSE	7,529871	8,486021	5,421379	5,578993	6,34965
EGCC	6,828189	7,336688	5,880479	5,684156	6,575338

Critic scores presented in Table 2 suggest that the most important global entrepreneurship indicator in 2020 is EBO with an 11.19% score whereas the one with the least importance is EGCC with a score 6.82%. Moreover, the indicators MI, F/M OD TEA and I couldn't be analyzed for 2020 due to missing scores. In 2019, the most important global entrepreneurship indicator is BSS with a score of 13.32%, while the least important variable is EGCC (5.65%). Similar to 2020, the indicators MI, F/M OD TEA and I is not evaluated due to missing data. The most important global entrepreneurship indicator in 2018 is BSS with a score of 8.62% and the least important indicator is EI with a score of 5%. The most important global entrepreneurship indicator in 2017 is BSS with a score of 8.67% and the least important indicator is PO with a score of 5.42%. In 2016, the most important global entrepreneurship indicator is HJCE with a score of 7.89%, while the least important variable is I 5.68%. Following the computation of the degrees of importance of variables, the Asian and Oceanian countries are ranked vis-a-vis their entrepreneurial performances between 2016 and 2020 by using these weights. The scores gathered from the first technique used, the ARAS method, is presented in Table 3.

ARAS scores presented in Table 3 are collected from the computations conducted for a different sub-sample of countries for each year, due to changing number of countries and incomplete data. The scores calculated demonstrate that in 2020, the country with the highest global entrepreneurship performance is Qatar with a score of 0.71 while India ranks last with a score of 0.44. In 2019, United Arab Emirates leads the sample with a score of 0.79 whereas Pakistan is the country with the lowest global entrepreneurship performance by scoring at 0.37.

Table 3
ARAS Scores

Countries/Years	2020	2019	2018	2017	2016
Qatar	0.715482	0.69551	0.646627	0.520343	0.677893
Kuwait	0.64224	-	-	-	-
South Korea	0.600801	0.620353	0.511775	0.457897	0.535776
Saudi Arabia	0.593311	0.52245	0.567675	0.431323	0.468877
Israel	0.580411	0.638355	0.619696	0.570068	0.607749
United Arab Emirates	0.57821	0.798384	0.622011	0.566516	0.499487
Kazakhstan	0.570137	-	-	0.489302	0.437346
Oman	0.551423	0.478172	-	-	-
Indonesia	0.499784	-	0.495406	0.398918	0.500431
Iran	0.487738	0.629828	0.555897	0.49785	0.534119
Taiwan	0.482242	0.532883	0.586622	0.579185	0.519784
India	0.44711	0.536862	0.462399	0.308841	0.379814
Australia	-	0.671234	-	0.613077	0.63352
Armenia	-	0.525943	-	-	-
China	-	0.499117	0.465575	0.407984	0.469039
Jordan	-	0.430283	-	-	0.37184
Japan	-	0.398885	0.481784	0.418736	-
Pakistan	-	0.37616	-	-	-
Thailand	-	-	0.657036	0.645283	0.565083
Turkey	-	-	0.584269	-	0.574154
Lebanon	-	-	0.50755	0.501365	0.519974
Vietnam	-	-	-	0.526269	-
Malaysia	-	-	-	0.508837	0.331521
Georgia	-	-	-	-	0.383309
Hong Kong	-	-	-	-	0.530212

Thailand performs best among sampled countries in 2018 with a score of 0.65 while India ranks last with a score of 0.462. In 2017, the country with the highest global entrepreneurship performance is Thailand with a score of 0.64, while India ranks last with a score of 0.30. Qatar performs best among sampled countries in 2016 with a score of 0.67, whereas Malaysia is the country with the lowest global entrepreneurship performance by scoring at 0.33. Subsequently, the sampled countries are ranked with regard to their entrepreneurial performances in the aforementioned time period with another multi-criteria technique, the WASPAS method, in which the results are shown in Table 4.

WASPAS scores presented in Table 4 indicate that in 2020, the country with the highest global entrepreneurship performance is United Arab Emirates with a score of 6.52; while Kuwait ranks last with a score of 5.16.

Table 4
WASPAS Scores

Countries / Years	2020	2019	2018	2017	2016
Qatar	6.193575	6.170087	7.610641	7.426673	7.639426
Kuwait	5.165099	-	-	-	-
South Korea	6.013094	5.924123	7.525287	7.336616	7.395753
Saudi Arabia	6.032202	6.082647	7.429816	7.357581	7.438194
Israel	5.95549	6.087498	7.58043	7.486333	7.565084
United Arab Emirates	6.527455	6.261311	7.553908	7.522013	7.416529
Kazakhstan	6.006681	-	-	7.399518	7.316064
Oman	5.961888	5.865526	-	-	-
Indonesia	5.855929	-	7.369333	7.250776	7.381468
Iran	5.827254	6.10004	7.454354	7.421134	7.478874
Taiwan	5.883094	5.962999	7.5369	7.502736	7.449688
India	5.769251	5.874902	7.314769	7.009774	7.235655
Australia	-	6.094698	-	7.554836	7.585186
Armenia	-	5.946929	-	-	-
China	-	5.888363	7.353405	7.289922	7.396864
Jordan	-	5.809233	-	-	7.21651
Japan	-	5.706132	7.2869	7.198725	-
Pakistan	-	5.676097	-	-	-
Thailand	-	-	7.621093	7.617866	7.475726
Turkey	-	-	7.53609		7.53774
Lebanon	-	-	6.438667	6.388348	6.462769
Vietnam	-	-	-	7.410858	-
Malaysia	-	-	-	7.401197	7.082015
Georgia	-	-	-	-	7.231379
Hong Kong	-	-	-	-	7.47329

In 2019, United Arab Emirates leads the sample with a score of 6.26, whereas Lebanon is the country with the lowest global entrepreneurship performance by scoring at 5.67. Thailand performs best among sampled countries in 2018 with a score of 7.62, while Lebanon ranks last with a score of 6.43. In 2017, the country with the highest global entrepreneurship performance is Thailand with a score of 7.61; while Lebanon ranks last with a score of 6.38. Qatar performs best among sampled countries in 2016 with a score of 7.63; whereas Lebanon has the lowest global entrepreneurship performance by scoring at 6.46. Then, the entrepreneurial performances of the countries are re-ranked via the MAIRCA technique. Unlike the previous methods, here, the scores computed are ranked in ascending order and the alternative with the lowest score is considered as the best option.

Table 5
MAIRCA Scores

Countries/Years	2020	2019	2018	2017	2016
Qatar	0.027612	0.02148	0.027999	0.02811	0.018588
Kuwait	0.035472	-	-	-	-
South Korea	0.041971	0.034442	0.034989	0.035079	0.03198
Saudi Arabia	0.032857	0.027686	0.040973	0.031915	0.024308
Israel	0.045276	0.028247	0.028973	0.026586	0.022108
United Arab Emirates	-1.55832	0.018722	0.031147	0.024813	0.027714
Kazakhstan	0.03823	-	-	0.0302	0.032179
Oman	0.037494	0.037015	-	-	-
Indonesia	0.044626	-	0.040493	0.03699	0.027218
Iran	0.050908	0.026932	0.038981	0.030639	0.025836
Taiwan	0.050944	0.037357	0.034796	0.028387	0.02901
India	0.049066	0.02873	0.041953	0.04273	0.03564
Australia	-	0.028895	-	0.025733	0.02406
Armenia	-	0.033639	-	-	-
China	-	0.032527	0.042682	0.034714	0.030668
Jordan	-	0.039752	-	-	0.036697
Japan	-	0.048656	0.046595	0.03849	-
Pakistan	-	0.043509	-	-	-
Thailand	-	-	0.025516	0.021171	0.025948
Turkey	-	-	0.036387	-	0.025431
Lebanon	-	-	0.040801	0.032702	0.029346
Vietnam	-	-	-	0.028459	-
Malaysia	-	-	-	0.028462	0.037889
Georgia	-	-	-	-	0.03715
Hong Kong	-	-	-	-	0.028034

MAIRCA Scores presented in Table 5 suggest that in 2020, the country with the highest global entrepreneurship performance is United Arab Emirates with a score of -1.55; while Taiwan ranks last with a score of 0.05094. In 2019, United Arab Emirates leads the sample with a score of 0.018 whereas Japan is the country with the lowest global entrepreneurship performance by scoring at 0.048. Thailand performs best among the sampled countries in 2018 with a score of 0.025; while Japan ranks last with a score of 0.046. In 2017, the country with the highest global entrepreneurship performance is Thailand with a score of 0.021, while India ranks last with a score of 0.042. Qatar performs best among the sampled countries in 2016 with a score of 0.018; whereas Malaysia has the lowest global entrepreneurship performance by scoring at 0.0378. After the grading and ranking of the respective entrepreneurial performances via different multi-criteria decision-making techniques, the Borda Count method is utilized to eliminate the

differences in the findings of those methods. This technique aggregates the outputs of multiple methods to formulate a single ranking, and hence provides a more suitable approach for assessment. Moreover, possible contradicting results and varying outputs are eliminated and a single performance ranking is acquired. The scores computed via the Borda Count method between the years 2016 and 2020 are presented in Table 6.

Table 6
Borda Count Method Results

2020		
Country	Borda Score	Borda Ranking
Qatar	31	1
United Arab Emirates	28	2
Saudi Arabia	27	3
South Korea	25	4
Kazakhstan	18	5
Kuwait	18	6
Oman	17	7
Israel	15	8
Indonesia	10	9
Iran	5	10
Taiwan	5	11
India	3	12
2019		
Country	Borda Score	Borda Ranking
United Arab Emirates	42	1
Qatar	39	2
Iran	34	3
Australia	31	4
Israel	31	4
Saudi Arabia	29	5
India	21	6
Armenia	19	7
Taiwan	18	8
China	16	9
South Korea	16	9
Oman	10	10
Jordan	6	11
Japan	2	12
Pakistan	1	13
2018		
Country	Borda Score	Borda Ranking

Thailand	39	1
Qatar	36	2
Israel	32	3
United Arab Emirates	31	4
Taiwan	27	5
Turkey	23	6
South Korea	22	7
Iran	18	8
Saudi Arabia	13	9
Indonesia	12	10
Lebanon	8	11
China	5	12
India	4	13
Japan	3	14
2017		
Country	Borda Score	Borda Ranking
Thailand	48	1
Australia	44	2
United Arab Emirates	41	3
Israel	38	4
Taiwan	38	4
Qatar	33	5
Vietnam	30	6
Malaysia	26	7
Iran	24	8
Kazakhstan	21	9
Saudi Arabia	17	10
Lebanon	13	11
South Korea	12	12
China	11	13
Indonesia	6	14
Japan	6	14
India	1	15
2016		
Country	Borda Score	Borda Ranking
Qatar	54	1
Australia	50	2
Israel	49	3
Turkey	44	4
Iran	39	5
Thailand	39	5

Saudi Arabia	38	6
Hong Kong	32	7
Taiwan	28	8
United Arab Emirates	26	9
Indonesia	25	10
China	20	11
Lebanon	17	13
South Korea	17	12
Kazakhstan	13	14
India	9	15
Georgia	7	16
Jordan	5	17
Malaysia	1	18

Borda Count method results presented in Table 6 demonstrate that in 2020, the country with the highest global entrepreneurship performance is Qatar with a score of 31, while India ranks last with a score of 3. In 2019, United Arab Emirates leads the sample with a score of 42; whereas Pakistan is the country with the lowest global entrepreneurship performance by scoring at 1. Thailand performs best among the sampled countries in 2018 with a score of 39; while Japan ranks last with a score of 3. In 2017, the country with the highest global entrepreneurship performance is Thailand with a score of 48; while India ranks last with a score of 1. Qatar performs best among the sampled countries in 2016 with a score of 54; whereas Malaysia has the lowest global entrepreneurship performance by scoring at 1. It should be noted that for each year, multiple countries may share the same Borda ranking, due to bearing the same Borda scores. In such cases, the country with the most frequent lowest score in all the studied years is ranked lower. Nevertheless, if no such observation exists for the countries with same scores, they may share the same rank for the year in question.

Conclusions

Entrepreneurial activities are essential for economies, providing a significant contribution to economic growth, employment and the eradication of poverty. Entrepreneurial activities accelerate economic development by creating employment opportunities, enabling the integration of regional economies and trade activities, boosting efficiency through new technologies and facilitating competition and innovation. The purpose of this study was to measure the entrepreneurial performance of countries with regards to the indicators constituting the Global Entrepreneurship Monitor and identify the related degrees of importance of those indicators. In the pursuit of this objective, five multi-criteria decision-making techniques, namely Critic, ARAS, WASPAS, MAIRCA and Borda Count Methods are used. First, the importance levels of global entrepreneurship indicators are identified via the Critic method. Then, the entrepreneurial performances are compared through the ARAS, WASPAS and

MAIRCA techniques. To eliminate the possibility that the outcomes of these computations may provide contradicting results that might be difficult to interpret, the findings of the aforementioned calculations are, then, aggregated to become a single ranking via the Borda Count Method. The data set used in this study incorporates 15 indicators, 34 countries from Asia and Oceania, and 5 years spanning 2016 to 2020. Data was collected from the website of Global Entrepreneurship Monitor (GEM). The results of the Critic technique show that the degrees of importance of the indicators vary by year. While EBO, BSS and HJCE are the most important global entrepreneurship indicators in different years, EGCC, EI, PO and I are shown to be the indicators with the least significance. Based on the first method utilized to calculate the performance ranking; Qatar, United Arab Emirates and Thailand are discovered to be the best entrepreneurial performers, in different years among the sample; whereas India, Pakistan and Malaysia have the lowest scores. The WASPAS Technique bears similar results, as it also finds the three aforementioned countries to be the best performers. Nevertheless, the technique ranks Kuwait, Pakistan and Lebanon last with regards to entrepreneurial performance. Akin to the results of the previous two techniques, MANICA method finds Qatar, United Arab Emirates and Thailand to sustain the scores that suggest high entrepreneurial performance, but demonstrates that Taiwan, Japan and India and Malaysia are the worst performance in the time period studied. Borda Count Method, aggregating all three-decision making technique finds out that while Qatar, United Arab Emirates and Thailand rank best vis-à-vis their entrepreneurial performance; India, Pakistan, Japan and Malaysia rank last. Analogous to the trend in all geographical regions, there are disparities between the levels of development among Asia and Oceania countries, which resonate in the cross-country differences between the Global Entrepreneurship Monitor indicators. In conclusion, for Asian and Oceanian countries, attention should be paid to building collaborative economic, social and political initiatives that would streamline entrepreneurial activities on a global scale and providing necessary incentives to steer entrepreneurs to global markets. Specific policies aimed at initiatives oriented to better production technologies, usage of technology in the production process and research and development activities should be developed in order to improve the quality of the products developed by local entrepreneurs and consequently, to improve global entrepreneurship. Moreover, strategies that train entrepreneurs about the global entrepreneurship culture should be designed, leading to an increased effectiveness and success of entrepreneurs in the global markets. The results of this analysis are restricted to a specific time period and data set. Therefore, these limitations should be taken into account upon evaluation. It is believed that there is still ample ground for further results, if the study is conducted using different time periods, data sets and analytic methods.

References

- [1] O. Stoica, A. Roman, V. D. Rusu, The nexus between entrepreneurship and economic growth: a comparative analysis on groups of countries, *Sustainability*, 12 (3) (2020), pp. 1-19, <https://doi.org/10.3390/su12031186>

-
- [2] M. S. Zouita, The impact of entrepreneurship on economic growth in 95 developing and emerging countries, *Scientific Annals of Economics and Business*, 68 (2021), pp. 145-162, <https://doi.org/10.47743/saeb-2021-0014>
- [3] M. Savrul, The impact of entrepreneurship on economic growth: GEM data analysis. *Journal of Management, Marketing and Logistics*, 4 (2017), pp. 320-326, <http://doi.org/10.17261/Pressacademia.2017.494>
- [4] M. Adusei, Does entrepreneurship promote economic growth in Africa?, *African Development Review*, 28 (2016), pp. 201-214, <https://doi.org/10.1111/1467-8268.12190>
- [5] P. Zvavahera, F. Chigora, R. Tandi, Entrepreneurship: an engine for economic growth, *International Journal of Academic Research in Business and Social Sciences*, 8 (2018), pp. 55-66, <http://dx.doi.org/10.6007/IJARBS/v8-i11/4884>
- [6] A. Hamdan, H. Ghura, B. Alareeni, R. K. Hamdan, Entrepreneurship growth in emerging economies: new insights and approaches, *Journal of Sustainable Finance & Investment*, (2021), pp. 1-12, <http://dx.doi.org/10.1080/20430795.2021.1944750>. 1-12
- [7] T. Neumann, The impact of entrepreneurship on economic, social and environmental welfare and its determinants: a systematic review, *Management Review Quarterly*, 71 (2021), pp. 553-584, <https://doi.org/10.1007/s11301-020-00193-7>
- [8] G. Kadocsa, Research of Competitiveness Factors of SME, *Acta Polytechnica Hungarica*, 3(4) (2006), pp. 71-84
- [9] J. Doran, N. McCarthy, M. O'Connor, The role of entrepreneurship in stimulating economic growth in developed and developing countries, *Cogent Economics & Finance*, 6 (2018), pp. 1-14, <https://doi.org/10.1080/23322039.2018.1442093>
- [10] N. Bosma, M. Sanders, E. Stam, Institutions, entrepreneurship, and economic growth in Europe, *Small Business Economics*, 51 (2018), pp. 483-499, <https://doi.org/10.1007/s11187-018-0012-x>
- [11] A. Van Stel, M. Carree, R. Thurik, The effect of entrepreneurial activity on national economic growth, *Small Business Economics*, 24 (2005), pp. 311-321, <https://doi.org/10.1007/s11187-005-1996-6>
- [12] Z. J. Acs, S. Desai, J. Hessels, Entrepreneurship, economic development and institutions, *Small Business Economics*, 31 (2008), pp. 219-234, <https://doi.org/10.1007/s11187-008-9135-9>
- [13] A. Kritikos, Entrepreneurship and economic growth, *International Encyclopedia of the Social & Behavioral Sciences*, 2 (2015), pp. 675-680, <https://doi.org/10.1016/B978-0-08-097086-8.94004-2>

- [14] I. Hronszky, K. Kovács, Interactive Value Production through Living Labs, *Acta Polytechnica Hungarica*, 10(2) (2013), pp. 89-108
- [15] N. Berber, A. Slavić, Human Resource (HR) Outsourcing in European Compensation Management in the Light of CRANET Research, *Acta Polytechnica Hungarica*, 13(3) (2016), pp. 207-225
- [16] I. M. Zaki, N. Rashid, Entrepreneurship impact on economic growth in emerging countries, *The Business and Management Review*, 7 (2) (2016), pp. 31-39
- [17] R. Harding, M. Hart, D. Jones-Evans, J. Levie, *Global entrepreneurship monitor*, London: London Business School, 2002
- [18] W. B. Gartner, Who is an entrepreneur? is the wrong question, *Entrepreneurship Theory and Practice*, 13 (1989), pp. 47-68, <https://doi.org/10.1177%2F104225878801200401>
- [19] S. Shane, S. Venkataraman, The promise of entrepreneurship as a field of research, *The Academy of Management Review*, 25 (1) (2000), pp. 217-226, <https://doi.org/10.2307/259271>
- [20] W. B. Gartner, What are we talking about when we talk about entrepreneurship?, *Journal of Business Venturing*, 5 (1) (1990), pp. 15-28, [https://doi.org/10.1016/0883-9026\(90\)90023-M](https://doi.org/10.1016/0883-9026(90)90023-M)
- [21] P. Reynolds, N. Bosma, E. Autio, S. Hunt, N. De Bono, I. Servais, P. Lopez-Garcia, N. Chin, *Global entrepreneurship monitor: data collection design and implementation 1998-2003*, *Small Business Economics*, 24 (2005), pp. 205-231, <https://doi.org/10.1007/s1187-005-1980-1>
- [22] J. Kew, M. Herrington, Y. Litovsky, H. Gale, Generation Entrepreneur? The state of global youth entrepreneurship, Understanding the entrepreneurial attitudes, aspirations and activities of young people, *Journal of Business Research*, 18 (2013), pp. 17-30
- [23] J. J. M. Ferreira, C. I. Fernandes, S. Kraus, Entrepreneurship research: mapping intellectual structures and research trends, *Review of Managerial Science*, 13 (2019) pp. 181-205, <https://doi.org/10.1007/s11846-017-0242-3>
- [24] D. Abun, S. L. G. L. Foronda, F. Agoot, M. L. V. Belandres, T. Magallanez, Measuring entrepreneurial attitude and entrepreneurial intention of ABM grade XII, Senior High School Students of Divine Word Colleges in Region I, Philippines, *Engineers Publication House*, 2 (2018), pp. 27-43
- [25] M. Del Giudice, M. Nicotra, E. E. Schillaci, Entrepreneurial performance of principal investigators and country culture: relations and influences. *Journal of Technology Transfer*, 4 (2) (2017), pp. 320-337, <https://doi.org/10.1007/s10961-016-9499-y>

- [26] A. Fayolle, B. Gailly, The impact of entrepreneurship education on entrepreneurial attitudes and intention: hysteresis and persistence, *Journal of Small Business Management*, 53 (1) (2015), pp. 75-93, <https://doi.org/10.1111/jsbm.12065>
- [27] K. Fellnhofner, K. Puumalainen, Can role models boost entrepreneurial attitudes?, *International Journal of Entrepreneurship and Innovation Management*, 21(3) (2017), pp. 274-290
- [28] M. Baluku, P. Onderi, O. Kathleen, Predicting self-employment intentions and entry in Germany and East Africa: an investigation of the impact of mentoring, entrepreneurial attitudes, and psychological capital, *Journal of Small Business and Entrepreneurship*, 33 (3) (2019), pp. 1-34, <https://doi.org/10.1080/08276331.2019.1666337>
- [29] P. W. Schultz, S. Oskamp, Effort as a moderator of the attitude-behavior relationship: General environmental concern and recycling, *Social Psychology Quarterly*, 59 (4) (1996), pp. 375-383, <https://doi.org/10.2307/2787078>
- [30] L. Edelman, H. Yli-Renko, The impact of environment and entrepreneurial perceptions on venture-creation efforts: bridging the discovery and creation views of entrepreneurship, *Entrepreneurship Theory and Practice*, 34 (5) (2010), pp. 833-856, <https://doi.org/10.1111%2Fj.1540-6520.2010.00395.x>
- [31] M. Renko, R. C. Shrader, R. C. and M. Simon, M. Perception of entrepreneurial opportunity: a general framework, *Management Decision*, 50 (7) (2012), pp. 1233-1251, <https://doi.org/10.1108/00251741211246987>
- [32] N. Bosma, S. Wennekers, J. Amoros, Global entrepreneurship monitor 2011 extended report: Entrepreneurs and entrepreneurial employees across the globe. London: Global Entrepreneurship Research Association, 2012