

## **The Impact of Entrepreneurship Ecosystem on Developing Nations' Competitiveness: Using Co-integration Models**

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### **Abstract**

Entrepreneurs are often seen as national assets to be refined and motivated to the greatest possible extent. Where entrepreneurship helps in improving the standard of living, creating wealth from their entrepreneurial ventures; also they create jobs and the conditions for a flourishing society.

As Entrepreneurship is a crucial asset which the developing countries can benefit from it to promote its economic competitiveness, the research presents a background on the entrepreneurship ecosystem and how could it be linked to international competitiveness also an analytical review would be carried out in this research to identify the impact of the entrepreneurship ecosystem on competitiveness in some developing countries and evaluating the status of both entrepreneurship on competitiveness in discussed developing nations over the period (2011-2018).

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## **1.Introduction:**

Entrepreneurship generally described as any attempt by a person, a group of individuals, or an established company to start a new enterprise or create a new business, such as self-employment, a new business organization, or the expansion of an existing business. It is a critical component of economic growth and an important determinant of current and future incomes and jobs, and thus economic competitiveness. GEM helps in the study of entrepreneurship and the awareness of the entrepreneurial movement around the world. It used a number of metrics to assess the entrepreneurial activity and environment around the world, including indicators for measuring early-stage entrepreneurship activities, new business ownership, established business, innovation, job creation, and self-employment.

An entrepreneurship ecosystem is a collection of circumstances that form the environment in which entrepreneurial practices occur. Financing, government policy, government projects, education and training, R&D transition, physical infrastructure, industrial infrastructure, and the GEM entrepreneurship framework requirements are all used to describe an entrepreneurship ecosystem, cultural and social norms, as well as business transparency for a country's entrepreneurship to thrive, it needs support in both of these fields.

Developing nations has a challenging economic climate, but there is a huge potential for entrepreneurs to contribute to the country's

economic recovery, as entrepreneurship is now a popular topic among many organizations where government agencies, universities, financial firms, and other stakeholders are only a few examples. While progress has been made in fostering an entrepreneurial culture and building a conducive climate for entrepreneurs, launching a new business in developing nations remains difficult due to a workforce that is heavily dependent on government or private sector jobs rather than entrepreneurship. (GEM Global Report, 2017, P.36)

GEM evaluates an enterprise's ecosystem by identifying a series of relevant entrepreneurship structure requirements. Both conditions, when taken together, define a local business climate that can be welcoming in certain respects and constraining in others for those looking to start a new business. Individually and collectively, these factors determine how simple or difficult it is to start a new firm and subsequently grow it into a profitable, long-term enterprise. (GEM Global Report, 2019, P.69)

So there are various criteria for measuring the entrepreneurship ecosystem, such as startup funding, government help and efforts, taxation and bureaucracy, government programs, basic and post-school entrepreneurial education and training, R&D transition, commercial and technical infrastructure, international market openness and trends, physical and service infrastructure, and cultural factors, among others. (GEM Website, 2017)

## **2.Statement of the Problem:**

Countries are increasingly competing with one another, and boosting competitiveness is considered as a means of sustaining economic growth and progress, so this is a crucial subject. Furthermore, the impact of entrepreneurship ecosystem on competitiveness has received less attention in the literature; hence our work intends to address this void by conducting an analysis on some developing nations.

Also, there is growing interest in how large industries may be made more efficient in order to promote innovative exports and establish more value-added sectors in developing nations. As entrepreneurship is at the forefront of new technology, product development, competitiveness, economic expansion, and job creation, it has been regarded as a significant policy concern, and governments must recognize the link among entrepreneurship and economic competitiveness.

## **3.Hypothesis of the Study:**

The research hypothesis is that entrepreneurship ecosystem has a positive impact on developing nations' competitiveness.

## **4.The Objectives of the Study:**

The main objective of the study is to determine the impact of entrepreneurship ecosystem on developing nations' competitiveness by using co-integration tests. This study also tries to see if entrepreneurial motives have an impact on overall

economic competitiveness. Besides these objectives, there are other objectives such as explain the theories of entrepreneurship and review the determinants of entrepreneurship and competitiveness, and determine the problems of entrepreneurship in developing nations.

### **5. Methodology:**

This research divided to two parts: the first part is a theoretical background which presented to review the theories and broad definitions that are concerned by entrepreneurship, competitiveness, and its importance to economics, it also goes over a quick review of the entrepreneurship ecosystem characteristics in developing countries. Then using graphical method, there is a comparative analysis of the average growth rates of competitiveness and entrepreneurship ecosystem indices of developing nations followed by the exploration of the relationship between variables, the goal of this comparative analysis is to reveal the state of developing nations' competitiveness and entrepreneurship and to establish each country's record of improvement or deterioration through the period of (2011- 2018).

In the second part we used a variety of co-integrating regression models, including Pedroni, Kao residual, and Johansen Fisher co-integration simulations, to test the relationship between the variables by using panel data estimation.

## **6. Literature Review Regarding Entrepreneurship and its Determinants**

Because there is no single definition of entrepreneurship, it is a multidimensional concept. It all depends on the main target of the one determining it and from which perspective one looks at it. Some researchers discussed entrepreneurship from the economics view, sociology, and psychology, others checked out it from the management perspective, while others checked out it from the social perspective. (Dutse & Aliyu, 2017, P.40)

There really are numerous reasons why studies have difficulty defining entrepreneurship. To begin with, there is no consensus on whether entrepreneurship is a trait of people—the so-called "industry captains"—or a process. Second, because entrepreneurial activity frequently overlaps with other company operations, such as management, it can be difficult to determine when and where entrepreneurial activity occurs. (Godin, Clemens & Veldhuis, 2008, P.7)

Third, entrepreneurship may take many forms, including new small enterprises, divisions inside larger corporations, and even non-profit organizations. Fourth, there is debate about whether entrepreneurship should be characterized by an entrepreneur's attributes, how they make decisions, or how they generate chances. (Godin, Clemens & Veldhuis, 2008, P.7)

Entrepreneurship is defined in different ways. A person who organizes manages, and undertakes the risks of a commercial

organization are referred to as an entrepreneur. The definition has its origin within the French word meaning "to undertake". (Kruger, 2004, P.16)

Entrepreneurship was defined by an Austrian economist Carl Menger (1870), who argued that entrepreneurship emerges as those who search out and benefit from profit opportunities, create goods that previously didn't exist, and creating new ways to make existing goods.

Various theories of entrepreneurship could be interpreted from the economists, sociologists, and psychologist's points of view. These theories are supported and introduced by various researchers for more than two and a half centuries. Additionally, different schools of thought assessed the theories of entrepreneurship such as early and classical school, mainstream school, Austrian school, and Radical school. The theory of economic entrepreneurship found its roots in both classical and neoclassical theories, where it examined the enhancer's economic factors which boost and increase entrepreneurial behavior. (Bula, 2012, P.81)

Also there was a resurgence of academic interest in the entrepreneur and the decision-making method in the mainstream of economics. (Kruger, 2004, P.13) Additionally, The Austrian School is an unorthodox school of economic thinking that confirms the price mechanism's glib organizing strength. This school was named according to founders and early backers. (Kalantaridis, 2004, PP.29-30)

Finally, in modern theories of entrepreneurship, the entrepreneur is considered as someone who produces and organizes a new enterprise even if there wasn't innovation within these acts. Second, entrepreneurship plays a more broad innovative position in the market economy, because an entrepreneur is often regarded as the innovator, who suggests that he is the one who converts innovations and theories to economic output.

Concerning the determinants of entrepreneurship, policymakers and international organizations recognize the value of promoting entrepreneurial activity as part of public policy, they have recognized the need to fully understand and quantify the factors that affect entrepreneurship. As a consequence, the OECD created entrepreneurial determinants indices, which illustrated a structure that summarizes the various factors that form entrepreneurship. This approach outlines how to quantify the determinants of entrepreneurship. (Winata, 2008, PP.34-35)

The main purpose of these indices is twofold: the first one is to enhance the state of knowledge on the forces that affect a country's entrepreneurial activity, and secondly to assist policymakers in assessing the country's entrepreneurship efficiency. The regulatory framework; business conditions; access to finance; knowledge development and dissemination; entrepreneurial capabilities; and entrepreneurial culture are the six determinants of entrepreneurship. (Industry Canada, 2015, P.3)

## 7. Entrepreneurship in Developing Countries<sup>4</sup>

It is not enough to simply concentrate on new firm development and quantify potential GDP outcomes when discussing entrepreneurship and its impact on developing economies. Instead, one must differentiate between companies that were started to take advantage of a specific market opportunity and those that were started of necessity. If certain opportunities are linked to economic growth, opportunity-based entrepreneurship can help developing economies grow. As a result, observing existing opportunities, entrepreneurial skills, and the matching mechanism between them is critical for examining the impact of entrepreneurship on competitiveness in developing countries.

Opportunity-driven entrepreneurship (ODE) and necessity-driven entrepreneurship (NDE) are two types of entrepreneurship studied by the Global Entrepreneurship Monitor (GEM) (NDE). Creating something that already exists is the aim of necessity-driven entrepreneurship. Entrepreneurs in this case are unemployed, lack advanced degrees, and have little financial capital. Entrepreneurial operation is regarded as a revenue source. In contrast, Entrepreneurial opportunities are circumstances in which new products, services, raw materials, and organizing strategies are launched and sold for more than their cost of production, and opportunity-driven entrepreneurship is when entrepreneurs found

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<sup>4</sup> The country selection was based on data availability for the indicators measuring entrepreneurial activity, so our sample includes Argentina, Brazil, Chile, China, Colombia, Egypt, Morocco, Panama, Peru, Hong Kong SAR, Thailand, Uruguay, Malaysia, and Mexico.

a new firm to leverage an opportunity. (Albulescu & Drăghici, 2016, P.156)

### **8. Entrepreneurial Determinants in Developing Countries**

Entrepreneurship in developing economies varies from that in developed economies. The domain of entrepreneurship in developing nations appears to be defined by three primary basic criteria, according to Lingelbach et al. (2005). These include: First and foremost, there is a greater incentive to do business in developing economies than in developed economies. Emerging markets have more needs and resources than developed markets. (Kabura, 2006, p.17)

Second, financial capital: While this might not be the case in developed economies, financial resources are a significant disadvantage for entrepreneurs in developing nations. Internal funding provides for the bulk of SME financing, there is a continued reliance on informal sources of money to start a new business, and bank loans and venture capital play a limited role in financing entrepreneurs, particularly in developing countries. As a result, entrepreneurs in developing countries begin their businesses downstream, serving customers directly.

Third, apprenticeship and human capital, which are lacking in emerging markets due to a lack of traditional training and mentorship opportunities. In general, developing economies are corrupt, and they are not always the best guides for new

companies. Furthermore, achieving scale is difficult due to the lack of certain domestic skill sets, such as financial management.

Other scholars that study entrepreneurship in developing nations include infrastructure as a factor that influences entrepreneurial activity (e.g., lack of highways, electricity...), to the previously described conditions, and social problems (such as the fear of failure, which can be a deterrent), as well as a poor investment environment, the most basic requirement for national competitiveness, which is typically ensured by a stable social and political regime. (Lingelbach et al., 2011, pp.1-2)

In order to address the challenges of entrepreneurship in developing countries, policymakers should focus on establishing the type of investment environment that encourages private investment (rule of law, safe and trained citizens, strong physical infrastructure, favorable tax structure, and respect for private property). Among the most significant obstacles that managers face when undertaking business projects in developing economies, especially in Egypt, are economic or competitive background deficiencies: human resources, capital resources, physical resources, administrative, knowledge, and science, and technological infrastructure; legal elements that are unavailable or ill-enforced, such as rule of law, property security, open competition, corruption is absent, as is the lack of relevant and supporting sectors, as well as possible suppliers of inputs to their goods and services.

To conclude, entrepreneurial drivers are similar through both developed and developing countries, but rather how they affect entrepreneurs in developed and developing nations vary dramatically. Entrepreneurial environments that threaten entrepreneurs are determinants of entrepreneurship in general, whether in developing or developed countries. For example, in developing countries, a wide range of opportunities appears to favor entrepreneurial practices, while in developed economies, entrepreneurial opportunities are scarce and entrepreneurs operate on the periphery of the economy. (Kabura, 2006, p.18)

Limited financial resources, poor apprenticeship and human resources, especially education systems, a poor investment climate, and bureaucracy, tax structures, legal frameworks, private property, corruption, political regimes, and culture all harm entrepreneurship in underdeveloped nations, In addition, there is a bad business structure, which includes less open competition, the absence of supporting industries and prospective input suppliers, and fragmented marketplaces. (Kabura, 2006, p.18)

### **9. Entrepreneurship Ecosystem Conditions in Selected Developing Nations**

An entrepreneurship ecosystem is a collection of circumstances that form the environment in which entrepreneurial practices occur. Financing, government policy, government projects, education and training, R&D transition, physical infrastructure, industrial infrastructure, and the GEM entrepreneurship framework requirements are all used to describe an

entrepreneurship ecosystem, cultural and social norms, as well as business transparency for a country's entrepreneurship to thrive, it needs support in both of these fields.

GEM evaluates an enterprise's ecosystem by identifying a series of relevant entrepreneurship structure requirements, which are listed in Table 1.1 in the appendix. Both conditions, when taken together, define a local business climate that can be welcoming in certain respects and constraining in others for those looking to start a new business. Individually and collectively, these factors determine how simple or difficult it is to start a new firm and subsequently grow it into a profitable, long-term enterprise. (GEM Global Report, 2019, P.69)

To assess the twelve areas of the entrepreneurship framework conditions, Physical infrastructure is often seen as fostering entrepreneurship, followed by culture and social standards, and market dynamics, as seen in Figure 1.1. Entrepreneurship education at the school level, government policy: taxation and bureaucracy, R&D transfers, and government policy support and relevance are the framework conditions that require the most attention or development. China and Chile are two nations where the current situation of the entrepreneurial framework indicates a difficult environment through which to launch a successful new business. Nonetheless, among all the developing economies mentioned in the 2019 GEM study; these nations have the greatest levels of total early-stage entrepreneurial activity (TEA).

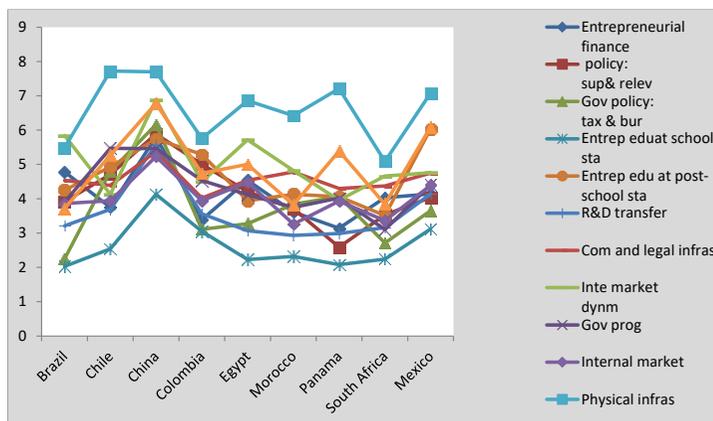
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**Table 1.1: Entrepreneurship Ecosystem Indices in Selected Developing Countries during 2019**

Country	Brazil	Chile	China	Colom	Egypt	Morocco	Panama	South Africa	Mexico
Entrepreneurial finance	4.78	3.75	5.8	3.39	4.54	3.61	3.14	4.03	4.14
Government policy: support & relevance	3.92	4.71	5.89	5	4.21	3.71	2.59	3.53	4.04
Government policy: taxes & bureaucracy	2.25	4.79	6.16	3.11	3.27	3.84	4.06	2.71	3.65
Government programmes for entrepreneurs	3.91	5.47	5.46	4.53	4.12	3.75	4.02	3.1	4.4
Entrepreneurial education at school stage	2.03	2.54	4.13	3.05	2.23	2.32	2.08	2.24	3.12
Entrepreneurial education at post-school stage	4.25	4.93	5.74	5.29	3.94	4.13	4.06	3.51	6.04
R&D transfer	3.21	3.69	5.57	3.56	3.07	2.93	2.99	3.16	4.14
Commercial and legal infrastructure	4.53	4.39	5.37	4.02	4.54	4.78	4.3	4.37	4.75
Internal market dynamics	5.84	4.13	6.88	4.5	5.72	4.82	3.96	4.66	4.76
Internal market	3.86	3.94	5.23	3.94	4.48	3.26	3.93	3.36	4.39
Physical infrastructure	5.49	7.72	7.7	5.76	6.86	6.42	7.21	5.09	7.08
Cultural and social norms	3.72	5.27	6.78	4.74	5	3.82	5.39	3.84	6.09

Plotted by the Researcher, *Source: Global Entrepreneurship Monitor Consortium, (2019), "GEM Global Entrepreneurship Monitor", Global Report.*

**Figure 1.1: Entrepreneurship Ecosystem Indices in Selected Developing Countries during 2019**



Plotted by the Researcher, Shown in Table 4.4 in Appendix

Source: Global Entrepreneurship Monitor Consortium, (2019), "GEM Global Entrepreneurship Monitor", Global Report.

With regards to Egypt's entrepreneurship ecosystem, it is the environment in which entrepreneurs turn on, it fundamentally consists of access to finance, entrepreneurship education, culture, and the regulatory process, government entrepreneurship projects, R&D transition, and economic and physical infrastructure.

To assess Egypt's entrepreneurial climate and the level of support it offers, factors determining the nature of entrepreneurial operation should be identified first, then analyzed. Financial assistance; government policy support; the breadth and efficiency of government assistance programs; and the role of entrepreneurship in the education and training system; the degree, efficiency, and cost of available business resources; the degree of market openness and dynamism to allow for the entrance of new enterprises; and the role of entrepreneurship in the education and training system. Physical infrastructure accessibility (e.g., ICT,

facilities, transportation networks, land); and the extent to which current social and cultural norms promote or prohibit individual acts leading to entrepreneurship.

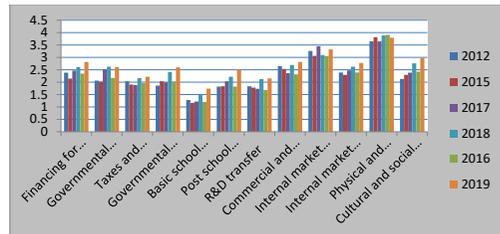
When these factors were evaluated in Egypt, the findings were not encouraging; in particular, experts say they were found to be underperforming, failing to provide adequate support to the entrepreneurial community. Experts have also identified access to financial resources, as well as education and training, as factors that need to be improved the most.

Despite being consistently recognized as one of the top challenges facing entrepreneurs, especially those trying to develop their businesses, Egypt has made some notable progress in improving access to financing for startups as well as micro, small, and medium enterprises. Egypt's overall score in entrepreneurial finance continues to be modest. As the measurement of access to finance indicates that most entrepreneurs rely on their own or their family members' savings and they often turn to their peers for help, either calling for their savings or seeking a loan, confirming that access to finance is an obstacle to entrepreneurship.

Egypt's entrepreneurial ecosystem has evolved in a number of ways: multiple venture capital firms have been founded, and a good flow of technological investments has arisen. The Micro, Small and Medium Enterprises Development Agency (MSMEDA) was established with the goal of promoting entrepreneurship and MSMEs; and new laws and decrees concerning investments,

bankruptcy, and industrial libel have been enacted; a rise in public exposure to entrepreneurs and their stories; a proliferation of entrepreneurship support services, as well as innovation incubators and accelerators, including at colleges; comprehensive educational development programs, combining general education and university education; a growth of entrepreneurial support programs, as well as startup incubators and accelerators, including at universities; and proliferation of entrepreneurship support programs, as well as startup incubators and accelerators, including at universities.

**Figure 1.2: Egypt's Entrepreneurship Ecosystem Indices during (2012 - 2019)**



Plotted by the Researcher, Shown in Table 4.9 in the Appendix  
 Source: Global Entrepreneurship Monitor Consortium, (2012-2019), GEM Global Entrepreneurship Monitor, Global Reports.

Both of these changes, programs, and campaigns are helping to boost the economy's momentum in

the entrepreneurship ecosystem in Egypt. (GEM Egypt's entrepreneurship Report, 2016, p.9) Figure 1.2 which illustrates Egypt's entrepreneurship ecosystem indices during the period (2012 - 2019), showed that while Egypt's entrepreneurship ecosystem still ranks low in most of the measures compared to GEM global averages, there is an improvement trend, albeit slow.

Most measures have shown noticeable improvements between 2010 and 2019, such as access to finance (increasing from 2.4 to 2.8), government policies support and relevance (reaching from

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2.69 to 2.61), entrepreneurship education at the school stage (increasing from 1.2 to 1.7), entrepreneurship education at post-school stage (increasing from 2.1 to 2.5), R&D transfer (increasing from 1.8 to 2), internal market openness (increasing from 2.2 to 2.7), and cultural and social norms (increasing from 2.1 to 2.9). Although most of these improvements are minor, they do point to a favorable trend in the ecosystem's wellness. However, some of these changes and measures may take some time to manifest themselves.

### 10.GCI in some Developing Nations

We assessed average (GCI) ranks with the purpose of revealing the condition of both competitiveness and establishing each country's record of development or degradation from 2011 to 2019.

**Table 1.2: GCI Ranks of some Developing Countries during 2011-2019**

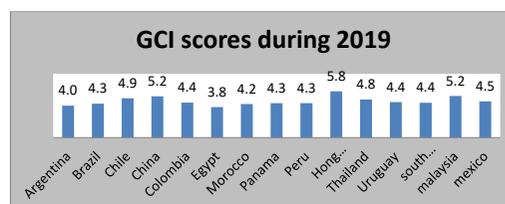
Covering Economies	142	144	148	144	140	140	137	140	141
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Argentina	85	94	104	104	106	104	92	81	83
Brazil	53	48	56	57	75	81	80	72	71
Chile	31	33	34	33	35	33	33	33	33
China	26	29	29	28	28	28	27	28	28
Colombia	68	69	69	66	61	61	66	60	57
Egypt	94	107	118	119	116	115	100	94	93
Morocco	73	70	77	72	72	70	71	75	75
South Africa	50	52	53	56	49	47	61	67	60
Malaysia	21	25	24	20	18	25	23	25	27
Mexico	58	53	55	61	57	51	51	46	48
Panama	49	40	40	48	50	42	50	64	66
Peru	67	61	61	65	69	67	72	63	65
Thailand	39	38	37	31	32	34	34	38	40
Hong Kong SAR	11	9	7	7	7	9	6	7	3
Uruguay	63	74	85	80	73	73	76	53	54

Researcher own calculations using the data from WEF

Source: World Economic Forum, "GCR Global Competitiveness Reports", Global Reports, (2011-2019).

Figure 1.3 also shows GCI scores of 2019, it's noticed that Hong Kong still achieved the highest score where it records 5.8, followed by China and Malaysia where they record 5.2, while Egypt still records the lowest level of GCI score out of discussed developing countries. These graphs conclude that the improvement of these countries'

competitiveness is few little during the last recent years this may be resulting from the nature of developing countries.



Plotted by the Researcher, Shown in Table 4.5 below

Source: World Economic Forum, "GCR Global Competitiveness Reports ", Global Report, 2019.

## 11. Empirical Framework

The research used a variety of co-integrating regression models, including Pedroni, Kao residual, and Johansen Fisher co-integration simulations, to test the relationship between the variables. The data was gathered from the WEF's Global Competitiveness Reports, the Global Entrepreneurship Monitor, and the World Bank for the period 2011–2018. This association is tested for certain developing nations, since the countries were chosen based on data availability for variables indicating entrepreneurial activity and quality; it was possible to see how entrepreneurship influences international competitiveness based on economic development levels. Only fifteen nations, including Egypt, were included in our sample since the indicators were only available for these nations.

## **11.1 Panel Co-integration Tests**

There are different methods for testing the existence of a co-integration relationship between variables from them; Pedroni (Engle-Granger based) Co-integration test, Kao (Engle-Granger based) Co-integration test, and Johansen Co-integration test.

### **11.1.1 Pedroni (Engle-Granger based) Co-integration Test**

We will analyze the panel co-integration relationship and conduct a robustness check using this test. This test proposes the null hypothesis of no co-integration among variables. The tests of Pedroni can be divided into two categories: within dimensions and between dimensions. Thus there are seven tests and all tests will be considered, therefore there are eleven outcomes.

All results of Pedroni co-integration tests for our data of developing countries are demonstrated in Table 1.3. The results of within-dimension and between-dimension tests showed that from eleven tests six tests are significant and this leads us to reject the null hypothesis of no co-integration, meaning that all variables are co-integrated. Thus the majority outcomes can reject the null hypothesis.

**Table 1.3: Pedroni Residual Cointegration Test**

Pedroni Residual Cointegration Test  
Series: GDPGRW TEA INNOV SELFEMP JOBCR GCI  
Date: 02/27/21 Time: 12:05  
Sample: 2011 2018  
Included observations: 120  
Cross-sections included: 9 (6 dropped)  
Null Hypothesis: No cointegration  
Trend assumption: No deterministic intercept or trend  
Automatic lag length selection based on SIC with a max lag of 0  
Newey-West automatic bandwidth selection and Bartlett kernel

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	Alternative hypothesis: common AR coeffs. (within-dimension)			
	Unweighted		Weighted	
	Statistic	Prob.	Statistic	Prob.
Panel v-Statistic	-1.243334	0.8931	-1.748259	0.9598
Panel rho-Statistic	2.080777	0.9813	2.643187	0.9959
Panel PP-Statistic	-7.233750	0.0000	-2.608670	0.0045
Panel ADF-Statistic	-6.567049	0.0000	-2.277555	0.0114

Alternative hypothesis: individual AR coeffs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	3.913277	1.0000
Group PP-Statistic	-7.762801	0.0000
Group ADF-Statistic	-5.667207	0.0000

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Source: Tests have been calculated by the researcher using Eviews.edition11.

### 11.1.2 Kao Residual Co-integration Test

Kao's test is therefore based on the null hypothesis of no co-integration and assumes co-integrating vector homogeneity in the individual dimension. In the Kao test, the minimal AIC value determines the optimal lag length number. As illustrated in Table 1.4 that; with the low p-value record of Kao statistical tests (p-value = 0.00), which is less than 5%, we may reject the null hypothesis and accept the alternative hypothesis, implying that all the variables are co-integrated, implying that there is a long-run link between the variables.

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**Table 1.4 Kao Test for Cointegration**

Kao Residual Cointegration Test  
 Series: GDPGRW TEA INNOV SELFEMP JOBCR GCI  
 Date: 02/27/21 Time: 12:06  
 Sample: 2011 2018  
 Included observations: 120  
 Null Hypothesis: No cointegration  
 Trend assumption: No deterministic trend  
 Automatic lag length selection based on SIC with a max lag of 0  
 Newey-West automatic bandwidth selection and Bartlett kernel

ADF	t-Statistic	Prob.
	-3.550380	0.0002
Residual variance	4.705266	
HAC variance	2.201187	

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(RESID)  
 Method: Least Squares  
 Date: 02/27/21 Time: 12:06  
 Sample (adjusted): 2012 2018  
 Included observations: 85 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-0.968150	0.096442	-10.03866	0.0000
R-squared	0.532512	Mean dependent var		-0.383499
Adjusted R-squared	0.532512	S.D. dependent var		2.291821
S.E. of regression	1.566990	Akaike info criterion		3.747885
Sum squared resid	206.2584	Schwarz criterion		3.776622
Log likelihood	-158.2851	Hannan-Quinn criter.		3.759444
Durbin-Watson stat	1.971471			

Source: Tests have been calculated by the researcher using Eviews.edition11.

### 11.1.3 Johansen Co-integration Test

To examine the long-run relationship of entrepreneurship on international competitiveness, the standard Johansen co-integration technique was used. The null hypothesis should be rejected if indeed the trace statistics or max-eigen statistic above the 5% critical threshold, indicating that at least one co-integrating vector exists. Table 1.5 summarizes the output of the Johansen co-integration test. It can be seen that both the trace and max-eigen tests indicate two co-integrating equations for each one, thus the null hypothesis of no co-integrating equations can be rejected at the 5% significance level. We, therefore, have co-integration between the independent variables and the global competitiveness index.

**Table 1.5: Johansen Fisher Panel Co-integration Test**

Date: 02/27/21 Time: 12:07  
 Sample (adjusted): 2015 2018  
 Included observations: 43 after adjustments  
 Trend assumption: Linear deterministic trend  
 Series: GDPGRW TEA INNOV SELFEMP JOBCR GCI  
 Lags interval (in first differences): 1 to 3

Hypothesized No. of CE(s)	Trace Statistic	Prob.**	Max-Eigen Statistic	Prob.**
None *	168.8422	0.0000	71.98213	0.0000
At most 1 *	96.86006	0.0001	62.48552	0.0000
At most 2	34.37454	0.4815	17.23173	0.5601
At most 3	17.14280	0.6295	10.65289	0.6818
At most 4	6.489916	0.6376	6.254351	0.5808
At most 5	0.235566	0.6274	0.235566	0.6274

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level  
 Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level  
 \* denotes rejection of the hypothesis at the 0.05 level  
 \*\*MacKinnon-Haug-Michelis (1999) p-values

Source: Tests have been calculated by the researcher using Eviews.edition11.

Different test statistics leading to the same test result may be viewed as an indication of robustness since evidence-based Monte Carlo simulations have demonstrated that the various test statistics behave differently depending on the panel dimension and the presumed data generation mechanism. In our study, the majority of tests indicate that the null hypothesis should be rejected and the presence of co-integration.

### Conclusion:

The research distinguishes between businesses that are begun to take advantage of a specific market opportunity and those that are started of necessity. Also because Global Entrepreneurship Monitor (GEM) monitors two categories of entrepreneurship: opportunity-driven entrepreneurship (ODE) and necessity-driven entrepreneurship (NDE), the opportunity-driven form of entrepreneurship might help developing nations flourish if these

possibilities are linked to economic development. As a result, observing existing opportunities, entrepreneurial qualities, and the matching process between them is critical for examining the impact of entrepreneurship on competitiveness in any developing nation.

As it is important to note that starting a new business is not the exact meaning of entrepreneurship as it denotes a continuing process where individuals become more aware of the opportunities that exist in their societies to enhance and empower themselves. They develop certain ideas, and take responsibilities and initiatives.

The structure and method of economic development may differ significantly between economies. Although most national decision-makers and policymakers agree that promoting and improving entrepreneurship is an essential policy goal, many will also agree that understanding the causes and effects of entrepreneurship is far from complete. (GEM Global Report, 2019, p.22)

The research also analyzed the environment of entrepreneurship and presenting a review on the entrepreneurship climate in developing countries with special focus on Egypt and its contribution to promote development of countries , where insufficient financial resources, improper apprenticeship, and human resources (including education and training systems), lack of suitable infrastructure, absence of supporting industries and

potential suppliers of inputs, fragmented markets lack a favorable investment climate (owing to bureaucracy, tax structures, legal frameworks, private property, corruption, political regimes, and culture), and improper industry are all shown to be negative factors.

So using data which collected from the World Economic Forum (WEF), Global Entrepreneurship Monitor (GEM), and World Bank (WB) an analysis would be made to study the impact of entrepreneurship ecosystem on developing nations' competitiveness. This analysis helped us to reject the hypothesis that states that entrepreneurship ecosystem in developing nation's helps in promoting competitiveness. But this does not mean that entrepreneurship is not important, but policies in some developing nations should be modified to enhance the entrepreneurial activities as its impact is shown in the long run.

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