

Global Entrepreneurship and the United States

by

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1. Executive Summary

This paper looks at the performance of the United States on the Global Entrepreneurship and Development Index (GEDI), which captures the contextual features of entrepreneurship. The index builds on and improves earlier measures by capturing quantitative and qualitative aspects of entrepreneurship. It measures entrepreneurial performance in 71 countries over three sub-indexes, 14 pillars, and 31 individual and institutional variables. The United States appears among the top entrepreneurial economies and ranks third on the GEDI. It performs very well on the aspirations sub-index but lags somewhat on the attitudes and activity sub-indexes. At the pillar level, the United States is strong in startup skills, competition, and new technology but weak in cultural support, tech sector, and high-growth business. U.S. performance appears be stronger on institutional variables than on individual variables. The United States' apparent weakness in the tech sector and its lack of cultural support for entrepreneurship, coupled with lack of high-growth business can be traced to a number of sources. Chief among these are the changing political environment and international volatility, the bursting of the tech sector bubble of the 1990s, the recent recession, and the improving performance of other counties. However, despite some drawbacks, U.S. performance on the index remains strong.

2. Introduction

While small businesses and entrepreneurship are different, the two concepts are frequently used interchangeably.¹ Since entrepreneurship is often observed in small and new businesses the analysis of these concepts overlaps, causing fundamental problems. A misbegotten conclusion of this jumbling is to equate the increasing number of businesses with the enhancement of entrepreneurship. In fact, decreasing unemployment and job creation cannot be expected to flow from the creation of numerous tiny businesses; they are instead the result of a small number of extraordinary high-growth entrepreneurial

¹ For a review of the literature see: Audretsch 2006; Baumol 1990; Schramm 2006; OECD 2008; Hindle 2006.

ventures, called “gazelles.”² At the outset of this paper, we would like to clearly make the distinction that small business is basically a quantitative activity, and entrepreneurship is a qualitative phenomenon.

2.1. Assessing Entrepreneurship

For a long time, the level of entrepreneurship has been evaluated by some quantitative measure, for instance the self-employment rate, business ownership rate, or business startups.³ Over the last decade, the Global Entrepreneurship Monitor’s Total Early-stage Entrepreneurial Activity (TEA)⁴ ratio has become a widely used measure of entrepreneurship. While these indicators or ratios have undergone some modification and change to incorporate *qualitative* measures, like education and high growth firms, they are basically limited to measuring the *quantity* of existing or nascent businesses.⁵ There are five major shortcomings with these attempts at measuring entrepreneurship:

1. While all the definitions emphasize the multifaceted nature of entrepreneurship—including innovation, risk taking, opportunity recognition, high-growth opportunity motivations, and unusual “judgmental” decision-making, they measure only one, and perhaps not even the most important, aspect of entrepreneurship.⁶
2. The indexes fail to incorporate the businesses’ differing impacts; a traditional agricultural business established in Uganda or Peru is given equal importance as an Internet-related venture in Silicon Valley.

² See Terjesen and Szerb 2008.

³ The *self-employment rate* measures the proportion of the adult population who are self-employed and not employees (Blanchflower 2000; Blanchflower et al. 2001). The *business ownership rate* is the proportion of the population at some stage of business ownership, excluding public firms and mutual funds. (Caree et al 2003) *Business density* is defined as the number of firms per 1,000 persons (Lowrey 2004).

⁴ The Total Early-stage Entrepreneurial Activity (TEA) index measures the percentage of a country’s working-age population who are actively trying to start a new business (nascent entrepreneurs) and those who at least partially own and manage a business less than 3.5 years old (a baby business) (Reynolds et al 2005), (Bosma, et al 2008, 2009).

⁵ For more details see Iversen et al. (2008).

⁶ Wennekers et al. (1999).

3. The most entrepreneurial nations are defined as those having the largest number of businesses. These are generally the developing countries of Africa or South America.⁷
4. These measures do not take into account differences in environmental factors. In fact, the efficiency and sophistication of the institutional setting could have a major influence on the quality of entrepreneurship.
5. Since self-employment and the business ownership ratio decline as a country develops, indexes that rely on them appear to show that higher levels of development are associated with decreasing levels of entrepreneurship. This phenomenon is inconsistent with mainstream economic theories which posit a direct connection between entrepreneurship and development.

This kind of index would give policymakers false guidance, putting the focus on increasing the quantity of entrepreneurship, when quality is of greater import.

Recent efforts of the OECD and European Union have aimed to provide a sophisticated measure of entrepreneurship encompassing three broad areas: *the determinants of entrepreneurship* (regulation, R&D, entrepreneurial capabilities, culture, access to finance and market conditions); *entrepreneurial performance* (firms, employment, and wealth); and *the impact of entrepreneurship*. While the first two publications of the OECD's Entrepreneurship Indicator Program⁸ contain many entrepreneurship-related data and indicators, a more highly evolved measure of entrepreneurship is still missing.

The shortcomings of previous entrepreneurship indicators and the need to clarify the role of entrepreneurship in economic development were the two major reasons underlying the creation of the Acs-Szerb Global Entrepreneurship and Development Index (GEDI).⁹ At present, this is the only index to fulfill the three major requirements of entrepreneurship index building, namely,

⁷ See Shane (2009) for a critique of this.

⁸ Understanding Entrepreneurship (OECD 2006); Measuring Entrepreneurship (OECD 2009).

⁹ The previous version of the index can be found in Acs and Szerb (2009).

1. Sufficient complexity to capture the multidimensional nature of entrepreneurship;
2. Inclusion of indicators encompassing quality-related differences, in addition to quantitative or level-related measures; and
3. Inclusion of individual-level as well as institutional variables.

Unlike other entrepreneurship indexes the relationship between the GEDI and economic development appears to be mildly S-shaped, implying a positive relationship between entrepreneurship and economic development.¹⁰ Therefore the GEDI is a proper tool to provide policy suggestions to increase economic development via entrepreneurship enhancement. Since economic growth is ultimately the result of many factors in addition to entrepreneurship, the GEDI can explain only a part of short-term economic growth.

2.2. Stages of Development

In his classic text W.W. Rostow (1960) suggested that countries go through five stages of economic growth. Michael Porter (2002) has provided a modern rendition of Rostow's typology by identifying three stages of development (as opposed to growth). Porter identifies a factor-driven stage, an efficiency-driven stage, and an innovation-driven stage, and he adds two transitions. While Rostow focused on the age of high mass consumption, Porter's model encompasses recent developments in the economics of knowledge, hence he focuses on the innovation. Historically, an elite entrepreneurial class appears to have played a leading role in innovation and economic development.

The factor-driven stage is marked by high rates of agricultural self-employment. Countries in this stage compete through low-cost efficiencies in the production of commodities or low value-added products. Sole proprietorships—i.e., the self-employed—probably account for most small manufacturing firms and service firms.

¹⁰ Other indexes yield a U-shape (TEA) or L-shape (business ownership, self employment) relationship. Recent research seems to support the upward trend of self-employment, the “U” shape phenomenon (Wennekers et al. 2010)

Almost all economies experience this stage of economic development. These countries neither create knowledge for innovation nor use knowledge for exporting.

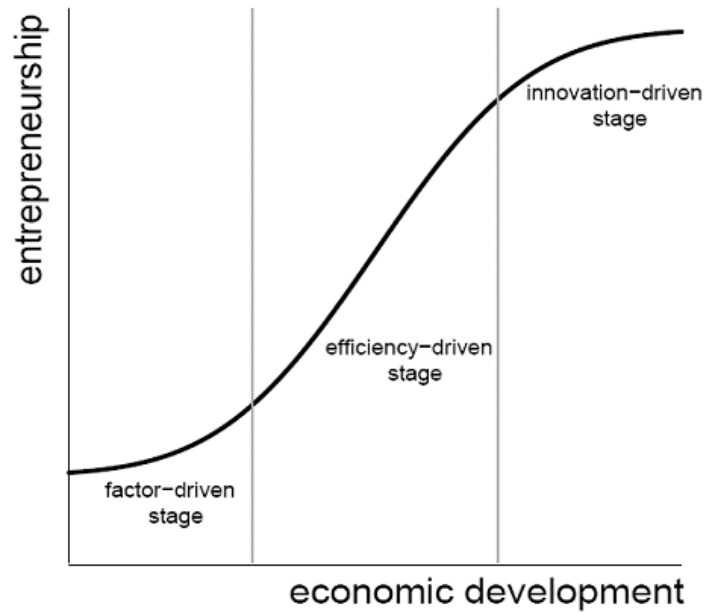
To compete in the efficiency-driven stage, countries must have efficient productive practices in large markets, which allow companies to exploit economies of scale. Industries in this stage are manufacturers that provide basic services. The efficiency-driven stage is marked by decreasing rates of self-employment. When capital and labor are substitutes, an increase in the capital stock increases returns from working and lowers returns from managing.

The innovation-driven stage is marked by an increase in knowledge-intensive activities (Romer 1990). In the innovation-driven stage knowledge provides the key input. In this stage the focus shifts from firms to agents in possession of new knowledge (Acs et al 2009). The agent decides to start a new firm based on expected net returns from a new product. The innovation-driven stage is biased towards high value added industries in which entrepreneurial activity is important.

According to Sala-I-Martin et al (2007) the first two stages of development are dominated by institutions. In fact, innovation accounts for only about 5 percent of economic activity in factor-driven economies and rises to 10 percent in the efficiency driven stage. However, in the innovation-driven stage when opportunities for productivity gains from factors and efficiency have been exhausted, innovation accounts for 30 percent of economic activity.

We see an S-shaped relationship between entrepreneurship and economic development because in the first transition stage entrepreneurship plays a role but it increases at a decreasing rate as the efficiency stage takes over. However, as we move from the efficiency-driven stage to the innovation driven stage (the knowledge-driven stage) entrepreneurship plays a more important role increasing at an increasing rate and latter at a decreasing rate (Figure 1).

Figure 1: Entrepreneurship and Stages of Economic Development



2.3. Purpose and Structure

The basic aim of this report is to present and analyze U.S. entrepreneurial performance with the help of the Global Entrepreneurship and Development Index. The analysis includes an in-depth investigation of the GEDI's component sub-indexes, pillars, and variables. The change in the three sub-indexes over the 2006-2009 time period is also shown. We compare the United States to the leading economies and to other transitional or rapidly emerging nations. We also explore the United States's strengths and weaknesses as revealed by the index. In so doing, we attempt to provide tailor-made policy guidance on how to improve U.S. entrepreneurial performance, and with it, economic development. As mentioned earlier such improvement cannot be achieved by increasing the number of startups by any means. The United States does not simply need more new businesses; it needs more highly productive ventures. A potential way of achieving this kind of productivity improvement is to make progress in entrepreneurship. The report proceeds as follows: As a starting point, the basic description of the Global Entrepreneurship and Development Index is provided in section 2. Section 3 contains an investigation of the entrepreneurial position of the United States based on the GEDI and

the three sub-indexes. Sections 4 and 5 provide an in-depth examination of the U.S. position at the pillar and the variable level, respectively. Finally Section 6 provides tailor-made public policy suggestions on how to improve the United States's entrepreneurial position.

3. The Global Entrepreneurship and Development Index

Entrepreneurship is a complex creature which consists of numerous dimensions. It is distinct from small businesses, self-employment, craftsmanship, and usual businesses; it is not associated as a phenomenon with buyouts, change of ownership, or management succession. In light of the relevance of entrepreneurship to generating economic growth, one needs to get down to brass tacks in terms of finding a suitable measure or indicator for the level of entrepreneurship in an economy before embarking on policy initiatives. A number of attempts have been made in this respect to collect the relevant data and find suitable proxies for entrepreneurship (see for example Acs, Audretsch and Evans 1994; Blanchflower 2000; Blanchflower et al. 2001; Grilo and Thurik 2008; Román 2006).

Since its inception in 1999, the Global Entrepreneurship Monitor (GEM) research consortium has worked to measure and to compare entrepreneurial activity across countries. The best known entrepreneurship measure used by GEM researchers is the Total Early-phase Entrepreneurial Activity (TEA) index. However, the TEA index's usefulness as a measure of entrepreneurship has several limitations for cross-country comparisons (Hindle, 2006). Others have criticized the TEA for not capturing entrepreneurship in existing businesses, data inconsistency, and conflicting interpretations of the questions from one country to the next (Audretsch 2002, OECD 2006, Baumol et al. 2007, Godin et al. 2008).

Over the past decade, the contextual setting of entrepreneurship has received increasing attention. The widely applied indicators of entrepreneurship (self-employment, TEA, new venture creation) focus purely on individual or firm-level aggregates, failing to suitably account for the quality of the (institutional) environment. The Ease of Doing Business index, the Global Competitiveness Index, and the Index of Economic Freedom try to capture the institutional features of the participating countries (Djankov et al 2002, Miller

and Holmes 2010, Sala-I-Martin et al. 2007; Porter and Schwab, 2008; Porter et al. 2007). At the same time in the context of entrepreneurship, while institutions are vital for development they provide only a part of the picture. The most important drawback of these indexes is their lack of microeconomic foundation.

From an examination of a vast pool of entrepreneurship-related data collected across countries, time periods, and surveys, one finds that a comprehensive, uniformly accepted, regularly assessed data gathering effort for entrepreneurship does not exist yet. We agree with Ahmad and Hoffman (2007) that none of the existing measures fully captures the essence of entrepreneurship, empirically or conceptually.

To this end, we create an independent index to provide a comprehensive measure of entrepreneurship. The index draws on previous measures of economic freedom, competitiveness, and entrepreneurial activity but improves on each of these by providing a more focused and quality-oriented approach (Acemoglu and Johnson, 2005; Acemoglu, Johnson and Robinson, 2001).

3.1. The Sub-Indexes

For the purposes of this paper, entrepreneurship is defined as *a dynamic interaction of attitudes, activities, and aspirations that vary across stages of economic development*. This approach is consistent with the revised version of the GEM conceptual model (Bosma et al. 2009). The process of building our index consists of (1) selection of variables and weights, (2) calculation of pillars, (3) generation of sub-indexes, and finally, (4) creation of the super-index. Data for the individual-level variables in the index comes from the GEM annual adult population surveys. A description of the individual variables is provided in Appendix Table A.1. Since GEM lacks the necessary institutional weighting variables, we make use of other widely used relevant data. A description of the institutional variables and their respective data sources is provided in Appendix Table A.2. The variables are used to construct the 14 pillars which then go into the construction of the three sub-indexes. The three sub-indexes of activity, aspiration, and attitudes combine to constitute the entrepreneurship super-index, which we call the Global

Entrepreneurship and Development Index (GEDI). Figure 2 contains a schematic diagram of the index's components.

Figure 2: Structure of the Global Entrepreneurship and Development Index (GEDI)

GLOBAL ENTREPRENEURSHIP AND DEVELOPMENT INDEX (GEDI)														
Entrepreneurial Attitudes Sub-Index					Entrepreneurial Activities Sub-Index					Entrepreneurial Aspirations Sub-Index				
OPPORTUNITY PERCEPTION	STARTUP SKILLS	NONFEAR OF FAILURE	NETWORKING	CULTURAL SUPPORT	OPPORTUNITY STARTUP	TECHNOLOGY SECTOR	QUALITY OF HUMAN RESOURCES	COMPETITION	NEW PRODUCT	NEW TECH	HIGH GROWTH	INTERNATIONALIZATION	RISK CAPITAL	
<i>OPPORTUNITY</i>	<i>EDUCPOSTSEC</i>	<i>BUSINESS RISK</i>	<i>INTERNETUSAGE</i>	<i>CORRUPTION</i>	<i>TEAOPPORT</i>	<i>TECHABSORP</i>	<i>STAFFTRAIN</i>	<i>MARKDOM</i>	<i>NEWP</i>	<i>INNOV</i>	<i>GAZELLE</i>	<i>EXPORT</i>	<i>VENTCAP</i>	<i>INFINV</i>
MARKETAGGLOM					FREEDOM				GERD			GLOB		

Note: The GEDI is a super-index made up of three sub-indexes, each of which is composed of several pillars. Each pillar consists of an institutional variable (denoted in bold) and an individual variable (denoted in bold italic). The data values for each variable are gathered from wide ranging sources.

For the first sub-index, *entrepreneurial attitudes* are defined as the general disposition of a country's population toward entrepreneurs, entrepreneurship, and business start-ups. The index involves measures for the population's opportunity perception potential, the perceived startup skills, feel of fear of failure, networking prospects, and cultural respect for the entrepreneur. Among the pillars that make up the index, the population's capacity for opportunity perception is seen to be an essential ingredient of entrepreneurial startups (Sørensen and Sorenson 2003). Successful venture launching requires the potential entrepreneur to have the necessary level of startup skills (Papagiannidis and Li 2005). Among the personal entrepreneurial traits, fear of failure is one of the most important

obstacles hindering startups (Caliendo, Fossen and Kritikos 2009, Wagner 2002). Better networked entrepreneurs are more successful, can identify more viable opportunities, and gain access to more and better resources (Minniti 2005, Shane and Cable 2003). And without strong cultural support, the best and the brightest individuals do not want to be entrepreneurs and decide to enter some other profession (Davidsson, 2004; Guiso et al. 2006). Moreover, culture can even influence entrepreneurial potential and traits (Mueller and Thomas 2001).

For the second sub-index, *entrepreneurial activity* is defined as the startup activity in the medium- or high-technology sector initiated by educated entrepreneurs in response to business opportunities in a somewhat competitive environment. The choice of indicators used to build this sub-index reflects the belief that opportunity entrepreneurs are better prepared, possess superior skills, and earn more than necessity entrepreneurs (Bhola et al. 2006; Block and Wagner 2006). Operating in the technology sector is important, as high rates of startups in most factor-driven countries are mainly in the traditional sectors and do not represent high potential (Acs and Varga 2005). The entrepreneur's level of education is another important feature of a venture with high growth potential (Bates 1990). And cut-throat competition may hinder business existence and growth, so a lower number of competitors improves chances of survival, as well as future development prospects (Baumol, Litan, and Schramm 2007).

The third sub-index, *entrepreneurial aspiration*, is defined as the efforts of the early-stage entrepreneur to introduce new products and services, develop new production processes, penetrate foreign markets, substantially increase the number of firm employees, and finance the business with either formal or informal venture capital, or both. Product and process innovation, internationalization, as well as high growth are included in the measure. The capability to produce or sell products that customers consider to be new is one of Schumpeter's forms of creating "new combinations" (Schumpeter 1934). Applying or creating new technology and production processes is another important feature of businesses with high growth potential (Acs and Varga 2005). The role of "gazelles" or high-growth businesses is vital, and several empirical studies (Autio 2007) support David Birch's 1994 finding that only a few businesses, perhaps 2-4

percent, are responsible for the vast majority of new job creation (60-80 percent). Internationalization is believed to be a major determinant of growth (De Clercq, Sapienza, and Crijns 2005). Finally the availability of risk finance, in particular equity rather than debt, is an essential precondition for realizing significant entrepreneurial aspirations that are beyond the personal financial resources of individual entrepreneurs (Bygrave, Hay, Ng and Reynolds 2003, Gompers and Lerner 2004).

The sub-indexes are based on their constituent pillar scores. The pillars, in turn, are based on the interaction between their constituent individual and institutional variables. The incorporation of institutional variables is a unique feature of the GEDI and reflects the qualitative aspect of entrepreneurship. A detailed description of how the different variables are combined to form the 14 pillars and the three sub-indexes is provided in Appendix Tables A.3, A.4, and A.5.

3.2. The Weighting System

What weights should be assigned to the building blocks of the index to account for the components' different influences and their variation across countries? Dynamism is introduced into the index by borrowing a concept from configuration theory, the "penalizing for bottlenecks" (PFB) approach. Configuration theory contends that attributes of entrepreneurship are more meaningful collectively rather than individually (Dess et al. 1993). Thus by "bottlenecks," we mean a shortage or low level of a particular pillar of the sub-index, which when seen in totality can inhibit the overall level of entrepreneurship. The pillars that compose the sub-indexes need to be adjusted to take into account the notion of maintaining the balance between sub-indexes.

The PFB approach works as follows: after normalizing the scores of all the pillars, the value of each pillar of a sub-index in a country is penalized by linking it to the score of the pillar with the weakest performance in that country. This simulates the effect of a bottleneck. The weakest pillar drags down overall performance; if it were improved, the overall sub-index would show a significant improvement. Moreover, the penalty should be higher if differences are higher. Looking from the configuration perspective it implies

that stable and efficient sub-index configurations are those that are balanced (have about the same level) in all pillars.

Technically, equation (1) describes the PFB methodology:

$$x_{i,j} = \min y_i(j) + \ln(1 + y_{i,j} - \min y_i(j)) \quad (1)$$

where $x_{i,j}$ is the modified, after penalty, value of the entrepreneurship feature j of country i

$y_{i,j}$ is the normalized value of the original entrepreneurship feature j of country i

$i = 1, 2, \dots, m$, (the number of countries)

$j = 1, 2, \dots, n$ (the number of entrepreneurial features)

The bottleneck is achieved for each pillar by adding one plus the natural logarithm of the difference between that pillar's country value and the value for the weakest pillar for that country. Thus, improving the score of the weakest pillar will have a greater effect on the index than improving the score of stronger pillars.

To summarize, the construction of the GEDI begins at the level of the variables, either individual or institutional/environmental. All pillars are calculated from the variables using the interaction variable method, i.e., multiplying the individual variable with the proper institutional variable. The PFB approach is used to calculate the three sub-indexes from the pillars. Finally, the super-index, the GEDI, is the average of the three sub-indexes. Figure 2 depicts the structure of the index, giving an overview of how the GEDI is constructed from the variable and pillar levels. The list of participating countries, the years for which data is collected and the sample sizes for each country are presented in Appendix Table 6.

4. The Relative Position of the United States on the GEDI

The GEDI is constructed for a dataset of 71 countries at different stages of development. The United States ranks third overall on the GEDI, just behind Denmark, and Canada,

which is a very strong relative position. Table 1 gives the United States's summary statistics on the three major global rankings and on the GEDI.

Table 1: U.S. Summary Statistics and Global Index Rankings

Size of population	308.3 million
Per capita GDP (2008)	\$46,716
Level of development	Innovation driven
Doing Business Index, 2009-2010: rank/total countries	4/183
Global Competitiveness Index, 2008-09: rank/total countries	2/133
Economic Freedom Index 2009: rank/total countries	6/179
Global Entrepreneurship and Development Index: rank (value)	3 (0.72)
Entrepreneurial attitudes sub-index: rank (value)	6 (0.75)
Entrepreneurial activity sub-index: rank (value)	8 (0.71)
Entrepreneurial aspirations sub-index: rank (value)	1 (0.69)
Weakest pillar to improve (value)	TECH SECTOR (0.46)
Weakest variable to improve (value)	KNOWENT (0.30)

Source: Population—World Bank; per capita GDP—World Bank, purchasing power parity.

Table 2 gives the GEDI rankings of all the countries in the dataset. The United States has a score of 0.72 on the GEDI and occupies the third position out of 71. The rankings of all the countries on the three sub-indexes are provided in Appendix B.

Table 2: Global Entrepreneurship and Development Index (GEDI) Rankings

Rank	Country	GEDI Score	Rank	Country	GEDI Score
1	Denmark	0.76	36	Argentina	0.30
2	Canada	0.74	37	Poland	0.29
3	United States	0.72	38	Croatia	0.28
4	Sweden	0.69	39	Peru	0.28
5	New Zealand	0.68	40	China	0.28
6	Ireland	0.63	41	Colombia	0.28
7	Switzerland	0.63	42	South Africa	0.28
8	Norway	0.62	43	Turkey	0.27
9	Iceland	0.62	44	Mexico	0.27
10	Netherlands	0.62	45	Dominican Republic	0.26
11	Australia	0.60	46	Indonesia	0.26
12	Belgium	0.58	47	Hungary	0.25
13	Finland	0.56	48	Romania	0.25
14	United Kingdom	0.56	49	Macedonia	0.24
15	Singapore	0.56	50	Egypt	0.24
16	Germany	0.54	51	Jordan	0.23
17	Puerto Rico	0.54	52	Panama	0.23
18	France	0.50	53	India	0.23
19	Slovenia	0.49	54	Brazil	0.23
20	Korea	0.49	55	Venezuela	0.22
21	Israel	0.47	56	Thailand	0.22
22	Austria	0.45	57	Russia	0.22
23	Hong Kong	0.45	58	Tunisia	0.22
24	United Arab Emirates	0.42	59	Morocco	0.22
25	Czech Republic	0.42	60	Jamaica	0.21
26	Chile	0.41	61	Algeria	0.19
27	Italy	0.41	62	Serbia	0.18
28	Spain	0.40	63	Kazakhstan	0.18
29	Japan	0.40	64	Bosnia and Herzegovina	0.18
30	Saudi Arabia	0.38	65	Iran	0.17
31	Malaysia	0.36	66	Ecuador	0.17
32	Latvia	0.36	67	Bolivia	0.16
33	Portugal	0.35	68	Syria	0.16
34	Greece	0.32	69	Guatemala	0.15
35	Uruguay	0.30	70	Philippines	0.13
			71	Uganda	0.10

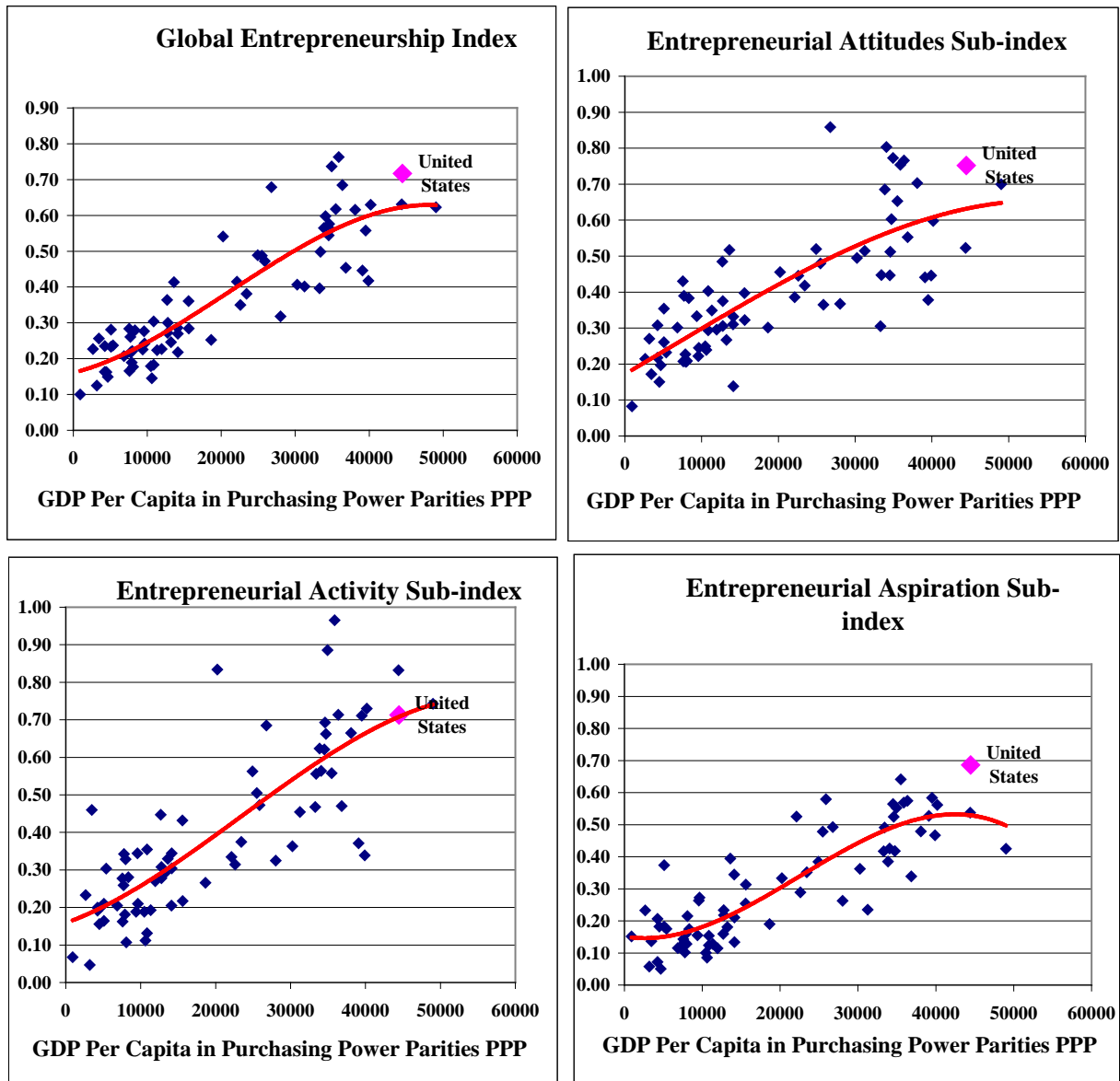
Source: Acs, Z. J., and L. Szerb, "The Global Entrepreneurship Index (GEINDEX)." *Foundations and Trends in Entrepreneurship* 5, no. 5 (2009): 341-435.

Note: Shading indicates countries at the innovation-driven level of development.

Figure 3 displays the ranking of the United States on the GEDI and the sub-indexes. The position of the United States at the top of the curve is evident. The difference is one of

degrees and in the composition of countries that are seen to outperform the United States. The drop in position is, however, most clearly evident in the United States's position on the entrepreneurial activity sub-index.

Figure 3: U.S. Position on GEDI and Sub-Indexes

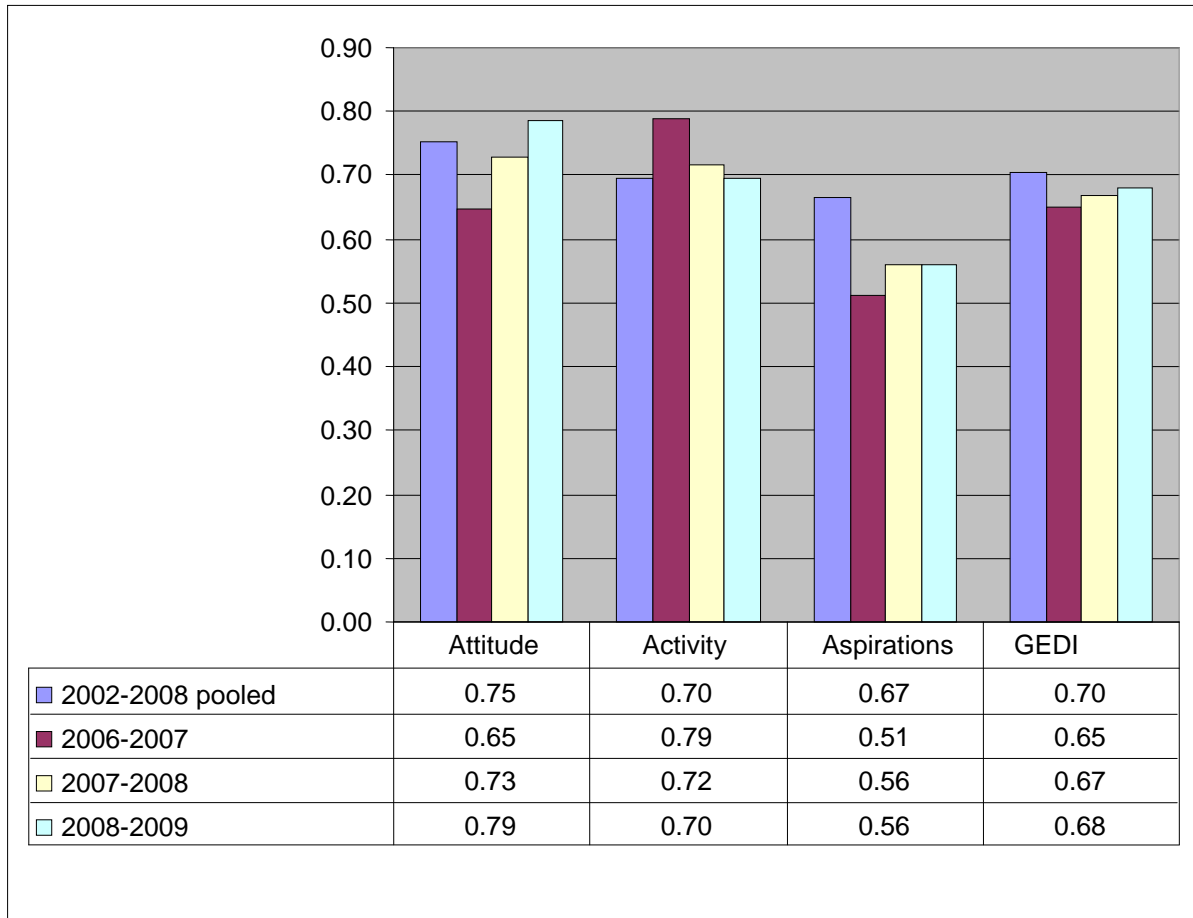


Source: Acs, Z. J., and L. Szerb, "The Global Entrepreneurship Index (GEINDEX)." *Foundations and Trends in Entrepreneurship* 5, no. 5 (2009): 341-435.

The United States occupies the topmost rank on the entrepreneurial aspiration sub-index. This indicates that overall within the United States, there is still significant effort on the part of early-stage entrepreneurs to introduce new products and services, develop new production processes, penetrate foreign markets, and create high-growth firms. The United States ranks comparatively lower on the entrepreneurial attitudes sub-index with a rank of 6, below New Zealand, Australia, Canada and two of the Nordic countries. However, it does much better than most European countries barring Sweden and Denmark. The United Kingdom ranked number 11 on the attitudes index, and France and Germany, 23 and 24, respectively. The relatively low (8th place) position of the United States on the entrepreneurial activity sub-index is a surprise and a possible cause for concern. It is an indicator that over the last decade the United States may have been lagging behind in terms of opportunity startups and quality of the workforce, as well as its activities within the tech sector. What is even more surprising is a list of the countries that lead. While countries like Denmark and Sweden have consistently performed well, the presence of Ireland and Puerto Rico is somewhat unexpected.

It is possible to track how the sub-indexes and the GEDI have changed over time. In order to do this, we calculate the GEDI and the three sub-indexes' values for the United States for the 2006-2007, 2007-2008, and 2008-2009. The previous publication (Acs and Szerb 2009) was a pooled value for 2006-2008 so three-year data are not strictly comparable. We also calculate pooled data for 2002-2008 but again the data are not strictly comparable. Nevertheless, they reveal very interesting trends in attitudes, activity, and aspirations.

Figure 4: Change in the GEDI and Sub-Indexes for the United States, 2002-2009

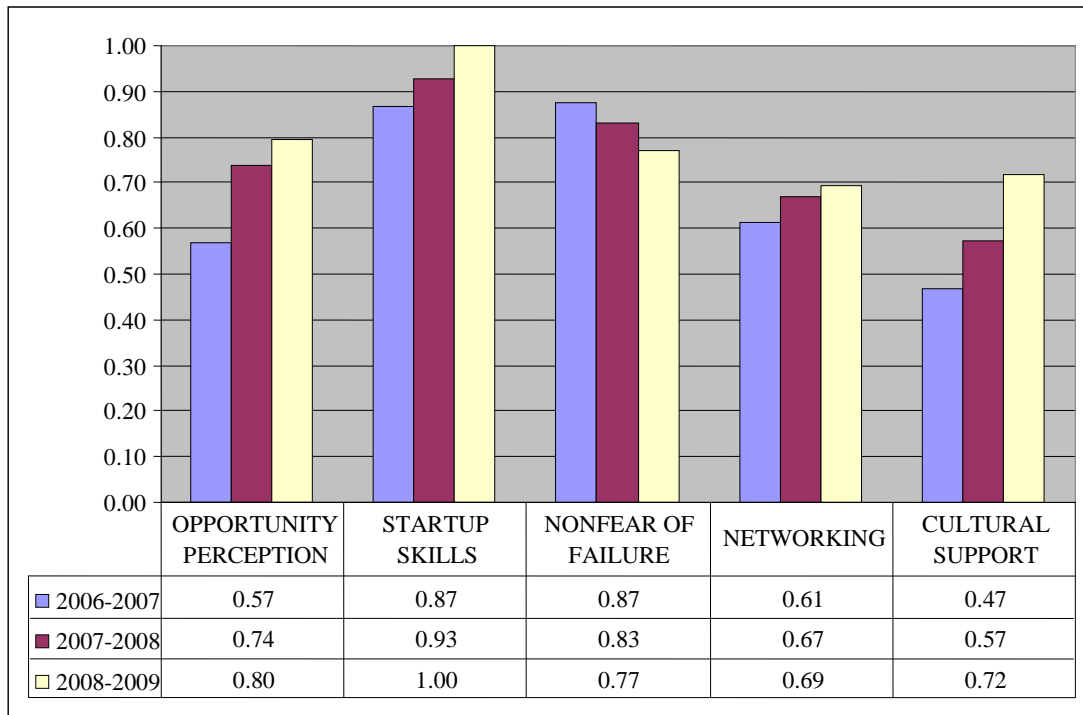


Source: Authors' calculation.

Figure 4 paints a mixed picture of the United States over the past decade. First of all, the pooled 2002-2008 data shows that the United States did relatively worse on aspirations than on either activity or attitude. When looking at the data from 2006 to 2009 we see that while entrepreneurial attitudes steadily increased, entrepreneurial activity steadily declined. On balance the GEDI stayed more or less the same, as the two trends canceled each other out. The entrepreneurial aspiration index increased slightly from 2006-2007 and was steady from 2007 to 2009, but all levels were below the long-run trend.

In order to get a clearer picture of the changes in the sub-indexes over time, Figures 5, 6, and 7 represent changes over the 2006-2009 period in the pillar values of the three sub-indexes: entrepreneurial attitudes, entrepreneurial activity and entrepreneurial aspirations.

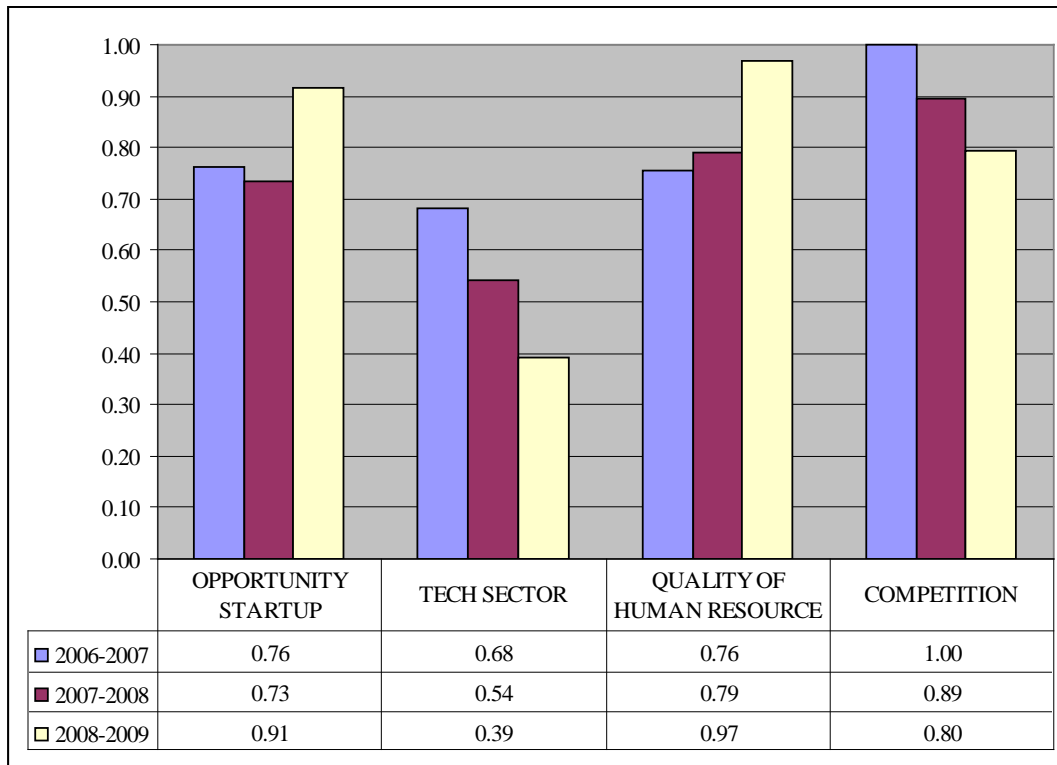
Figure 5: U.S. Entrepreneurial Attitudes Sub-Index Pillar Values, 2006-2009



Source: Authors' calculation.

Figure 5 shows that the scores of four of the five pillars of the attitudes sub-index increased, and only one decreased (NONFEAR OF FAILURE). STARTUP SKILLS are improved; both OPPORTUNITY PERCEPTION and CULTURAL SUPPORT show strong increases over time. The cause of the increased fear of failure may be rooted in changing demographics: as the population ages it becomes more risk averse.

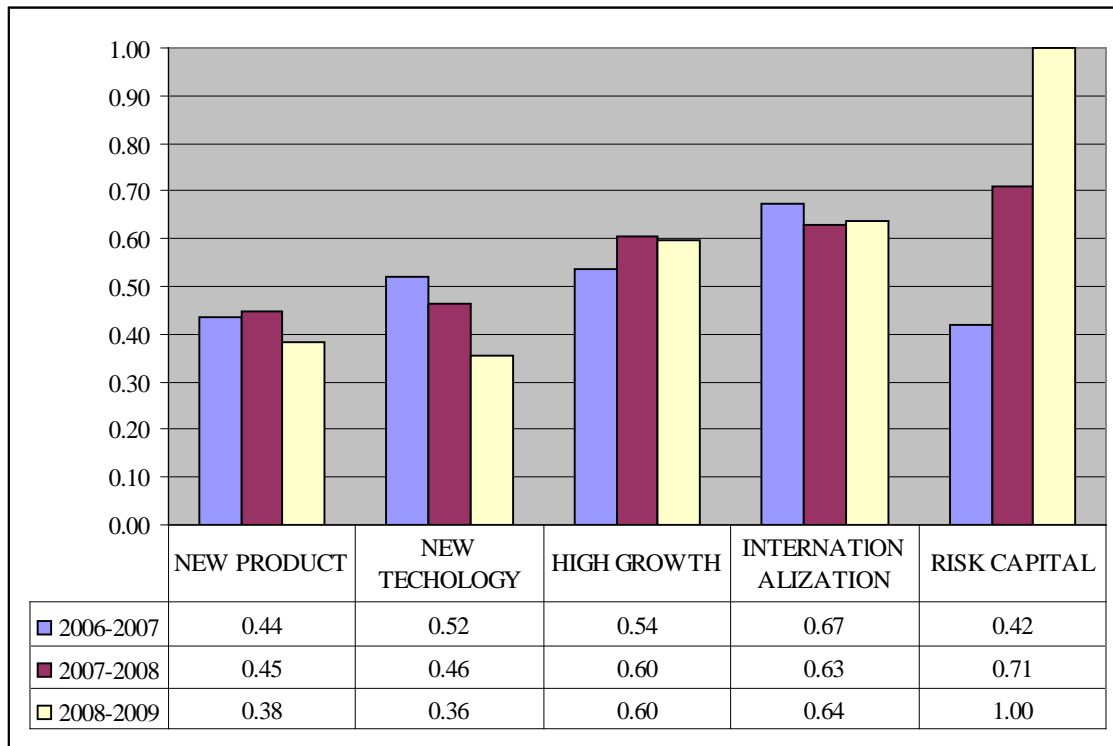
Figure 6: U.S. Entrepreneurial Activity Sub-Index Pillar Values, 2006-2009



Source: Authors' calculation.

The four pillars of the activity sub-index values are evenly split. Two have increased: OPPORTUNITY STARTUPS and QUALITY OF HUMAN RESOURCES; and two have decreased: TECH SECTOR and COMPETITION. The large drop in the tech sector is troubling and is reflected in the pooled data also. The United States seems to have given up something in the sector where it once led the world. COMPETITION also seems to have declined over the decade. This reflects the increasing share of business activity in the hands of large firms and the decline in competition in the economy. This has made it harder for new businesses to get started and for existing ones to prosper. The good news in these trends is that OPPORTUNITY STARTUPS increased in 2008-2009.

Figure 7: U.S. Entrepreneurial Aspirations Sub-Index Pillar Values, 2006-2009



Source: Authors' calculation.

The entrepreneurial aspirations sub-index, the one the United States should be focusing on, shows a very mixed picture. Four of the five pillars NEW PRODUCT, NEW TECHNOLOGY, HIGH GROWTH, and INTERNATIONALIZATION have all declined or not changed. The largest increase has been in RISK CAPITAL. An increased pool of financing is a good omen generally, however risk capital does not seem to be translating into new products, new technologies or a greater competitiveness. Not only are the levels of NEW PRODUCT and NEW TECHNOLOGY low, their recent trends are also headed in the wrong direction.

5. Relative Position of the United States at the Pillar Level

The specific strengths and weaknesses of the United States emerge more clearly through the scores on the building blocks (or pillars) of the GEDI. The color coding in Table 3 reflects the U.S. position with respect to averages for all countries taken together. Green indicates that the U.S. value of the pillar is above the 67th percentile value for the sample;

orange indicates the value is between the 33rd and 67th percentiles, and red indicates the value is below the 33rd percentile.

Overall, the United States scores well above the 67th percentile level at the pillar level, which is not surprising given that it is among the top 10 in the overall ranking as well as in the sub-indexes. The TECH SECTOR pillar is the only exception.

Table 3: U.S. Scores at the Pillar Level and Comparative Standing

Components of Entrepreneurial Attitudes Sub-index (normalized scores)

	OPPORTUNITY PERCEPTION	STARTUP SKILLS	NONFEAR OF FAILURE	NETWORKING	CULTURAL SUPPORT
United States	0.76	0.95	0.87	0.67	0.60
33rd percentile	0.28	0.34	0.34	0.18	0.28
67th percentile	0.51	0.54	0.69	0.38	0.57

Components of Entrepreneurial Activity Sub-index (normalized scores)

	OPPORTUNITY STARTUP	TECH SECTOR	QUALITY OF HUMAN RESOURCE	COMPETITION
United States	0.76	0.46	0.84	1.00
33rd percentile	0.23	0.26	0.24	0.27
67th percentile	0.56	0.49	0.49	0.53

Components of Entrepreneurial Aspirations Sub-index (normalized scores)

	NEW PRODUCT	NEW TECHNOLOGY	HIGH GROWTH	INTERNATIONALIZATION	RISK CAPITAL
United States	0.59	0.95	0.56	0.65	0.77
33rd percentile	0.08	0.20	0.24	0.31	0.09
67th percentile	0.31	0.47	0.37	0.62	0.29

Source: Acs, Z. J., and L. Szerb, “The Global Entrepreneurship Index (GEINDEX).” *Foundations and Trends in Entrepreneurship* 5, no. 5 (2009): 341-435.

Note: Green indicates the U.S. score falls in the top third of the sample (above the 67th percentile); orange indicates it ranks in the middle third (between the 33rd and 67th percentiles).

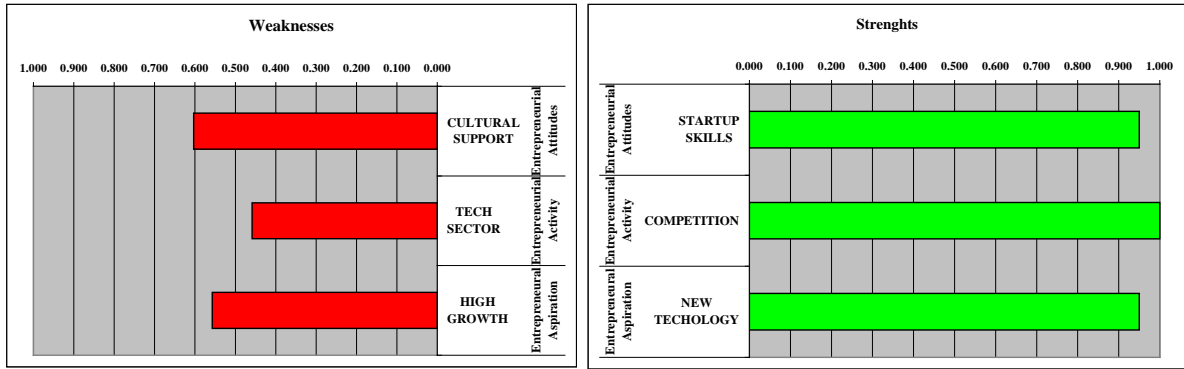
On the entrepreneurial attitudes sub-index, the United States is comfortably above the 67th percentile level. It scores particularly well on STARTUP SKILLS (0.95) and NONFEAR OF FAILURE (0.87). Where it lags most is on CULTURAL SUPPORT (0.60).

Under the activity sub-index, the United States has a score of 1.00 (the highest possible) on the COMPETITION pillar. Similarly, it scores well on OPPORTUNITY STARTUP and QUALITY OF HUMAN RESOURCES. It is the performance of the United States on the TECH SECTOR variable that is the greatest cause for concern. TECH SECTOR is a combination of entrepreneurial activity in the technology sector and firm-level technology absorption capacity. The area is generally assumed to be one of the core competencies of the U.S. economy. However, it scores a low 0.46 on this pillar, putting it in the middle range, between the 33rd and 67th percentile. The main cause for this is the low U.S. score on the individual-level TECHSECT variable which measures the percentage of entrepreneurial activity that is in the medium- or high-technology sector.

Under the aspirations sub-index, the United States again remains well above the 67th percentile range. It scores the highest on the NEW TECHNOLOGY pillar, recording a score of 0.95. This pillar is a combination of the percentage of entrepreneurial activity where the technology is less than five years old and the degree to which the business environment is conducive to cutting-edge innovations. It thus seems that although there may be comparatively lower activity within the tech sector, a large part of the existing firms are driven by new technology and thrive in an atmosphere conducive to innovation. The United States scores relatively low on the NEW PRODUCT (0.59) and HIGH GROWTH (0.56) pillars.

Figure 8 depicts the strengths and weaknesses of the United States at the pillar level. CULTURAL SUPPORT, TECH SECTOR and HIGH GROWTH emerge as the chief weak points with scores ranging between 0.60 and 0.40, while STARTUP SKILLS, COMPETITION, and NEW TECHNOLOGY are seen to be the strengths with scores close to or equal to 1. It is the tech sector that shows real weakness again.

Figure 8: Strengths and Weaknesses at the Pillar Level

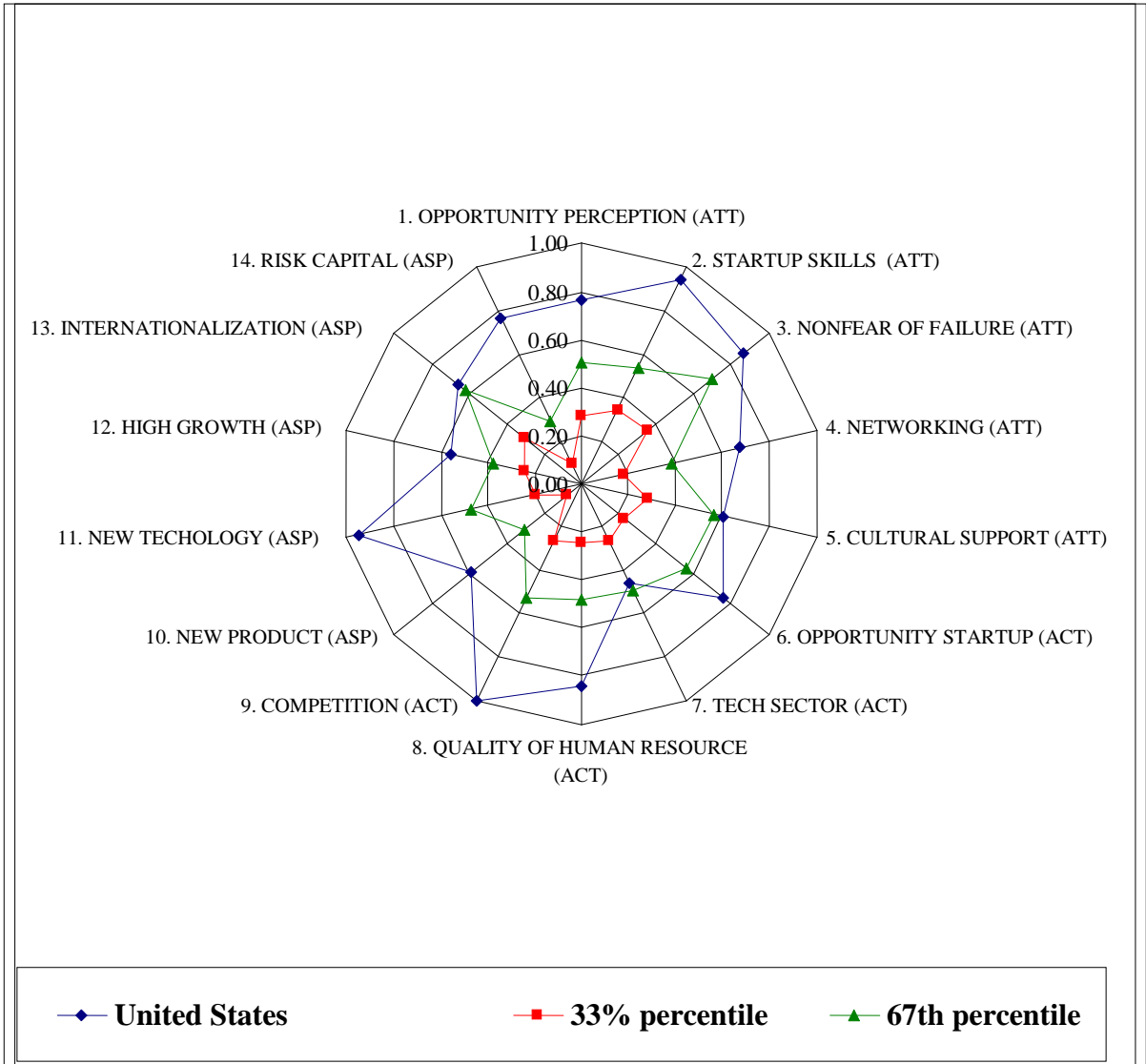


Source: Acs, Z. J., and L. Szerb, “The Global Entrepreneurship Index (GEINDEX).” *Foundations and Trends in Entrepreneurship* 5, no. 5 (2009): 341-435.

The spider diagram in Figure 9 illustrates the position of the United States on each of the 14 pillars along with the 33rd and 67th percentile scores for the entire group of countries. Each circle in the graph represents the scores ranging from 0.00 to 1.00. The spider diagram takes the values for each of the 14 pillars and displays the values from 0.00 to 1.00 for each of the pillars. Values that are farthest from the center are largest and those closest to the center are smallest.

This comparison shows not only the weaknesses of other countries, but the strengths as well. In three areas, CULTURAL SUPPORT, TECH SECTOR, and INTERNATIONALIZATION, the United States is only at the 67th percentile, that is, at the average level for efficiency-driven economies.

Figure 9: U.S. Position on the Pillar Level

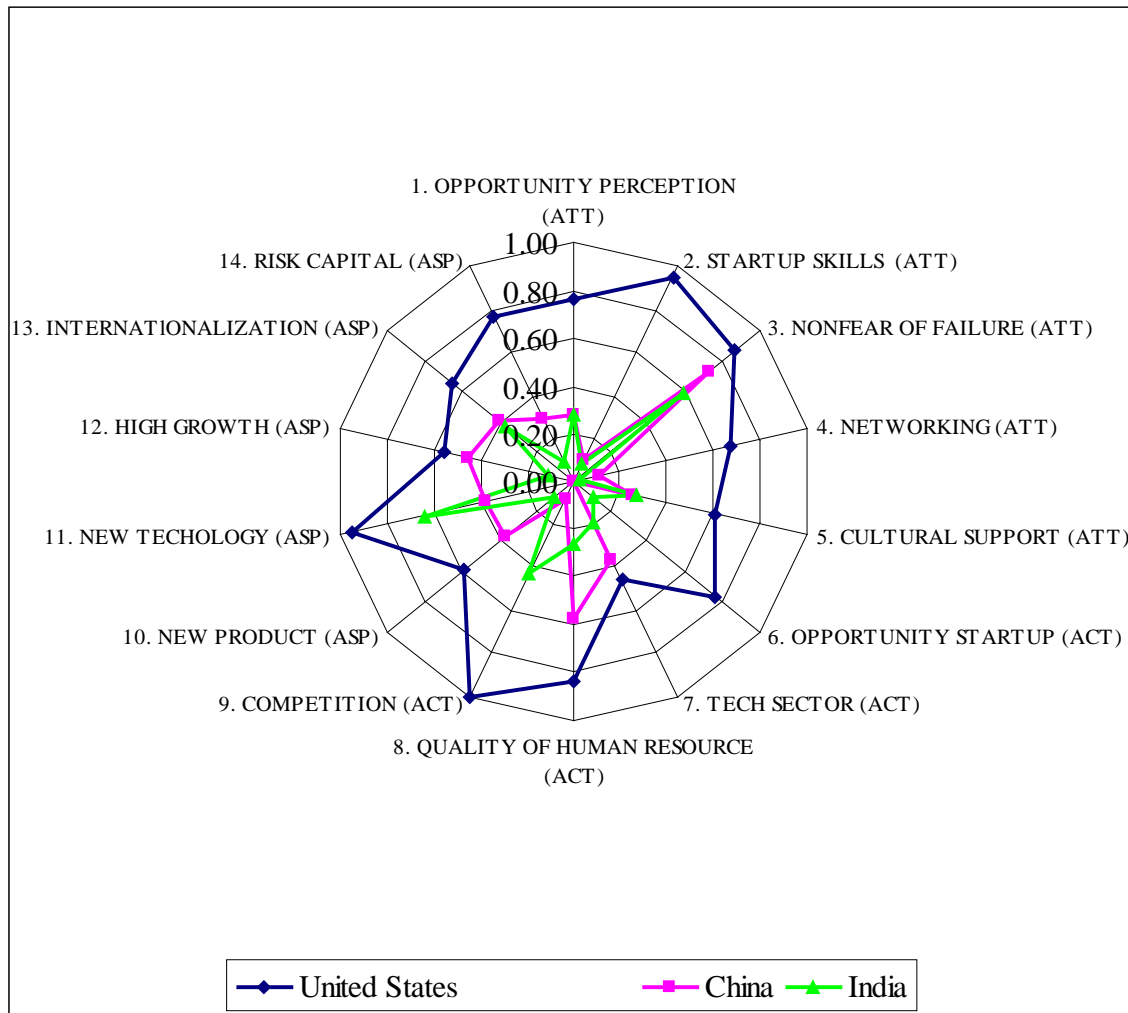


Source: Acs, Z. J., and L. Szerb, "The Global Entrepreneurship Index (GEINDEX)." *Foundations and Trends in Entrepreneurship* 5, no. 5 (2009): 341-435.

Figure 10 compares the United States to India and China. If one looks carefully we see that while the United States has a huge lead in NEW TECHNOLOGY, India is catching up fast; moreover the difference between the United States and China on the TECH SECTOR variable is not very large. The other area of concern is that neither India nor China seems to be afraid of failure. If NONFEAR OF FAILURE indeed captures these

countries' attitudes, they are going to present a real entrepreneurial challenge to the United States.

Figure 10: Comparison of the United States, China, and India

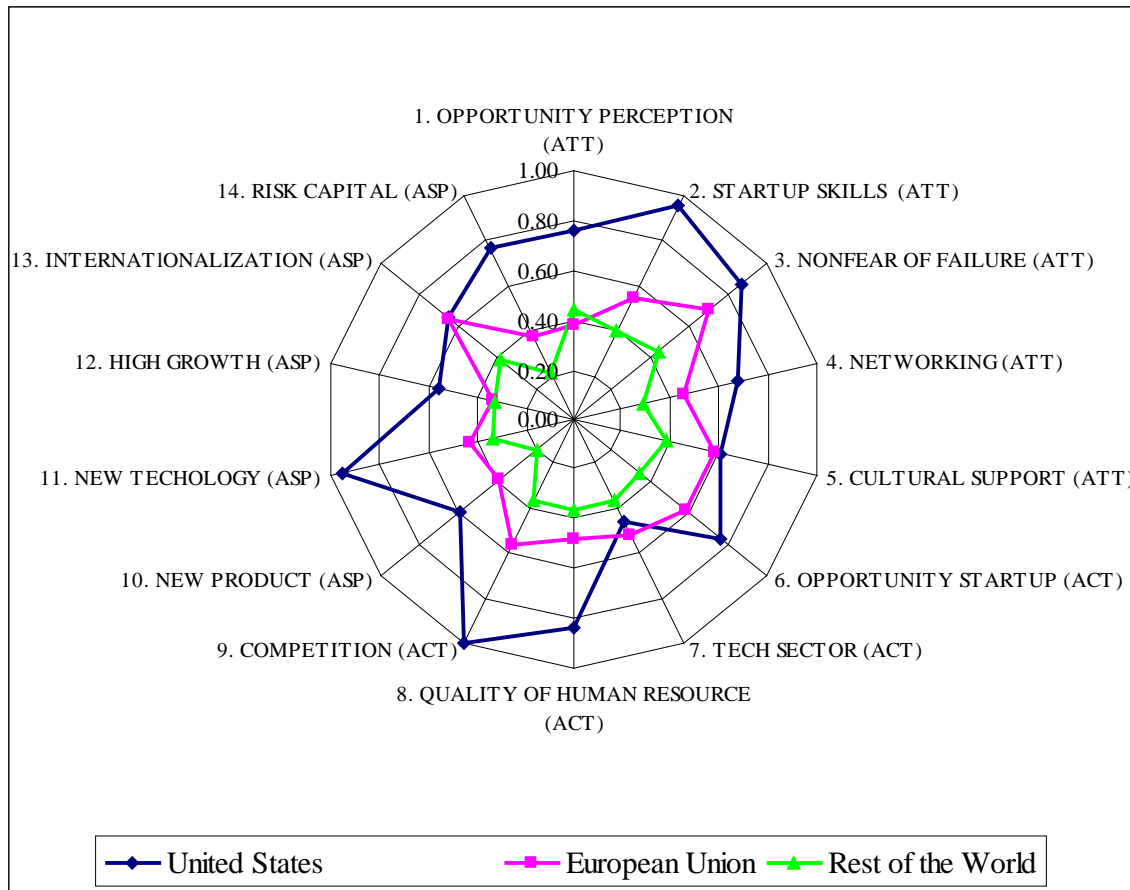


Source: Acs, Z. J., and L. Szerb, "The Global Entrepreneurship Index (GEINDEX)." *Foundations and Trends in Entrepreneurship* 5, no. 5 (2009): 341-435.

Of course China and India are efficiency-driven countries and are not yet fully in the innovation race. So how does the United States compare to its peers—for instance, the European Union? Figure 11 compares both entities on the 14 pillars. Three observations are important. First, the European Union is as international as the United States. The rest of the world is far behind. Second, the European Union has surpassed the United States

in the TECH SECTOR, and the rest of the world is not far behind (i.e., China and other Asian countries). Third, and surprisingly, the CULTURAL SUPPORT variable is at the same level in Europe and the United States.

Figure 11: Comparison of the European Union, the United States, and the Rest of the World



Source: Acs, Z. J., and L. Szerb, "The Global Entrepreneurship Index (GEINDEX)." *Foundations and Trends in Entrepreneurship* 5, no. 5 (2009): 341-435.

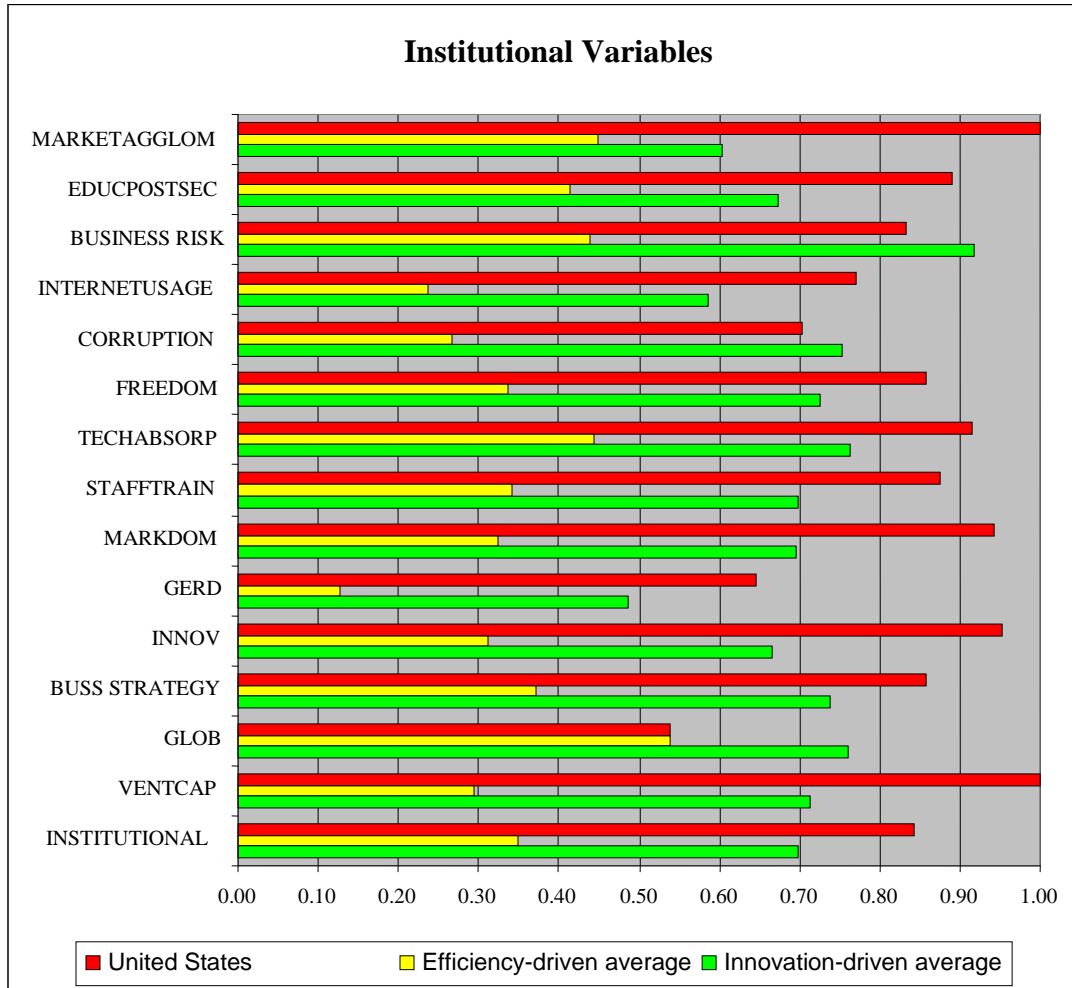
6. The U.S. Position at the Variable Level

Figures 9 and 10 depict the position of the United States at the variable level vis-à-vis the average scores for efficiency-driven and innovation-driven countries in the sample.

Under the institutional variables, the United States appears to outperform both the efficiency- and innovation-driven economies by a fair margin on most counts. It does particularly well on the MARKETAGGLOM and VENTCAP variables which give an

indication of the size of the market, degree of urbanization, and availability of venture capital. It also does well on the MARK DOM, INNOV, and TECH ABSORP variables, indicating that it is ahead of its competitors in terms of its extent of market dominance, allowing cutting edge innovations, and firm-level technology absorption capability.

Figure 12: Comparative U.S. Position on the Institutional Variables of the GEDI

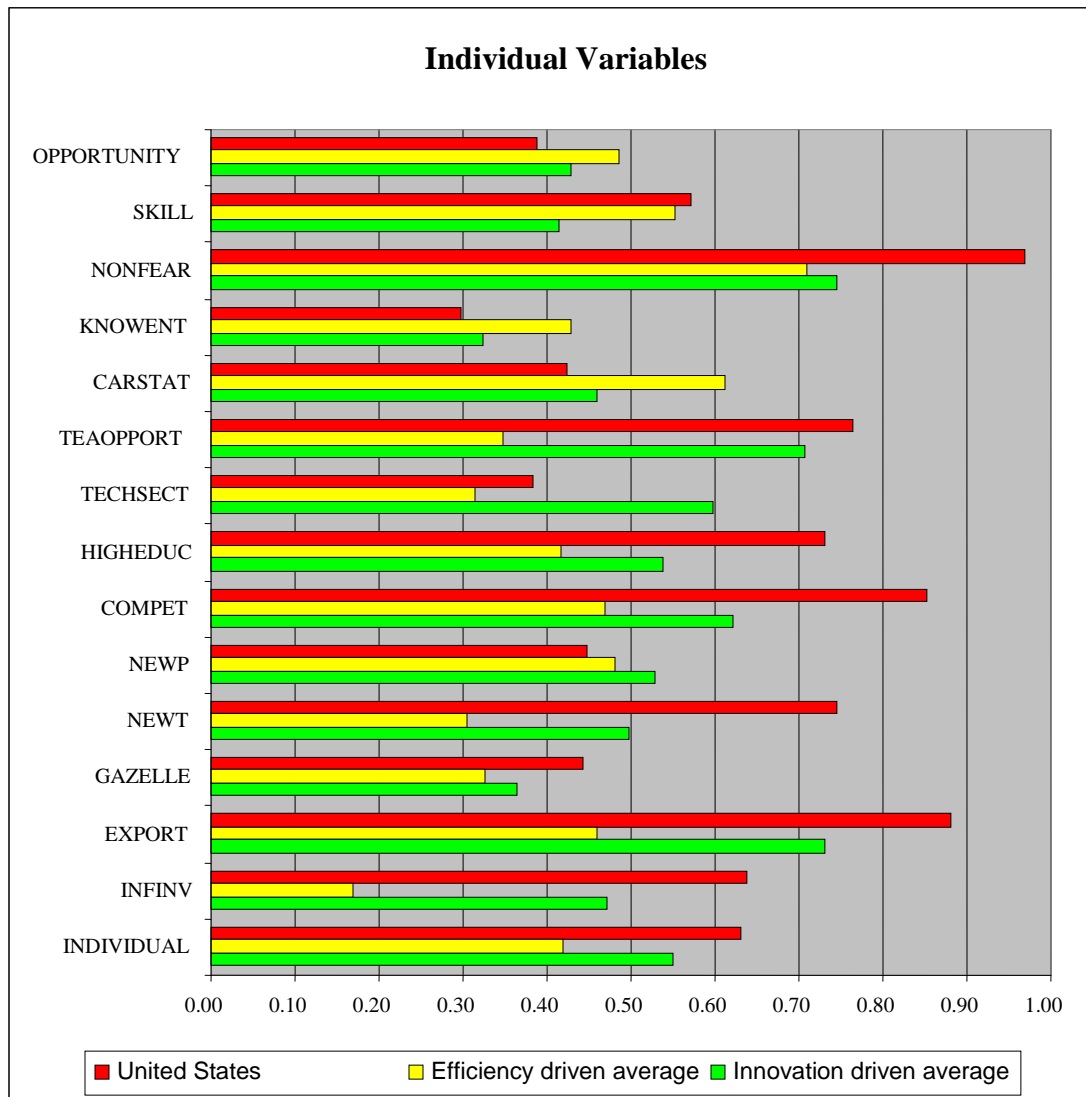


Source: Authors' calculation.

The only three areas where the United States appears to lag are GLOB, CORRUPTION, and BUSINESS RISK. GLOB is a part of the Index of Globalization measuring the economic dimension of globalization. The United States appears to be at the level of the efficiency-driven economies on this measure, far behind the average for innovation-

driven economies as a whole. CORRUPTION is the perceived level of corruption, as determined by expert assessments and opinion surveys.¹¹ BUSINESS RISK measures the Country Risk Rate, which refers to the financial, macroeconomic, and business climate. On these two variables, the United States lags somewhat behind the other innovation-driven economies.

Figure 13: U.S. Position on Individual Variables



Source: Authors' calculation.

¹¹ As measured by Transparency International's Corruption Perceptions Index. For further information, see appendix Table A.2.

Under individual variables, U.S. dominance is relatively weaker. The United States outperforms the country averages on 10 of the 15 variables. It scores particularly well on the NONFEAR, COMPET, and EXPORT variables, maintaining a sizeable gap between its scores and the average scores of the innovation-driven countries. However, its performance on the OPPORTUNITY, KNOWENT, and NEWP variables is below the averages for both the efficiency- and innovation-driven economies. This indicates that the youth's opportunity perception for new business and the population's direct acquaintance with entrepreneurs is more limited in the United States than the country averages. Similarly, it appears that a relatively lower percentage of U.S. businesses bring out products that are new to at least some customers.

The U.S. score lies between the average scores for efficiency- and innovation-driven economies on the TECHSET variable, which measures the amount of entrepreneurial activity in the medium- or high-technology sector. On the CARSTAT variable, the efficiency-driven economies appear to outperform both the United States and the average for innovation-driven economies as a whole. This indicates that, on average, the youth in efficiency-driven economies appear to be relatively more attracted towards entrepreneurship as a career choice than in the United States.

The main areas at the grassroots level that need to be worked on are apparent in the individual and institutional variable scores. Table 4 details these scores and shows which percentile band they fall within. Under the institutional variables, it is the two variables, BUSINESS RISK and GLOB, where the United States lies in the orange zone, i.e. between the 33rd and 67th percentile values for the sample. These were also two of the variables where the United States scored less than the average for all innovation-driven economies. On the remaining variables, the United States lies in the green zone, well above the 67th percentile.

Table 4: U.S. Scores at Variable and Pillar Levels and Comparative Standing

Institutional Variables		Individual Variables		Pillars	
MARKETAGGLOM	1.00	OPPORTUNITY	0.39	OPPORTUNITY PERCEPTION	0.76
EDUCPOSTSEC	0.89	SKILL	0.57	STARTUP SKILLS	0.95
BUSINESS RISK	0.83	NONFEAR	0.97	NONFEAR OF FAILURE	0.87
INTERNETUSAGE	0.77	KNOWENT	0.30	NETWORKING	0.67
CORRUPTION	0.70	CARSTAT	0.42	CULTURAL SUPPORT	0.60
FREEDOM	0.86	TEAOPPORT	0.77	OPPORTUNITY STARTUP	0.76
TECHABSORP	0.92	TECHSECT	0.38	TECH SECTOR	0.46
STAFFTRAIN	0.88	HIGHEDUC	0.73	QUALITY OF HUMAN RESOURCE	0.84
MARKDOM	0.94	COMPET	0.85	COMPETITION	1.00
GERD	0.65	NEWP	0.45	NEW PRODUCT	0.59
INNOV	0.95	NEWT	0.75	NEW TECHNOLOGY	0.95
BUSS STRATEGY	0.86	GAZELLE	0.44	HIGH GROWTH	0.56
GLOB	0.54	EXPORT	0.88	INTERNATIONALIZATION	0.65
VENTCAP	1.00	INFINV	0.64	RISK CAPITAL	0.77
AVERAGE of INSTITUTIONAL VARIABLES	0.84	AVERAGE of INDIVIDUAL VARIABLES	0.63	GEDI	0.72

Source: Acs, Z. J., and L. Szerb, "The Global Entrepreneurship Index (GEINDEX)." *Foundations and Trends in Entrepreneurship* 5, no. 5 (2009): 341-435.

Note: Green indicates the U.S. score falls in the top third of the sample (above the 67th percentile); orange indicates it ranks in the middle third; and red indicates the U.S. score falls in the bottom third.

It is in the individual variables that the U.S. scores give greatest cause for concern. Scores for three of the individual variables lie in the red zone, that is, in the bottom third of the 71-country sample. These variables are OPPORTUNITY, KNOWENT, and CARSTAT. This again brings to light the reality that only a small percentage of U.S. youth that sees entrepreneurship opportunities in the area in which they live, they have few opportunities

to interact and possibly learn from other entrepreneurs, and only a small portion perceives entrepreneurship to be a good career choice. This may be the main reason for the lower rank of the United States on the entrepreneurial attitudes sub-index.

The variables SKILL, TECHSECT, and NEWP fall in the orange zone. As mentioned earlier, the TECHSET weakness is reflected in the low score on the TECH SECTOR pillar under the activities sub-index. Moreover, the larger picture reveals that despite high scores and being in the top third of the sample on the other variables of the activities sub-index, the United States ranks lower than many countries and is not among the top five on this sub-index. The low scores for SKILL and NEWP variables do not show up in the pillar scores because there are counterbalanced by stronger institutional variables.

7. Public Policy Approaches

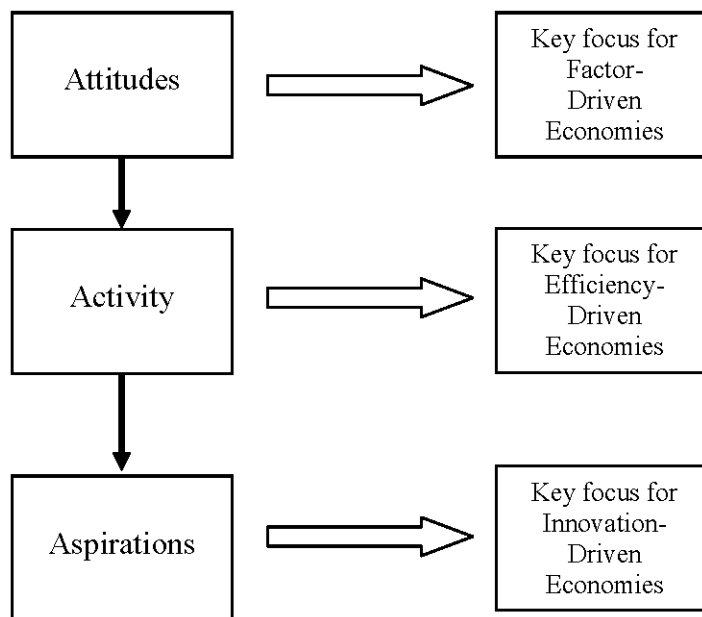
Before going into details about the public policy approaches vis-à-vis entrepreneurship we should clarify the policy applicability of the GEDI. While other indexes have focused on entrepreneurship at the innovation-drive stage, the newly created GEDI takes into account entrepreneurship at all stages of development. First, the three entrepreneurial sub-indexes are not of equal importance. The attitude sub-index measures society's basic attitudes toward entrepreneurship through education and social stability. The activity sub-index measures what individuals are actually doing to improve the quality of human resources and technological efficiency. The aspiration sub-index measures how much of the entrepreneurial activity is being directed toward innovation, high-impact entrepreneurship, and globalization.

Second, the sequence of these sub-indexes in development is also important. Attitudes are an essential prerequisite for either activity or aspirations. This is in part cultural, as certain societies (e.g., communism and feudalism) outlawed entrepreneurship. Attitude is followed by activity, and after activity, aspirations become important. In some sense, this process is cumulative over time; however it has large overlaps as well. Figure 14 depicts the sub-index that corresponds to each stage of economic development. In a factor-driven (agricultural economy) the focus needs to be on entrepreneurial attitudes in the population. In an efficiency-driven economy (manufacturing) individual entrepreneurs

needs to be encouraged to be entrepreneurs and start businesses. In an innovation-driven economy (knowledge-based economy) some people need to create very large and successful businesses.

A third important aspect of development is the roles of institutional and individual variables. While institutional improvement is vital for factor-driven countries to advance to the next level of development, the enhancement of individual characteristics is increasingly critical for innovation-driven economies.

Figure 14: Mapping the Sub-Indexes onto Stages of Development



There are some important policy implications for the countries being at different levels of development, which is summarized in Table 5. Factor-driven economies need to focus on entrepreneurial attitudes, start to develop activity, and begin the process of enabling entrepreneurial aspirations. Efficiency-driven economies' key focus should be on entrepreneurial activity. However, continuous improvement of attitudes and the development of entrepreneurial aspirations are also important. In innovation-driven economies, the key focus should be on aspirations. However, both attitudes and activity need to be improved to maintain balance across the three sub-indexes.

Table 5: Policy Emphasis for Economies at Different Stages of Development

Stage of Economic Development	Sub-Index		
	Attitudes	Activity	Aspirations
Factor-driven Economy	Key Focus	Develop	Start Enabling
Efficiency-driven Economy	Continuous Improvement	Key Focus	Develop
Innovation-driven Economy	Continuous Improvement	Continuous Improvement	Key Focus

In the following, we are making our policy suggestions to improve entrepreneurship in the United States. In the formulation of the policy steps we considered the improvement of the weakest pillars and the enhancement of the institutional and individual variables of those particular pillars. For the proper policy focus we also took into account the policy suggestions contained in Table 5. Note that these suggestions address the goals of entrepreneurship policy but do not deal with how to achieve these goals.

Area of Concern. According to Table 5, the key focus of U.S. entrepreneurship policy should be aspirations. The improvement of the aspiration sub-index can be achieved by enhancing the weakest pillar, namely high growth. While the institutional component of high growth—business strategy—is rather strong, the individual component, gazelles, is very weak.

Policy Approach: Encourage individuals to start more high-growth firms.

Area of Concern. The likelihood of introducing new products is barely higher than the weakest pillar of the aspirations sub-index, high growth. In this case U.S. research and development capability (the institutional variable) is weak but the individual variable (businesses planning to introduce new products) is weaker (Table 4).

Policy Approach: Encourage individuals to introduce products that are new to more people. Research and development should also be encouraged.

Area of Concern. Table 5 recommends continuous improvements in activity. The weakest pillar in the activity sub-index is the technology sector. Two decades ago the United States economy was experiencing an explosion in new technology and innovation. The result of this activity was an unparalleled prosperity in terms of job creation, productivity and wealth creation. In fact it was one of the most extraordinary times in U.S. history (Jorgenson 2001). We were in this position and the rest of the world just watched. People from all over the world flocked to Silicon Valley to partake in the information and telecommunication revolution. Now, technology sector is the weak spot in U.S. entrepreneurial activity. It is not just that the rest of the world has caught up, the United States seems to have abandoned the sector. The weakest variable contributing to this is the percentage of new businesses in the technology sector.

Policy Approach: Encourage more startups in the tech sectors.

Area of Concern: The United States exhibits its greatest weakness in entrepreneurial attitudes. The weakest pillar in the entrepreneurial attitudes sub-index is cultural support for entrepreneurship. The individual variable, career status, drags this down. Individuals do not hold entrepreneurship in high esteem, either as a career choice or in terms of social status. In the institutional variable, the United States scores very well among all countries studied but somewhat lower than Scandinavian and other English-speaking nations. However the main focus should be on the individual variables.

Policy Approach: Focus on improving the image of entrepreneurs and improve the incentive structure to reward productive rather than unproductive activities.

Area of Concern: The networking pillar is almost as weak as cultural support. The individual variable, knowing an entrepreneur, is much weaker than the institutional variable, Internet usage. In the United States the likelihood of knowing an entrepreneur is no more likely than in a developing country. It is the weakest variable in the index. The other weak variable is the ability to recognize opportunities. The low level of opportunity

perception is difficult to identify but it might have to do with the continuing cultural divide in the country.

***Policy Approach: Improve entrepreneurial education in secondary schools.
Improve public education programs about the value of entrepreneurs to society
and the country as a whole.***

8. Conclusions

It is seen that despite the strong performance and leading position in country groupings at the aggregate level, there remain specific areas of concern for the United States. The global perception of the country as a land of opportunity and as the Mecca for individuals wanting to do something new and different seems to be somewhat challenged by the facts. The United States scores relatively lower than Canada and Nordic countries on the entrepreneurial attitudes and activities sub-indexes. It is only in the aspirations index that it maintains the top rank. This seems to suggest that even though the presence of powerful role models and past successes makes Americans have a keen desire to be entrepreneurial, the actual process is finding fewer takers than one would expect. Cultural support for entrepreneurship and the American youth's perception of entrepreneurship as a viable career choice seem to be limited. Firms' performance in terms of growth and employment generation is not as strong, and the tech sector—the beacon of recent U.S. entrepreneurial success—is seen to have a lower score than the sample averages.

There are a multitude of reasons that may explain the apparent slowdown in entrepreneurship in the United States. The crash of the tech sector was certainly a major contributor. With the decline of many of the software companies as the dot-com bubble burst and the economy faced a recession towards the end of the 1990s, there was definitely more caution and a decline in startups. But even more significant are the geopolitical developments that have played out over the last decade that have changed the landscape for business in America.

A direct impact of 9/11 has been felt in the tightening of U.S. immigration policy. Though required due to security concerns and rising domestic opposition to illegal

immigration, it has nevertheless affected entrepreneurship in the United States to some extent by controlling the flow of skilled workers into the country. In this respect, countries like Canada, New Zealand, and Australia have all been more pragmatic by giving strong incentives to attract educated, skilled workers to their shores—whether doctors, engineers, or academic researchers—and to keep them there with offers of residency and citizenships. Accompanying a tighter U.S. immigration policy is a growing feeling of disenchantment among large sections of the American population, including the existing immigrant groups, who are at times limited and constrained in terms of opportunities to exploit their potential and skills.

Coupled with internal factors is the reality of what has been going on in the rest of the world. The United States has long been an example for the rest of the world in terms of its capacity for innovation, creation of knowledge, and growth. It continues to outperform Europe overall in terms of its level of entrepreneurship (though the Nordic model may have some lessons for the United States). However, it seems that in many respects a slowdown in U.S. entrepreneurial activities may be a reflection of progress by the rest of the world—learning from the U.S. model and beginning to catch up. Canada, in particular, outperforms the United States in two of the sub-indexes and in the overall rankings.

The findings of this paper should serve more as an eye-opener than as a cause for alarm. The United States maintains its place among the leading entrepreneurial economies. Its performance is still superior in most respects to the averages for innovation-driven and efficiency-driven economies. Its strengths in the skill of its workers, the size of its markets, the institutional support for its people, and the aspirations of the American population are strong and robust. What is required as we come to the end of the first decade of the new millennium is a more pragmatic reality check on some of our perceived strengths and evolving strategies to correct for past shortcomings.

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10. Appendix A: Data Construction

Table A.1. Description of Individual Variables Used in the GEDI

Individual Variable	Description
OPPORTUNITY	Percentage of the 18-64 aged population recognizing good conditions to start business next 6 months in area he/she lives
SKILL	Percentage of the 18-64 aged population claiming to possess the required knowledge/skills to start business
NONFEAR	Percentage of the 18-64 aged population stating that the fear of failure would not prevent starting a business
KNOWENT	Percentage of the 18-64 aged population knowing someone who started a business in the past 2 years
NBGOODAV	Percentage of the 18-64 aged population saying that people consider starting business as good career choice
NBSTATAV	Percentage of the 18-64 aged population thinking that people attach high status to successful entrepreneurs
CARSTAT	The status and respect of entrepreneurs calculated as the average of NBGOODAV and NBSTATAV
TEAOPPORT	Percentage of the TEA businesses initiated because of opportunity start-up motive
TECHSECT	Percentage of the TEA businesses that are active in technology sectors (high or medium)
HIGHEDUC	Percentage of the TEA businesses owner/managers with more than a secondary education
COMPET	Percentage of the TEA businesses started in those markets where not many businesses offer the same product
NEWP	Percentage of the TEA businesses offering products that are new to at least some of the customers
NEWT	Percentage of the TEA businesses using new technology that is less than 5 years old average (including 1 year)
GAZELLE	Percentage of the TEA businesses having high job expectation (averaging over 10 employees and 50 percent growth in 5 years)
EXPORT	Percentage of the TEA businesses where at least some customers are outside country (over 1 percent)
INFINVMEAN	The mean amount of 3 year informal investment
BUSANG	Percentage of the 18-64 aged population who provided funds for new business in past 3 years excluding stocks and funds, average
INFINV	The amount of informal investment calculated as $INFINVMEAN * BUSANG$

Note: TEA = Global Entrepreneurship Monitor's Total Early-phase Entrepreneurial Activity (TEA) index. A TEA business is one of the survey subjects.

Table A.2. Description and Source of Institutional Variables used in the GEDI

Institutional Variable	Description	Source
MARKETDOM	Domestic market size is the sum of gross domestic product plus value of imports of goods and services, minus value of exports of goods and services, normalized on a 1–7 (best) scale data are from the World Economic Forum Competitiveness Index 2008-2009 except 2009 countries that are from 2009-2010.	World Economic Forum, <i>The Global Competitiveness Report 2008-2009</i> , p. 470. <i>The Global Competitiveness Report 2009-2010</i> , p. 450
URBANIZATION	Urbanization is the percentage of the population living in urban areas; data are from the Population Division of the United Nations, 2005, 2009 countries are from 2010	United Nations, http://esa.un.org/unup/index.asp?panel=1
MARKET-AGGLOM	The size of the market: A combined measure of the domestic market size and urbanization, which is later used to measure the potential agglomeration effect. Calculated as MARKETDOM*URBANIZATION	Author's calculation
EDUCPOSTSEC	Gross enrollment ratio in post-secondary education, 2008 or latest available data	UNESCO, http://stats.uis.unesco.org/unesco/TableViewer/tableView.aspx?ReportId=167
BUSINESS RISK	The business climate rate “assesses the overall business environment quality in a country... It reflects whether corporate financial information is available and reliable, whether the legal system provides fair and efficient creditor protection, and whether a country's institutional framework is favorable to intercompany transactions.” It is a part of the Country Risk Rate. The alphabetical rating is turned to a 7-point Likert scale from 1 (“D” rating) to 7 (“A1” rating). Data are from 2008 except 2009 countries, which are from 2009.	Coface, http://www.trading-safely.com/
INTERNETUSAGE	The number Internet users in a particular country per 100 inhabitants, 2008, except 2009 countries, which are from 2009.	International Telecommunication Union, http://www.itu.int/ITU-D/ict/statistics/
CORRUPTION	The Corruption Perceptions Index (CPI) measures the perceived level of public-sector corruption in a country. “The CPI is a "survey of surveys," based on 13 different expert and business surveys.” Overall performance is measured on a 10-point Likert scale. Data are from 2008 except 2009 countries, which are from 2009.	Transparency International, http://www.transparency.org/policy_research/surveys_indices/cpi/2009

Institutional Variable	Description	Source
FREEDOM	Business freedom is a quantitative measure of the ability to start, operate, and close a business that represents the overall burden of regulation, as well as the efficiency of government in the regulatory process. The business freedom score for each country is a number between 0 and 100, with 100 being the freest business environment. The score is based on 10 factors, all weighted equally, using data from the World Bank's <i>Doing Business</i> study.	Heritage Foundation, http://www.heritage.org/Index ; World Bank's <i>Doing Business</i> study, http://www.heritage.org/index/PDF/2009/Index2009_Methodology.pdf
TECHABSORP	Firm level technology absorption capability: "Companies in your country are (1 = not able to absorb new technology, 7 = aggressive in absorbing new technology)." Values for Iran and Syria are estimates since no data exists. Data are from 2007-2008 except 2009 countries that are from 2008-2009.	World Economic Forum, <i>The Global Competitiveness Report 2008-2009</i> , p. 461; <i>The Global Competitiveness Report 2009-2010</i> p. 441
STAFFTRAIN	The extent of staff training: "To what extent do companies in your country invest in training and employee development? (1 = hardly at all; 7 = to a great extent)" Iran is estimated as Syria. Data are from 2007-2008 except 2009 countries, which are from 2008-2009.	World Economic Forum, <i>The Global Competitiveness Report 2008-2009</i> , p. 419; <i>The Global Competitiveness Report 2009-2010</i> p. 401
MARKDOM	Extent of market dominance: "Corporate activity in your country is (1 = dominated by a few business groups, 7 = spread among many firms)" Iran is estimated as Syria. Data are from 2007-2008 except 2009 countries, which are from 2008-2009	World Economic Forum, <i>The Global Competitiveness Report 2008-2009</i> , p. 423; <i>The Global Competitiveness Report 2009-2010</i> p. 405
GERD	Gross domestic expenditure on research & development (GERD) as a percentage of GDP, year 2007 or latest available data. Values for Puerto Rico, Dominican Republic, and United Arab Emirates are estimated.	UNESCO, http://stats.uis.unesco.org/unesco/TableViewer/tableView.aspx?ReportId=1782
INNOV	Innovation index points from Global Competitiveness Index: a complex measure of innovation including investment in research and development by the private sector, the presence of high-quality scientific research institutions, the collaboration in research between universities and industry, and protection of intellectual property.	World Economic Forum, <i>The Global Competitiveness Report 2008-2009</i> , p. 18; <i>The Global Competitiveness Report 2009-2010</i> , p. 20
BUSS STRATEGY	Refers to the ability of companies to pursue distinctive strategies, which involves differentiated positioning and innovative means of production and service delivery. Iran is estimated as Syria. Data are from 2007-2008 except 2009 countries, which are from 2008-2009	World Economic Forum, <i>The Global Competitiveness Report 2008-2009</i> , p. 18; <i>The Global Competitiveness Report 2009-2010</i> , p. 20

Institutional Variable	Description	Source
GLOB	A part of the Globalization Index measuring the economic dimension of globalization. The variable involves the actual flows of trade, foreign direct investment, portfolio investment, and income payments to foreign nationals, as well as restrictions of hidden import barriers, mean tariff rate, taxes on international trade and capital account restrictions.	KOF Swiss Economic Institute; Axel Dreher (2006): "Does globalization affect growth? Evidence from a new index of globalization," <i>Applied Economics</i> 38, 10: 1091-1110. http://globalization.kof.ethz.ch/static/pdf/variables_2009.pdf
VENTCAP	A measure of the venture capital availability on a 7-point Likert scale generated from the statement: "Entrepreneurs with innovative but risky projects can generally find venture capital in your country (1 = not true, 7 = true)" Iran is estimated as Syria. Data are from 2007-2008 except 2009 countries, which are from 2008-2009	World Economic Forum, <i>The Global Competitiveness Report 2008-2009</i> , p. 453; <i>The Global Competitiveness Report 2009-2010</i> , p. 433

Table A.3. Description of the Applied Variables and Pillars of the Entrepreneurial Attitude Sub-Index

Individual Variable	Institutional Variable	Calculation	Pillar
OPPORTUNITY is defined as the percentage of the 18-64 population identifying good opportunity in the area they live.	MARKETAGGLOM is defined as the size of the market combined with the level of urbanization on a seven point Likert scale.	OPPORTUNITY x MARKETAGGLOM	OPPORTUNITY PERCEPTION
SKILL is defined as the percentage of the 18-64 population claiming to possess the required knowledge/skills to start business	EDUC is the percentage of the population enrolled in post-secondary education.	SKILL x EDUC	STARTUP SKILLS
NONFEAR is defined as the percentage of the 18-64 aged population stating that the fear of failure would not prevent starting a business	CRR is the Country Risk Rate that refers to the financial, macroeconomic and business climate. The alphabetical rating is turned to a seven point Likert scale to fit to our data set.	NONFEAR x CRR	NONFEAR OF FAILURE
KNOWENT is defined as the percentage of the 18-64 population who knows an entrepreneur personally who started a business in past two years.	INTERNETUSAGE is the Internet users per 100 inhabitants.	KNOWENT x INTERNETUSAGE	NETWORKING
CARSTAT is the average of the percentages of the 18-64 population who say that entrepreneurship is a good career choice and has high social status.	CPI is the perceived levels of corruption, as determined by expert assessments and opinion surveys on a seven point Likert scale.	CARSTAT x CPI	CULTURAL SUPPORT

Table A.4. Description of the Applied Variables and Pillars of the Entrepreneurial Activity Sub-Index

Individual Variable	Institutional Variable	Calculation	Pillar
TEAOPPORT is the percentage of the 18-64 population who are nascent entrepreneurs or who own and manage a business aged less than 3.5 years and started the business because of opportunity motivation divided by the TEA	FREEDOM is the freedom of the economy is one sub-index of the overall economic freedom score for each country, where 100 represents the maximum freedom	$TEAOPPORT \times FREEDOM$	OPPORTUNITY STARTUP
TECHSECT is the percentages of TEA that are in the medium- or high-tech sector	TECHABSORP indicates firm-level technology absorption capability	$TECHSECT \times TECHABSORP$	TECHNOLOGY SECTOR
HIGHEDUC is the percentage of TEA entrepreneurs having participated at least in post-secondary education.	STAFFTRAIN indicates the extent of staff training	$HIGHEDUC \times STAFFTRAIN$	QUALITY OF HUMAN RESOURCES
COMPET is the percentage of TEA started in those markets where not many businesses offer the same product	MARKDOM indicates the extent of market dominance	$COMPET \times MARKDOM$	COMPETITION

Note: TEA = Global Entrepreneurship Monitor's Total Early-phase Entrepreneurial Activity (TEA) index. A TEA business is one of the survey subjects.

Table A.5. Description of the Applied Variables and Pillars of the Entrepreneurial Aspiration Sub-Index

Individual Variable	Institutional Variable	Calculation	Pillar
NEWP is the percentage of TEA business where entrepreneurs offer a product that is new to at least some customers	GERD is the R&D percentage of GDP	$\text{NEWPROD} \times \text{GERD}$	NEW PRODUCT
NEWT is defined as the percentage of TEA business where the technology is less than 5 year old	INNOVCAT is a measure of whether a business environment allows cutting edge innovations	$\text{NEWT} \times \text{INNOVCAT}$	NEW TECH
GAZELLE is defined as the percentage of high-growth TEA business (employing 10 plus persons and over 50 percent growth in 5 years)	BUSS refers to the ability of companies to pursue distinctive strategies, which involves differentiated positioning and innovative means of production and service delivery	$\text{GAZELLE} \times \text{BUSS}$	HIGH GROWTH
EXPORT is the percentage of TEA businesses exporting at least 1 percent of product	GLOB is a part of the Index of Globalization measuring the economic dimension of globalization.	$\text{EXPORT} \times \text{GLOB}$	INTERNATIONALI ZATION
INFINV is defined as the percentage of informal investors in the 18-64 aged population multiplied by the average amount of informal investment.	VENTCAP is a measure of the venture capital availability on a 7-point Likert scale	$\text{INFINV} \times \text{VENTCAP}$	RISK CAPITAL

Note: TEA = Global Entrepreneurship Monitor's Total Early-phase Entrepreneurial Activity (TEA) index. A TEA business is one of the survey subjects.

Table A.6. Countries Included in the GEDI: Size of the Sample by Year

Country	2002	2003	2004	2005	2006	2007	2008	2009	Total
Algeria	-	-	-	-	-	-	-	2,000	2,000
Argentina	1,999	2,004	2,003	2,008	2,007	2,018	2,031	-	14,070
Australia	3,378	2,212	1,991	2,465	2,518	-	-	-	12,564
Austria	-	-	-	2,197	-	2,002	-	-	4,199
Belgium	4,057	2,184	3,879	4,047	2,001	2,028	1,997	-	20,193
Bolivia	-	-	-	-	-	-	2,000	-	2,000
Bosnia and Herzegovina	-	-	-	-	-	-	2,028	-	2,028
Brazil	2,000	2,000	4,000	2,000	2,000	2,000	2,000	-	16,000
Canada	2,007	2,028	2,451	6,418	2,038	-	-	-	14,942
Chile	2,016	1,992	-	1,997	2,007	4,008	4,515	-	16,535
China	2,054	1,607	-	2,109	2,399	2,666	-	-	10,835
Colombia	-	-	-	-	2,001	2,102	2,001	-	6,104
Croatia	2,001	2,000	2,016	2,000	2,000	2,000	1,996	-	14,013
Czech Republic	-	-	-	-	2,001	-	-	-	2,001
Denmark	2,009	2,008	2,009	2,010	10,000	2,001	2,012	-	22,049
Dominican Republic	-	-	-	-	-	2,081	2,019	-	4,100
Ecuador	-	-	2,010	-	-	-	2,142	-	4,152
Egypt	-	-	-	-	-	-	2,636	-	2,636
Finland	2,005	2,005	2,000	2,010	2,005	2,005	2,011	-	14,041
France	2,029	2,018	1,953	2,005	1,909	2,005	2,018	-	13,937
Germany	15,041	7,534	7,523	6,577	4,049	-	4,751	-	45,475
Greece	-	2,000	2,008	2,000	2,000	2,000	2,000	-	12,008
Guatemala	-	-	-	-	-	-	-	2,163	2,163
Hong Kong	2,000	2,000	2,004	-	-	2,058	-	-	8,062
Hungary	2,000	-	2,878	2,878	2,500	1,500	2,001	-	13,757
Iceland	2,000	2,011	2,002	2,002	2,001	2,002	2,002	-	14,020
India	3,047	-	-	-	1,999	1,662	2,032	-	8,740
Indonesia	-	-	-	-	2,000	-	-	-	2,000
Iran	-	-	-	-	-	-	3,124	-	3,124
Ireland	2,000	2,000	1,978	2,000	2,008	2,007	2,001	-	13,994
Israel	2,004	-	1,933	-	-	2,019	2,030	-	7,986
Italy	2,002	2,003	2,945	2,001	1,999	2,000	3,000	-	15,950
Jamaica	-	-	-	2,180	3,669	-	2,407	-	8,256
Japan	1,999	2,000	1,917	2,000	2,000	1,860	2,001	-	13,777
Jordan	-	-	-	-	-	-	-	2,006	2,006
Kazakhstan	-	-	-	-	-	2,000	-	-	2,000
Korea	2,015	-	-	-	-	-	2,000	-	4,015
Latvia	-	-	-	1,964	1,958	2,000	2,011	-	7,933
Macedonia	-	-	-	-	-	-	2,000	-	2,000
Malaysia	-	-	-	-	2,005	-	-	-	2,005
Mexico	1,002	-	-	2,011	2,015	-	2,605	-	7,633
Morocco	-	-	-	-	-	-	-	2,001	2,001
Netherlands	3,510	3,505	3,507	3,582	3,535	3,539	3,508	-	24,686
New Zealand	2,000	2,009	1,933	1,003	-	-	-	-	6,945
Norway	2,036	2,040	2,883	2,015	1,999	2,037	2,049	-	15,059
Panama	-	-	-	-	-	-	-	2,000	2,000

Country	2002	2003	2004	2005	2006	2007	2008	2009	Total
Peru	-	-	2,007	-	1,997	2,000	2,052	-	8,056
Philippines	-	-	-	-	2,000	-	-	-	2,000
Poland	2,000	-	2,001	-	-	-	-	-	4,001
Portugal	-	-	1,000	-	-	2,023	-	-	3,023
Puerto Rico	-	-	-	-	-	1,998	-	-	1,998
Romania	-	-	-	-	-	2,046	2,206	-	4,252
Russia	2,190	-	-	-	1,894	1,939	1,660	-	7,683
Saudi Arabia	-	-	-	-	-	-	-	1,881	1,881
Serbia	-	-	-	-	-	2,200	2,297	-	4,497
Singapore	2,005	2,008	3,852	4,004	4,011	-	-	-	15,880
Slovenia	2,030	2,012	2,003	3,016	3,008	3,020	3,019	-	18,108
South Africa	6,993	3,262	3,252	3,268	3,248	-	3,270	-	23,293
Spain	2,000	2,000	16,980	19,384	28,306	27,880	30,879	-	127,429
Sweden	2,000	2,025	26,700	2,002	2,003	2,001	-	-	36,731
Switzerland	2,001	2,003	-	5,456	-	2,148	-	-	11,608
Syria	-	-	-	-	-	-	-	2,002	2,002
Thailand	1,043	-	-	2,000	2,000	2,000	-	-	7,043
Tunisia	-	-	-	-	-	-	-	1,994	1,994
Turkey	-	-	-	-	2,417	2,400	2,400	-	7,217
Uganda	-	1,035	2,005	-	-	-	-	-	3,040
United Arab Emirates	-	-	-	-	2,001	2,180	-	-	4,181
United Kingdom	16,002	22,010	24,006	11,203	43,033	42,713	8,000	-	166,967
United States	7,059	9,197	14,914	2,021	2,080	2,166	5,249	-	42,686
Uruguay	-	-	-	-	1,997	2,000	2,027	-	6,024
Venezuela	-	2,000	-	2,000	-	1,794	-	-	5,794
Total	113,534	96,712	156,543	117,833	170,618	156,108	135,987	16,047	963,382

11. Appendix B: Country Rankings

Table B.1: The Global Entrepreneurship Sub-index Country Scores and Ranks

Country	GEDI		Attitude		Activities		Aspirations	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Denmark	0.76	1	0.75	5	0.97	1	0.57	6
Canada	0.74	2	0.77	3	0.89	2	0.55	9
United States	0.72	3	0.75	6	0.71	8	0.69	1
Sweden	0.69	4	0.77	4	0.71	7	0.57	5
New Zealand	0.68	5	0.86	1	0.69	11	0.49	14
Ireland	0.63	6	0.52	14	0.83	4	0.54	10
Switzerland	0.63	7	0.60	12	0.73	6	0.56	8
Norway	0.62	8	0.70	8	0.74	5	0.43	20
Iceland	0.62	9	0.65	10	0.56	18	0.64	2
Netherlands	0.62	10	0.70	7	0.67	12	0.48	16
Australia	0.60	11	0.80	2	0.56	16	0.43	19
Belgium	0.58	12	0.51	18	0.69	10	0.52	13
Finland	0.56	13	0.69	9	0.62	14	0.39	24
United Kingdom	0.56	14	0.60	11	0.66	13	0.42	21
Singapore	0.56	15	0.38	35	0.71	9	0.58	3
Germany	0.54	16	0.45	24	0.62	15	0.56	7
Puerto Rico	0.54	17	0.46	22	0.83	3	0.33	31
France	0.50	18	0.45	23	0.56	19	0.49	15
Slovenia	0.49	19	0.52	15	0.56	17	0.39	25
Korea	0.49	20	0.48	21	0.51	20	0.48	17
Israel	0.47	21	0.37	38	0.47	21	0.58	4
Austria	0.45	22	0.55	13	0.47	22	0.34	30
Hong Kong	0.45	23	0.44	27	0.37	29	0.53	11
United Arab Emirates	0.42	24	0.45	25	0.34	35	0.47	18
Czech Republic	0.42	25	0.39	33	0.34	36	0.53	12
Chile	0.41	26	0.52	16	0.33	37	0.39	23
Italy	0.41	27	0.50	19	0.36	30	0.36	27
Spain	0.40	28	0.52	17	0.45	25	0.24	38
Japan	0.40	29	0.31	47	0.47	23	0.42	22
Saudi Arabia	0.38	30	0.42	29	0.37	28	0.35	28
Malaysia	0.36	31	0.49	20	0.45	26	0.16	51
Latvia	0.36	32	0.40	31	0.43	27	0.25	37
Portugal	0.35	33	0.45	26	0.32	40	0.29	33
Greece	0.32	34	0.37	37	0.33	39	0.26	36
Uruguay	0.30	35	0.40	30	0.35	31	0.15	54
Argentina	0.30	36	0.38	36	0.31	41	0.22	41
Poland	0.29	37	0.31	45	0.21	55	0.34	29
Croatia	0.28	38	0.32	44	0.22	52	0.31	32
Peru	0.28	39	0.43	28	0.28	47	0.14	56
China	0.28	40	0.26	54	0.21	53	0.37	26

Country	GEDI		Attitude		Activities		Aspirations	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Colombia	0.28	41	0.38	34	0.28	45	0.17	49
South Africa	0.28	42	0.22	60	0.34	33	0.26	35
Turkey	0.27	43	0.31	46	0.28	46	0.23	39
Mexico	0.27	44	0.33	43	0.34	32	0.13	59
Dominican Republic	0.26	45	0.39	32	0.26	50	0.13	58
Indonesia	0.26	46	0.17	68	0.46	24	0.14	57
Hungary	0.25	47	0.30	49	0.27	49	0.19	44
Romania	0.25	48	0.27	53	0.29	44	0.18	47
Macedonia	0.24	49	0.25	56	0.21	54	0.27	34
Egypt	0.24	50	0.23	58	0.30	43	0.18	48
Jordan	0.23	51	0.35	39	0.16	64	0.18	45
Panama	0.23	52	0.30	50	0.27	48	0.11	65
India	0.23	53	0.22	62	0.23	51	0.23	40
Brazil	0.23	54	0.33	42	0.19	60	0.16	53
Venezuela	0.22	55	0.35	40	0.19	59	0.13	60
Thailand	0.22	56	0.21	66	0.33	38	0.13	61
Russia	0.22	57	0.14	70	0.30	42	0.21	43
Tunisia	0.22	58	0.21	64	0.34	34	0.10	66
Morocco	0.22	59	0.34	41	0.14	67	0.17	50
Jamaica	0.21	60	0.30	48	0.21	56	0.12	64
Algeria	0.19	61	0.23	59	0.18	63	0.16	52
Serbia	0.18	62	0.29	51	0.13	68	0.12	63
Kazakhstan	0.18	63	0.25	55	0.19	61	0.10	67
Bosnia and Herzegovina	0.18	64	0.21	63	0.11	69	0.22	42
Iran	0.17	65	0.24	57	0.18	62	0.09	68
Ecuador	0.17	66	0.21	65	0.16	65	0.13	62
Bolivia	0.16	67	0.22	61	0.20	58	0.07	69
Syria	0.16	68	0.15	69	0.16	66	0.18	46
Guatemala	0.15	69	0.20	67	0.20	57	0.05	71
Philippines	0.13	70	0.27	52	0.05	71	0.06	70
Uganda	0.10	71	0.08	71	0.07	70	0.15	55

Table B.2: Entrepreneurial Attitudes Sub-Index and Pillar Scores by Country

Country	Attitudes Sub-Index	OPPORTUNITY PERCEPTION	STARTUP SKILLS	NONFEAR OF FAILURE	NETWORKING	CULTURAL SUPPORT
New Zealand	0.86	0.66	1.00	0.92	0.95	0.91
Australia	0.80	0.84	0.81	0.84	0.77	0.76
Canada	0.77	0.76	0.69	0.95	0.64	0.90
Sweden	0.77	0.62	0.74	0.84	0.95	0.76
Denmark	0.75	0.92	0.58	0.81	0.70	0.87
United States	0.75	0.76	0.95	0.87	0.67	0.60
Netherlands	0.70	0.65	0.44	0.97	0.73	1.00
Norway	0.70	0.55	0.67	1.00	0.63	0.77
Finland	0.69	0.48	0.72	0.85	0.66	0.88
Iceland	0.65	0.41	0.64	0.54	1.00	0.92
United Kingdom	0.60	0.76	0.62	0.71	0.36	0.76
Switzerland	0.60	0.42	0.45	0.85	0.63	0.79
Austria	0.55	0.42	0.51	0.75	0.56	0.60
Ireland	0.52	0.34	0.61	0.69	0.35	0.79
Slovenia	0.52	0.16	0.74	0.91	0.76	0.54
Chile	0.52	0.54	0.56	0.71	0.27	0.72
Spain	0.52	0.54	0.63	0.54	0.36	0.58
Belgium	0.51	0.39	0.48	0.93	0.34	0.57
Italy	0.50	0.44	0.52	0.67	0.44	0.44
Malaysia	0.49	0.53	0.29	0.56	0.69	0.48
Korea	0.48	0.15	0.52	0.83	0.85	0.50
Puerto Rico	0.46	0.44	0.50	0.80	0.23	0.53
France	0.45	0.26	0.34	0.68	0.49	0.62
Germany	0.45	0.26	0.34	0.63	0.43	0.72
United Arab Emirates	0.45	0.53	0.21	0.78	0.32	0.62
Portugal	0.45	0.22	0.66	0.69	0.28	0.58
Hong Kong	0.44	0.57	0.12	0.80	0.38	0.75
Peru	0.43	0.75	0.54	0.36	0.30	0.31
Saudi Arabia	0.42	1.00	0.47	0.24	0.27	0.35
Uruguay	0.40	0.50	0.54	0.32	0.18	0.67
Latvia	0.40	0.24	0.49	0.40	0.54	0.40
Dominican Republic	0.39	0.46	0.55	0.36	0.32	0.30
Czech Republic	0.39	0.30	0.37	0.72	0.29	0.33
Colombia	0.38	0.85	0.40	0.48	0.12	0.37
Singapore	0.38	0.19	0.21	0.80	0.25	0.68
Argentina	0.38	0.88	0.82	0.17	0.16	0.18
Greece	0.37	0.21	0.94	0.46	0.13	0.39
Israel	0.37	0.37	0.47	0.37	0.22	0.47
Jordan	0.35	0.42	0.51	0.15	0.29	0.57
Venezuela	0.35	0.95	0.74	0.20	0.17	0.09
Morocco	0.34	0.42	0.15	0.53	0.40	0.34
Brazil	0.33	0.82	0.21	0.41	0.14	0.28
Mexico	0.33	0.63	0.23	0.67	0.15	0.17
Croatia	0.32	0.17	0.43	0.43	0.41	0.26

Country	Attitudes Sub-Index	OPPORTUNITY PERCEPTION	STARTUP SKILLS	NONFEAR OF FAILURE	NETWORKING	CULTURAL SUPPORT
Poland	0.31	0.15	0.41	0.60	0.24	0.28
Turkey	0.31	0.51	0.32	0.33	0.11	0.39
Japan	0.31	0.06	0.11	0.98	0.39	0.34
Jamaica	0.30	0.23	0.26	0.21	0.60	0.28
Hungary	0.30	0.06	0.48	0.66	0.24	0.31
Panama	0.30	0.39	0.65	0.11	0.24	0.24
Serbia	0.29	0.31	0.57	0.21	0.21	0.23
Philippines	0.27	0.65	0.43	0.29	0.04	0.18
Romania	0.27	0.17	0.22	0.45	0.31	0.23
China	0.26	0.28	0.10	0.73	0.11	0.26
Kazakhstan	0.25	0.49	0.47	0.22	0.08	0.13
Macedonia	0.25	0.27	0.38	0.18	0.14	0.30
Iran	0.24	0.40	0.33	0.08	0.38	0.12
Egypt	0.23	0.22	0.44	0.35	0.06	0.21
Algeria	0.23	0.53	0.25	0.16	0.14	0.13
South Africa	0.22	0.19	0.06	0.67	0.04	0.34
Bolivia	0.22	0.39	0.65	0.04	0.04	0.16
India	0.22	0.28	0.08	0.59	0.03	0.27
Bosnia and Herzegovina	0.21	0.19	0.37	0.07	0.24	0.25
Tunisia	0.21	0.05	0.24	0.11	0.23	0.52
Ecuador	0.21	0.36	0.40	0.17	0.10	0.09
Thailand	0.21	0.04	0.35	0.39	0.07	0.30
Guatemala	0.20	0.38	0.23	0.13	0.12	0.16
Indonesia	0.17	0.36	0.16	0.31	0.06	0.05
Syria	0.15	0.44	0.15	0.00	0.11	0.15
Russia	0.14	0.20	0.17	0.30	0.10	0.00
Uganda	0.08	0.00	0.00	0.21	0.00	0.25

Table B.3. Entrepreneurial Activity Sub-Index and Pillar Scores by Country

Country	Activities Sub-Index	OPPORTUNITY STARTUP	TECHNOLOGY SECTOR	QUALITY OF HUMAN RESOURCE	COMPETITION
Denmark	0.97	1.00	0.95	1.00	0.92
Canada	0.89	0.81	1.00	0.90	0.85
Puerto Rico	0.83	0.68	0.82	0.95	0.96
Ireland	0.83	0.77	0.90	0.76	0.93
Norway	0.74	0.78	0.83	0.66	0.73
Switzerland	0.73	0.66	0.84	0.64	0.80
Sweden	0.71	0.89	0.82	0.49	0.82
United States	0.71	0.76	0.46	0.84	1.00
Singapore	0.71	0.87	0.86	0.85	0.46
Belgium	0.69	0.82	0.61	0.75	0.62
New Zealand	0.69	0.91	0.80	0.48	0.69
Netherlands	0.67	0.74	0.76	0.43	0.89
United Kingdom	0.66	0.73	0.54	0.58	0.87
Finland	0.62	0.76	0.61	0.56	0.59
Germany	0.62	0.58	0.85	0.41	0.80
Australia	0.56	0.75	0.85	0.19	0.91
Slovenia	0.56	0.56	0.69	0.46	0.58
Iceland	0.56	0.82	0.67	0.41	0.43
France	0.56	0.55	0.43	0.63	0.67
Korea	0.51	0.35	0.68	0.80	0.33
Israel	0.47	0.34	0.89	0.58	0.27
Austria	0.47	0.61	0.46	0.21	0.83
Japan	0.47	0.60	0.68	0.40	0.29
Indonesia	0.46	0.24	0.49	0.70	0.57
Spain	0.45	0.57	0.42	0.38	0.47
Malaysia	0.45	0.56	0.38	0.37	0.50
Latvia	0.43	0.50	0.38	0.69	0.27
Saudi Arabia	0.37	0.64	0.04	0.50	0.68
Hong Kong	0.37	0.51	0.32	0.41	0.28
Italy	0.36	0.46	0.36	0.27	0.38
Uruguay	0.35	0.19	0.50	0.28	0.56
Mexico	0.34	0.51	0.27	0.40	0.24
South Africa	0.34	0.25	0.31	0.21	0.70
Tunisia	0.34	0.47	0.23	0.29	0.43
United Arab Emirates	0.34	0.17	0.20	0.81	0.34
Czech Republic	0.34	0.27	0.58	0.17	0.41
Chile	0.33	0.30	0.45	0.13	0.56
Thailand	0.33	0.36	0.13	0.69	0.29
Greece	0.33	0.35	0.29	0.36	0.31
Portugal	0.32	0.65	0.10	0.30	0.36
Argentina	0.31	0.19	0.38	0.33	0.37
Russia	0.30	0.18	0.37	0.57	0.17
Egypt	0.30	0.33	0.43	0.45	0.11

Country	Activities Sub-Index	OPPORTUNITY STARTUP	TECHNOLOGY SECTOR	QUALITY OF HUMAN RESOURCE	COMPETITION
Romania	0.29	0.28	0.14	0.69	0.19
Colombia	0.28	0.23	0.26	0.45	0.21
Turkey	0.28	0.21	0.40	0.39	0.17
Peru	0.28	0.28	0.24	0.28	0.31
Panama	0.27	0.46	0.16	0.24	0.27
Hungary	0.27	0.36	0.30	0.32	0.13
Dominican Republic	0.26	0.25	0.30	0.21	0.28
India	0.23	0.11	0.19	0.26	0.43
Croatia	0.22	0.10	0.33	0.16	0.33
China	0.21	0.00	0.36	0.58	0.08
Macedonia	0.21	0.09	0.24	0.30	0.25
Poland	0.21	0.13	0.26	0.24	0.21
Jamaica	0.21	0.34	0.11	0.06	0.39
Guatemala	0.20	0.20	0.22	0.00	0.53
Bolivia	0.20	0.23	0.20	0.21	0.16
Venezuela	0.19	0.07	0.56	0.17	0.07
Brazil	0.19	0.02	0.26	0.22	0.33
Kazakhstan	0.19	0.20	0.10	0.53	0.04
Iran	0.18	0.13	0.26	0.22	0.13
Algeria	0.18	0.40	0.02	0.17	0.23
Jordan	0.16	0.21	0.03	0.21	0.25
Ecuador	0.16	0.20	0.28	0.14	0.06
Syria	0.16	0.15	0.03	0.17	0.32
Morocco	0.14	0.46	0.00	0.01	0.19
Serbia	0.13	0.04	0.19	0.13	0.19
Bosnia and Herzegovina	0.11	0.06	0.09	0.10	0.18
Uganda	0.07	0.05	0.01	0.04	0.18
Philippines	0.05	0.02	0.09	0.09	0.00

Table B.4. Entrepreneurial Aspirations Sub-Index and Pillar Scores by Country

Country	Aspirations Sub-Index	NEW PRODUCT	NEW TECH	HIGH GROWTH	INTERNATION ALIZATION	RISK CAPITAL
United States	0.69	0.59	0.95	0.56	0.65	0.77
Iceland	0.64	0.70	0.49	0.45	0.80	0.95
Israel	0.58	0.95	0.93	0.51	0.80	0.22
Singapore	0.58	0.53	0.58	0.57	0.95	0.42
Denmark	0.57	0.75	0.39	0.47	0.53	0.88
Sweden	0.57	0.75	1.00	0.36	0.46	0.53
Germany	0.56	0.56	0.82	0.47	0.81	0.35
Switzerland	0.56	0.71	0.55	0.34	0.65	0.72
Canada	0.55	0.52	0.55	0.5	0.84	0.43
Ireland	0.54	0.30	0.48	0.43	0.78	0.99
Czech Republic	0.53	0.47	0.39	0.58	1.00	0.36
Hong Kong	0.53	0.23	0.6	0.65	0.93	0.57
Belgium	0.52	0.43	0.77	0.28	0.86	0.55
France	0.49	0.57	0.52	0.26	0.76	0.55
New Zealand	0.49	0.18	0.81	0.34	0.86	0.69
Korea	0.48	1.00	0.71	0.37	0.55	0.17
Netherlands	0.48	0.32	0.53	0.28	0.63	0.83
United Arab Emirates	0.47	0.09	0.32	0.9	0.66	1.00
Australia	0.43	0.36	0.67	0.25	0.48	0.51
Norway	0.43	0.32	0.58	0.29	0.65	0.37
Japan	0.42	0.90	0.51	0.51	0.34	0.14
United Kingdom	0.42	0.38	0.47	0.46	0.49	0.32
Chile	0.39	0.26	0.45	0.59	0.59	0.22
Finland	0.39	0.86	0.42	0.26	0.46	0.16
Slovenia	0.39	0.46	0.27	0.41	0.71	0.21
China	0.37	0.37	0.38	0.45	0.40	0.29
Italy	0.36	0.28	0.35	0.35	0.62	0.27
Saudi Arabia	0.35	0.05	0.6	1.00	0.34	0.21
Austria	0.34	0.61	0.05	0.32	0.7	0.34
Poland	0.34	0.12	0.84	0.23	0.73	0.13
Puerto Rico	0.33	0.15	0.17	0.99	0.55	0.12
Croatia	0.31	0.12	0.36	0.37	0.70	0.19
Portugal	0.29	0.16	0.28	0.25	0.66	0.21
Macedonia	0.27	0.03	0.19	0.28	0.48	0.64
Greece	0.26	0.10	0.37	0.13	0.42	0.4
South Africa	0.26	0.32	0.25	0.26	0.55	0.08
Latvia	0.25	0.16	0.05	0.50	0.62	0.14
Spain	0.24	0.31	0.18	0.13	0.37	0.24
India	0.23	0.11	0.64	0.11	0.37	0.09
Turkey	0.23	0.30	0.03	0.56	0.36	0.09
Argentina	0.22	0.15	0.38	0.33	0.30	0.04
Bosnia and Herzegovina	0.22	0.00	0.09	0.21	0.51	0.47
Russia	0.21	0.20	0.18	0.6	0.25	0.01
Hungary	0.19	0.12	0.29	0.17	0.50	0.01

Country	Aspirations Sub-Index	NEW PRODUCT	NEW TECH	HIGH GROWTH	INTERNATION ALIZATION	RISK CAPITAL
Egypt	0.18	0.02	0.20	0.20	0.27	0.27
Jordan	0.18	0.08	0.42	0.2	0.22	0.07
Romania	0.18	0.08	0.00	0.32	0.69	0.02
Syria	0.18	0.04	0.21	0.41	0.21	0.13
Colombia	0.17	0.04	0.15	0.49	0.26	0.05
Morocco	0.17	0.06	0.32	0.13	0.48	0.00
Algeria	0.16	0.01	0.34	0.17	0.19	0.17
Brazil	0.16	0.08	0.49	0.16	0.16	0.00
Malaysia	0.16	0.17	0.10	0.08	0.40	0.11
Uganda	0.15	0.02	0.71	0.09	0.11	0.00
Uruguay	0.15	0.09	0.07	0.30	0.25	0.10
Indonesia	0.14	0.00	0.31	0.08	0.15	0.21
Peru	0.14	0.05	0.19	0.27	0.23	0.02
Dominican Republic	0.13	0.03	0.04	0.28	0.33	0.06
Ecuador	0.13	0.01	0.33	0.12	0.23	0.01
Mexico	0.13	0.14	0.19	0.08	0.30	0.02
Thailand	0.13	0.07	0.25	0.14	0.16	0.06
Jamaica	0.12	0.00	0.15	0.06	0.40	0.04
Serbia	0.12	0.03	0.11	0.24	0.15	0.12
Panama	0.11	0.03	0.16	0.21	0.16	0.04
Kazakhstan	0.10	0.01	0.03	0.26	0.23	0.02
Tunisia	0.10	0.14	0.16	0.12	0.05	0.06
Iran	0.09	0.07	0.00	0.29	0.01	0.10
Bolivia	0.07	0.05	0.03	0.11	0.14	0.05
Philippines	0.06	0.01	0.16	0.05	0.08	0.00
Guatemala	0.05	0.00	0.26	0.00	0.00	0.02