

**INSTITUTIONAL ENVIRONMENT AND TOTAL  
ENTREPRENEURIAL ACTIVITY: THE COMPARISON ON  
NATIONS**

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- Spine -

“Plain living and high thinking.”

(William Wordsworth)

## **Abstract**

**Purpose** - The main objective of this paper is to analyse the influence of environmental factors on entrepreneurship at the countries level, using institutional economics as the theoretical framework for the research.

**Design/methodology/approach** -National panel data (2009-2016 period) is from the Global Entrepreneurship Monitor (GEM), specifically from the National Expert Survey (NES) for environmental conditions and Adult Population Survey (APS) for environmental conditions and entrepreneurial activity. The data relating to the division of the countries according to the economic level is from World Bank.

**Findings** -The main findings of the study indicate that both informal and formal factors influence TEA of any income level.

**Research limitations/implications** - The research study was limited to the period of 2009 and 2016 and hence hinders any further generalization and its application needs a careful interpretation of the data.

**Originality/value** -The study provides a methodology to analyse the environmental factors for new firm creation at a national level, combining GEM data and institutional economics.

**Keywords:**Environmental condition, Entrepreneurialism, Institutions; Economy

**JEL Classification System:**L26 Entrepreneurship

**O17** Formal and Informal Sectors; Shadow Economy;Institutional Arrangements

## **Resumo**

**Meta** - O objetivo principal da presente tese é analisar a influência dos fatores ambientais no empreendedorismo a nível dos países, utilizando a economia institucional como o quadro teórico para o estudo.

**Metodologia** - Estatísticas para o Painel Nacional (durante o período 2009-2016) derivam do Monitor Global do Empreendedorismo (GEM, na sigla inglesa), especialmente do Inquérito Nacional dos Especialistas para as condições ambientais e do Inquérito da População Adulta para as condições ambientais e atividades empreendedoras. As estatísticas, referentes à divisão dos países conforme o nível económico, são do Banco Mundial.

**Resultado** - O resultado principal do presente estudo indica que tanto os fatores informais como os formais influenciam TEA do que seja o nível do rendimento.

**Restrição da Pesquisa** - A pesquisa esteve sujeita ao período entre 2009 e 2016, pelo que impede uma generalização posterior e a sua aplicação necessita de uma interpretação acautelada das estatísticas.

**Originalidade/Valor** - O presente estudo proporciona uma metodologia que serve para analisar os fatores ambientais na criação de uma nova empresa a nível nacional, juntando as estatísticas da GEM e a teoria económica institucional.

**Palavras-chave:** Condições ambientais, Empreendedorismo, Instituições; Economia

**Sistema de Classificação JEL:** L26 Empreendedorismo

O17 Setores Formais e Informais;

Economia Clandestina;

Disposições Institucionais

### **List of Abbreviations**

**GEM:**Global Entrepreneurship Monitor

**TEA:** Total Early Stage Entrepreneurial Activity

**NES:**National Expert Survey

**NIE:** New institutional Economics

**ECFs:** Entrepreneurship Framework Conditions

**OECD:** Organization for Economic Co-operation and Development

**nonOECD:**Non-Organization for Economic Co-operation and Development

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## 1. Introduction

Recently, most researchers and academicians have agreed that entrepreneurship process is an essential aspect in development of the economy and the wellbeing of any individual who undertakes an entrepreneurial activity. As the number of entrepreneurs increases across different countries, the number of job opportunities increases. This is mainly because entrepreneurs are able to identify new business ventures that require people to be employed in the area. Entrepreneurial activities speed up the changes in the structure of any economy and they also increase the level of innovation hence producing products which are of high quality (Alvarez et al, 2011). Entrepreneurial activity transforms and expands the productive capacity of the economy of any given country by inducing the expansion of startup industries and formation of new niches (Lee, Peng & Barney, 2007).

This paper uses institutional economics in analyzing the effects that environmental factors have on the total entrepreneurial activity by comparing nations. The environmental factors are grouped into the formal factors and the informal environmental factors by the researchers. The formal institutional factors include the finance that is required in engaging in the entrepreneurial activity (entrepreneurial finance), government policies and programs, R&D transfer and so on. On the other hand, the informal factors include factors such as culture and social norms, and the knowledge and abilities that is needed in establishment of a new business (Alvarez et al., 2011).

Across the globe, there has been different studies conducted involving the effect of environmental factors in different countries on entrepreneurial activities. Nevertheless, the startup of any new venture requires a combined effort of various individuals such as the customers, employees, suppliers and partners. Also it involves various institutional and structural arrangements like politics, business cycles, public services, legislation and infrastructure. There is little literature done concerning institutional environment on total entrepreneurial activity focusing on comparisons between different nations. Alvarez et al. (2011) carried out a study focusing on the conditions of the environment and the entrepreneurial activities in Spain. Hence, the main aim of undertaking this study is filling the research gap that exist in the literature by looking at the impact of the institutional environment on total entrepreneurial activity.

This paper is beneficial to both the practical and the theoretical perspectives. From the theoretical point of view, there is an indication that the effect of the environmental factors on total entrepreneurial activities has been increasing. Also, previous researches indicate that factors like attitudes, beliefs and the values of the society they tend to determine whether an individual can be an entrepreneur. Conversely, from the practical perception, the findings of the study may benefit policy makers in terms of designing governmental initiatives to promote new firm creation.

This research study comprises of seven chapters. Chapter one is the introduction of the paper. Chapter two is the concept and theory review. Furthermore, chapter three is the literature review. Chapter four comprises of objectives and research framework. Chapter five clarifies on the methodology that was adopted in this study. Chapter six involves the findings and results of the study. The last chapter provides conclusion of the results, limitations and areas for further research.



## 2. Concept and Theory Review

### 2.1 Entrepreneurship

#### 2.1.1 Entrepreneurship Concepts

Entrepreneurship has a vital role in the growth of any nation both on the social and economic growth. Entrepreneurial concepts have been seen to develop over a long time. The concept of the process of entrepreneurship can be date back in the 18<sup>th</sup> century by Richard Cantillion. To him, entrepreneurship was self-employment with an uncertain return.

Álvaro Cuervo (2007) refers that two distinct clusters of thought on the meaning of entrepreneurship can be identified. The first group of scholars focused on the characteristics of entrepreneurship (e.g. innovation, growth, etc.) while the second group focused on the outcomes of entrepreneurship (e.g. creation of value). As there are many different definitions of entrepreneurship we can usefully categories them according to three main ‘dimensions of entrepreneurship’, which focus attention on behaviors, processes and outcomes.

*Table 1 Entrepreneurship Concepts in Three Dimensions*

<b>Entrepreneurship as Process</b>	Entrepreneurship is a dynamic process of vision, change, and creation that requires an application of energy and passion toward the creation and implementation of new ideas and creative solutions (Donald F. Kuratko, 2016).
	Entrepreneurship is the process of creating something new of value by devoting the necessary time and effort, assuming the accompanying financial, psychic and social risks, and receiving the resulting rewards of monetary and personal satisfaction and independence (Hisrich and Peters, 2002).
<b>Entrepreneurship as Behaviors</b>	Entrepreneurship is a way of thinking, reasoning and acting that is opportunity based, holistic in approach and leadership balanced (Timmons and Spinelli, 2004).
<b>Entrepreneurship as Outcomes</b>	Entrepreneurship results in the creation, enhancement, realization and renewal of value not just for the owners but for all participants and stakeholders (Timmons and Spinelli, 2004).

### 2.1.2 Entrepreneurship in GEM

While entrepreneurship is a multifaceted phenomenon with many different meanings and definitions, GEM defines entrepreneurship as: any attempt at new business or new venture creation, such as self-employment, a new business organization, or the expansion of an existing business, by an individual, a team of individuals, or an established business.

The definition by GEM is not limited to businesses that are newly registered. The entrepreneurship perspective adopted by GEM is occupational. However, GEM also recognizes entrepreneurship from a behavioral perspective when employees who behave entrepreneurially within the organization are identified. GEM focusses on combination of nascent entrepreneurship which is the stage prior to the establishment

of a new firm and the owning-managing a new phase of firm which is the period immediately after the start of a new venture. In GEM's view of entrepreneurship, individuals with attitudes of entrepreneurial activities and those that head already established firms are identified.

### 2.1.3 Entrepreneurship Framework used in this thesis

According to the methodology of GEM, the dynamics of entrepreneurship can be related to conditions that hinder or enhance creation of new business which are known as Entrepreneurial Framework Conditions. The conditions are essential components of the ecosystem of entrepreneurship and are part of the necessary markets, incentives, resources and supportive institutions for development and growth of new firms (Bowen & De Clercq, 2008). The business dynamics is determined by the Entrepreneurial Framework Conditions which directly impacts the existence of entrepreneurial preference and capacity and opportunities.

The NES is incorporated in standard methodology of GEM in assessment of a number of Entrepreneurial Framework Conditions and various entrepreneurship related topics. Its major intention is in obtaining views of other experts (Lee, Peng & Barney, 2007). The initiation of National Experts Survey was to provide harmonized data that is internationally comparable with the intention of addressing environmental factors that hinder or enhance growing or new firms. The several views collected by the NES are intended to capture various dimensions of ECFs(Entrepreneurship Framework

Conditions) which include: entrepreneurial finance which involves financial resources availability for small and medium enterprises such as grants and subsidies.

Other conditions of entrepreneurial framework include: government entrepreneurship programs, government policy, entrepreneurship education, commercial and legal infrastructure, R&D transfers, entry regulation, cultural and social norms and physical infrastructure (Freytag &Thurik, 2007). Government policy encompasses the assessment of how public policies are of effect to entrepreneurship while government programs of entrepreneurship involve quality and presence of plans that assist the small and medium enterprises directly at municipal, national and regional levels of government. On the other hand, entrepreneurship education deals with the scope within which training in managing small and medium enterprises and venturing into a new enterprise is integrated within the training and education systems at all levels.

R&D transfer is essential in entrepreneurship as it determines the degree of effect the development of national research to the creation of new commercial prospects and their availability to small and medium enterprises. The availability of commercial accounting, property rights, legal assessment institution and services involved in growth and development of small and medium enterprises are involved in commercial and legal infrastructure while the level of allowance of a new firm to venture into the market is addressed in the entry regulation (Mantzavinos, North and Shariq 2004).

Physical infrastructure eases the availability of physical infrastructure such as utilities,

communication, space and transportation at an affordable price. Lastly, culture norms and social norms determine the level of impact on entrepreneurship in venturing into the market and development of an already established firm.

## 2.2 Total Entrepreneurial Activity

For years, GEM has focused on the phase that combines the stage before the start of a new firm (nascent entrepreneurship) and the stage directly after the start of a new firm (owning-managing a new firm). Taken together this phase is defined as “early-stage entrepreneurial activity” (TEA).

According to GEM, total early stage entrepreneurial activity (TEA) represents the percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business.

## 2.3 Institutional Economics

Institutions are the informal norms and formal laws of societies that constrain and shape decision-making or, as North (1990) defined them, ‘the rules of the game’. According to Huntington (1965), institutions are “stable, valued, recurring patterns of behavior.” As structures or mechanisms of social order, they govern the behavior of a set of individuals within a given community.

Institutions is a set of informal and formal rules of conduct which enhance government or coordination of relationships between groups and individuals. Some of the formal rules include; markets, laws, organizations and political systems while as informal rules comprise of value systems, customs, traditions, norms, sociological trends and religions. Institutions arise, develop and function in a pattern of social self-organization beyond conscious intentions of the individuals involved. According to North (1990), the behaviors of individuals are highly influenced by institutions which later results to determination of economic growth, efficiency, development and economic performance.

#### 2.4 New Institutional Economics

New institutional economics (NIE) is an economic perspective that attempts to extend economics by focusing on the social and legal norms and rules (which are institutions) that underlie economic activity (L. J. Alston, 2008). We can refer to these developments in economic thought between 1960 and 1990 as “new institutional economics” (Williamson, 2000). New institutional Economics (NIE) is majorly concerned with the behavior of humans as it believes that through the efforts of the society to efficiently use scarce resources, institutions arise (Hayton et al., 2002).

NIE encompasses aspects such as economics sociology, political science, history, and law and business organization. The major focus of NIE is to make an explanation of

determinants of institutions and how they evolve over time as well the impacts they make on the efficiency, performance and distribution of economics.

The environmental institutions in the framework of new institutional economics are majorly divided into two; informal institutions and formal institutions. North defines informal factors as constrains (codes of conduct, attitudes, values, norms of behavior and conventions) that come from socially transmitted information and are part of the heritage that we call culture (North, 1990). We use several variables to capture differences in informal institutions. According to the definitions of North of informal institutions and the definition of GEM of entrepreneurial framework conditions, we classified informal institutions as the following entrepreneurial framework conditions:

*Table 2- Informal institutions*

<b>Name</b>	<b>Definition</b>
<b>Education and training (high education)</b>	The extent to which training in creating or managing SMEs is incorporated within the education and training system in higher education such as vocational, college, business schools, etc.
<b>Cultural and social norms</b>	The extent to which social and cultural norms encourage or allow actions leading to new business methods or activities that can potentially increase personal wealth and income

*Sources: NES, Global Entrepreneurship Monitor*

North defines formal institutions are rules such as policy and economyrelated rules, contracts, constitutions, laws and property rights (North, 1990). Examples of formal

institutions influencing entrepreneurship include the political and economic constitutions, the legal framework and the financial system (Welter, 2005).

In the case of informal institutions, we also use several variables to capture differences in formal institutions. We classified as formal institutions the following entrepreneurial framework conditions:

*Table 3 - Formal institutions*

<b>Name</b>	<b>Definition</b>
<b>Finance</b>	The availability of financial resources equity and debts or small and medium enterprises (SMEs) (including grants and subsidies)
<b>Government policies</b>	The extent to which public policies support entrepreneurship - entrepreneurship as a relevant economic issue
<b>Government programs</b>	The presence and quality of programs directly assisting SMEs at all levels of government (national, regional, municipal)
<b>R&amp;D transfer</b>	The extent to which national research and development will lead to new commercial opportunities and is available to SMEs
<b>Commercial and services infrastructure</b>	The presence of property rights, commercial, accounting and other legal and assessment services and institutions that support or promote SMEs
<b>Market openness</b>	The extent to which new firms are free to enter existing markets
<b>Physical infrastructure</b>	Ease of access to physical resources communication, utilities, transportation, land or space at a price that does not discriminate against SMEs

*Source: NES, Global Entrepreneurship Monitor*



### 3. Literature Review

#### 3.1 Entrepreneurship

According to Stephen, Urbano and Hemmen (2009), entrepreneurship is seen to play a key role to both the social and economic developments as the rates of unemployment associated with recent financial and economic crisis increase. A large number of employees are considering starting their own firms due to the increasing levels of financial crises. However, to curb the problem, public administrators have sort mechanisms of assistance for academics and business creation through designing of public policies and research supports to ensure promotion of their entrepreneurial activities.

Following a study by Andersson and Noseleit (2011), the factors that affect the entrepreneurial activities varies from one country to the next. Bosma, Kelley and Amoros (2011) record that, the wide institutional context determines a country's ability to support entrepreneurship from a macroeconomic perspective, while as from a microeconomic level, a person's likelihood of becoming an entrepreneur is subject to the personalities of an individual which determines their reaction towards entrepreneurial pull or push influences.

In a study conducted by Urbano (2013) on institutions and institutional environments, informal institutions are made up through some factors in the formal institutions. For instance, formal institutions are used to structure the societal interactions in

accordance to the cultural guidelines and norms hence making the informal institutions (Reynolds, 2001). Both the informal and formal institutions impact the entrepreneurial activities of a nation. Alvarez et al. (2011) in his study on the conditions of the environment and the entrepreneurial activities in Spain established that informal and the formal factors were factors that affected entrepreneurship, however the informal factors had a greater impact as compared to the formal factors.

### 3.2 Institutional Environment

Both North (1990, 2005) and Dickson (2004) define institutional environment as the set of social, economic, political and legal agreements that create the basis of foundation for exchange and production. According to them, there are various factors that are involved in institutional environment such as; systems of regulations, formal laws, informal conventions, procedures, norms and customs which stretch, create and restrain socio economic behaviors and activities. Institutional environments represent both informal and formal components and applies to a wide range of unrelated transactions. North (2005) attempts to incorporate belief systems and cognitive elements into his analysis of institution evolution and change. This includes a focus on institutional “path dependence” which recognizes that the way in which institutions and beliefs developed in past periods constrain the feasibility set of choices in the current period.

While Gnyawali and Fogel (2004) view institutional environment as the network of informal and formal institutions that direct the organization's and individual's behavior. The authors group the institutional environments into three categories namely; political, civil and market institutions. For instance, entrepreneurship in the field of agriculture, the political institutions are further divided into structural reforms, law on land and cooperative law. Civil institutions encompass values, traditions, knowledge and experience while market institution involves capital market, labor market and land market. The authors conclude that the institutional environment is the determinant of the performance of the institution and its condition affects both the new and old entrepreneurs from various countries.

### 3.3 Entrepreneurship and Institutional Environment

Previous studies show that entrepreneurship is largely influenced by the institutional factors and the human capital of the entrepreneur tend to encourage the aspiration of growth in entrepreneurial activities. The study of entrepreneurial activity has been done using different approaches. The approaches vary from each other depending on the location and the behavior of an entrepreneur. One of this approaches is the institutional approach which is also termed as the sociological approach. This approach posit that the socio-cultural factors play a key role when establishing a new company, even though the government regulations, support services and the public policy may play part also in the creation of the new company (Arenius, Kovalainen, 2006).

Urbano and Alvarez (2011) find out that the favorable institutional dimensions (regulative, normative and cultural-cognitive) increase the probability of being an entrepreneur. Vuorio A. (2017) refers that education has an important role in enhancing the likelihood of an individual having a sustainable entrepreneurial goal rather than commercial one.

The formal institutions influence the entrepreneurial activities of a given organization to a high extent. Research by Marta Peris-Ortiz (2017) has provided evidence that the relationship between TEA and innovation practices differs in accordance with the state of development of each economy and the proportion of ongoing entrepreneurial activities in a country has an impact on the emergence of innovation based practices.

Urbano (2013) studies the influence of internal and external factors on corporate entrepreneurship and states that internal factors (knowledge, personal networks and being able to identify business opportunities) are more important compared to external factors (having fear of failure, media impact and the number of procedures to create a company).

The framework of formal environmental institutions that influence entrepreneurial activities include government programs, finance, research transfers and physical infrastructure (Djankov et al., 2002). Formal environmental resources such as

financial resources also impact the process of entrepreneurship positively as its availability determines the number of new business ventures that can be established (Gnyawali, Fogel, 2004). Furthermore, Kelley, Bosma and Amorós (2011) argue that university play a major role in providing entrepreneurial education.

Institutional economic theory develops a wide range of the institutional approach. According to North (1990), institutions are the rules in the society that help to monitor how people interact in the society. These institutional factors are classified into the informal and the formal factors. Informal factors are the ones that are as a result the information that we obtain socially and they are always part of the culture of an individual (Welter, 2005). This finding agrees with Alvarez et al. (2011) argument in Spain that informal and the formal factors were factors that affected entrepreneurship, however the informal factors had a greater impact as compared to the formal factors.

### 3.4 Entrepreneurship and the Economy

Entrepreneurship is now widely recognized as the ‘engine of economic and social development throughout the world’ (Audretsch and Thurik, 2006). The relationship between the economy and entrepreneurship is central to our individual and social welfare. Entrepreneurship is held to be one of the principal mechanisms that can help to turn around recession. The prevailing economic conditions in a country will have a significant impact on the level of entrepreneurship. Entrepreneurs drive innovation,

which speeds up structural changes in the economy, forcing other organizations to try to compete (David and Nick, 2010).

### 3.5 Discussion and Comment

There have been various studies conducted on the influence of institutional environment on total entrepreneurial activity focusing on different countries and sectors of the economy. However, there is little literature done concerning institutional environment on total entrepreneurial activity focusing on comparisons between different nations. Alvarez et al. (2011) carried out a study focusing on the conditions of the environment and the entrepreneurial activities in Spain. This study was based on a regional perspective and it did not make comparisons with other nations across the world thus their findings cannot be generalized to the study that has been carried out in our case.

Further research is suggested to be performed in the area of institutional environment and entrepreneurship and how economic level impacts the growth and development of entrepreneurship in various nations.

## 4. Objectives and Research Framework

### 4.1 Hypothesis

Cultural and social norms constitute an important determinant of entrepreneurship (Hayton et al., 2002), indicating the degree to which a society considers as desirable entrepreneurial behaviors. Other determinants of people's behavior are their knowledge, abilities and skills, thus high levels of education have a positive effect on the likelihood of creating a firm (Levie and Autio, 2008). In general, informal institutions influence the social acceptability of an entrepreneurial career (Welter, 2005) and determine the collective and individual perceptions of entrepreneurial opportunities. Thus, we propose:

H1 Informal institutions influence the level of entrepreneurial activities.

Inefficient government regulation in the economy may be perceived negatively, especially by those interested in starting new businesses (Gnyawali and Fogel, 1994). Variables such as the number of procedures, time and cost of starting a business have a negative effect on entrepreneurship (Djankov et al., 2002). Also, other formal institutions such as the availability of financial resources would determine the frequency of new business start-ups (Blanchflower and Oswald, 1998). Research evidence shows that policies that increase access to bank credit, the creation of investment companies, credit with low interest rates and credit guarantee schemes contribute significantly to the promotion of new businesses (Jolanda Hessels, 2006). In general, formal institutions provide the regulatory frame for entrepreneurship, creating

opportunity fields entrepreneurship (Welter and Smallbone, 2011). Then, we formulate the following hypothesis:

H2 Formal institutions influence the level of entrepreneurial activities.

Informal institutions are produced internally and they are endogenous to a community. Instead, formal institutions are imposed externally onto the community as the exogenous product of the evolution of relationships among rulers (Mantzavinos et al. 2004). In this sense, formal institutions can be created to promote entrepreneurial activity; however, this effect will be reflected in the future when they can impact on the informal institutions. Thus, we predict:

H3 Informal institutions have a larger influence on entrepreneurial activity than formal institutions.

In the thesis, samples are divided by four income groups (low income group, lower-middle income group, upper-middle income group and high income group). Compare the different effects of environmental factors among countries concerning the economic level. Thus, we predict:

H4 For each income group, informal institutions have different influence on TEA.

H5 For each income group, formal institutions have different influence on TEA.

## 4.2 Research Framework



The framework includes two main parts. Part 1 is the descriptive analysis which analyze the means of the variables and the changing situation of each variable through line chart. Part 2 is the multiple regression analysis. In this part, we first analyze the multiple regression by using of the total samples and test the hypotheses. And next, we analyze multiple regression by using samples of each income group and test the hypotheses of each model.

### 4.3 Key terminology

To avoid confusion, some of the key concepts in this paper are clearly defined in the following section.

TEA: Total early-stage Entrepreneurial Activity (TEA) represents the percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business.

NES: The National Expert Survey (NES) is administered to 36 'experts' in each GEM country and collects data on the context in which entrepreneurship takes place in a country. It provides information about the nine aspects of a country's socio-economic milieu that are believed to have a significant impact on national entrepreneurship.

APS: The Adult Population Survey (APS) is a comprehensive questionnaire, administered to a minimum of 2000 adults in each GEM country, designed to collect

detailed information on the entrepreneurial activity, attitudes and aspirations of respondents.

## 5. Methodology

### 5.1 Data resource

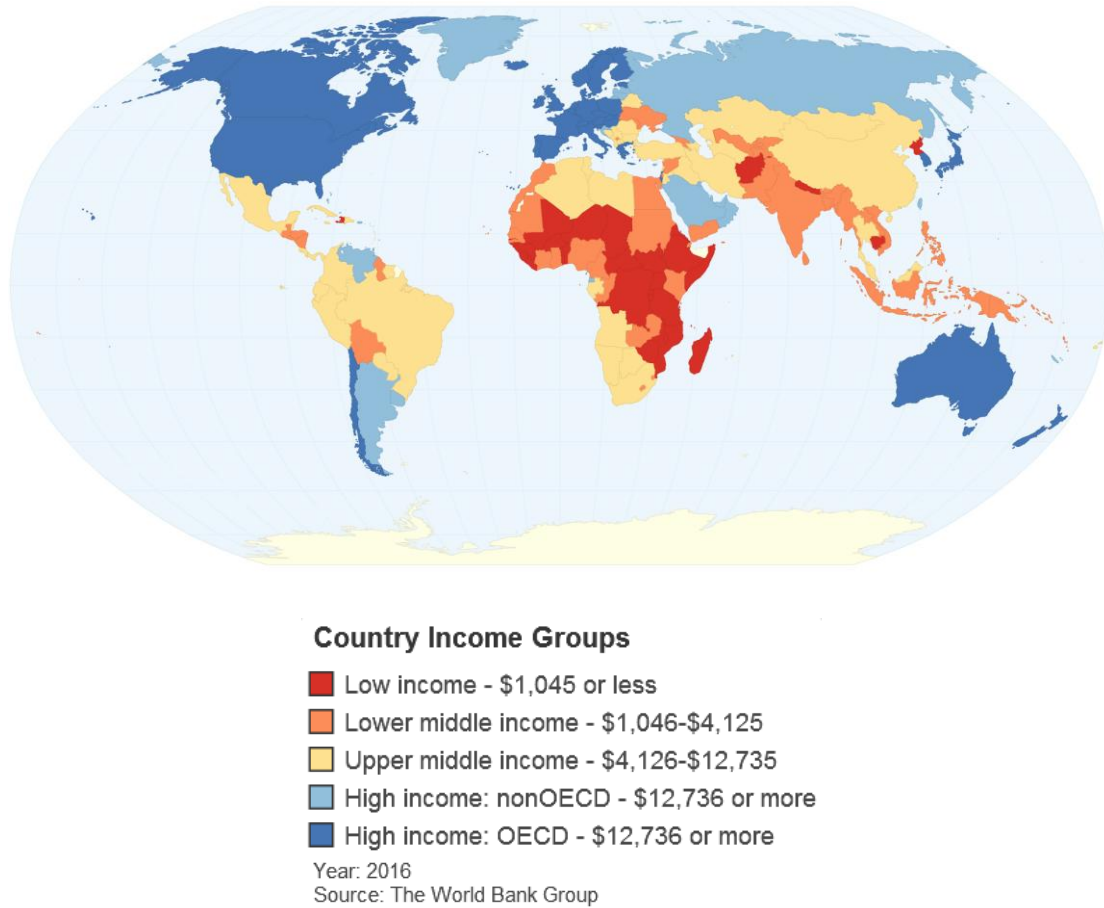
National panel data (2009-2016 period) is from the Global Entrepreneurship Monitor (GEM), specifically from the National Expert Survey (NES) and the Adult Population Survey (APS). The level of Total Entrepreneurship Activity (TEA) of countries is from the Adult Population Survey (APS). The data of factors of institutional environment is from the National Expert Survey (NES). The data of the division of the countries according to the economic level is from the World Bank.

### 5.2 Sample Size

The World Bank assigns the world's economies into four income groups — high, upper-middle, lower-middle, and low. The World Bank bases this assignment on GNI per capita calculated using the Atlas method. New thresholds are determined at the start of the Bank's fiscal year in July and remain fixed for 12 months regardless of subsequent revisions to estimates.

The map below classifies all World Bank member economies and all other economies with populations of more than 30,000. Economies are divided among income groups according to 2015 gross national income (GNI) per capita, calculated using the World Bank Atlas method. We can see that most countries of low income group and lower-middle income group are in Africa; most countries of upper-middle income

group are in Asia and part of South America; most countries of high income group are in Europe, Australia and North America.



*Figure 1 – Country Income Groups (World Bank Classification)*

The table below shows the number of countries in World Bank database and the number of samples in 2006 in this study. The total valid number of countries in World Bank database is 215 which is higher than the total number of samples in this study which is only 60.

*Table 4 – Number of countries in each group (2016)*

	Number of countries in World Bank database	Number of samples in this study
Low income	31	1
Lower middle income	51	8
Upper middle income	53	18
High income	80	33
Valid N	215	60

We can get conclusion from the bar chart below that the samples we consider in this study only make up a small part of the total samples that are in World Bank database. The reason we only study a part of samples is because many countries' entrepreneurship data are missing in GEM (Global Entrepreneurship Monitor) database. It is much harder to get entrepreneurship data in low income countries compared to high income countries due to the high cost and government supports. So in this study, most data are from upper-middle income group and high income group.

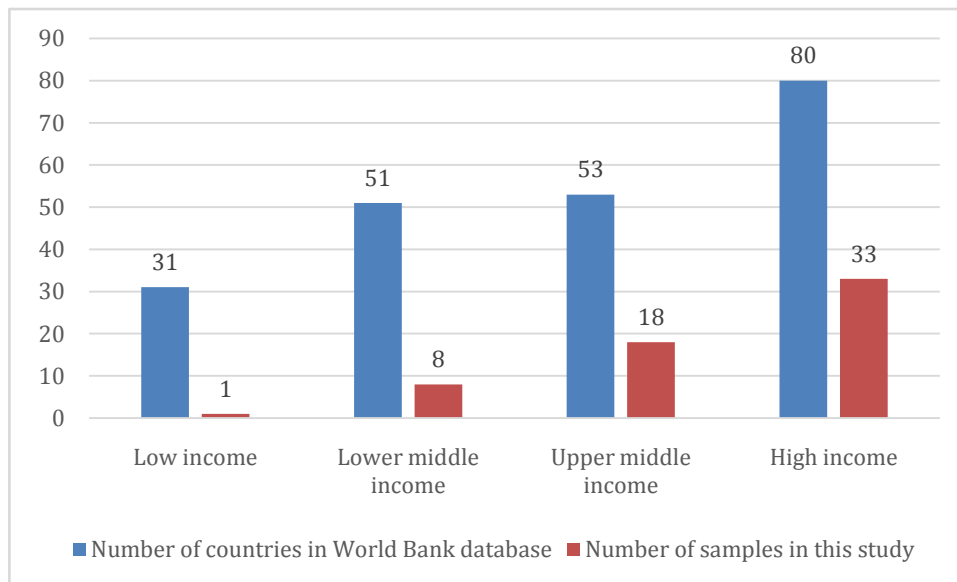


Figure 2 – Bar chart of each group (2016)

We can see from the table below that the total number of samples from 2009 to 2016 is 457. The number of samples with low income is 12 which makes up about 3% of

total samples. The number of samples with lower-middle income is 54 which makes up about 12% of the total samples. The number of samples with upper-middle income is 144 which makes up about 31% of the total samples. The number of samples with high income is 247 which makes up about 54% of the total samples.

*Table 5 - Sample Size*

Year	Low Income Group	Lower-Middle Income Group	Upper-Middle Income Group	High Income Group	Valid N
2009	1	2	13	26	42
2010	1	7	17	27	52
2011	0	4	13	30	47
2012	4	7	22	32	65
2013	2	7	23	34	66
2014	2	10	20	36	68
2015	1	9	18	29	57
2016	1	8	18	33	60
Valid N	12	54	144	247	457

From the pie chart, it is clear that the majority of samples are in high income group which makes up about 54% of the total samples and upper-middle income group makes up about 31% of the total samples. Only 3% of the total samples are in low income group.

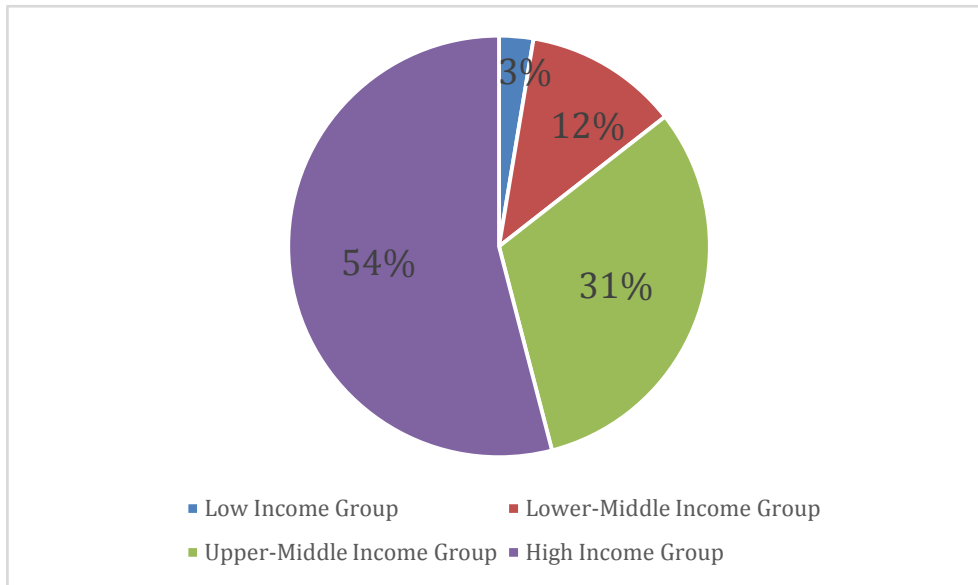


Figure 3 - Pie of Income Groups

It can be seen from the line chart that there was a significant increase in the number of samples between 2011 and 2012. It then increased gradually between 2012 and 2014. It reached a peak of 68 in 2014. This was then followed by a drop over the next year. The trendline tells that the overall trend is increasing between 2009 and 2016.

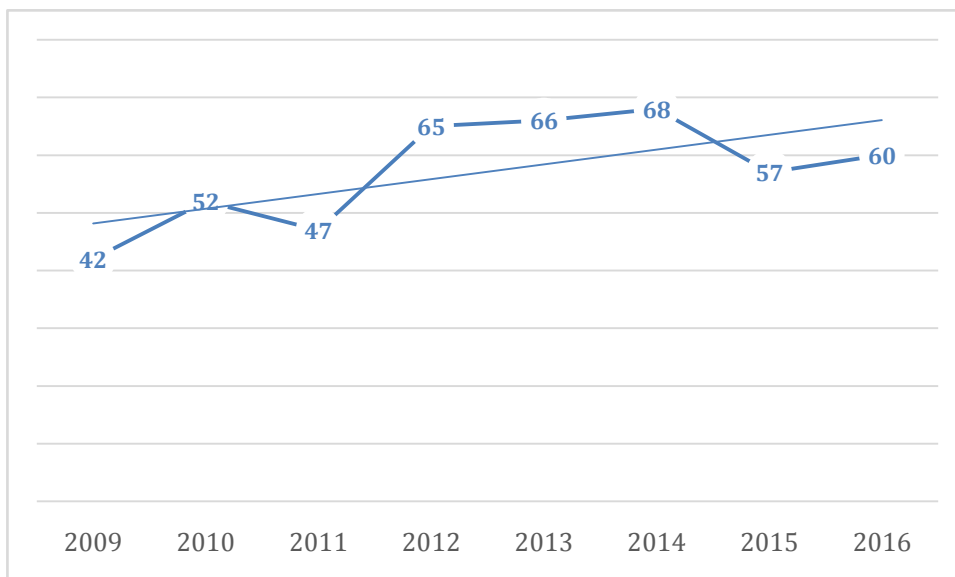


Figure 4 – Line Chart of Sample Size

### 5.3 Data Analysis Techniques

Data analysis involves the process by which the collected data is packaged, placed in order, then structuring the main elements in such a manner that the outcome of the collected data can be efficiently and easily communicated. Quantitative data was analyzed through descriptive statistics. Data that was quantitative was analyzed by use of SPSS version 20 and Excel 2016. Statistics that was descriptive that was used included tables and graphs that were used in the analysis of data to determine the relationship that exists between the institutional environment and the TEA according to the economic levels of the countries.

Regression analysis was applied to establish the association that exist between dependent variable TEA and the independent variables. Hence through this, an individual can be able to determine whether the hypothesis that have been formulated are important or not appropriate for the study through use of regression analysis. In the process of regression analysis, assumptions for the regression process will be considered and also tested as a way of ensuring that the regression model obtained are not flawed.

### 5.4 Main variables used in the Study

This section comprises of the variable that is dependent, control variables and the variables that are independent which have been adopted by the researcher in respect to the study hypothesis. This are the variables that were used in the study in performing



regression analysis. Emphasis was given on how the questionnaire was operationalized.

(1) Dependent variable

This research study had one dependent variable that was measured in terms of the TEA.

“Early-stage entrepreneurial activity” (TEA) defines the stage before the start of a new firm and the stage directly after the start of a new firm (owning-managing a new firm).According to GEM, total early stage entrepreneurial activity (TEA) represents the percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business.

(2) Independent variables

This study involved eleven independent variables which were indicated in the regression model adopted. These variables were as shown in table below with their various definitions that were obtained from NES (2009-2016).

*Table 6 - Main variables used in the study*

<b>Variables of Formal institutions</b>	
<b>Name of Variable</b>	<b>Definition</b>
<b>Finance</b>	This refers to how the financial resources such as debts and equity are highly accessible by the SMEs in terms of subsidies and grants
<b>Government Policies</b>	Refers to the degree to which entrepreneurial activities across different nations are supported by the governmental organizations as being an economic activity to the country.

<b>Governmental Programs</b>	In this study, governmental programs refer to the programs that assist the SMEs directly in different nations depending on whether they are regional, municipal or national.
<b>Research&amp; Development Transfer</b>	This indicates the level to which the process of R&D may result to new ventures for start of SMEs
<b>Commercial Professional Infrastructure</b>	This refer to availability of property rights, services that are legal, assessment services and also accounting organizations which support the existence of SMEs.
<b>Market Openness</b>	In this study market openness refer to the ability of new businesses to enter markets that are already existing.
<b>Physical Infrastructure</b>	Refer to the easiness of the SMEs to gain access to various physical resources such as land, transportation, communication and other utilities.
<b>Informal institutions Variables</b>	
<b>Education and Training</b>	This study has used this aspect of informal institutions to show how training on the management of SMEs has been incorporated into the existing system of education such as in higher levels of education like the vocational schools.
<b>Cultural and Social Norms</b>	Refer to level that the norms or culture of a given entity encourage the growth of new entrepreneurs and also establishment of new businesses.

*Source: NES, Global Entrepreneurial Monitor*

## 6. Data Analysis

### 6.1 Descriptive Analysis

The table below represents the various means of dependent and independent variables of all income groups and each income group. In the table, TEA is the percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business. For example, TEA of all income groups is 12.78 which means 12.78% of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business.

Formal institution and informal institution variables are measured on the same Likert scale of five points (where “Completely false” =1, “Somewhat false” =2, “Neither true nor false” =3, “Somewhat true” =4 and “Completely true” =5). Let’s see the first column which represents the mean value of each variable in all income groups. It can be seen from this column that seven factors’ mean value are below 3 and two factor’s value are higher than 3.

*Table 7 - Means of the variables*

	Mean				
	All Income Groups	Low Income Group	Lower-Middle Income Group	Upper-Middle Income Group	High Income Group
TEA	12.7757	28.3425	19.2530	14.8792	9.3770
Finance	2.4837	2.1667	2.3650	2.4336	2.5543
GovernmentPolicies	2.5501	2.5508	2.4100	2.5493	2.5811
GovernmentPrograms	2.5970	2.4258	2.3046	2.4495	2.7553
RDTransfer	2.3450	1.9217	2.0991	2.2063	2.5003
CommercialProfessionalInfrastructure	3.0015	2.9108	2.9148	2.8365	3.1211
MarketOpenness	2.5503	2.5658	2.5615	2.4026	2.6332
PhysicalInfrastructure	3.7186	3.1625	3.5198	3.5124	3.9094
EducationTraining	2.8322	2.9483	2.8346	2.8147	2.8363
CulturalSocialNorms	2.8145	2.9908	2.8924	2.8482	2.7693
Valid N (listwise)	457	12	54	144	247

The bar chart below gives information about the means of TEA in the all income groups and each income group. We can see from the bar chart that low income group has the highest TEA which is around 28 and high income group has the lowest TEA which is about 9. As is shown by the graph, the higher income group has the lower mean value of TEA.

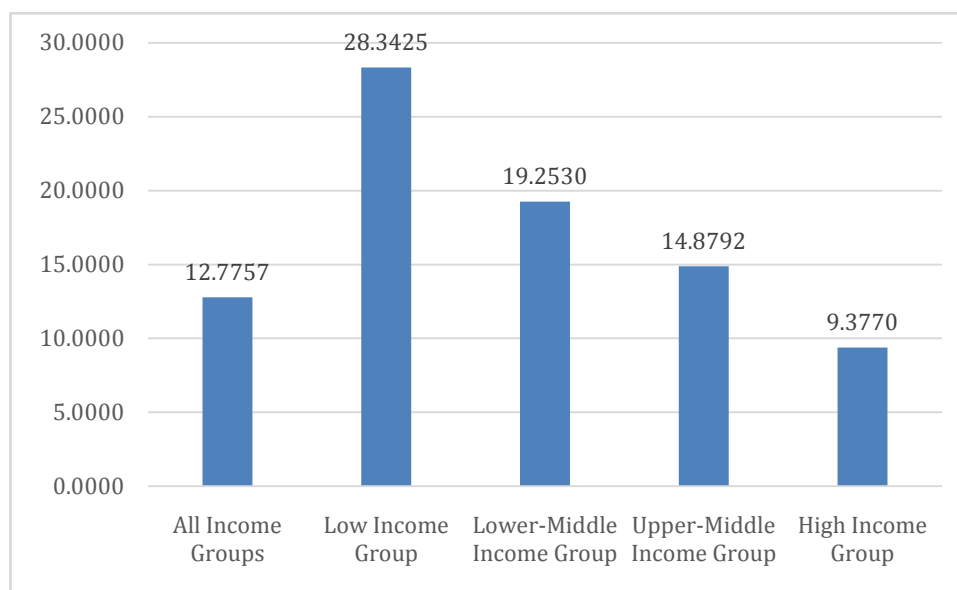


Figure 5– Bar Chart of TEA

The clustered bar below shows the mean value of variables in all income groups and each income group. As is shown by the graph, mean value of most variables are below 3. “Physical and Infrastructure” has the highest value which is higher than 3. “R&D Transfer” has the lowest mean value. We can also get conclusion from the graph below that the mean value of variables in high income group is higher than that in other income groups.

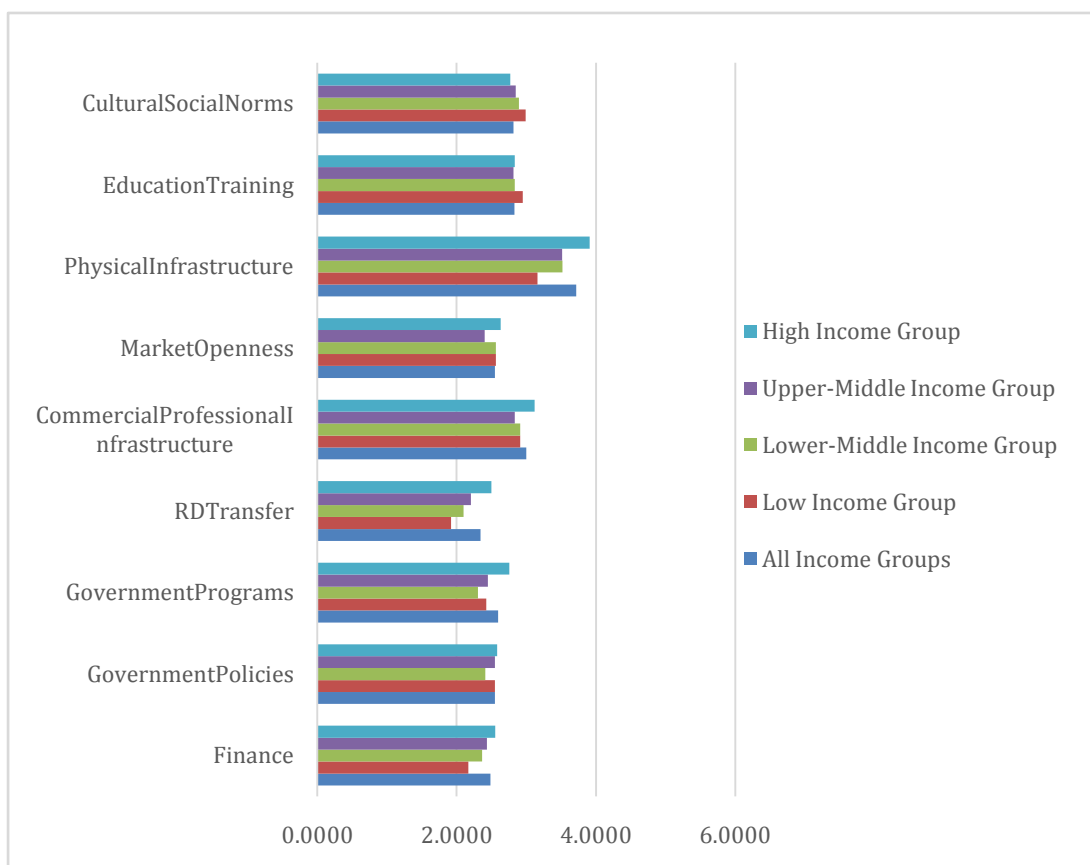


Figure 6 – Clustered Bar of Variables

The table below represents the means of all variables between the year 2009 and 2016.

Table 8 - Means of the variables

	Mean							
	2009	2010	2011	2012	2013	2014	2015	2016
TEA	8.7743	9.6750	10.2646	10.5419	11.7800	10.9857	11.2972	10.9688
Finance	2.4180	2.3417	2.4087	2.4429	2.5013	2.4939	2.4884	2.4794
GovernmentPolicies	2.4702	2.4568	2.4467	2.5716	2.5452	2.5832	2.4607	2.4737
GovernmentPrograms	2.5591	2.4624	2.5250	2.5844	2.5733	2.6434	2.5191	2.5327
RDTransfer	2.3191	2.2831	2.3029	2.3500	2.3240	2.3534	2.2886	2.2796
CommercialProfessional Infrastructure	3.0228	2.9228	2.9979	3.0078	2.9991	3.0063	2.9691	2.9293
MarketOpenness	2.5322	2.4357	2.4682	2.5820	2.5575	2.5993	2.4937	2.5096
PhysicalInfrastructure	3.6601	3.5814	3.6903	3.6808	3.6733	3.6984	3.6931	3.7923
EducationTraining	2.8753	2.8120	2.7939	2.7944	2.8280	2.8771	2.7439	2.7612
CulturalSocialNorms	2.8185	2.6842	2.6986	2.7859	2.8095	2.8174	2.7856	2.7898
Valid N (listwise)	42	52	47	65	66	68	57	60

It can be seen from the line chart below that the mean of TEA increased between 2009 and 2013. It reached a peak of 11.78 in 2013. And then it fluctuated for the following three years. The overall trend of TEA was increasing between 2009 and 2016.

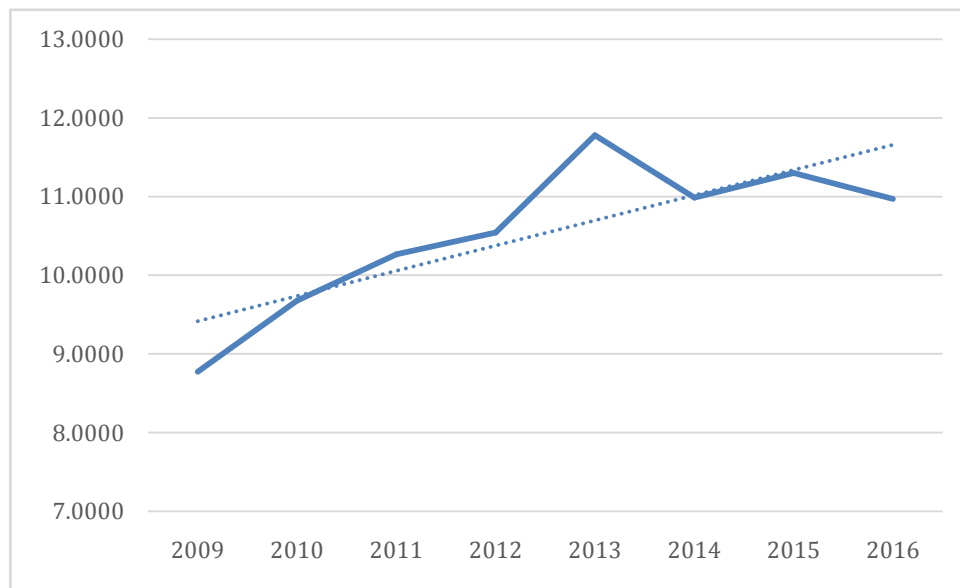


Figure 7 – Line Chart of TEA

As is shown by the graph below, the fluctuation of those five variables have similar movement between the year 2009 and 2016. The means of four variables, except the variable of “Government Policies”, decreased between 2009 and 2010 and increased between 2010 to 2011. The means of four variables reached the peak in 2014, except

the variable of “Market Openness”. The overall trends of four variables, except the variable of “R&D Transfer”, were increasing between 2009 and 2016. The overall trend of the variable “R&D Transfer” was steady between 2009 and 2016.

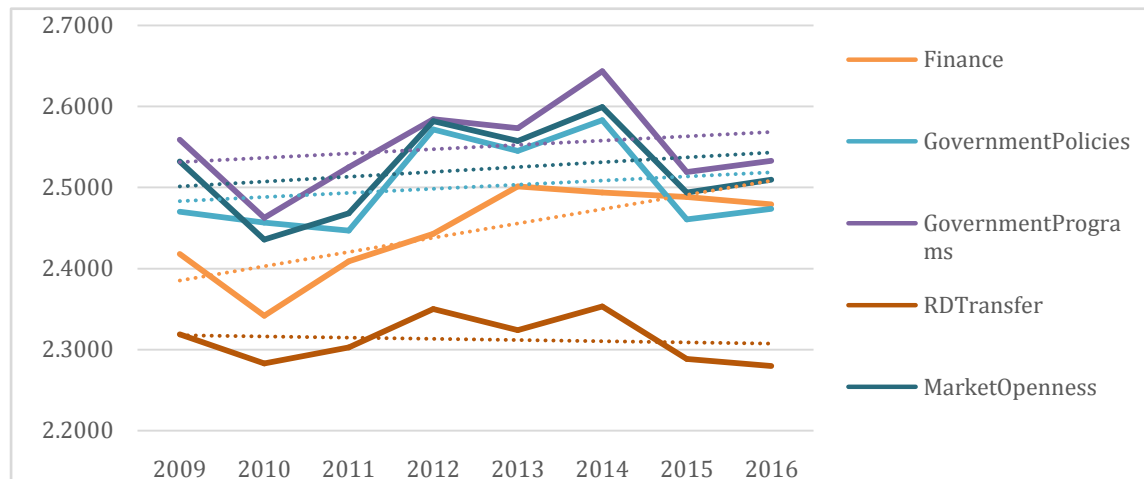


Figure 8 – Line Chart of Variables (1)

As is shown by the graph below, the fluctuation of three variables have similar movement between the year 2009 and 2016. The means of variables decreased in the first two or three years. The overall trends of variables “Commercial and Professional Infrastructure” and “Education Training” were decreasing between the year 2009 and 2016 but the overall trend of variable “Cultural and Social Norms” was increasing between the year 2009 and 2016.

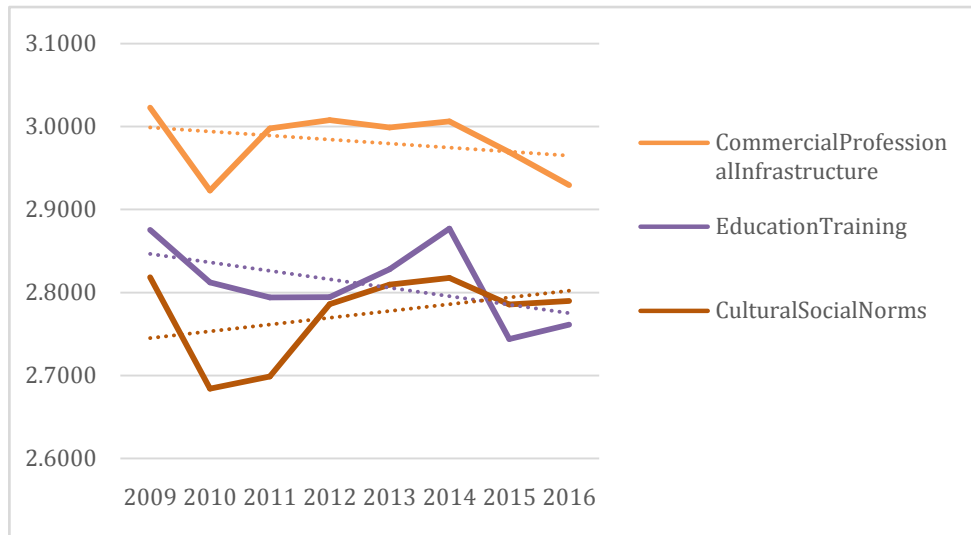


Figure 9 – Line Chart of Variables (2)

The graph below shows a decrease between 2009 and 2010. And there was an increase between 2010 and 2011. It reached a peak of around 3.8 in 2016. The overall trend was increasing in the year 2009 and 2016.

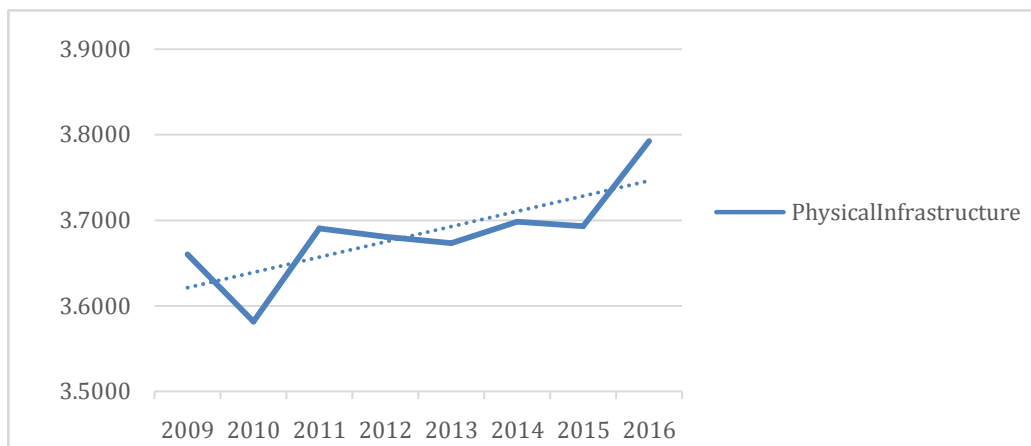


Figure 10 – Line Chart of Variable (3)

We can get conclusion from the figures 4 to 7 that the means of most variables were on the rise between the year 2009 and 2016. The mean of variable “Education and Training” was on the down trend and the trend of the mean of variable “R&D Transfer” was steady.



## 6.2 Multiple regression analysis

This research study made use of regression analysis and correlation analysis so as to determine the influence of the different independent variables on the dependent variable which was the TEA. In this case the independent variables included the level of finance, policies and the programs of the government, transfers relating to research and development, commercial and the professional infrastructure services, the physical infrastructure, the level of training and the education level, social and the cultural norms, rights relating to intellectual property and lastly the support of women to start up as entrepreneurs.

### 6.2.1 Analysis by use of the total samples

This research study made use of correlation analysis in a way of determining the association that existed between the independent variables and TEA which was the dependent variable. Correlation has been defined by various people in different perspectives but in the case of this research study a correlation refers to a given number that ranges between negative one and positive one and its purpose is to measure the level of association that exist between two variables i.e. the relationship between the dependent and the independent variable. When a positive value is established between the two variables the relationship is termed as being a positive association and when a negative value is found the relationship is said to be an inverse association or negative relationship. When the coefficient is zero it implies that there

is no association that exist between the two variables which is an indication that a change in the independent variable will have no effect on the dependent variable. Thus, in the case of our study, a correlation matrix was used in the establishing of the relationship and this was as shown below in the table.

Table 9 - Correlation Analysis (total samples)

		Correlations									
		TEA	Finance	GovernmentPolicies	GovernmentPrograms	RDTransfer	CommercialProfessionalInfrastructure	MarketOpenness	PhysicalInfrastructure	EducationTraining	CulturalSocialNorms
TEA	Pearson Correlation	1									
	Sig. (2-tailed)		.000	.132**	.219**	.381**	.262**	.111*	.338**	.132**	.175**
	N	457	457	457	457	457	457	457	457	457	457
Finance	Pearson Correlation	-.262**	1	.548**	.514**	.621**	.529**	.521**	.382**	.266**	.386**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000	.000	.000
	N	457	457	457	457	457	457	457	457	457	457
GovernmentPolicies	Pearson Correlation	-.132**	.548**	1	.683**	.520**	.292**	.454**	.314**	.332**	.340**
	Sig. (2-tailed)	.005	.000		.000	.000	.000	.000	.000	.000	.000
	N	457	457	457	457	457	457	457	457	457	457
GovernmentPrograms	Pearson Correlation	-.219**	.514**	.683**	1	.743**	.491**	.599**	.498**	.432**	.312**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000	.000	.000
	N	457	457	457	457	457	457	457	457	457	457
RDTransfer	Pearson Correlation	-.381**	.621**	.520**	.743**	1	.581**	.613**	.533**	.463**	.321**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.000	.000
	N	457	457	457	457	457	457	457	457	457	457
CommercialProfessionalInfrastructure	Pearson Correlation	-.262**	.529**	.292**	.491**	.581**	1	.584**	.441**	.413**	.275**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000	.000	.000
	N	457	457	457	457	457	457	457	457	457	457
MarketOpenness	Pearson Correlation	-.111*	.521**	.454**	.599**	.613**	.584**	1	.416**	.398**	.400**
	Sig. (2-tailed)	.017	.000	.000	.000	.000	.000		.000	.000	.000
	N	457	457	457	457	457	457	457	457	457	457
PhysicalInfrastructure	Pearson Correlation	-.338**	.382**	.314**	.498**	.533**	.441**	.416**	1	.203**	.193**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000		.000	.000
	N	457	457	457	457	457	457	457	457	457	457
EducationTraining	Pearson Correlation	.132**	.266**	.332**	.432**	.463**	.413**	.398**	.203**	1	.470**
	Sig. (2-tailed)	.005	.000	.000	.000	.000	.000	.000	.000		.000
	N	457	457	457	457	457	457	457	457	457	457
CulturalSocialNorms	Pearson Correlation	.175**	.386**	.340**	.312**	.321**	.275**	.400**	.193**	.470**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	
	N	457	457	457	457	457	457	457	457	457	457

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

From the above analysis, we can infer that most of the variables under study have a positive relationship with other variables. In the next section, we look at the regression analysis by use of all the samples under study.

Regression analysis that was multivariate was also carried out to determine the relationship that existed between the dependent variable and the various independent variables. The equation of the regression model took the form of the following model as indicated below;  $TEA_{it} = a + b1*II_{it} + b2*FI_{it} + \epsilon_{it}$ , where “i” indicated the country

and “t” was the period of time. The equation was used because the level of entrepreneurial activity in any given economy is determined by both the formal institutions and informal institutions. In the case of the total samples, the following regression model was obtained.

Table 10 - Model Summary (total samples)

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.592 <sup>a</sup>	.351	.342	6.76638	1.998

a. Predictors: (Constant), CulturalSocialNorms, PhysicalInfrastructure, CommercialProfessionalInfrastructure, EducationTraining, MarketOpenness, RDTransfer

b. Dependent Variable: TEA

In the model, Summary-Squared indicates the proportion of variance that is found in the variable that is dependent and which can be explained by the variable that is independent. From the table, the value of r-squared is 35.1% which implies that the above variables that are aspects of the independent variables can explain 35.1% of the change in the level of TEA. Other variables which are not included account for the remaining 63.9% of the changes in the TEA level.

Table 11 - Analysis of Variance (total samples)

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11123.952	6	1853.992	40.494	.000 <sup>b</sup>
	Residual	20602.779	450	45.784		
	Total	31726.731	456			

a. Dependent Variable: TEA

b. Predictors: (Constant), CulturalSocialNorms, PhysicalInfrastructure, CommercialProfessionalInfrastructure, EducationTraining, MarketOpenness, RDTransfer

This was used to determine whether the mathematical model that was adopted in the study was fit for purposes of the data. Since the p-value that was found was less than

the significance level, we are able to conclude that the model was statistically significant in establishing the influence of the institutional environment on the level of TEA across various countries. This is an indication that at least some of the variables that were used are important in explaining the dependent variable absenteeism.

Table 12- Coefficients (total samples)

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	20.712	3.599		5.755	.000		
	RDTransfer	-10.781	1.219	-.497	-8.842	.000	.457	2.187
	CommercialProfessional nfrastructure	-4.386	1.254	-.179	-3.497	.001	.548	1.824
	MarketOpenness	3.877	1.285	.161	3.018	.003	.509	1.963
	PhysicalInfrastructure	-2.852	.803	-.164	-3.550	.000	.678	1.475
	EducationTraining	7.351	1.129	.309	6.513	.000	.643	1.555
	CulturalSocialNorms	3.698	.800	.207	4.624	.000	.724	1.382

a. Dependent Variable: TEA

We can get the model from the Coefficients as the following:

$$TEA_{it} = 20.712 - 10.781 * R\&D \text{ Transfer} - 4.386 * \text{Commercial and Professional Infrastructure} + 3.877 * \text{MarketOpenness} - 2.852 * \text{Physical Infrastructure} + 7.351 * \text{Education and training} + 3.698 * \text{Cultural and social norms}$$

The regression model was based on various assumptions as listed below with their various specific figures.

(1) The mean of the residual component of the model is zero:  $E(\epsilon_i) = 0$

Table 13 - Residuals Statistics (total samples)

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.7982	25.0906	12.7757	4.93909	457
Residual	-22.99056	32.79230	.00000	6.72172	457
Std. Predicted Value	-2.223	2.493	.000	1.000	457
Std. Residual	-3.398	4.846	.000	.993	457

a. Dependent Variable: TEA

From the table, we can see the Mean of Residual is 0.00000 which satisfy the assumption that  $E(\epsilon_i) = 0$ .

(2) The independent variables are not correlated with the residual terms.

Table 14 - Correlations Analysis (total samples)

		Correlations						
		RDTransfer	CommercialProfessionalInfrastructure	MarketOpenness	PhysicalInfrastructure	EducationTraining	CulturalSocialNorms	Unstandardized Residual
RDTransfer	Pearson Correlation	1	.581**	.613**	.533**	.463**	.321**	.000
	Sig. (2-tailed)		.000	.000	.000	.000	.000	1.000
	N	457	457	457	457	457	457	457
CommercialProfessionalInfrastructure	Pearson Correlation	.581**	1	.584**	.441**	.413**	.275**	.000
	Sig. (2-tailed)	.000		.000	.000	.000	.000	1.000
	N	457	457	457	457	457	457	457
MarketOpenness	Pearson Correlation	.613**	.584**	1	.416**	.398**	.400**	.000
	Sig. (2-tailed)	.000	.000		.000	.000	.000	1.000
	N	457	457	457	457	457	457	457
PhysicalInfrastructure	Pearson Correlation	.533**	.441**	.416**	1	.203**	.193**	.000
	Sig. (2-tailed)	.000	.000	.000		.000	.000	1.000
	N	457	457	457	457	457	457	457
EducationTraining	Pearson Correlation	.463**	.413**	.398**	.203**	1	.470**	.000
	Sig. (2-tailed)	.000	.000	.000	.000		.000	1.000
	N	457	457	457	457	457	457	457
CulturalSocialNorms	Pearson Correlation	.321**	.275**	.400**	.193**	.470**	1	.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000		1.000
	N	457	457	457	457	457	457	457
Unstandardized Residual	Pearson Correlation	.000	.000	.000	.000	.000	.000	1
	Sig. (2-tailed)	1.000	1.000	1.000	1.000	1.000	1.000	
	N	457	457	457	457	457	457	457

\*\* . Correlation is significant at the 0.01 level (2-tailed).

From the above table, we are able to determine that there is no correlation between the independent terms and the residual terms that were obtained.

(3) There is no correlation among the residual terms:  $Cov(\epsilon_i, \epsilon_j) = 0, i \neq j$

Table 15 - Model Summary (total samples)

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.592 <sup>a</sup>	.351	.342	6.76638	1.998

a. Predictors: (Constant), CulturalSocialNorms, PhysicalInfrastructure, CommercialProfessionalInfrastructure, EducationTraining, MarketOpenness, RDTransfer

b. Dependent Variable: TEA

Since the value of the Durbin-Watson is close to 2, residuals are assumed to be independent.

(4) The variance of the random term is constant:  $\text{Var}(\epsilon_i) = \sigma^2$

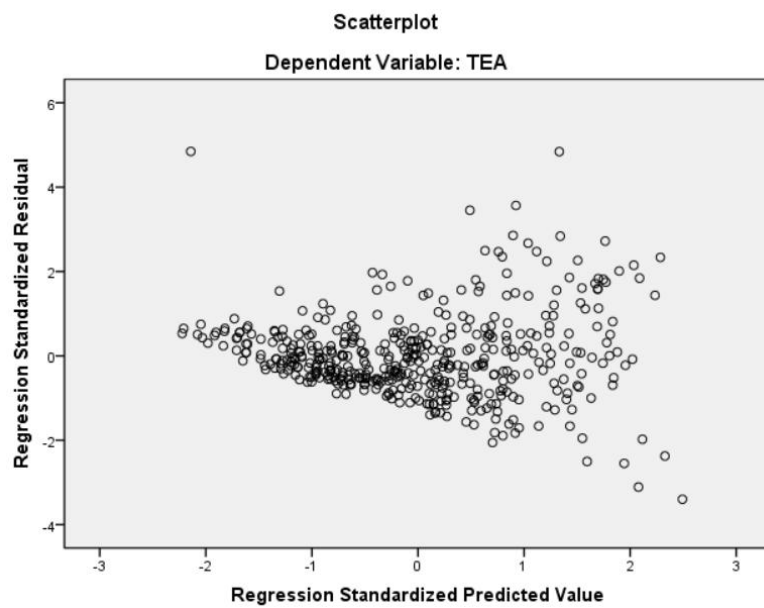


Figure 11 - Scatterplot of TEA (all samples)

An absence of clear pattern of data spread indicates that the variance of the random term is constant.

(5) Normality of the residuals:  $\epsilon_i \cap N(0, \sigma^2)$

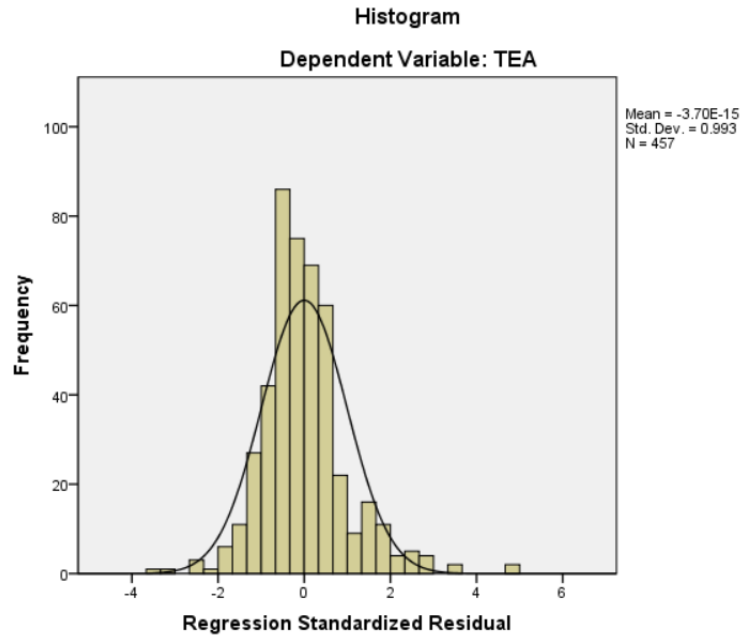


Figure 12- Histogram of TEA (all samples)

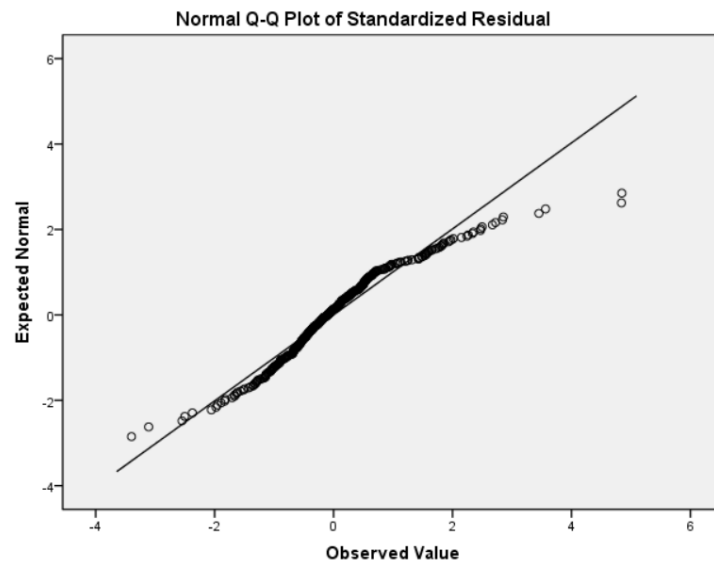


Figure 13 - Normal Q-Q Plot of TEA (all samples)

The plot indicates residuals are normally distributed. Non-normal if points substantially deviate from the diagonal line.

If the data that is being used is smaller than 2000, the Shapiro test is used for testing the normality and if it is higher than 2000 then the test for Kolmogorov-Smirnov is adopted. For purposes of this test, Shapiro Walk test was used since the sample that was used was of 457 which is less than 2000. Since we obtained a p-value of 0.000 from our test of Normality, we are able to conclude that the dataset that was adopted was from data that follows a normal distribution.

All the above assumptions were considered in the study and thus this resulted to the model being valid for the study of the data set. Furthermore, due to this it indicated the relationship that existed between various variables which were independent and those that were dependent was valid.

### 6.2.2 Analysis by use of low income samples

The sample size in this group was 12. Thus, it was possible to perform a multiple regression on the data. The correlation matrix that was obtained was as follows in the table below.

*Table 16 - Correlation Analysis (low income group)*



INSTITUTIONAL ENVIRONMENT AND TOTAL ENTREPRENEURIAL ACTIVITY: THE COMPARISON ON NATIONS

**Correlations**

		TEA	Finance	GovernmentPolicies	GovernmentPrograms	RDTTransfer	CommercialProfessionalInfrastructure	MarketOpenness	PhysicalInfrastructure	EducationTraining	CulturalSocialNorms
TEA	Pearson Correlation	1	.046	-.192	-.264	-.139	.465	.136	-.541	.237	.050
	Sig. (2-tailed)		.887	.551	.407	.667	.128	.672	.069	.459	.879
	N	12	12	12	12	12	12	12	12	12	12
Finance	Pearson Correlation	.046	1	.208	-.043	.683	-.775**	.525	.167	.316	.501
	Sig. (2-tailed)	.897		.516	.895	.014	.003	.080	.503	.318	.097
	N	12	12	12	12	12	12	12	12	12	12
GovernmentPolicies	Pearson Correlation	-.192	.208	1	.609	.368	-.290	-.141	-.193	.237	.076
	Sig. (2-tailed)	.551	.516		.035	.239	.360	.663	.547	.458	.815
	N	12	12	12	12	12	12	12	12	12	12
GovernmentPrograms	Pearson Correlation	-.264	-.043	.609	1	-.111	-.265	-.462	.013	-.181	.326
	Sig. (2-tailed)	.407	.895	.035		.731	.405	.130	.967	.574	.301
	N	12	12	12	12	12	12	12	12	12	12
RDTTransfer	Pearson Correlation	-.139	.683	.368	-.111	1	.360	.654	.134	.677	.078
	Sig. (2-tailed)	.667	.014	.239	.731		.250	.021	.676	.016	.811
	N	12	12	12	12	12	12	12	12	12	12
CommercialProfessionalInfrastructure	Pearson Correlation	.465	.775**	-.290	-.265	.360	1	.504	.035	.274	.459
	Sig. (2-tailed)	.128	.003	.360	.405	.250		.095	.914	.390	.133
	N	12	12	12	12	12	12	12	12	12	12
MarketOpenness	Pearson Correlation	.136	.625	-.141	-.462	.654	.604	1	-.111	.438	.087
	Sig. (2-tailed)	.672	.090	.663	.130	.021	.095		.730	.165	.836
	N	12	12	12	12	12	12	12	12	12	12
PhysicalInfrastructure	Pearson Correlation	-.541	.167	-.193	.013	.134	.035	.111	1	-.122	.616
	Sig. (2-tailed)	.069	.603	.547	.967	.678	.914	.730		.705	.033
	N	12	12	12	12	12	12	12	12	12	12
EducationTraining	Pearson Correlation	.237	.310	.237	-.181	.677	.274	.438	-.122	1	-.115
	Sig. (2-tailed)	.459	.310	.450	.574	.016	.390	.155	.705		.722
	N	12	12	12	12	12	12	12	12	12	12
CulturalSocialNorms	Pearson Correlation	.050	.501	.076	.326	.078	.459	.067	.616	-.115	1
	Sig. (2-tailed)	.879	.097	.815	.301	.811	.133	.836	.033	.722	
	N	12	12	12	12	12	12	12	12	12	12

\*. Correlation is significant at the 0.05 level (2-tailed).  
 \*\*. Correlation is significant at the 0.01 level (2-tailed).

From the above analysis, we can infer that most of the variables under study have a positive relationship with other variables. In the next section, we look at the regression analysis by use of the samples with low income under study.

Table 17 - Model Summary (low income group)

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.880 <sup>a</sup>	.774	.690	4.23193	2.794

a. Predictors: (Constant), CulturalSocialNorms, GovernmentPrograms, PhysicalInfrastructure

b. Dependent Variable: TEA

From the table above, we establish that R<sup>2</sup> is 0.774 which means 77.4% of the variation of TEA is explained by the level of institutional factors in the economies that fall in the low income level.

Table 18 - Analysis of variance (low income group)

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	491.768	3	163.923	9.153	.006 <sup>b</sup>
	Residual	143.274	8	17.909		
	Total	635.042	11			

a. Dependent Variable: TEA

b. Predictors: (Constant), CulturalSocialNorms, GovernmentPrograms, PhysicalInfrastructure

Sig < 0.05 so we conclude that the multiple linear regression under analysis is valid:

at least some of the explanatory variables used are important in explaining the dependent variable.

*Table 19 - Coefficients Analysis (low income group)*

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	72.991	15.389		4.743	.001		
	GovernmentPrograms	-13.501	4.578	-.541	-2.949	.018	.837	1.195
	PhysicalInfrastructure	-23.407	4.753	-1.085	-4.925	.001	.581	1.721
	CulturalSocialNorms	20.772	5.411	.895	3.839	.005	.519	1.925

a. Dependent Variable: TEA

We can get the model from the Coefficients as the following:

$$TEA_{it} = 72.991 - 13.501 * \text{Government Program} - 23.407 * \text{Physical Infrastructure} + 20.772 * \text{Cultural and Social Norms}$$

The results were based on similar assumptions as those that were considered in the case of total samples involving all the four economies and similar results were established throughout the tests.

### 6.2.3 Analysis by use of lower-middle income samples

The sample size in this group was 54. Thus, it was possible to perform a multiple regression on the data. The correlation matrix that was obtained was as follows in the

table below.

Table 20 - Correlation Analysis (lower-middle income group)

		Correlations									
		TEA	Finance	GovernmentPolicies	GovernmentPrograms	RDTransfer	CommercialProfessionalInfrastructure	MarketOpenness	PhysicalInfrastructure	EducationTraining	CulturalSocialNorms
TEA	Pearson Correlation	1	-.329*	-.116	-.016	-.229	-.243	.014	-.632**	.070	-.111
	Sig. (2-tailed)		.015	.403	.909	.095	.077	.921	.000	.617	.424
	N	54	54	54	54	54	54	54	54	54	54
Finance	Pearson Correlation	-.329*	1	.631**	.540**	.732**	.442**	.489**	.112	.338*	.479**
	Sig. (2-tailed)	.015		.000	.000	.000	.001	.000	.420	.012	.000
	N	54	54	54	54	54	54	54	54	54	54
GovernmentPolicies	Pearson Correlation	-.116	.631**	1	.825**	.608**	.274*	.584**	.052	.267	.526**
	Sig. (2-tailed)	.403	.000		.000	.000	.045	.000	.709	.051	.000
	N	54	54	54	54	54	54	54	54	54	54
GovernmentPrograms	Pearson Correlation	-.016	.540**	.825**	1	.583**	.278*	.575**	.094	.395**	.518**
	Sig. (2-tailed)	.909	.000	.000		.000	.042	.000	.501	.003	.000
	N	54	54	54	54	54	54	54	54	54	54
RDTransfer	Pearson Correlation	-.229	.732**	.608**	.583**	1	.378**	.475**	.055	.587**	.613**
	Sig. (2-tailed)	.095	.000	.000	.000		.005	.000	.692	.000	.000
	N	54	54	54	54	54	54	54	54	54	54
CommercialProfessionalInfrastructure	Pearson Correlation	-.243	.442**	.274*	.278*	.378**	1	.487**	.280	.396**	.396**
	Sig. (2-tailed)	.077	.001	.045	.042	.005		.000	.040	.003	.003
	N	54	54	54	54	54	54	54	54	54	54
MarketOpenness	Pearson Correlation	.014	.489**	.584**	.575**	.475**	.487**	1	.068	.370**	.485**
	Sig. (2-tailed)	.921	.000	.000	.000	.000	.000		.626	.006	.000
	N	54	54	54	54	54	54	54	54	54	54
PhysicalInfrastructure	Pearson Correlation	-.632**	.112	.052	.094	.055	.280	.068	1	-.099	-.060
	Sig. (2-tailed)	.000	.420	.709	.501	.692	.040	.626		.478	.664
	N	54	54	54	54	54	54	54	54	54	54
EducationTraining	Pearson Correlation	.070	.338*	.267	.395**	.587**	.396**	.370**	-.099	1	.647**
	Sig. (2-tailed)	.617	.012	.051	.003	.000	.003	.006	.478		.000
	N	54	54	54	54	54	54	54	54	54	54
CulturalSocialNorms	Pearson Correlation	-.111	.479**	.526**	.518**	.613**	.396**	.485**	-.060	.647**	1
	Sig. (2-tailed)	.424	.000	.000	.000	.000	.003	.000	.664	.000	
	N	54	54	54	54	54	54	54	54	54	54

\*. Correlation is significant at the 0.05 level (2-tailed).  
 \*\*. Correlation is significant at the 0.01 level (2-tailed).

From the above analysis, we can infer that most of the variables under study have a positive relationship with other variables. In the next section, we look at the regression analysis by use of the samples with lower-middle income under study.

Table 21 - Model Summary (lower-middle income group)

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.716 <sup>a</sup>	.513	.484	8.42372	2.017

a. Predictors: (Constant), PhysicalInfrastructure, GovernmentPrograms, Finance

b. Dependent Variable: TEA

From the table above, we establish that R<sup>2</sup> is 0.513 which means 51.3% of the variation of TEA is explained by the level of institutional factors in the economies that fall in the lower-middle level.

Table 22 - Analysis of variance (lower-middle income group)

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3737.701	3	1245.900	17.558	.000 <sup>b</sup>
	Residual	3547.953	50	70.959		
	Total	7285.654	53			

a. Dependent Variable: TEA

b. Predictors: (Constant), PhysicalInfrastructure, GovernmentPrograms, Finance

Sig < 0.05 so we conclude that the multiple linear regression under analysis is valid: at least some of the explanatory variables used are important in explaining the dependent variable.

*Table 23 - Coefficients Analysis (lower-middle income group)*

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	84.210	11.700		7.197	.000		
	Finance	-10.658	3.138	-.399	-3.396	.001	.704	1.420
	GovernmentPrograms	8.230	3.758	.257	2.190	.033	.707	1.415
	PhysicalInfrastructure	-16.682	2.715	-.611	-6.145	.000	.986	1.014

a. Dependent Variable: TEA

We can get the model from the Coefficients as the following:

$$TEA_{it} = 84.210 - 10.658 * Finance + 8.230 * Government Programs - 16.682 * Physical Infrastructure$$

The results were based on similar assumptions as those that were considered in the case of total samples involving all the four economies and similar results were established throughout the tests.

#### 6.2.4 Analysis by use of upper-middle income samples

Regression and correlation analysis was also conducted on the dataset relating to the upper-middle income economies. The sample was made up of 144 samples. The results of correlation were as shown below in the correlation matrix.

Table 24 - Correlation Analysis (upper-middle income group)

		Correlations									
		TEA	Finance	GovernmentPolicies	GovernmentPrograms	RDTransfer	CommercialProfessionalInfrastructure	MarketOpenness	PhysicalInfrastructure	EducationTraining	CulturalSocialNorms
TEA	Pearson Correlation	1	-.209*	-.052	-.034	-.229**	-.317**	-.045	-.117	.163	.230**
	Sig. (2-tailed)		.012	.538	.688	.006	.000	.595	.163	.051	.005
	N	144	144	144	144	144	144	144	144	144	144
Finance	Pearson Correlation	-.209*	1	.553**	.437**	.549**	.454**	.432**	-.100	.192	.416**
	Sig. (2-tailed)	.012		.000	.000	.000	.000	.000	.231	.021	.000
	N	144	144	144	144	144	144	144	144	144	144
GovernmentPolicies	Pearson Correlation	-.052	.553**	1	.686**	.491**	.296**	.361**	.207**	.374**	.380**
	Sig. (2-tailed)	.538	.000		.000	.000	.000	.000	.013	.000	.000
	N	144	144	144	144	144	144	144	144	144	144
GovernmentPrograms	Pearson Correlation	-.034	.437**	.686**	1	.674**	.376**	.521**	.268**	.603**	.581**
	Sig. (2-tailed)	.688	.000	.000		.000	.000	.000	.001	.000	.000
	N	144	144	144	144	144	144	144	144	144	144
RDTransfer	Pearson Correlation	-.229**	.549**	.491**	.674**	1	.454**	.480**	.306**	.506**	.396**
	Sig. (2-tailed)	.006	.000	.000	.000		.000	.000	.000	.000	.000
	N	144	144	144	144	144	144	144	144	144	144
CommercialProfessionalInfrastructure	Pearson Correlation	-.317**	.454**	.296**	.376**	.454**	1	.393**	-.115	.338**	.241**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.171	.000	.004
	N	144	144	144	144	144	144	144	144	144	144
MarketOpenness	Pearson Correlation	-.045	.432**	.361**	.521**	.480**	.393**	1	.204*	.474**	.566**
	Sig. (2-tailed)	.595	.000	.000	.000	.000	.000		.014	.000	.000
	N	144	144	144	144	144	144	144	144	144	144
PhysicalInfrastructure	Pearson Correlation	-.117	.100	.207*	.268**	.306**	.115	.204*	1	.220**	.197*
	Sig. (2-tailed)	.163	.231	.013	.001	.000	.171	.014		.008	.018
	N	144	144	144	144	144	144	144	144	144	144
EducationTraining	Pearson Correlation	.163	.192*	.374**	.603**	.506**	.338**	.474**	.220**	1	.615**
	Sig. (2-tailed)	.051	.021	.000	.000	.000	.000	.000	.008		.000
	N	144	144	144	144	144	144	144	144	144	144
CulturalSocialNorms	Pearson Correlation	.230**	.416**	.380**	.581**	.396**	.241**	.566**	.197*	.615**	1
	Sig. (2-tailed)	.005	.000	.000	.000	.000	.004	.000	.018	.000	
	N	144	144	144	144	144	144	144	144	144	144

\*. Correlation is significant at the 0.05 level (2-tailed).  
 \*\*. Correlation is significant at the 0.01 level (2-tailed).

From the above analysis, we can infer that most of the variables under study have a positive relationship with other variables. In the next section, we look at the regression analysis by use of the samples.

Table 25 - Model Summary (lower-middle income group)

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.533 <sup>a</sup>	.284	.264	6.89200	1.898

a. Predictors: (Constant), CulturalSocialNorms, CommercialProfessionalInfrastructure, RDTransfer, EducationTraining  
 b. Dependent Variable: TEA

The results reveal that R<sup>2</sup> is 0.284 which means 28.4% of the variation of TEA is explained by the explanatory variables in the model and other factors explain the remaining percentage of 71.6%.

Table 26 - Analysis of Variance (lower-middle income group)

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2624.383	4	656.096	13.813	.000 <sup>b</sup>
	Residual	6602.454	139	47.500		
	Total	9226.837	143			

a. Dependent Variable: TEA

b. Predictors: (Constant), CulturalSocialNorms, CommercialProfessionalInfrastructure, RDTransfer, EducationTraining

From the above table, we are able to determine that the model was fit for the data as the p-value 0.00 was less than the significance level of 0.05. This implies that the variables that were used were valid in explaining the variation that occurred in the level of TEA.

*Table 27 - Coefficients analysis (lower-middle income group)*

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	26.210	6.341		4.133	.000		
	RDTransfer	-8.716	2.390	-.326	-3.647	.000	.644	1.552
	CommercialProfessionalInfrastructure	-8.623	2.156	-.325	-4.000	.000	.778	1.286
	EducationTraining	5.912	2.147	.271	2.754	.007	.532	1.879
	CulturalSocialNorms	5.519	1.864	.272	2.961	.004	.612	1.635

a. Dependent Variable: TEA

From the findings, we can get the model from the Coefficients as the following:

$TEA_{it} = 26.210 - 8.716 * R\&D \text{ Transfer} - 8.623 * \text{Commercial and Professional Infrastructure} + 5.912 * \text{Education and training (high education)} + 5.519 * \text{Cultural and Social Norms}$

This model is based on the assumptions that the dataset was obtained from data which follows a normal distribution and the assumptions that were made on the total samples was also applied in this case and similar results were attained.

6.2.5 Analysis by use of high income samples

Lastly, a regression and correlation analysis was also carried out on the samples relating to the high economic levels which are characterized by high level of income.

The results of the correlation were as presented in the correlation matrix below.

Table 28 - Correlations analysis (high income group)

		Correlations									
		TEA	Finance	GovernmentPolicies	GovernmentPrograms	RDTransfer	CommercialProfessionalInfrastructure	MarketOpenness	PhysicalInfrastructure	EducationTraining	CulturalSocialNorms
TEA	Pearson Correlation	1	-.089	-.164**	-.097	-.202**	.000	-.064	.052	.182**	.196**
	Sig. (2-tailed)		.161	.010	.130	.001	.995	.318	.420	.004	.002
	N	247	247	247	247	247	247	247	247	247	247
Finance	Pearson Correlation	-.089	1	.536**	.518**	.609**	.561**	.577**	.543**	.316**	.428**
	Sig. (2-tailed)	.161		.000	.000	.000	.000	.000	.000	.000	.000
	N	247	247	247	247	247	247	247	247	247	247
GovernmentPolicies	Pearson Correlation	-.164**	.536**	1	.703**	.571**	.317**	.527**	.475**	.336**	.328**
	Sig. (2-tailed)	.010	.000		.000	.000	.000	.000	.000	.000	.000
	N	247	247	247	247	247	247	247	247	247	247
GovernmentPrograms	Pearson Correlation	-.097	.518**	.703**	1	.741**	.473**	.628**	.562**	.426**	.293**
	Sig. (2-tailed)	.130	.000	.000		.000	.000	.000	.000	.000	.000
	N	247	247	247	247	247	247	247	247	247	247
RDTransfer	Pearson Correlation	-.202**	.609**	.571**	.741**	1	.568**	.675**	.559**	.533**	.413**
	Sig. (2-tailed)	.001	.000	.000	.000		.000	.000	.000	.000	.000
	N	247	247	247	247	247	247	247	247	247	247
CommercialProfessionalInfrastructure	Pearson Correlation	.000	.561**	.317**	.473**	.568**	1	.611**	.492**	.528**	.373**
	Sig. (2-tailed)	.995	.000	.000	.000	.000		.000	.000	.000	.000
	N	247	247	247	247	247	247	247	247	247	247
MarketOpenness	Pearson Correlation	-.064	.577**	.527**	.628**	.675**	.611**	1	.505**	.401**	.403**
	Sig. (2-tailed)	.318	.000	.000	.000	.000	.000		.000	.000	.000
	N	247	247	247	247	247	247	247	247	247	247
PhysicalInfrastructure	Pearson Correlation	.052	.543**	.475**	.562**	.559**	.492**	.505**	1	.343**	.368**
	Sig. (2-tailed)	.420	.000	.000	.000	.000	.000	.000		.000	.000
	N	247	247	247	247	247	247	247	247	247	247
EducationTraining	Pearson Correlation	.182**	.316**	.336**	.426**	.533**	.528**	.401**	.343**	1	.395**
	Sig. (2-tailed)	.004	.000	.000	.000	.000	.000	.000	.000		.000
	N	247	247	247	247	247	247	247	247	247	247
CulturalSocialNorms	Pearson Correlation	.196**	.428**	.328**	.293**	.413**	.373**	.403**	.368**	.395**	1
	Sig. (2-tailed)	.002	.000	.000	.000	.000	.000	.000	.000	.000	
	N	247	247	247	247	247	247	247	247	247	247

\*\* Correlation is significant at the 0.01 level (2-tailed).

From the above analysis, we can infer that most of the variables under study have a positive relationship with other variables. In the next section, we look at the regression analysis by use of the samples.

Table 29 - Model Summary (high income group)

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.512 <sup>a</sup>	.262	.244	4.26400	1.618

a. Predictors: (Constant), CulturalSocialNorms, GovernmentPrograms, EducationTraining, PhysicalInfrastructure, GovernmentPolicies, RDTransfer

b. Dependent Variable: TEA

R<sup>2</sup> in the table represents the degree of variation in the TEA that is caused by the independent variables. In the above case, 26.2% represents the variation in the level of TEA that is caused by the variables that were adopted. This implies that other factors which are not included in the above variables account for 73.8%.

Table 30 - Analysis of Variance (high income group)

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1551.745	6	258.624	14.224	.000 <sup>b</sup>
	Residual	4363.605	240	18.182		
	Total	5915.350	246			

a. Dependent Variable: TEA

b. Predictors: (Constant), CulturalSocialNorms, GovernmentPrograms, EducationTraining, PhysicalInfrastructure, GovernmentPolicies, RDTransfer

This was done to determine whether the data that was used was fit for the model equation. From the results in the table above we are able to conclude that the data was fit for the model since the p-value was less than the level of significance (0.05). Thus, this made it appropriate for the use of the dataset in the model.

Table 31 - Coefficients analysis (high income group)

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.487	3.060		.159	.874		
	GovernmentPolicies	-2.570	.827	-.247	-3.108	.002	.485	2.062
	GovernmentPrograms	2.039	1.017	.197	2.005	.046	.318	3.149
	RDTransfer	-7.791	1.214	-.592	-6.420	.000	.361	2.768
	PhysicalInfrastructure	2.102	.840	.178	2.502	.013	.610	1.639
	EducationTraining	4.983	1.021	.329	4.882	.000	.677	1.478
	CulturalSocialNorms	2.541	.607	.269	4.182	.000	.744	1.344

a. Dependent Variable: TEA

We can get the model from the Coefficients as the following:



$$TEA_{it} = 0.487 - 2.570 * \text{Government Policies} + 2.039 * \text{Government Programs} - 7.791 * \text{R\&D Transfer} + 2.102 * \text{Physical Infrastructure} + 4.983 * \text{Education and training} + 2.541 * \text{Cultural Social Norms}$$

The equations above were obtained putting into the consideration the assumptions listed below:

- (1) The mean of the residual component of the model is zero:  $E(\varepsilon_i) = 0$
- (2) The independent variables are not correlated with the residual terms.
- (3) There is no correlation among the residual terms:  $Cov(\varepsilon_i, \varepsilon_j) = 0, i \neq j$
- (4) The variance of the random term is constant:  $Var(\varepsilon_i) = \sigma^2$
- (5) Normality of the residuals:  $\varepsilon_i \cap N(0, \sigma^2)$

## 6.2.6 Results

*Table 32 - Results*

	Model	Significant Formal Institutions	Significant Informal Institutions
<b>All Income Groups</b>	$TEA_{it} = 20.712 - 10.781 * R\&D\ Transfer - 4.386 * Commercial\ and\ Professional\ Infrastructure + 3.877 * Market\ Openness - 2.852 * Physical\ Infrastructure + 7.351 * Education\ and\ Training + 3.698 * Cultural\ and\ Social\ Norms$	R&D Transfer	Educational and Training
		Physical Infrastructure	Cultural and Social Norms
<b>Low Income Group</b>	$TEA_{it} = 72.991 - 13.501 * Government\ Program - 23.407 * Physical\ Infrastructure + 20.772 * Cultural\ and\ Social\ Norms$	Government Program	Cultural and Social Norms
		Physical Infrastructure	
<b>Lower-Middle Income Group</b>	$TEA_{it} = 84.210 - 10.658 * Finance + 8.230 * Government\ Programs - 16.682 * Physical\ Infrastructure$	Finance	—
		Government Programs	
		Physical Infrastructure	
<b>Upper-Middle Income Group</b>	$TEA_{it} = 26.210 - 8.716 * R\&D\ Transfer - 8.623 * Commercial\ and\ Professional\ Infrastructure + 5.912 * Education\ and\ training\ (high\ education) + 5.519 * Cultural\ and\ Social\ Norms$	R&D Transfer	Education and training (high education)
		Commercial and Professional Infrastructure	Cultural and Social Norms
<b>High Income Group</b>	$TEA_{it} = 0.487 - 2.570 * Government\ Policies + 2.039 * Government\ Programs - 7.791 * R\&D\ Transfer + 2.102 * Physical\ Infrastructure + 4.983 * Education\ and\ training + 2.541 * Cultural\ Social\ Norms$	Government Policies	Education and training
		Government Programs	
		R&D Transfer	Cultural Social Norms
		Physical Infrastructure	

From the model of all income groups, we conclude that the variable of “Research and development transfers” has a negative relationship with the level of TEA as indicated by a regression coefficient in the table above of -10.781. Similarly, “Commercial and professional infrastructure” is found to have a negative relationship with the level of TEA as shown in the table above by a regression coefficient of -4.386. “Market openness” has a significant relationship with the level of TEA as indicated by a regression coefficient of 3.877. The regression coefficient is positive implying that a unit increase in the level of “Education and Training” and “Cultural and Social Norms” results to an increase of 7.351 and 3.698 of the level of TEA.

From the model of low income group, we conclude that the variable of “Government Program” has a negative relationship with the level of TEA as indicated by a

regression coefficient in the table above of -13.501. Similarly, variable of “Physical Infrastructure” is found to have a negative relationship with the level of TEA as shown in the table above by a regression coefficient of -23.407. “Cultural and Social Norms” has a significant relationship with the level of TEA as indicated by a regression coefficient of 20.772.

From the model of lower-middle income group, we conclude that two variables of “Finance” and “Physical Infrastructure” are found to have a negative relationship with the level of TEA as shown in the table above by a regression coefficient of -10.658 and -16.682. “Government Programs” has a significant relationship with the level of TEA as indicated by a regression coefficient of 8.230.

From the model of upper-middle income group, we conclude that the variables of “R&D Transfer” and “Commercial and Professional Infrastructure” have a negative relationship with the level of TEA as indicated by a regression coefficient in the table above of -8.716 and -8.623. Similarly, two variables of “Educational and training” and “Cultural and Social Norms” are found to have a positive relationship with the level of TEA as shown in the table above by a regression coefficient of 5.912 and 5.519.

From the model of high income group, we conclude that the variables of “Government Policies” and “R&D Transfer” have a negative relationship with the

level of TEA as indicated by a regression coefficient in the table above of 2.570 and -7.791. Two variables of “Government Programs” and “Physical Infrastructure” are found to have a positive relationship with the level of TEA as shown in the table above by a regression coefficient of 2.039 and 2.102. Similarly, variables of “Education and training” and “Cultural Social Norms” are found to have a positive relationship with the level of TEA as shown in the table above by a regression coefficient of 4.983 and 2.541.

H1 Informal institutions influence the level of entrepreneurial activities.

From the above analysis, we can see that both informal institutional variables of “Education and the training” and “Cultural norms and the social norms” were found to have a significant influence on TEA in the model of all income groups, upper-middle income group and high income group. For the model of low income group, “Cultural norms and the social norms” was found to have a significant effect on the level of TEA. This is an implication that the data used does support H1 adopted in the study.

H2 Formal institutions influence the level of entrepreneurial activities.

From the five models, we are able to establish that formal institutions have an effect on the level of TEA. When the model of all income groups, it was established that four variables of the formal institutions had an effect on the level of TEA. These factors included “R&D Transfer”, “Commercial and Professional Infrastructure”,

“MarketOpenness” and “Physical Infrastructure”. For the model of low income group, it was found out that “Government Program” and “Physical Infrastructure” had a significant influence on TEA. For the model of lower-middle income group, three formal institutions including “Finance”, “Government Programs” and “Physical Infrastructure” were found to have a significant influence on the level of TEA. For the model of lower-middle income group, two formal institutions including “R&D Transfer” and “Commercial and Professional Infrastructure” were found to have a significant influence on the level of TEA. Lastly, in the model involving the high income, four formal institutions, including “Government Policies”, “Government Programs”, “R&D Transfer” and “Physical Infrastructure”, were found to have a significant effect on the level of TEA. These findings are in concurrence with Djankov (2002) argument that the framework of formal environmental institutions that influence entrepreneurial activities include government programs, finance, research transfers and physical infrastructure. Similarly, Gnyawali and Fogel (2004) argue that Formal environmental resources such as financial resources also impact the process of entrepreneurship positively as its availability determines the number of new business ventures that can be established. Furthermore, Kelley, Bosma and Amorós (2011) argue that university play a major role in providing entrepreneurial education. This implies that the data that was used was in support of the idea that the formal institutions has an influence on the level of entrepreneurial activities.

H3 Informal institutions have a larger influence on entrepreneurial activity than formal institutions.

Both informal institutions, “Education and Training” and “Cultural and Social Norms”, are significant and have positive influence on TEA in all models mentioned above, except the model of lower-middle income group. In the model of all income groups, formal variable “R&D Transfer” has the highest absolute value of coefficient followed by institutional variable “Education and Training”. In the model of low income group, formal variable “Physical Infrastructure” has the highest absolute value of coefficient followed by informal variable “Cultural and Social Norms”. In the model of lower-middle income group, no informal variable has significance on TEA. In the model of upper-middle income group, two informal variables have smaller absolute coefficient. In the model of high income group, “R&D Transfer” has the highest absolute value of coefficient followed by informal variable “Education and Training”. We can get conclusion that two informal variables are not significant in all models of different income groups and their absolute coefficients are not highest compared to other formal institutions. Thus, this data does not support H3.

H4 For each income group, informal institutions have different influence on TEA.

For the model of all income groups, upper-middle income group and high income group, both informal institutions have significance on TEA and different coefficients.

For the model of lower-middle income group, informal institutions have no significant influence. For the model of low income group, informal institution

“Cultural and Social Norms” has significant influence on TEA. Thus, the data does support H4.

H5 For each income group, formal institutions have different influence on TEA.

In model of all income groups, “R&D Transfer”, “Commercial and Professional Infrastructure” and “Physical Infrastructure” have significant influence on TEA and have a negative sign. “Market Openness” also has a significant influence on TEA and has a positive sign. In model of low income group, formal institutions, “Government Program” and “Physical Infrastructure” have significant impact on TEA and both have a positive sign. In the model of lower-middle income group, “Finance” and “Physical Infrastructure” are significant and have a negative sign. “Government Programs” is significant and has a positive sign. In the model of “upper-middle income group”, formal institutions of “R&D Transfer” and “Commercial and Professional Infrastructure” have significant impact on TEA. In the model of high income group, “Government Policies” and “R&D Transfer” are significant and have a negative sign. “Government Programs” and “Physical Infrastructure” are significant and have a positive sign. All formal institutions that are significant in the models have different coefficients. Thus, this data does support H5.

The table below shows the comparison of similar and dissimilar views among authors.

The second column concludes the relationship between each institution and total entrepreneurial activity. “Government Programs” has both negative coefficient in the

models of low income group and positive coefficient in the models lower-middle income group and high income group. But Alvarez et al. (2011) find that the factor of government programs has negative influence on entrepreneurial activity. “Physical Infrastructure” has negative coefficient in the models of all income groups, low income group and upper-middle income group and positive coefficient in the model of high income group. While this institution is not significant in the view of Alvarez et al. (2011). Market openness (Maria & Miguel, 2015; De Clercq et al., 2007; Shane & Venkataraman, 2000) and culture and social norm (Maria & Miguel, 2015; Barreneche, 2014; Reynolds et al., 1999) positively affect entrepreneurship which are consistent with the results in this study. “R&D Transfer” negatively affects entrepreneurship in the models of all income groups, upper-middle income group and high income group in our study. While R&D Transfer positively affects entrepreneurship in the view of Maria & Miguel (2015), Duguet (2004) and Drucker (1998) but it is not significant in the view of Alvarez et al (2011).

*Table 33 – Comparison of similar and dissimilar views among authors*



Environmental Institutions	Results in my study	Authors with similar view	Authors with dissimilar views
<b>Finance</b>	Negative coefficient in the model of lower-middle income group	—	Finance is not significant in the view of Alvarez et al (2011).
<b>GovernmentPolicies</b>	Negative coefficient in the model of high income group	—	Alvarez et al. (2011) find that the factor of government policies does not have a statistically significant association with entrepreneurial activity.
<b>GovernmentPrograms</b>	Negative coefficient in the model of low income group; Positive coefficient in the models of lower-middle income group and high income group	—	Alvarez et al. (2011) find that the factor of government programs has negative influence on entrepreneurial activity.
<b>RDTransfer</b>	Negative coefficient in the models of all income groups, upper-middle income group and high income group	—	R&D Transfer is not significant in the view of Alvarez et al (2011). R&D Transfer positively affects entrepreneurship in the view of Maria & Miguel (2015), Duguet (2004) and Drucker (1998)
<b>CommercialProfessional Infrastructure</b>	Negative coefficient in the models of all income groups and upper-middle income group	—	Alvarez et al. (2011) find that the formal instituion of commercial and professional infrastructure has negative influence on entrepreneurial activity.
<b>MarketOpenness</b>	Positive coefficient in the model of all income groups	Castañó et al., 2015; De Clercq et al., 2007; Shane & Venkataraman, 2000	Alvarez et al. (2011) find that market oppoeness has negative influence on entrepreneurship activity.
<b>PhysicalInfrastructure</b>	Negative coefficient in the models of all income groups, low income group and upper-middle income group; Positive coefficient in the model of high income group	—	Physical Infrastructure is not significant in the view of Alvarez et al (2011).
<b>EducationTraining</b>	Positive coefficient in the models of all income groups, upper-middle income group and high income group	Vuorio A. (2017); Levie and Autio (2008)	Alvarez et al. (2011) find that the factor of high education training does not have a statistically significant association with entrepreneurial activity.
<b>CulturalSocialNorms</b>	Positive coefficient in the models of all income groups, low income group, upper-middle income group and high income group	Maria & Miguel, 2015; Barreneche, 2014; Reynolds et al., 1999	Alvarez et al. (2011) find that the factor of culture and socil norms has negative influence on entrepreneurial activity.

In our study, the results show that formal institutions have a larger influence on entrepreneurial activity than formal institutions. While Alvarez et al.(2011) find that informal institutions have a larger influence on entrepreneurial activity than formal institutions in Spain.

## 7. Conclusions

This study tests the influence of environmental factors on entrepreneurship at the countries level, using institutional economics as the theoretical framework for the research.

The main findings reveal that both informal institutions (“Education and Training”, “Cultural and Social Norms”) and formal institutions (“R&D Transfer”, “Commercial and Professional Infrastructure”, “Market Openness” and “Physical Infrastructure”) influence entrepreneurship, but formal factors have a greater impact on entrepreneurial activity than informal factors (more variables are statistically significant, with higher p-value and coefficient). The findings also reveal that for each income group, informal and formal institutions have different influence on TEA (variables are statistically significant with different coefficients in the model of each income group).

This research study plays a key role in the contribution to both conceptual and the practical perspectives. In the theoretical perspective, the results of this research study are in support of the institutional theory. The results show the significance of environmental factors on the level of entrepreneurship. In the practical perspective, the results would help us to provide the right conditions for economic development and contribute to how policies relating to the government influence the level of entrepreneurial activity.

Limitations of the study include that the samples of low income and lower middle income group that used are much less than the samples of upper middle income and high income group. And due to the lack of data, only two informal institutions are considered in the model which is not completed. The data we analyzed in the study is not reflective of the economic cycle and don't correspond to a period of recession, and thus our results cannot be generalized.

Future research may involve more samples of low income and middle lower income groups, and study how informal and formal institutions have different effects on TEA at the countries level, considering religious differences. Furthermore, a further research is needed to study how institutions have different influences according to the gender of entrepreneurs in countries level.

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## APPENDICES

### Appendices 1– Data (2016)

economy	year	Income Group	TEA	Finance	Government policies	Government programs	R&D transfer	Commercial and services infrastructure	Market openness	Physical infrastructure	Education and training	Cultural and social norms
Argentina	2016	4	14.51	1.74	3.3	2.91	2.38	2.67	2.14	3.17	3.12	3.08
Australia	2016	4	14.56	2.75	2.74	2.57	2.26	3.05	3.02	4	2.23	2.71
Austria	2016	4	9.63	2.81	2.56	3.75	2.77	3.49	3.23	4.53	2.9	2.27
Belize	2016	3	28.83	1.7	2.47	2.41	1.43	2.48	2.47	3.5	2.33	2.49
Brazil	2016	3	19.56	2.65	2.11	2.06	1.84	2.7	2.23	2.8	2.42	2.34
Bulgaria	2016	3	4.84	2.64	1.67	1.92	1.94	3.04	2.27	4.08	2.3	2.18
Burkina Faso	2016	1	33.53	1.8	3.05	2.85	1.66	2.6	2.11	2.95	2.93	3
Cameroon	2016	2	27.56	2.43	2.75	2.78	2.33	3.05	2.53	3.19	3.21	3.08
Canada	2016	4	16.72	2.68	2.82	2.88	2.6	3.39	2.41	3.96	2.82	3.18
Chile	2016	4	24.18	2.14	2.6	3.05	2.41	3	2.4	4.41	2.94	3.03
China	2016	3	10.29	3.32	3.14	2.66	2.49	2.58	2.66	4.33	3.17	3.47
Colombia	2016	3	27.35	2.22	2.56	2.77	2.15	2.54	2.34	3.6	3.26	3.43
Croatia	2016	4	8.41	2.3	1.73	2.14	1.7	2.56	1.95	3.77	2.33	1.82
Cyprus	2016	4	11.96	2.02	2.29	2.01	2.18	3.06	2.6	3.66	2.79	2.4
Ecuador	2016	3	31.83	1.75	2.04	2.02	2	2.77	2.52	4.02	3.27	3.19
Egypt	2016	2	14.3	2.34	2.17	2.02	1.68	2.31	2.39	3.91	1.82	2.42
El Salvador	2016	2	14.26	1.75	1.82	2.1	2.01	2.85	2.77	4.28	2.88	2.84
Estonia	2016	4	16.16	2.93	3.01	3.18	2.85	3.42	3.4	4.68	3.29	3.78
Finland	2016	4	6.71	3.13	3.26	2.86	2.77	3.35	3.04	4.58	3	2.73
France	2016	4	5.32	2.67	3.57	3.32	3.01	3.14	2.47	4.38	3.24	2.25
Georgia	2016	2	8.58	2.43	3.32	3.22	2.07	2.83	3.01	4.19	2.95	3.37
Germany	2016	4	4.56	2.94	2.37	3.43	2.49	3.34	3.08	3.76	2.59	2.59
Greece	2016	4	5.7	2.15	1.78	1.77	2.49	2.79	2.49	3.77	2.62	2.25
Guatemala	2016	2	20.07	1.73	1.84	1.86	2.05	3.02	2.22	3.73	3.28	3.06
Hungary	2016	4	7.94	2.7	1.86	2.07	2.28	2.93	2.5	4.03	2.59	2.06
India	2016	2	10.59	3.43	3.34	2.82	2.87	3.11	2.98	3.89	3.01	3.11
Indonesia	2016	2	14.08	2.77	2.77	2.46	2.49	2.4	2.35	3.14	3.45	3.24
Iran	2016	3	12.79	1.75	2	1.36	1.81	1.85	1.63	3.79	1.83	2.1
Ireland	2016	4	10.88	2.85	2.78	3.37	2.78	3.06	2.9	3.31	2.7	3.02
Israel	2016	4	11.31	2.73	2.1	2.37	2.63	3.13	2.12	3.69	2.91	4.29
Italy	2016	4	4.42	2.57	2.06	1.94	2.43	2.6	2.47	3.07	2.91	2.38
Jamaica	2016	3	9.85	2.68	2.36	2.43	1.74	2.82	2.16	3.58	3	3.63
Jordan	2016	3	8.2	2.44	2.13	2.22	2.28	2.86	2.27	3.8	1.85	2.52
Kazakhstan	2016	3	10.15	2.9	3.11	2.81	1.95	3.15	2.46	3.57	2.59	3.05
Latvia	2016	4	14.19	2.76	2.37	2.46	2.2	3.68	2.49	4.22	2.89	2.75
Lebanon	2016	3	21.15	3.05	2.08	2.35	2.41	3.2	2.28	2.24	3.11	3.67
Luxembourg	2016	4	9.19	2.31	3	3.48	3.07	3.48	3.13	4.08	3.12	2.44
Macedonia	2016	3	6.53	2.21	2.1	2.37	2.11	3.1	2.14	3.68	2.66	2.26
Malaysia	2016	3	4.7	3.2	2.98	2.99	2.77	3.11	2.78	3.89	3.11	3.19
Morocco	2016	2	5.56	2.18	2.55	2.22	1.71	2.84	2.06	3.98	2.41	2.47
Netherlands	2016	4	11	3.29	3.19	3.4	3.18	3.49	3.67	4.69	3.57	3.77
Panama	2016	3	13.2	1.89	2.09	2.39	2.1	2.53	2.49	4.21	2.56	3.11
Peru	2016	3	25.14	2.31	2.11	2.43	1.96	2.22	2.4	3.5	2.93	2.98
Poland	2016	4	10.66	2.85	2.6	2.43	2.21	2.73	2.69	4.19	2.05	2.37
Portugal	2016	4	8.15	2.95	2.85	3.07	2.76	3.27	2.45	4.41	3.1	2.47
Puerto Rico	2016	4	10.32	2.17	2.3	2.2	2.11	2.81	1.96	3.07	2.85	2.54
Qatar	2016	4	7.85	2.67	3.25	3.23	2.62	3.08	2.36	3.87	3.46	3.23
Russia	2016	4	6.27	1.96	2.05	1.85	1.68	2.94	2	3.35	2.86	2.02
Saudi Arabia	2016	4	11.44	2.39	2.41	2.12	1.85	2.37	2.38	3.99	2.26	2.72
Slovenia	2016	4	8.02	2.39	2.45	2.59	2.3	3.05	2.49	4.15	2.61	1.98
South Africa	2016	3	6.91	2.55	2.86	1.89	1.98	3.03	2.08	3.45	2.37	2.46
Spain	2016	4	5.23	2.37	1.9	3.09	2.69	3.25	2.83	3.48	2.15	2.71
Sweden	2016	4	7.58	2.71	2.31	2.87	2.56	2.99	2.68	4.07	2.54	3.04
Switzerland	2016	4	8.21	3.12	3.17	3.51	3.42	3.49	3.21	4.6	3.48	3.4
Thailand	2016	3	17.24	2.83	2.47	2.19	2.38	2.97	2.54	3.94	2.9	3.09
Turkey	2016	3	16.14	2.8	2.68	2.26	2.63	3.22	2.43	3.49	2.9	2.89
United Arab Emirates	2016	4	5.66	2.66	3.51	3.34	2.55	3.29	3	4.25	2.84	3.69
United Kingdom	2016	4	8.8	2.67	2.22	2.39	2.27	2.87	3.05	3.61	2.5	2.8
Uruguay	2016	4	14.11	2	1.91	3	2.22	2.86	2.32	3.9	3.13	2.05
USA	2016	4	12.63	3.11	2.46	2.75	2.46	3.3	2.85	4.11	2.75	4.07



INSTITUTIONAL ENVIRONMENT AND TOTAL ENTREPRENEURIAL ACTIVITY: THE COMPARISON ON NATIONS

Appendices 2 – Data (2015)

economy	year	Income Group	TEA	Finance	Government policies	Government programs	R&D transfer	Commercial and services infrastructure	Market openness	Physical infrastructure	Education and training	Cultural and social norms
Argentina	2015	4	17.74	1.9	1.84	2.19	2.29	2.81	2.27	3.48	2.84	2.94
Australia	2015	4	12.79	2.38	2.24	2.53	2.21	3.06	2.81	3.84	2.53	2.86
Barbados	2015	4	21.05	1.83	2.33	2.13	1.69	2.83	2.12	3.67	2.76	2.55
Belgium	2015	4	6.24	3.17	3.96	2.86	2.74	3.76	3.09	3.88	3.24	2.5
Botswana	2015	3	33.23	2.43	2.46	2.45	2.34	2.5	2.08	2.97	3	2.8
Brazil	2015	3	20.98	2.36	2.2	2.07	1.79	2.52	2.09	2.88	2.33	2.38
Bulgaria	2015	3	3.46	2.67	1.78	2.07	2.2	3.13	2.36	3.95	2.49	2.11
Burkina Faso	2015	1	29.75	2.2	2.34	2.46	1.84	2.94	2.3	2.85	2.73	2.81
Cameroon	2015	2	25.37	2.18	2.76	2.67	2.23	3.07	2.42	3.01	2.77	2.82
Canada	2015	4	14.72	3.14	2.82	3	2.58	3.79	2.97	4.14	3.19	3.52
Chile	2015	4	25.93	2.16	2.83	3.29	2.09	2.81	2.33	4.39	2.96	3.1
China	2015	3	12.84	2.93	3.55	2.63	2.47	2.63	2.54	4.16	3.05	2.98
Colombia	2015	3	22.67	1.92	2.31	2.62	2.06	2.49	2.5	3.63	3.21	3.12
Croatia	2015	4	7.69	2.04	1.82	1.97	1.77	2.6	1.84	3.82	2.14	1.62
Ecuador	2015	3	33.56	2.09	2.83	2.64	2.24	2.95	2.53	4.44	3.75	3.47
Egypt	2015	2	7.39	2.14	2.02	2.03	1.78	2.53	2.29	3.81	1.83	2.29
Estonia	2015	4	13.14	2.94	2.33	2.93	2.72	3.11	3.06	4.39	2.91	3.45
Finland	2015	4	6.59	2.59	3.2	2.76	2.38	3.42	2.8	4.45	2.55	2.69
Germany	2015	4	4.7	2.59	2.54	3.37	2.38	3.53	3.05	3.81	2.49	2.53
Greece	2015	4	6.75	1.84	1.85	1.75	2.32	2.71	1.89	3.67	2.78	2.14
Guatemala	2015	2	17.71	1.75	1.69	1.98	1.7	2.49	2	3.6	2.76	2.62
Hungary	2015	4	7.92	2.4	1.66	2.01	2.17	2.65	2.37	3.65	2.62	2.04
India	2015	2	10.83	3.43	3.31	2.72	2.58	2.97	2.86	3.65	3.07	3.27
Indonesia	2015	2	17.67	2.91	3.04	2.86	2.92	2.85	2.7	3.19	3.55	3.43
Iran	2015	3	12.93	2	2.27	1.35	1.78	1.75	1.82	3.93	1.98	2.19
Ireland	2015	4	9.33	3.22	3.01	3.56	2.82	3.66	3.11	4.06	2.98	3.28
Israel	2015	4	11.82	3.07	2.21	2.4	2.7	3.33	2.14	3.82	2.59	4.4
Italy	2015	4	4.87	2.4	1.93	2.02	2.38	2.57	2.46	3.04	2.54	2.16
Kazakhstan	2015	3	11	2.22	3.17	2.65	1.98	2.9	2.51	3.46	2.6	2.97
Latvia	2015	4	14.11	2.72	2.24	2.78	2.13	3.64	2.75	3.94	3.23	2.87
Lebanon	2015	3	30.15	3.14	2.03	2.51	2.5	3.39	2.54	2.69	2.98	3.77
Luxembourg	2015	4	10.19	2.44	3.15	3.59	3.23	3.6	3.28	4.06	3.24	2.48
Macedonia	2015	3	6.11	2.39	2.46	2.71	2.44	3.1	2.24	3.83	2.92	2.5
Malaysia	2015	3	2.93	3.44	3.13	3.41	2.94	3.43	2.82	4.24	3.16	3.5
Mexico	2015	3	21.01	2.47	2.83	3.02	2.46	2.83	2.18	3.76	3.33	3.03
Morocco	2015	2	4.44	2.56	2.22	2.33	1.91	3.04	2.25	4.14	2.01	2.23
Netherlands	2015	4	7.21	3.43	3.23	3.5	3.13	3.53	3.65	4.41	3.39	3.48
Norway	2015	4	5.66	2.53	2.27	2.63	2.55	3.27	2.54	4.05	2.52	2.83
Panama	2015	3	12.8	2.04	1.74	2.28	2.05	2.68	2.62	4.22	2.25	3.12
Peru	2015	3	22.22	1.89	1.94	2.23	1.9	2.2	2.29	3.4	3.01	2.94
Philippines	2015	2	17.16	3.09	2.39	2.22	2.45	3.1	2.5	3.28	3.83	3.42
Poland	2015	4	9.21	2.86	2.76	2.79	2.15	2.7	2.73	4.07	2.32	2.64
Portugal	2015	4	9.49	2.73	2.91	2.78	3.18	2.72	3.04	2.1	2.79	3.18
Puerto Rico	2015	4	8.48	2.04	2.53	2.07	1.8	2.83	2.24	3.34	2.54	2.31
Romania	2015	3	10.83	1.97	2.09	2.18	2.16	3.64	2.38	2.9	2.73	2.41
Senegal	2015	2	38.55	2.23	2.53	2.54	1.55	3.18	2.4	3.81	2.44	2.37
Slovenia	2015	4	5.91	2.55	2.45	2.75	2.29	2.82	2.31	3.83	2.38	2.08
South Africa	2015	3	9.19	2.47	2.53	1.86	2.1	2.91	2.43	3.52	2.56	2.08
Spain	2015	4	5.7	2.4	2.45	2.89	2.36	2.68	2.58	3.06	2.58	2.63
Sweden	2015	4	7.16	2.81	2.43	2.78	2.45	3.06	2.69	4.38	2.36	3.03
Switzerland	2015	4	7.31	3.14	3.44	3.59	3.73	3.72	3.38	4.63	3.71	3.52
Thailand	2015	3	13.74	2.52	2.48	2.3	2.41	2.93	2.48	3.83	2.68	3.35
Tunisia	2015	3	10.13	2.58	2.38	2.18	1.69	3.49	1.72	4.03	2.01	2.42
United Kingdom	2015	4	6.93	3.25	2.8	2.71	2.53	3.04	2.82	3.59	3.11	3.26
Uruguay	2015	4	14.28	2.28	2.09	3.06	2.5	3.05	2.5	3.68	2.81	2.13
United States	2015	4	11.88	3.22	2.62	2.47	2.54	3.22	2.65	4.18	2.7	4.02
Vietnam	2015	2	13.65	2.12	2.62	2.14	2.33	2.77	2.51	4.07	2.53	3.23

INSTITUTIONAL ENVIRONMENT AND TOTAL ENTREPRENEURIAL ACTIVITY: THE COMPARISON ON NATIONS

Appendices 3 – Data (2014)

economy	year	Income Group	TEA	Finance	Government policies	Government programs	R&D transfer	Commercial and services infrastructure	Market openness	Physical infrastructure	Education and training	Cultural and social norms
Angola	2014	3	21.5	2.63	2.58	2.4	1.77	2.73	2.17	2.36	2.22	2.88
Argentina	2014	4	14.41	2.03	2.08	2.7	2.49	2.85	2.53	3.31	3.11	3.01
Australia	2014	4	13.14	2.34	1.83	2.23	2.18	3.42	2.79	3.91	2.85	3.19
Austria	2014	4	8.71	2.51	2.46	3.58	2.82	3.4	3.33	4.12	3.02	2.46
Barbados	2014	4	12.71	2.42	2.42	2.3	1.78	2.72	2.42	3.75	2.96	2.61
Belgium	2014	4	5.4	3.38	2.62	2.71	2.99	3.74	3.19	3.79	2.75	2.15
Belize	2014	3	7.14	2.14	2.55	2.45	1.77	2.68	2.54	3.41	2.53	2.65
Bolivia	2014	2	27.4	2.25	2.15	2.34	2.33	2.81	2.65	3.3	3.11	2.79
Bosnia and Herzegovina	2014	3	7.42	2.29	2.13	2.07	1.96	2.92	2.16	3.35	2.43	2.15
Botswana	2014	3	32.79	2.71	2.61	2.71	2.45	2.56	2.04	3	3.09	2.91
Brazil	2014	3	17.23	2.46	2.4	2.24	2	2.5	2.24	2.93	2.54	2.36
Burkina Faso	2014	1	21.71	2.09	2.88	3.04	1.77	2.8	2.37	3.04	2.78	3.08
Cameroon	2014	2	37.37	2.16	3.18	2.86	2.05	2.86	2.77	3.3	3.23	3.16
Canada	2014	4	13.04	3.1	2.5	2.86	2.57	3.49	2.95	4.28	3.14	3.28
Chile	2014	4	26.83	2.35	2.77	3.06	2.2	2.8	2.57	4.33	2.98	3.09
China	2014	3	15.53	2.59	3.07	2.54	2.48	2.69	2.64	4.19	2.81	2.89
Colombia	2014	3	18.55	2.37	2.75	2.95	2.17	2.79	2.55	3.38	2.97	2.97
Costa Rica	2014	3	11.33	1.9	2.39	2.8	2.12	2.63	2.58	3.39	3.07	2.9
Croatia	2014	4	7.97	2.32	2.15	2.27	2.04	2.9	2.08	3.67	2.35	2.02
Denmark	2014	4	5.47	2.73	3.33	3.43	2.77	3.56	3.44	4.49	3.43	2.82
Ecuador	2014	3	32.61	2.19	2.98	2.66	2.35	2.76	2.72	4.05	3.18	2.99
El Salvador	2014	2	19.48	1.88	2.26	2.5	1.88	2.65	2.46	3.89	2.76	2.79
Estonia	2014	4	9.43	2.86	2.43	3.39	2.92	3.21	3.12	4.39	2.99	3.39
Finland	2014	4	5.63	2.82	3.17	2.77	2.61	3.2	2.72	4.25	2.7	2.76
France	2014	4	5.34	2.77	2.99	3.17	2.73	3.06	2.34	4.04	2.92	2.14
Georgia	2014	2	7.22	2.15	2.94	2.37	1.83	3.1	2.92	4.02	2.91	3.19
Germany	2014	4	5.27	2.84	2.93	3.46	2.75	3.34	2.81	3.82	2.81	2.65
Greece	2014	4	7.85	2.11	2.07	1.95	2.26	3.05	2.12	3.53	2.31	2.47
Guatemala	2014	2	20.39	2.04	1.91	1.87	2.09	2.89	2.53	3.83	3.06	2.44
Hungary	2014	4	9.33	2.63	2.43	2.41	2.41	3.29	2.62	3.94	2.82	2.32
India	2014	2	6.6	3.11	3	2.94	2.86	3.4	2.87	3.96	3.09	3.43
Indonesia	2014	2	14.2	3.03	2.91	2.57	2.63	2.96	2.89	3.46	3.31	3.31
Iran	2014	3	16.02	1.89	1.75	1.6	2.08	2.15	1.69	3.98	2.22	2.25
Ireland	2014	4	6.53	2.87	3.24	3.26	2.82	3.29	3.13	3.71	2.95	2.95
Italy	2014	4	4.42	2.55	2.4	2.08	2.18	2.83	2.61	2.92	2.33	2.22
Jamaica	2014	3	19.27	2.24	2.2	2.34	1.97	2.86	2.22	3.43	3.03	2.96
Japan	2014	4	3.83	3.01	3.12	2.8	3.15	2.44	2.85	4.47	2.82	2.58
Kazakhstan	2014	3	13.72	2.21	3.49	2.92	2.13	3.11	2.3	3.58	2.73	3.4
Kosovo	2014	2	4.03	2.08	2.17	2.21	1.96	3.31	2.61	4.06	2.87	3.15
Lithuania	2014	4	11.32	3.19	2.39	2.72	2.61	3.9	2.66	4.19	3.07	3.09
Luxembourg	2014	4	7.14	2.76	3.41	3.47	2.98	3.5	3.05	4.04	2.9	2.56
Malaysia	2014	3	5.91	3.34	3.35	3.28	2.68	3.31	2.83	4.08	3.12	3.54
Mexico	2014	3	18.99	2.2	2.27	2.69	2.44	2.64	2.21	3.29	3.12	2.99
Netherlands	2014	4	9.46	2.81	2.59	3.15	2.88	3.68	3.4	4.82	3.17	3.58
Norway	2014	4	5.65	2.58	2.49	3.18	2.78	3.42	2.64	4.43	2.56	2.86
Panama	2014	3	17.06	1.99	2.11	2.52	2.35	2.68	2.53	4.01	2.78	2.75
Peru	2014	3	28.81	2.2	2.21	2.13	1.87	2.81	2.7	3.52	2.87	3.09
Philippines	2014	2	18.38	2.57	2.42	2.43	2.07	2.92	2.53	3.12	3.28	3.05
Poland	2014	4	9.21	2.77	3.07	2.77	2.44	2.77	2.75	3.79	2.54	2.96
Portugal	2014	4	9.97	2.73	2.57	3	2.76	3.34	2.75	4.43	3.04	2.55
Puerto Rico	2014	4	10.04	1.96	2.42	2.56	2.28	2.84	2.3	3.25	3.07	2.76
Qatar	2014	4	16.38	2.72	3.15	2.9	2.41	2.95	2.08	3.44	3.33	2.89
Romania	2014	3	11.35	2.43	2.53	2.51	2.59	3.09	2.86	2.89	2.68	2.61
Russia	2014	4	4.69	2.27	2.36	2.4	2.37	3.25	2.55	3.47	3.1	2.74
Singapore	2014	4	10.96	3.56	3.48	3.68	3.17	3.23	3.04	4.45	3.34	3.16
Slovenia	2014	4	6.33	2.33	2.13	2.43	2.29	2.71	2.56	3.56	2.34	2.06
South Africa	2014	3	6.97	3.02	3.02	2.33	2.19	2.64	2.27	3.06	2.61	2.52
Spain	2014	4	5.47	2.14	2.5	2.88	2.45	3.03	2.47	3.64	2.61	2.64
Suriname	2014	3	2.1	2.3	2.69	2.42	2.01	3.15	2.98	3.01	3.53	2.96
Sweden	2014	4	6.71	2.63	2.74	3	2.65	3.28	2.8	4.25	2.75	3.07
Switzerland	2014	4	7.12	3.23	3.08	3.48	3.57	3.51	2.97	4.45	3.42	3.4
Thailand	2014	3	23.3	2.51	2.52	2.11	2.13	3.22	2.37	3.72	2.79	2.85
Trinidad and Tobago	2014	4	14.62	2.66	1.81	2.34	1.95	2.94	2.34	3.76	2.51	2.85
Uganda	2014	1	35.53	2.32	2.74	2.54	2.21	3.09	2.84	3.34	3.11	3.39
United Kingdom	2014	4	10.66	2.77	2.9	2.62	2.2	2.95	2.73	3.54	3.02	2.83
Uruguay	2014	4	16.08	2.21	2.22	2.89	2.49	3.02	2.4	3.79	3.43	2.11
United States	2014	4	13.81	2.99	2.69	2.61	2.64	3.12	2.67	3.98	2.87	3.75
Vietnam	2014	2	15.3	2.37	2.93	2.35	2.3	2.93	2.43	3.75	2.64	3.13

INSTITUTIONAL ENVIRONMENT AND TOTAL ENTREPRENEURIAL ACTIVITY: THE COMPARISON ON NATIONS

Appendices 4 – Data (2013)

economy	year	Income Group	TEA	Finance	Government policies	Government programs	R&D transfer	Commercial and services infrastructure	Market openness	Physical infrastructure	Education and training	Cultural and social norms
Angola	2013	3	22.23	2.59	2.92	2.23	1.85	2.5	1.98	2.28	2.12	2.81
Argentina	2013	3	15.93	2.15	1.98	2.76	2.66	3.05	2.58	3.45	3.3	3.24
Barbados	2013	4	21.67	1.95	2.82	2.32	1.64	2.99	2.35	3.41	2.67	2.46
Belgium	2013	4	4.92	2.62	2.58	3.26	2.59	3.28	2.69	3.75	3.09	2.18
Bosnia and Herzegovina	2013	3	10.34	2.16	1.98	2.04	1.89	2.71	2.04	3.32	2.56	2.16
Botswana	2013	3	20.85	2.74	2.64	2.59	2.14	2.67	2.83	3.27	3.05	2.8
Brazil	2013	3	17.31	2.34	2.5	2.28	2	2.35	2.13	3.04	2.41	2.74
Canada	2013	4	12.19	2.56	2.87	2.76	2.51	3.14	2.57	3.9	2.67	3.18
Chile	2013	3	24.33	2.47	3.44	3.06	2.23	2.67	2.28	4.17	2.71	2.83
China	2013	3	14.02	2.48	2.66	2.62	2.5	2.63	2.59	4	2.72	3
Colombia	2013	3	23.71	2.26	2.83	2.99	2.37	2.83	2.77	3.32	3.19	3.09
Croatia	2013	4	8.27	2.29	2.19	2.48	2.08	2.7	2.11	3.5	2.63	2.02
Czech Republic	2013	4	7.33	2.47	2.04	2.29	2.24	3.1	2.62	4.01	2.4	2.04
Ecuador	2013	3	35.97	2.23	2.87	2.48	2.1	2.88	2.38	4.16	3.23	3.07
Estonia	2013	4	13.11	2.69	2.52	3.27	2.89	3.04	2.54	4.28	3.04	3.46
Finland	2013	4	5.29	2.77	3.27	2.89	2.99	3.45	2.88	4.25	2.94	2.91
France	2013	4	4.57	2.85	3.28	3.17	2.48	3.02	2.39	4.22	2.69	2.21
Germany	2013	4	4.98	2.84	2.58	3.43	2.8	3.32	2.77	3.71	2.59	2.78
Ghana	2013	2	25.82	2.59	2.71	2.29	2.07	3	2.99	2.99	2.91	3.09
Greece	2013	4	5.51	1.99	2.06	2.03	2.16	3.17	2.19	3.62	2.56	2.25
Guatemala	2013	4	12.28	2.19	2.16	2.43	2.18	3.38	2.36	3.84	3.18	2.63
Hungary	2013	4	9.68	2.77	2.29	2.35	2.54	3.35	2.7	3.9	2.8	2.58
India	2013	2	9.88	2.82	1.89	2.05	1.94	2.95	2.49	3.68	2.42	2.69
Indonesia	2013	2	25.52	3.06	2.69	2.53	2.31	3.25	2.82	3.45	3.3	3.29
Iran	2013	3	12.32	2.03	1.85	1.54	1.93	2.11	1.76	4.05	2.13	2.21
Ireland	2013	4	9.25	2.59	2.92	3.19	2.89	3.4	2.88	3.85	2.78	2.97
Israel	2013	4	10.04	2.83	2	2.25	2.35	3.27	2.16	4.06	3.04	3.81
Italy	2013	4	3.43	2.46	2.03	2.06	2.46	3.1	2.46	3.34	2.6	2.14
Jamaica	2013	3	13.75	2.93	2.56	2.28	2.32	3.24	2.67	3.83	3.5	3.54
South Korea	2013	4	6.85	2.29	3.44	2.99	2.51	2.34	2.32	4.01	2.45	3.09
Spain	2013	4	5.21	1.79	2.34	3.05	2.19	2.53	2.28	3.91	2.25	2.11
Suriname	2013	3	5.13	2.43	2.42	1.98	1.82	2.79	2.22	3.31	3.27	2.79
Sweden	2013	4	8.25	2.32	2.73	2.72	2.39	2.97	2.62	4.23	2.35	3.16
Switzerland	2013	4	8.18	3.01	3.44	3.47	3.48	3.55	3.25	4.69	3.36	3.31
Thailand	2013	3	17.66	3	2.46	2.43	2.55	3.35	2.79	4.08	3.12	3.04
Trinidad and Tobago	2013	4	19.48	3.1	2.16	2.4	1.96	3.12	2.02	3.84	3.01	3.02
Turkey	2013	3	9.95	2.66	2.95	2.71	2.47	3.05	2.74	3.77	2.93	3.21
Uganda	2013	1	25.21	2.47	2.34	2.44	2.11	3.29	2.75	3.37	3.09	3.09
United Kingdom	2013	4	7.14	2.71	2.95	2.65	2.53	3.1	2.72	3.91	2.58	3.09
Uruguay	2013	4	14.08	2.2	2.3	3.16	2.96	3.1	2.77	3.82	3.47	2.4
United States	2013	4	12.73	2.62	2.78	2.63	2.44	3.21	2.91	4.21	3.08	3.92
Vietnam	2013	2	15.35	2.4	2.89	2.5	2.54	2.89	2.66	3.58	2.64	3.1
Zambia	2013	2	39.91	1.91	2.12	2.15	1.68	2.56	2.72	2.9	2.46	2.64

INSTITUTIONAL ENVIRONMENT AND TOTAL ENTREPRENEURIAL ACTIVITY: THE COMPARISON ON NATIONS

Appendices 5 – Data (2012)

Economy	Year	Income Group	TEA	Finance	Government policies	Government programs	R&D transfer	Commercial and services infrastructure	Market openness	Physical infrastructure	Education and training	Cultural and social norms
Algeria	2012	3	8.75	3.24	3.29	3.07	2.81	2.83	3.04	3.33	3.32	3.17
Angola	2012	3	32.39	2.74	2.74	2.16	1.71	2.65	2.15	2.28	2.24	2.94
Argentina	2012	3	18.88	2.12	2.3	2.90	2.58	2.97	2.75	3.59	3.11	3.02
Austria	2012	4	9.58	2.61	2.78	3.52	2.86	3.62	3.36	4.21	3.05	2.44
Barbados	2012	4	17.12	2.06	2.39	2.51	2.02	3.02	2.46	3.51	2.94	2.82
Belgium	2012	4	5.2	3.04	2.8	2.97	2.62	3.43	3.07	3.85	3.02	2.34
Bosnia and Herzegovina	2012	3	7.78	2.32	2.1	2.13	1.97	2.84	2.08	3.25	2.75	2.12
Botswana	2012	3	27.66	2.72	2.74	2.40	2.14	2.91	2.50	3.07	2.66	2.73
Brazil	2012	3	15.44	2.42	2.3	2.28	1.98	2.54	2.22	2.99	2.41	2.66
Chile	2012	3	22.58	2.29	3.07	2.97	2.15	2.74	2.48	4.07	3.01	2.89
China	2012	3	12.83	2.37	2.61	2.51	2.67	2.79	2.59	3.93	2.75	2.97
Colombia	2012	3	20.11	2.32	3.11	2.96	2.52	2.78	2.61	3.15	3.15	3.04
Costa Rica	2012	3	15.04	2.05	2.69	2.78	2.54	2.95	2.65	3.51	2.99	2.86
Croatia	2012	4	8.27	2.12	1.96	2.19	2.13	2.78	2.09	3.50	2.65	1.98
Denmark	2012	4	5.36	2.32	2.51	3.13	2.49	3.23	2.61	4.09	2.65	2.58
Ecuador	2012	3	26.61	2.26	2.87	2.39	2.00	2.87	2.48	4.13	3.07	2.69
Egypt	2012	2	7.82	2.38	2.06	1.86	1.83	2.64	2.39	3.65	1.82	2.13
El Salvador	2012	1	15.26	1.86	1.87	2.31	1.77	2.63	2.44	4.00	2.81	3.10
Estonia	2012	4	14.26	2.75	2.37	2.93	2.79	3.18	3.01	4.32	2.71	3.38
Ethiopia	2012	1	14.73	2.40	3.54	2.62	2.22	2.67	2.70	3.33	3.01	2.96
Finland	2012	4	5.98	2.73	3.17	2.95	2.71	3.45	2.86	4.25	2.87	2.77
France	2012	4	5.17	2.86	3.52	3.61	2.72	3.27	2.74	3.91	3.24	2.52
Germany	2012	4	5.34	2.89	2.89	3.57	2.72	3.34	2.84	3.87	2.88	2.74
Ghana	2012	2	36.52	2.13	2.25	2.17	2.07	2.84	2.50	3.17	2.66	2.99
Greece	2012	4	6.51	1.65	1.59	1.72	2.15	2.97	2.12	3.34	2.44	2.05
Hungary	2012	4	9.22	2.51	2.3	2.52	2.44	3.17	2.40	4.04	2.74	2.40
Iran	2012	3	10.79	2.16	2.29	1.73	1.88	2.90	2.15	4.26	2.44	2.28
Ireland	2012	4	6.15	2.44	3.02	3.28	2.92	3.21	2.99	3.92	2.83	3.15
Israel	2012	4	6.53	2.71	2.22	2.51	2.64	3.38	2.50	4.09	3.28	4.25
Italy	2012	4	4.32	2.34	2.61	2.13	2.61	3.08	2.49	3.27	2.46	2.41
Jamaica	2012	3	2	2.39	2.07	2.17	2.13	2.68	2.83	3.26	2.92	3.76
Japan	2012	4	4	2.34	2.68	2.60	2.64	2.54	2.83	4.16	2.42	2.45
South Korea	2012	4	6.64	2.31	3.34	3.00	2.44	2.41	2.34	4.18	2.44	3.08
Latvia	2012	4	13.39	2.73	2.79	3.02	2.33	3.38	3.10	4.05	3.17	3.19
Lithuania	2012	4	6.69	2.63	2.54	2.60	2.46	3.08	2.19	4.24	2.57	2.38
Macedonia	2012	3	6.97	2.12	2.48	2.55	2.38	3.52	2.29	3.57	2.86	2.84
Malawi	2012	1	35.56	1.96	2.29	2.19	1.90	2.81	2.78	2.66	3.14	2.41
Malaysia	2012	3	6.99	3.58	3.27	3.17	2.91	3.31	2.97	4.03	2.94	3.29
Mexico	2012	3	12.11	2.04	2.5	2.89	2.27	2.77	2.14	3.58	2.96	2.96
Namibia	2012	3	18.15	2.53	2.96	2.49	2.21	3.06	2.62	3.90	3.08	3.24
Netherlands	2012	4	10.31	2.69	2.91	3.21	3.16	3.79	3.61	4.60	3.45	3.37
Nigeria	2012	2	35.04	2.20	1.97	2.00	1.87	2.87	2.38	3.05	2.44	3.21
Norway	2012	4	6.75	2.42	2.17	2.83	2.72	3.62	2.42	4.24	2.90	2.90
Pakistan	2012	2	11.57	2.83	2.12	2.15	2.46	3.32	2.71	3.65	3.02	2.84
Panama	2012	2	9.46	2.20	2.38	2.80	2.29	2.75	2.56	3.84	2.84	2.76
Peru	2012	2	20.21	2.37	2.65	2.43	2.04	2.92	2.82	3.69	3.14	3.24
Poland	2012	4	9.36	2.62	2.78	2.56	2.14	2.76	2.58	3.54	2.49	2.65
Portugal	2012	4	7.67	2.48	2.11	2.65	2.43	2.96	2.41	4.11	2.59	2.24
Romania	2012	3	9.22	2.13	2.23	2.21	2.31	2.83	2.64	3.18	2.58	2.20
Russia	2012	4	4.34	1.96	2.42	2.12	2.05	2.85	2.16	3.08	2.76	2.54
Singapore	2012	4	11.56	3.40	3.51	3.46	2.87	3.25	2.88	4.40	3.14	3.28
South Africa	2012	3	7.32	2.49	2.63	2.10	2.16	2.95	2.31	2.89	2.53	2.57
Spain	2012	4	5.7	2.06	2.68	2.79	2.34	3.05	2.46	3.98	2.34	2.35
Sweden	2012	4	6.44	2.52	2.64	2.99	2.51	2.84	2.50	4.16	2.47	2.67
Switzerland	2012	4	5.93	3.15	3.35	3.48	3.65	3.73	3.30	4.70	3.44	3.47
Thailand	2012	3	18.94	2.77	2.45	2.21	1.90	2.69	2.18	3.98	2.63	2.88
Trinidad and Tobago	2012	4	14.96	2.81	2.13	2.48	2.29	3.10	2.29	3.46	3.02	2.58
Tunisia	2012	3	4.78	2.72	3.5	2.77	2.38	3.15	2.36	3.41	2.78	2.48
Turkey	2012	3	12.22	2.56	2.83	2.60	2.42	2.95	2.57	3.66	2.89	3.18
Uganda	2012	1	35.76	2.32	2.17	2.26	1.72	3.16	2.75	3.32	2.69	3.48
United Kingdom	2012	4	8.98	2.72	2.95	2.45	2.72	3.26	3.12	3.97	2.92	2.98
Uruguay	2012	4	14.63	2.19	2.52	2.98	2.95	3.14	2.77	3.84	3.11	2.60
United States	2012	4	12.84	2.97	2.77	2.65	2.75	3.29	2.69	4.19	3.04	4.12
Zambia	2012	2	41.46	2.14	2.5	2.21	1.85	3.07	2.90	3.11	2.46	2.59

INSTITUTIONAL ENVIRONMENT AND TOTAL ENTREPRENEURIAL ACTIVITY: THE COMPARISON ON NATIONS

Appendices 6 – Data (2011)

Economy	Year	Income Group	TEA	Finance	Government policies	Government programs	R&D transfer	Commercial and services infrastructure	Market openness	Physical infrastructure	Education and training	Cultural and social norms
Algeria	2011	3	9.26	2.91	3.16	3.11	2.73	3.12	2.59	3.18	2.67	2.99
Argentina	2011	4	20.78	2.1	1.87	2.29	2.29	2.84	2.45	3.73	2.92	2.66
Australia	2011	4	10.5	2.34	2.21	2.62	2.49	3.19	2.94	4.07	2.87	3.28
Bangladesh	2011	2	12.77	2.9	2.97	2.48	2.55	3.29	2.62	3.41	3.15	3.2
Barbados	2011	4	8	2.11	2.51	2.3	1.84	3.05	2.29	3.53	2.66	2.58
Bosnia and Herzegovina	2011	3	5.69	2.27	1.99	2.18	2.01	2.9	2.01	3.41	2.43	2.17
Brazil	2011	3	8.1	2.43	2.21	2.42	2.18	2.57	2.26	3.17	2.57	2.6
Chile	2011	4	14.89	2.42	3.09	2.79	2.27	2.87	2.47	4.07	2.72	2.93
Colombia	2011	3	23.69	1.96	2.66	2.54	2.06	2.44	2.14	3	3.23	2.78
Croatia	2011	4	24.01	2.26	2.07	2.36	2.25	2.84	2.22	3.65	2.73	2.27
Czech Republic	2011	4	21.44	2.09	1.83	2.18	2.18	3.02	2.84	3.93	2.59	2.18
Finland	2011	4	7.32	2.62	3.16	2.74	2.57	3.26	2.56	4.01	2.77	2.65
France	2011	4	7.64	2.47	3.07	3.2	2.44	2.98	2.13	4.21	2.98	2.36
Germany	2011	4	5.62	2.95	2.94	3.63	2.85	3.3	2.95	3.84	2.68	2.64
Greece	2011	4	7.95	1.88	1.88	1.96	2.13	2.86	2.18	3.46	2.64	2.44
Guatemala	2011	2	19.31	2.22	1.72	2.23	2.04	3.3	2.55	4.02	3.29	2.72
Hungary	2011	4	6.29	2.34	1.86	2.05	2.02	3.03	2.24	3.77	2.69	2.05
Iran	2011	3	14.54	1.7	1.72	1.57	1.96	2.58	1.6	3.11	2.44	2.2
Ireland	2011	4	7.25	2.41	2.7	3.18	2.83	3.28	2.91	3.51	2.87	3.21
Jamaica	2011	3	13.71	2.53	2.42	2.33	1.95	2.93	2.55	3.27	2.73	3.19
South Korea	2011	4	5.22	2.25	2.93	2.72	2.36	2.2	2.23	4.01	2.38	3
Latvia	2011	4	7.82	2.2	2.63	2.75	2.07	3.5	2.7	3.67	2.69	2.61
Lithuania	2011	4	11.85	2.63	2.24	2.28	2.19	2.95	2.25	3.95	2.75	2.48
Malaysia	2011	3	11.26	3.02	2.82	2.67	2.44	3.09	2.43	4.02	2.73	2.83
Mexico	2011	3	4.92	2.26	2.68	2.87	2.33	2.54	2.22	3.47	3.13	3.01
Netherlands	2011	4	9.62	2.88	2.46	3.1	2.85	3.57	3.28	4.56	3.21	3
Nigeria	2011	2	8.21	1.92	1.86	2.03	1.79	2.69	2.27	2.7	2.96	3.19
Norway	2011	4	34.99	2.81	2.31	2.92	2.74	3.41	2.34	4.26	2.63	2.63
Pakistan	2011	2	6.94	2.1	2.15	1.84	1.9	3.14	2.56	3.48	2.81	2.73
Panama	2011	3	9.07	2.23	2.38	2.95	2.21	2.64	2.67	3.97	2.51	2.93
Peru	2011	3	20.78	2.34	2.27	2.36	2.12	2.83	2.66	3.44	3.07	3.15
Poland	2011	4	22.89	2.52	2.86	2.58	2.21	2.9	2.91	3.44	2.46	2.77
Portugal	2011	4	9.03	3.05	2.57	2.86	2.46	2.95	2.35	3.96	2.81	1.88
Russia	2011	4	7.54	2.02	2.39	2.16	1.9	2.77	1.97	3.1	2.85	2.34
Singapore	2011	4	6.6	3.02	3.49	3.45	2.9	3.23	3.13	4.7	3.18	3.21
Slovenia	2011	4	3.65	2.38	2.36	2.67	2.51	2.94	2.46	3.98	2.64	2.21
South Africa	2011	3	9.14	2.46	2.6	2.06	2.25	2.96	2.45	3.05	2.51	2.46
Spain	2011	4	5.81	2.06	2.06	2.72	2.13	2.58	2.16	3.46	2.34	2.21
Sweden	2011	4	5.8	2.66	2.63	2.84	2.63	3.08	2.54	4.44	2.84	2.91
Switzerland	2011	4	6.58	3.5	3.35	3.42	3.46	3.89	3.12	4.57	3.5	3.29
Thailand	2011	3	19.51	2.86	2.86	2.6	2.4	3.19	2.57	3.89	3.15	3.29
Trinidad and Tobago	2011	4	22.67	2.48	2.33	2.07	2.09	3.21	2.31	3.72	2.63	2.63
Turkey	2011	3	11.87	2.38	2.65	2.32	2.26	2.97	2.27	3.45	2.6	2.66
United Arab Emirates	2011	4	6.19	3.1	3.34	3.14	2.56	3.45	2.85	4.14	3.3	3.41
United Kingdom	2011	4	7.29	2.29	2.62	2.31	2.22	3.28	3.04	3.93	2.6	3.08
Uruguay	2011	4	16.72	2.26	2.22	2.93	2.63	3.19	2.44	3.7	2.83	2.23
Venezuela	2011	4	15.43	1.95	1.9	1.82	2.03	2.88	2.39	3.27	3.17	2.91

INSTITUTIONAL ENVIRONMENT AND TOTAL ENTREPRENEURIAL ACTIVITY: THE COMPARISON ON NATIONS

Appendices 7 – Data (2010)

Economy	Year	Income Group	TEA	Finance	Government policies	Government programs	R&D transfer	Commercial and services infrastructure	Market openness	Physical infrastructure	Education and training	Cultural and social norms
Angola	2010	3	31.94	2.11	2.31	1.97	1.72	2.39	2	2.28	2.41	2.84
Argentina	2010	4	14.2	2.14	1.93	2.39	2.39	2.86	2.68	3.56	3.12	2.77
Bolivia	2010	2	38.6	2.23	1.82	1.86	1.85	2.44	2.45	3.27	2.81	2.3
Bosnia and Herzegovina	2010	3	7.74	2.27	1.88	2.01	2.09	2.82	2.03	3.27	2.56	2.27
Brazil	2010	3	17.5	2.47	2.13	2.33	2.29	2.6	2.21	3.39	2.4	2.63
Chile	2010	4	16.77	2.42	2.64	2.57	2.18	2.72	2.45	3.91	2.84	2.57
China	2010	3	14.37	2.54	2.74	2.55	2.65	2.54	2.6	3.9	2.87	3.35
Colombia	2010	3	20.61	2.3	2.71	2.98	2.29	2.9	2.82	3.61	3.45	3.13
Costa Rica	2010	3	13.44	2.03	2.22	2.22	2.05	2.72	2.33	3.35	2.95	2.51
Croatia	2010	4	5.52	2.42	2.27	2.49	2.3	2.83	2.17	3.62	2.76	2.42
Ecuador	2010	3	21.25	2.21	2.66	2.09	1.99	2.96	2.02	3.54	2.91	2.56
Egypt	2010	2	7.02	2.4	2.69	2.12	1.83	2.64	2.21	3.62	2.11	2.1
Finland	2010	4	5.72	3.15	3.27	2.88	2.77	3.46	2.77	4.41	2.98	2.9
France	2010	4	5.83	2.43	3.08	3.07	2.47	3.07	1.92	3.88	3.14	2.26
Germany	2010	4	4.17	2.87	3.1	3.71	2.85	3.16	2.77	3.93	2.83	2.61
Ghana	2010	2	33.95	2.29	2.7	2.25	2.01	3.1	2.62	2.88	2.75	3.02
Greece	2010	4	5.51	1.84	1.7	1.99	2.15	2.79	2.32	3.16	2.51	2.56
Guatemala	2010	2	16.3	1.91	1.71	1.66	1.81	2.92	2.17	3.81	3.16	2.55
Hungary	2010	4	7.13	2.19	2.09	2.09	2.09	2.88	2.15	3.44	2.89	2.38
Iceland	2010	4	10.58	1.92	2.8	2.89	2.79	2.91	2.7	4.55	3.2	3.91
Iran	2010	3	12.31	1.82	2.02	1.8	2.02	2.52	1.74	3.36	2.47	2.53
Ireland	2010	4	6.76	2.23	2.64	3.25	2.64	3.27	2.86	3.31	2.88	3.05
Israel	2010	4	5.02	2.91	2.2	2.58	2.72	3.66	2.35	4.12	2.9	3.97
Italy	2010	4	2.35	2.17	1.92	2.22	2.21	2.52	2.36	2.82	2.82	2.32
Jamaica	2010	3	10.48	2.27	2.41	2.42	2.18	3.14	2.63	3.44	3.07	3.45
Japan	2010	4	3.3	2.23	2.51	2.35	2.41	2.26	2.36	3.89	2.47	2.27
Latvia	2010	4	9.68	2.28	2.5	2.45	2.5	3.62	2.65	4.04	3.25	3.05
Macedonia	2010	3	7.88	1.92	2.23	2.4	2.19	3.34	2.33	3.61	3.04	2.49
Malaysia	2010	3	4.96	3.43	3	3.07	2.77	3.22	2.75	4.01	2.97	3.2
Mexico	2010	3	10.45	2.76	3.19	3.11	2.6	2.96	2.52	3.7	3.58	3.31
Montenegro	2010	3	14.94	2.5	2.73	2.74	2.58	2.93	2.37	3.7	3.35	2.51
Norway	2010	4	7.72	2.95	2.38	2.89	2.67	3.2	2.37	3.99	2.54	2.54
Pakistan	2010	2	9.08	2.46	2.01	1.98	2.09	3.3	2.79	3.55	2.79	2.88
Peru	2010	3	27.24	2.54	2.24	2.21	2.04	2.81	2.78	3.52	2.8	3.08
Portugal	2010	4	4.4	2.55	2.51	2.65	2.44	2.88	2.19	3.94	2.87	2.08
Russia	2010	4	3.94	1.94	2.34	2.08	1.88	2.97	2.4	3.25	2.76	2.43
South Korea	2010	4	6.56	2.25	3.13	2.95	2.45	2.34	2.44	4.01	2.37	3.02
Saudi Arabia	2010	4	9.4	3.1	2.46	2.28	2.54	3.35	2.54	4.18	2.67	3.14
Slovenia	2010	4	4.65	2.49	2.53	2.68	2.4	3.19	2.57	3.97	2.98	2.14
South Africa	2010	3	8.86	2.48	2.7	2.12	2.08	2.95	2.49	3.09	2.44	2.5
Spain	2010	4	4.31	2.09	2.4	2.5	2.24	2.86	2.31	3.61	2.26	2.28
Sweden	2010	4	4.88	2.58	2.53	2.58	2.22	2.93	2.68	4.15	2.27	2.39
Switzerland	2010	4	5.04	2.93	3.01	3.41	3.38	3.4	2.88	4.44	3.25	3.04
Trinidad and Tobago	2010	4	15	2.45	2.14	2.49	1.81	3.09	2.37	3.48	2.86	2.7
Tunisia	2010	3	6.12	3.07	4.55	3.49	2.62	3.14	2.34	3.89	3.18	3.13
Turkey	2010	3	8.59	2.06	2.57	2.21	2.37	2.77	2.19	3.33	2.52	2.06
Uganda	2010	1	31.29	2.22	2.56	2.02	1.95	2.97	2.52	3.15	3.02	2.91
United Kingdom	2010	4	6.42	2.48	2.56	2.6	2.49	3.15	2.87	4	2.6	2.72
Uruguay	2010	4	11.68	2.13	2.37	3.15	2.78	3.12	2.63	4.17	3.29	2.17
United States	2010	4	7.59	2.24	2.61	2.71	2.29	3.18	2.63	3.56	2.7	3.79
Vanuatu	2010	2	52.11	1.45	1.88	1.96	1.9	2.16	2.13	2.28	2.56	2.17
Zambia	2010	2	32.63	2.16	2.64	2.68	1.94	3.04	3.07	3.03	2.99	2.52



INSTITUTIONAL ENVIRONMENT AND TOTAL ENTREPRENEURIAL ACTIVITY: THE COMPARISON ON NATIONS

Appendices 8 – Data (2009)

Economy	Year	Income Group	TEA	Finance	Government policies	Government programs	R&D transfer	Commercial and services infrastructure	Market openness	Physical infrastructure	Education and training	Cultural and social norms
Argentina	2009	4	14.68	2.09	1.75	2.22	2.42	3.06	2.54	3.78	3.37	2.91
Belgium	2009	4	3.51	3.15	3.28	3.3	3.13	3.47	3.36	4.07	3.08	2.67
Bosnia and Herzegovina	2009	3	4.43	2.03	1.81	1.9	1.72	2.68	1.92	3.06	2.36	2.31
Brazil	2009	3	15.32	2.38	2.02	2.42	2.13	2.65	2.18	3.3	2.27	2.74
Chile	2009	4	14.79	2.52	2.89	2.75	2.32	2.47	2.4	4.09	2.75	3.01
Colombia	2009	3	22.57	2.11	2.4	2.85	2.18	2.54	2.31	3.5	3.1	2.99
Croatia	2009	4	5.58	2.41	2.33	2.72	2.26	2.91	2.14	3.67	2.92	2.43
Denmark	2009	4	3.64	2.61	3.12	3.41	2.71	3.35	2.92	4.2	2.8	3
Dominican Republic	2009	3	17.53	1.81	1.87	2.28	1.77	2.78	2.27	3.75	3	2.92
Ecuador	2009	3	15.82	1.94	2.35	2.08	1.89	2.84	2.1	3.11	2.99	2.82
Finland	2009	4	5.17	2.75	3.26	2.79	2.72	3.18	2.68	4.17	2.77	2.73
Germany	2009	4	4.1	2.69	2.96	3.48	2.72	3.39	2.83	3.98	2.67	2.67
Greece	2009	4	8.79	2.28	2.17	2.3	2.12	2.87	2.37	3.45	2.44	2.53
Guatemala	2009	2	19.2	2.01	1.73	1.78	1.98	3.15	2.41	3.95	3.12	2.62
Hungary	2009	4	9.13	2.31	1.65	2.32	2.33	3.31	2.5	3.72	3.17	2.31
Iceland	2009	4	11.45	2.05	2.85	3.24	2.98	3.19	3.1	4.55	3.76	4.18
Israel	2009	4	12.08	2.99	2.09	2.71	2.91	3.58	2.75	3.8	3.28	3.98
Italy	2009	4	6.07	2.16	2.18	2.4	2.34	2.6	2.37	2.87	2.99	2.69
Jamaica	2009	3	3.72	2.23	2.19	2.6	1.86	2.78	2.65	3.58	2.81	3.1
Latvia	2009	4	22.73	2.18	2.08	2.32	2.19	3.39	3.08	3.94	2.8	2.57
Malaysia	2009	3	4.41	3.3	2.93	2.99	2.86	3.35	2.74	3.94	3.53	3.53
Netherlands	2009	4	7.19	2.61	2.41	2.81	2.39	3.36	2.96	3.89	3	2.63
Norway	2009	4	8.53	2.63	2.45	2.99	2.82	3.49	2.5	4.12	2.96	2.79
Panama	2009	3	9.59	2.34	2.65	2.86	2.27	3.01	2.57	3.93	2.76	2.77
Peru	2009	3	20.93	2.54	2.5	2.43	1.98	2.72	2.69	3.41	3.04	3.23
Russia	2009	4	3.88	1.78	2.35	1.99	2.09	3.04	2.26	3.18	2.64	2.54
South Korea	2009	4	7.01	2.45	3.08	3	2.53	2.4	2.58	3.99	2.47	3.08
Saudi Arabia	2009	4	4.66	3.01	2.71	1.97	1.99	2.79	2.77	3.77	2.35	2.52
Serbia	2009	3	4.9	2.14	2.53	2.54	2.48	3.07	1.85	2.77	3.22	2.42
Slovenia	2009	4	5.36	2.64	2.52	2.74	2.57	3.06	2.41	3.87	2.87	2.21
South Africa	2009	3	5.92	2.41	2.78	2.13	2.04	2.91	2.45	3.15	2.86	2.7
Spain	2009	4	5.1	2.2	2.69	3.06	2.42	3.06	2.68	3.67	2.65	2.45
Switzerland	2009	4	7.72	3.24	3.16	3.45	3.49	3.83	3.19	4.65	3.43	3.26
Syria	2009	2	8.46	2.24	2.05	1.66	1.82	2.97	2.43	3.08	2.21	3.04
Tonga	2009	3	17.39	2.18	2.47	2.14	1.99	2.61	2.25	3.01	2.77	2.73
Tunisia	2009	3	9.43	2.94	4.32	3.39	2.62	3.17	2.43	3.86	3.03	2.98
United Arab Emirates	2009	4	13.25	3.02	3.39	2.71	2.38	3.6	2.85	4.14	3.3	3.04
Uganda	2009	1	33.67	2.43	2.53	2.33	2.01	3.19	2.57	3.13	3.18	3.23
United Kingdom	2009	4	5.74	2.56	2.76	2.74	2.29	3.05	2.8	3.54	2.22	2.66
Uruguay	2009	4	7.96	2.36	2.47	3.18	2.59	2.95	2.46	3.92	2.85	2.2
United States	2009	4	12.16	2.72	2.37	2.48	2.33	3.23	2.49	3.84	2.66	3.85
Venezuela	2009	4	18.66	2.28	1.85	1.92	2.04	2.66	2.38	3.42	3.22	2.61

Noted that “high income group” = 4, “upper-middle income group” = 3, “lower-middle income group” = 2 and “low income group” = 1 in the tables above.