Global Entrepreneurship and Development Index (GEDI): The 14 Pillars of Entrepreneurship

The characteristics of entrepreneurship are many and complex. While a widely accepted definition of entrepreneurship is lacking, there is general agreement that the concept has numerous dimensions.\(^1\) We take this into account in creating our entrepreneurship index. Some businesses have a larger impact on markets, create more new jobs, and grow faster and larger than others. We also take into account the fact that entrepreneurship plays a different role at different stages of development. Considering all of these possibilities and limitations, we define entrepreneurship as “a dynamic interaction of entrepreneurial attitudes, entrepreneurial activities, and entrepreneurial aspirations that vary across stages of economic development.”

The GEDI is composed of three building blocks or sub-indexes—the 3As: entrepreneurial attitude, entrepreneurial activity, and entrepreneurial aspiration. These three sub-indexes stand on 14 pillars, each of which contains an individual and an institutional variable that corresponds to the micro- and the macro-level aspects of entrepreneurship. Unlike other indexes that incorporate only institutional or individual variables, the pillars of the GEDI include both individual and institutional variables. These pillars are an attempt to capture the open-ended nature of entrepreneurship; analyzing them can provide an in-depth view of the strengths and weaknesses of those listed in the index. We now describe the 14 pillars of entrepreneurship.

The Pillars of Entrepreneurial Attitude

Pillar 1: OPPORTUNITY PERCEPTION. This pillar captures the potential “opportunity perception” of a population by considering the size of its country’s domestic market and level of urbanization. A population’s opportunity perception potential is an essential ingredient of entrepreneurial startups.\(^2\) Within this pillar is the individual variable, which measures the percentage of the population that can identify good opportunities to start a business in the area where they live. However, the value of these opportunities also depends on the size of the market. The MARKETSIZE institutional variable consists of two smaller variables: the size of the domestic market and the urbanization variable. The urbanization variable is intended to capture which opportunities have better prospects in more developed urban areas than they do in poorer rural areas.\(^3\) MARKETAGGLOM is determined by multiplying the size of the domestic market by the percentage of the population living in urban areas.

---

\(^1\) Gartner (1990), Davidsson (2004), Wennekers, Thurik (1999) and Godin et al (2008) all identify several dimensions of entrepreneurship.

\(^2\) Sørensen and Sorenson (2003).

\(^3\) Acs and Varga 2005
Pillar 2: STARTUP SKILLS. Launching a successful venture requires the potential entrepreneur to have the necessary startup skills.\textsuperscript{4} SKILL measures the percentage of the population who believe they have adequate startup skills. Most people in developing countries think they have the necessary skills to start a business, but their skills usually were acquired through workplace trial and error in relatively simple business activities. In developed countries, business formation, operation, management, etc., require skills that are acquired through formal education and training. Hence, education, especially postsecondary education, plays a vital role in teaching and developing entrepreneurial skills. Today there are 150 million students enrolled in some kind of education beyond high school, a 53 percent increase in less than a decade.\textsuperscript{5} People all over the world see education as a pathway out of poverty.

Pillar 3: NONFEAR OF FAILURE. Of the personal entrepreneurial traits, fear of failure is one of the most important obstacles to a startup.\textsuperscript{6} Aversion to high-risk enterprises can retard nascent entrepreneurship. NONFEAR is defined as the percentage of the population who do not believe that fear of failure would prevent them from starting a business. BUSINESS RISK reflects the availability and reliability of corporate financial information, the protection of creditors by law, and the institutional support of inter-company transactions.

Pillar 4: NETWORKING. Networking combines an entrepreneur’s personal knowledge with their ability to use the Internet for business purposes. This combination serves as a proxy for networking, which is also an important ingredient of successful venture creation and entrepreneurship. Entrepreneurs who have better networks are more successful, can identify more viable opportunities, and access more and better resources.\textsuperscript{7} We define the basic networking possibility of a potential entrepreneur by the percentage of the population who personally know an entrepreneur who started a business within two years. However, connecting through cyberspace with the rest of the world adds another dimension to networking and opens up much greater opportunities than before.

Pillar 5: CULTURAL SUPPORT. This pillar is a combined measure of how a country’s inhabitants view entrepreneurs in term of status and career choice, and how the level of corruption in that country affects this view. Without strong cultural support, the best and brightest do not want to be responsible entrepreneurs, and they decide to enter a traditional profession.\textsuperscript{8} CARSTAT is the average of the percentage of the population aged 18-64 who say that entrepreneurship is a good career choice and enjoys high status. The associated institutional

\textsuperscript{4} Papagiannidis and. Li 2005
\textsuperscript{5} UNESCO 2009
\textsuperscript{6} Caliendo, Fossen and Kritikos 2009
\textsuperscript{7} Shane and Cable 2003
\textsuperscript{8} Guiso et al, (2006).
variable measures the level of CORRUPTION. High levels of corruption can undermine the high status and steady career paths of legitimate entrepreneurs.\(^9\)

**The Pillars of Entrepreneurial Activity**

Pillar 6: OPPORTUNITY STARTUP. This is a measure of startups by people who are motivated by opportunity but face regulatory constraints. An entrepreneur’s motivation for starting a business is an important signal of quality. Opportunity entrepreneurs are believed to be better prepared, to have superior skills, and to earn more than what we call necessity entrepreneurs. TEAOPPORT is defined as the percentage of the Total Entrepreneurial Activity (TEA) businesses started to exploit a good opportunity, to increase income, or to fulfill personal aims, in contrast to those started by people who have no other options for work. The institutional variable applied here is business freedom (FREEDOM),\(^{10}\) one sub-index of the Index of Economic Freedom. The FREEDOM variable is appropriate for capturing the overall burden of regulation, as well as the regulatory efficiency of the government in influencing startups and operating businesses.

Pillar 7: TECHNOLOGY SECTOR. In the modern knowledge economy the information and communication technologies (ICT) play a crucial role in economic development. Not all sectors provide the same chances for businesses to survive and or their potential for growth.\(^{11}\) The TECHSECT variable is a measure of the businesses that are in technology sectors. The institutional variable is a measure of a country’s capacity for firm-level technology absorption, as reported by the World Economic Forum. The diffusion of new technology, as well as the capability to absorb it, is vital for innovative firms with high growth potential.\(^{12}\)

Pillar 8: HUMAN RESOURCES. The prevalence of high-quality human capital is vitally important for ventures that are highly innovative and require an educated, experienced, and healthy workforce to continue to grow. An important feature of a venture with high growth potential is the entrepreneur’s level of education.\(^{13}\) The HIGHEDUC variable captures the quality of entrepreneurs; it is widely held that entrepreneurs with higher education degrees are more capable and willing to start and manage high-growth businesses. The quality of employees also has an impact on business development, innovation, and growth potential. The institutional variable is a country’s level of investment in business training and employee development. It can be expected that heavy investment in employees pays off and that training increases the quality of the employees.

---

\(^9\) Baumol, 1990
\(^{10}\) Bhola et al, 2006.
\(^{11}\) Klepper 2001
\(^{12}\) Coad and Rao 2008
\(^{13}\) Bates 1990
Pillar 9: COMPETITION. Competition is a measure of the level of a business’ product or market uniqueness, combined with the market power of existing businesses and business groups. COMPET is defined as the percentage of TEA businesses that have only a few competitors that offer the same product or service. However, market entry can be prevented or made more difficult if there are powerful business groups dominating the market. The extent of market dominance by a few business groups is measured by the variable MARKDOM, a variable reported by the World Economic Forum.

The Pillars of Entrepreneurial Aspiration

Pillar 10: NEW PRODUCT. New products play a crucial role in the economy of all countries. While for years rich countries were the source of most new products today developing countries are producing products that are dramatically cheaper than their Western equivalents. New product is a measure of a country’s potential to generate new products and to adopt or imitate existing products. In order to quantify the potential for new product innovation, an institutional variable related to research and development (R&D) seems to be relevant. Gross Domestic Expenditure on Research and Development (GERD) is the R&D percentage of Gross Domestic Product (GDP) as reported by OECD. While R&D alone does not guarantee successful growth, it is clear that without systematic research activity, new product development—and therefore future growth—will be inhibited.

Pillar 11: NEW TECH. Applying and/or creating new technology is another important feature of businesses with high growth potential. NEWT is defined as the percentage of businesses whose principal underlying technology is less than five years old. However, the most entrepreneurial businesses do not just apply new technology, they create it. The problem is similar to the NEW PRODUCT indicator: whereas many developing country businesses may apply the latest technology, they tend to buy or copy it. An appropriate institutional variable applied here is INNOV, which is a complex measure of whether a business environment allows cutting-edge innovations.

Pillar 12: HIGH GROWTH. This is a combined measure of the percentage of high-growth businesses that intend to employ at least ten people and plan to grow more than 50 percent in five years(GAZELLE) with business strategy sophistication (BUSS STRATEGY). It might be

---

14 Baumol, Litan, and Schramm 2007
15 Stam and Wennberg 2009
16 Acs, Parsons and Tracy 2008
argued that a shortcoming of GAZELLE variable is that growth is not an actual but an expected rate. However, a measure of expected growth is in fact a more appropriate measure of aspiration than a measure of realized growth. BUSS STRATEGY refers to “the ability of companies to pursue distinctive strategies, which involves differentiated positioning and innovative means of production and service delivery.” HIGH GROWTH combines high growth potential with a sophisticated strategy.

Pillar 13: INTERNATIONALIZATION. Internationalization is believed to be a major determinant of growth. A widely applied proxy for internationalization is exporting. Exporting demands capabilities beyond those needed by businesses that produce only for domestic markets. However, the institutional dimension is also important: a country’s openness to international entrepreneurs—that is, the potential for internationalization—can be estimated by its degree of globalization. The internationalization indicator is designed to capture the degree to which a country’s entrepreneurs are internationalized, as measured by businesses’ exporting potential, controlling for the extent to which the country is economically globalized.

Pillar 14: RISK CAPITAL. The availability of risk finance, particularly equity rather than debt, is an essential precondition for fulfilling entrepreneurial aspirations that are beyond an individual entrepreneur’s personal financial resources. Here we combine two kinds of finance, the informal investment (INFINV) and the institutional venture capital (VENTCAP). INFINV is defined as the percentage of informal investors in the population aged 18-64, multiplied by the average size of individuals’ investment in other people’s new businesses. While the rate of informal investment is high in factor-driven economies, the amount of informal investment is considerably larger in efficiency- and innovation-driven countries; combining them balances these two effects. Our institutional variable here is VENTCAP, which is a measure of available national venture capital, as reported by the World Economic Forum.

17 De Clercq, Sapienza, and Crijns (2005).