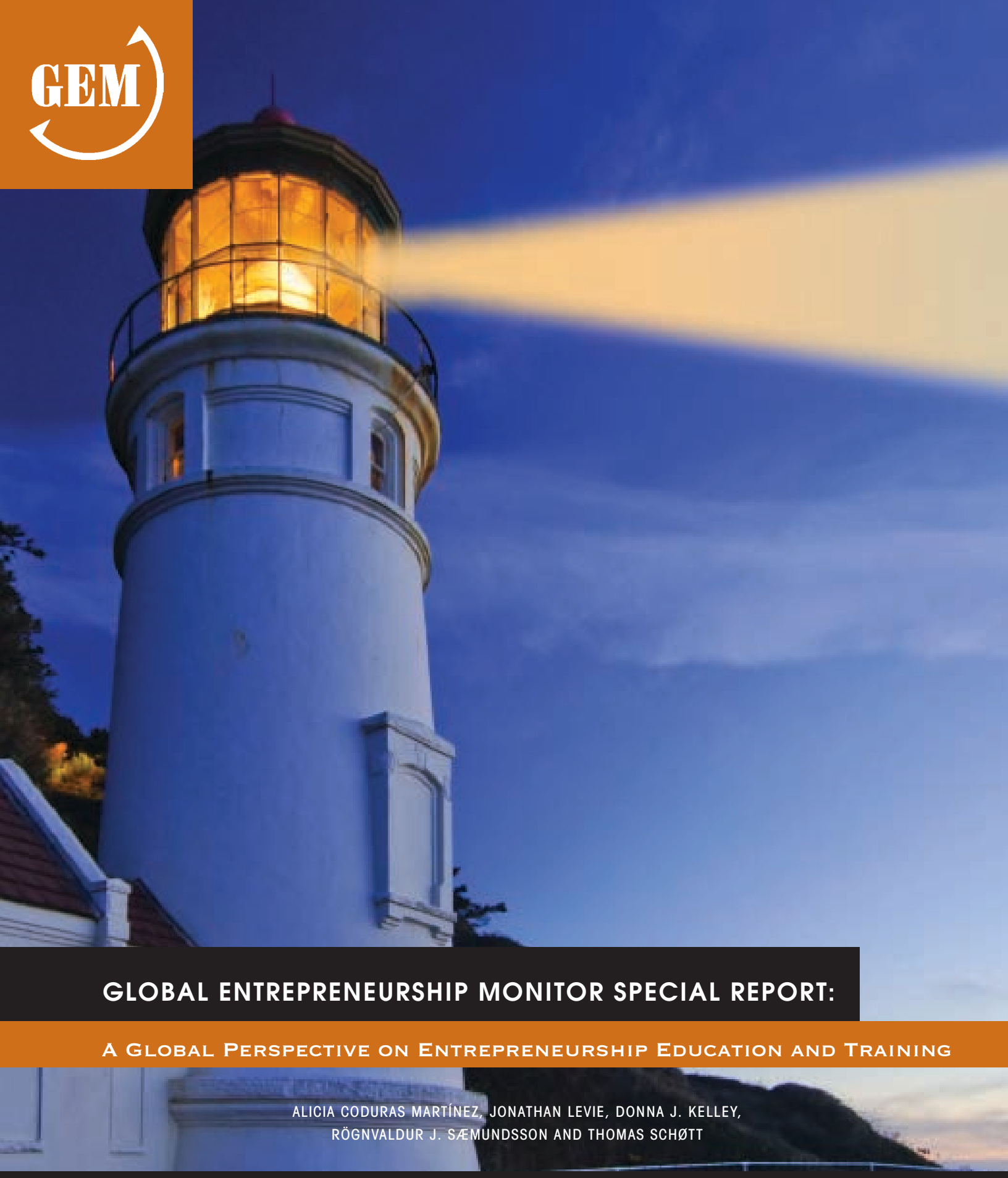

GEM

GLOBAL ENTREPRENEURSHIP MONITOR SPECIAL REPORT:

A Global Perspective on Entrepreneurship Education and Training

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Global Entrepreneurship Monitor Special Report

A Global Perspective on Entrepreneurship Education and Training

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Executive Summary

In 2008 the Global Entrepreneurship Monitor set out to investigate the prevalence and sources of entrepreneurship education and training, and the effect of this training on starting a business. Thirty-eight national teams participated in this study, adding specialized questions to the standard GEM Adult Populations Surveys (APS). In addition, 30 countries added questions to the National Expert Surveys (NES).

This report expands on the eight-page education and training section found on pages 41-48 of the *Global Entrepreneurship Monitor 2008 Executive Report*. After a brief literature review, we present expert opinions on the current state of entrepreneurship education and training in 30 countries. The report then details the level and sources of training received by the adult population (18-64) in the 38 countries surveyed by GEM. By examining data from the APS, GEM is able to develop profiles of individuals most and least likely to have received training. Additionally, we present new information on the effects of training on an individual's entrepreneurial awareness, attitudes, intentions and activity in each of the participating countries. Then, five GEM countries provide insights about the types of advisors used by entrepreneurs. The report concludes with possible implications of these new findings and suggests areas for further research.

To facilitate analysis, participating nations are classified into three groups with similar levels of economic development, from the lowest level "factor-driven" group, to the middle level "efficiency-driven" group, and then to the highest level "innovation-driven" group. The 38 participating countries are not a random sample of countries in these groups, so readers should interpret the results with this in mind.

In Chapter 2, a review of the literature reveals that entrepreneurship education and training has grown rapidly in recent decades. However, little comparative data exists on how many people receive training in business start-up activity, whether some people are more likely to receive training than others and whether the training makes any difference in their subsequent entrepreneurial behavior.

Chapter 3 shows that since 2000, GEM National Expert Surveys have gathered data that consistently demonstrates experts' dissatisfaction with aspects of entrepreneurship education and training in their countries. They tend to rate the adequacy of entrepreneurship education and training in primary and secondary schools lower than any other entrepreneurship framework condition. In most participating countries in 2008, experts agreed that entrepreneurs needed external assistance with starting businesses. Satisfaction with external assistance tended to vary by level of economic development. In Germany, Finland, Republic of Korea, Ireland, Spain and the United States, experts tended to agree that public and/or private agencies outside the formal education system provide adequate entrepreneurship education and training. Experts in other participating GEM countries were less positive.

Chapter 4 shows the proportion of working-age individuals who have received training in starting a business in 38 countries. More than one-fifth of the working-age population (21%) across these countries has received training in starting a business. Country-level prevalence rates vary considerably, even between countries with similar levels of economic development. Most countries show a level between 10% and 30%.

For most countries, though not all, more than half of the trained population engaged in this training voluntarily, rather than being required to do so. A large majority of those who received start-up training did so as a part of their formal education in school, college or university. On average, around 80% of those who have received training have done so during their formal education. This high proportion of formal training reveals the important role the formal education system plays in entrepreneurship training. In most countries, training at school is more prevalent than training at the tertiary level.

Slightly more than 60% of those who have received training, on average, have received informal training, either exclusively or in addition to formal training. This high level of informal training suggests that, despite having obtained formal entrepreneurship education or training, people may also want focused "not for credit, but for real" training. The most frequent source of informal training in most of the countries is self-study, followed by informal university programs and courses offered by business associations.

The final section of Chapter 4 demonstrates demographic differences between trained and untrained individuals. Start-up training rates vary according to an individual's age, gender, education and income. In all three economic groups, younger individuals are more likely to have received training in starting a business. This probably reflects the recent rise in entrepreneurship training offered in the formal education system. People from wealthier households and better-educated people are also more likely to have received training. Such individuals may have more opportunities to avail of training. In most countries, men are more likely than women to have volunteered for training. In less well-developed countries, women tend to have had fewer opportunities for compulsory training than men.

Chapter 5 analyzes the impact of training on an individual's propensity for entrepreneurial attitudes or behavior. GEM data are ideally suited to address methodological issues that previous studies have found difficult to overcome, including self-selection into training, time delay in demonstrable effects, lack of control groups and the role of an individual's background and context. By comparing those who had only compulsory training to those who had no training, and controlling for an individual's demographic background and country-specific conditions, a "gain from training" was demonstrated using multivariate statistical analysis. This gain from training varies by context. Training is most effective in contexts with favorable institutional environments, where the training-induced positive skills, perceptions and intentions can be translated into action. Training appears to be particularly effective in western European countries with low rates of early-stage entrepreneurial activity, such as Belgium, France, Germany and the United Kingdom, where significant gains equal to a doubling of the odds of engaging in early-stage entrepreneurial activity were recorded among trained individuals.

Chapter 6 presents a study of the links between training and the use of advisors in five GEM countries with highly different country contexts. While in four of these countries (Brazil, Latvia, Republic of Korea and Denmark) trained individuals tended to have more advisors, this was not true in Iran. The type of advisor chosen (from five spheres of influence: private, job, experience, professional and market) also varied. Advisors who were family and friends were more common advisors in Brazil and Iran. Advisors from other spheres were more prominent in Republic of Korea and Denmark. Latvia took an intermediate position.

Chapter 7 makes several conclusions: The amount and type of training varies widely across countries, and this is not necessarily linked to a country's state of economic development. However, the impact of such training does vary according to the level of economic development. It appears to have greatest effect on early-stage entrepreneurial activity in countries with favorable institutional contexts. This finding fits the GEM model, which predicts that training in starting a business is most effective and relevant in innovation-driven countries. It supports the argument that factor-driven countries in particular should not invest large-scale resources in training programs if basic framework conditions are not adequate. An alternative explanation for the findings is that the quality of training may vary by country context, and that less-developed economies have lower quality forms of training. There is some support for this view from the collective opinions of experts in these countries. It is likely that both explanations are valid, but further research needs to be done on how forms of training vary by country and which forms of training are most effective.

The GEM Research Program

Since its first comparative national surveys in 1999, the Global Entrepreneurship Monitor (GEM) research consortium has contributed toward building and enhancing global understanding about the attitudes, activity and aspirations of entrepreneurs and environmental factors that help them flourish. By improving knowledge about entrepreneurship, GEM helps governments, businesses and educators around the world design policies, develop programs and provide assistance to help enterprising individuals generate new jobs and wealth in an increasingly global business environment.

The GEM project focuses on three main objectives:

- To measure the scale and scope of entrepreneurial activity and analyze how this differs across countries
- To uncover factors determining national levels of entrepreneurial activity
- To identify policies that may enhance the national level of entrepreneurial activity

The Global Entrepreneurship Monitor was conceived in 1997 by Michael Hay of London Business School (LBS) and Bill Bygrave of Babson College. LBS and Babson funded a prototype study that year. Ten national teams conducted the first GEM Global study in 1999 with Paul Reynolds as the Principal Investigator. Since then, more than 64 national teams have participated in GEM through a consortium headed by the Global Entrepreneurship Research Association (GERA), which is a not-for-profit organization governed by representatives of the national teams, the two founding institutions and sponsoring institutions. Led by a central coordination team, this consortium administers an annual Adult Population Survey (APS) of at least 2,000 individuals aged between 18 and 64 in each participating country. In addition, GEM national teams conduct National Expert Surveys (NES) to obtain insights about particular factors impacting entrepreneurship in each country.

GEM aims to be the leading source of information and analysis about entrepreneurship across the globe. The study employs an original methodology that has been continually refined over ten years. Data collection follows strict quality control procedures. This strong methodology, among other distinct features, contributes to the project's uniqueness and value for those seeking to benchmark and make comparisons about entrepreneurship among nations.

Each economy participating in the GEM project has a national academic team, which selects a local survey vendor to conduct the APS and then monitors the process for quality control. The GEM central coordination team and its specialized staff ensure that each team follows strict GEM research standards. This ensures data quality and allows for the harmonization of data across all participating countries. All teams and vendors therefore adopt the same methodology.

Quality control is similar in the NES and includes an oversight role by the central coordination team. National teams conduct this survey in accordance with the specific procedures and policies established by the GEM consortium. The NES process includes the selection of at least 36 experts, covering nine framework conditions that influence a nation's entrepreneurial environment: financial support, government policies and programs, education and training, R&D transfer, access to commercial and professional infrastructure, internal market dynamics, access to physical infrastructure and social and cultural norms. Interviews are conducted with at least four experts in each of the nine areas.

GEM publishes annual global reports and GEM national teams publish individual country-level reports. In addition, GEM publishes special reports on topics including women in entrepreneurship, high-growth ventures and entrepreneurial finance. This special report on entrepreneurship education and training draws on additional questions developed around this topic for the GEM 2008 APS questionnaire. These questions were approved by the GERA annual assembly and reviewed by the central coordination team.

Glossary

Entrepreneurship education is the building of knowledge and skills either "about" or "for the purpose of" entrepreneurship generally, as part of recognized education programs at primary, secondary or tertiary-level educational institutions.

Entrepreneurship training is the building of knowledge and skills in preparation for starting a business.

In-school training specifically refers to training conducted within primary and secondary education programs in any nation.

Non-school training comprises any courses offered outside primary and secondary education programs, provided by any type of institution: universities, business schools, public institutions, chambers of commerce, trade unions, employers or any other entity.

Compulsory training is defined as programs either in school or after school that an individual has taken but did not freely elect to take; it is training required to complete or graduate from a particular program or to obtain some other benefit, such as a grant or official business registration.

Voluntary training is training undertaken by choice.

Formal training includes any course that is part of an official education program, whether compulsory or voluntary. This includes primary or secondary education and tertiary-level certificate, diploma or degree programs.

Informal training operates outside formal programs, for example, non-credit bearing courses at a university, local business organization or a government agency.

Gain from training is the increased odds of engaging in entrepreneurial behavior due to training, rather than a consequence of some prior desire to behave entrepreneurially.

In the 2008 GEM Executive Report, GEM countries were classified into three different phases of economic development, following the framework employed by the Global Competitiveness Report (Porter and Schwab, 2008; Porter, Sachs and McArthur, 2002):

> **Factor-driven countries** tend to have economies that are primarily extractive in nature, and their governments should focus on basic requirements such as primary education and basic governance.
>
> **Efficiency-driven countries** are—or should devote more attention to—driving down labor costs as basic requirements are met.
>
> **Innovation-driven countries** are wealthier economies that are becoming less price-competitive and need to focus on providing the conditions that allow opportunity-based entrepreneurship and innovation to flourish.

APS is the GEM Adult Population Survey: a random sample of the working-age population in a country.

NES is the GEM National Expert Survey: a selected sample of individuals who are deemed expert in at least one Entrepreneurial Framework Condition (EFC) or aspect of the environment for entrepreneurship. GEM recognizes nine major EFCs, of which three, including entrepreneurship education and training, have two major components. Typically, in each country's NES, at least four experts are identified per EFC, of which one is an entrepreneur, two are providers of that EFC and one is an expert observer.

1 Introduction

In the closing decades of the 20th century, entrepreneurship gained increased recognition among economists as a significant driver of improvements in societal welfare. Across the globe, governments have acknowledged the importance of their roles in motivating individuals, businesses and related stakeholders to perceive and develop new opportunities that can promote positive change and create economic growth in their societies (Blenker, Dreisler and Kjeldsen, 2008). This entrepreneurial spirit is now seen as the main source of innovations in nearly all industries, leading to the birth of new enterprises and the growth and renewal of established organizations.

The impact of entrepreneurship education and training on individual attitudes, actions and ambitions is of particular interest to policy makers, educators and practitioners. It is generally believed that individuals who perceive they have the skills and knowledge to start a business are more likely to do so. However, as the next chapter demonstrates, GEM expert surveys in most countries suggest that entrepreneurship education and training, both in school and outside of school, is inadequate. Recognizing this concern among hundreds of experts across the globe, the GEM consortium chose education and training as its special topic for 2008. Of the 43 countries participating in the 2008 survey, 38 added questions about entrepreneurship education and training to their Adult Population Surveys and 30 countries added questions to their National Expert Surveys. This report expands on the initial findings from these surveys reported in the GEM 2008 Executive Report (Bosma et al., 2008).

The importance of entrepreneurship education and training was stressed in a recent (2009) report by the Global Education Initiative (GEI) of the World Economic Forum (WEF):

*"…while education is one of the most important foundations for economic development, entrepreneurship is a major driver of innovation and economic growth. Entrepreneurship education plays an essential role in shaping attitudes, skills and culture–from the primary level up. …We believe entrepreneurial skills, attitudes and behaviors can be learned, and that exposure to entrepreneurship education throughout an individual's lifelong learning path, starting from youth and continuing through adulthood into higher education–as well as reaching out to those economically or socially excluded–is imperative." (p.*7–8)

Many studies have addressed the supply side of entrepreneurship education and training, for example: teacher and student evaluations of program effectiveness (Hegarty, 2006; Cheung, 2008), national and regional reviews of the availability and nature of programs (Levie, 1999; Autio, 2007) and assessments of the value of entrepreneurship education in general (Shinnar, Pruett and Toney, 2008). The WEF report (WEF, 2009) cited above describes a range of entrepreneurship programs across the world—including government, NGO and multinational initiatives—and at a range of education levels from primary schools to universities, as well as non-school initiatives. While these studies provide useful information on what education and training is offered, they do not tell us who takes this training and what trained individuals gain from their training.

GEM is in a unique position to provide information on the frequency and impact of entrepreneurship education and training among different countries. GEM polls individuals, rather than firms, so it is well placed for exploring entrepreneurship education and training among people. Because GEM does not rely on business registrations, it can reveal insights about individuals that have engaged in both formal (registered) and informal (unregistered) entrepreneurial activity. GEM can also capture the impact of training in starting a business on entrepreneurial awareness, attitudes, intentions and activity.

In addition, while many studies have been conducted in one or a few countries, this report analyzes APS data on training in starting a business from 38 countries spanning a range of economic development levels. The data is harmonized to allow for comparisons among these countries. This is supplemented by NES data from 31 countries on the insights and opinions of entrepreneurs, policy makers, debt and equity providers and other experts on the state of entrepreneurship education and training in their countries.

The 2008 APS survey asked respondents if they had ever taken part in training in starting a business in school (in-school training) or outside of school (non-school training). For non-school training, survey interviewers asked respondents to identify the main provider of the program. They also asked respondents whether their training was voluntarily or compulsory (for example, a required part of a school or government program). This distinction enables us to identify outcomes that could not be due to self-selection. In other words, it permits us to measure more accurately the "gain from training," or increased odds of engaging in entrepreneurial behavior that is due to the training itself rather than a consequence of some prior desire to behave entrepreneurially.

Readers should be aware of several data limitations, which include the following:

- The surveyed population spans a broad age range, from 18 to 64 years. The age distribution of those receiving training in a country may be a function of the nation's age profile and should be considered when making comparisons between countries.
- Cultural factors and economic development level, as well as specific government policies, can affect the nature and impact of education and training generally.
- The sources of training for each respondent are not a guide to the type or the quality of training received by individual respondents.
- The countries in the database are not necessarily representative of the economic groups from which they are drawn. Thus, while this is perhaps the largest global study of both the prevalence, sources and effect of training in starting a business and the expert views of the state of entrepreneurship education and training in their countries to date, there is much more work to do.

In summary, the goals for this report are the following:

(1) demonstrate national differences in perception by experts of the current quality and availability of entrepreneurship education and training in their countries;

(2) demonstrate differences in the prevalence and nature of entrepreneurs and non-entrepreneurs who have received training in starting a business across countries;

(3) demonstrate the impact of training on entrepreneurial awareness, attitudes, intentions and activity; and

(4) identify implications for policy makers, educators and practitioners.

The next chapter provides an overview of entrepreneurship education and training literature drawn from the current literature on the subject.

2 Current Issues in Entrepreneurship Education and Training

2.1 THE NATURE OF ENTREPRENEURSHIP EDUCATION AND TRAINING

Individuals may participate in entrepreneurship education and training at various points in their lives, and this education and training may take different forms. For example, all primary school pupils in Scotland receive "enterprise education," which is not specifically about training in starting a business, but about being enterprising and entrepreneurial in a more general sense. In some universities, students may receive education "about" entrepreneurship. This education is not designed to provide training in starting a business. Instead, new venture creation is the context of an academic education, not the goal. Some university students experience a mix of "about" and "how-to" in entrepreneurship classes. At the other end of the spectrum, an employer or a government agency may offer training in starting a business to employees about to lose their jobs.

In this report, entrepreneurship education is defined in broad terms as the building of knowledge and skills "about" or "for the purpose of" entrepreneurship generally, as part of recognized education programs at primary, secondary or tertiary-level educational institutions. Entrepreneurship training is defined as the building of knowledge and skills in preparation for starting a business. Thus, the purpose of entrepreneurship training is very specific, unlike the purpose of entrepreneurship education, which can be much broader.

Complicating the picture further, individuals may receive education about/for entrepreneurship and/or training in starting businesses in primary and secondary school, during college or university studies. These courses may be part of a formal education program that grants certificates or degrees, or they may involve non-credit courses. Other informal training programs operating outside the mainstream education system include courses, seminars or other types of training offered by local business organizations, employers or a government agency.

Some argue that the earlier people are exposed to entrepreneurship, the more likely they will become entrepreneurs in some form during their lives (WEF, 2009). Evidence of this can be seen in the higher prevalence of entrepreneurial activity among individuals whose parents have been self-employed or running their own businesses (Henley, 2007). It could be surmised that children of entrepreneurs develop particular perceptions and skills from observing their parents and participating in family business activities. Perhaps some education and training programs can substitute for this learning.

This raises issues about which types of entrepreneurship education and training approaches work best. It may depend on the educational context, for example: whether one is learning in primary or secondary (grade) school, colleges or universities or non-school training programs. Most authors agree, however, that experiential learning, or "learning by doing," is more effective for developing entrepreneurial skills and attitudes than traditional methods like lectures (European Commission, 2008; Walter and Dohse, 2009). Several studies carried out in innovation-driven countries, including Singapore (Tan and Ng, 2006), Sweden (Rasmussen and Sørheim, 2005), and the United Kingdom (Raffo et al., 2002) show that entrepreneurs learn best with an experiential learning approach.

Another consideration is about what to teach. A survey of entrepreneurs by Sexton (1997) revealed the ten most desired topics for achieving and managing fast growth. These were primarily business concerns, such as selling, financing growth, managing cash flow and hiring and training employees. Yet entrepreneurship education and training may need to be much broader. It can impact attitudes, help people recognize opportunities and think creatively, and enable them to build leadership skills and confidence (Stevenson and Gumpert, 1985). Recognizing this, a recent European Commission Report (2008) suggested that the goal of entrepreneurship education should be to promote creativity, innovation and self-employment. Entrepreneurship education and training therefore entails more than the development of particular business skills. It can influence an individual's motivation to strive for something that might otherwise seem impossible or too risky. In short, it can create positive perceptions and desire among individuals to start businesses.

A further issue is where to teach entrepreneurship. Entrepreneurship is inherently multidisciplinary in nature. While entrepreneurship education and training requires the teaching of numerous business skills, non-business students may benefit from this training. The European Commission (2008) questions whether business schools are the most appropriate place to teach entrepreneurship, given its view that the most innovative and feasible ideas are likely to come from the technical and creative disciplines. Similarly, Katz (2003) declared that growth in entrepreneurship education and training is likely to come from outside business schools.

The requirements of educating "for" entrepreneurship call into question the usefulness of traditional education practices, implying a need for a mindset shift from mainstream education and training routines (WEF, 2009). New teaching pedagogies and cross-disciplinary content present challenges for educators and institutions. Sorgman and Parkison (2008) state that many schoolteachers are unprepared

for these new challenges. As the WEF Global Education Initiative report (WEF, 2009) indicates, changing existing school systems will take time. Multidisciplinary business content and experiential approaches will need to be integrated into the basic training that teachers receive. They conclude that "training the trainers" may be as great an effort as developing the curriculum.

On the supply side, university PhD programs are not providing enough faculty to meet the demand for entrepreneurship education (Katz, 2003; EC, 2008). Many tertiary institutions, where their statutes permit, rely on "adjunct faculty," business people who teach entrepreneurship part-time. Current faculty, locked into narrow disciplinary structures, may not adapt well to the requirements of entrepreneurship education (Janssen, Eeckhout and Gailly, 2005). Additionally, internal funding systems in multi-faculty institutions may hinder the availability of entrepreneurship education beyond business schools. Consequently, the development of effective programs for entrepreneurship likely requires more than adding new courses. Institutional-level considerations may therefore play a key role in the development of entrepreneurship education in an economy.

Educators and policy makers may need to consider how to broaden access and increase the scale and scope of entrepreneurship training, beyond university locations and other on-site programs. This may require greater use of technology. Internet-based learning, for example, may extend a program's geographic reach or satisfy high demand (Solomon, Duffy and Tarabishy, 2002; Hegarty, 2006). Creative computer applications may attract and hold the interest of some people, influencing their attitudes toward—and their understanding of—entrepreneurship.

While the requirements and challenges of entrepreneurship education and training are numerous, there are also many opportunities for influencing perceptions and developing the skills and ambitions of current and potential entrepreneurs. This report addresses fundamental questions about the differences in entrepreneurship training among different economies around the world, and it estimates the impact of training in starting a business on entrepreneurial awareness, attitudes, intentions and activity. The remainder of this chapter provides background on three main economic groupings of countries and reviews current understanding about the impact of entrepreneurship training.

2.2 ENTREPRENEURSHIP EDUCATION AND TRAINING AND ECONOMIC DEVELOPMENT

In GEM research, countries are classified into three groups based on their levels of economic development. The GEM theoretical model shows three sets of economic framework conditions: those that constitute the basic requirements for economic activity, those that enhance efficiency, and those that promote entrepreneurship and innovation. As countries progress economically, there is a shift in the relative importance of these three sets of economic framework conditions. This method of classifying economies has been used in the Global Competitiveness Reports for some time (Porter, Sachs and McArthur, 2002; Porter and Schwab, 2008).

In "factor-driven" countries with mainly extractive type economic activity, Porter and Schwab argue that the focus of government should be on enhancing the basic requirements of economic development, such as stable government, basic infrastructure and primary health care and education. With the exception of well-managed countries that are especially well endowed with natural resources, such as Saudi Arabia, most entrepreneurial activity in factor-driven countries may be necessity-driven, and government attention is best focused on providing a basic foundation for enabling this activity, rather than, for example, providing sophisticated training in opportunity-driven entrepreneurship.

As an economy develops, and as the employment of relatively cheap labor becomes an increasingly less viable source of advantage, necessity-driven entrepreneurship declines and governments may start to pay more attention to entrepreneurship. The most developed nations, no longer able to depend on low labor costs, must instead compete in ways that are more creative. For the governments of such countries, high quality basic factors and efficiency enhancers are generally present at sufficient levels. The quality and quantity of entrepreneurship and innovation then becomes a source of national competitive advantage. One of the primary entrepreneurial framework conditions recognized by GEM is the nature and level of entrepreneurship education and training. According to the GEM model, the relative importance of entrepreneurship education and training increases as economies develop economically.

Table 1 shows the 38 countries participating in the education and training special topic grouped into factor-driven, efficiency-driven and innovation-driven economies. Although the sample of countries crosses many geographic regions and levels of economic development, it is not necessarily evenly

representative of the world. The factor-driven countries in the sample represent only 10% of the factor-driven countries in the world, and half of them were classified by the 2008 Global Competitiveness Report as in transition to the efficiency-driven group. The sample contains 40% of the world's efficiency-driven economies and 45% of the innovation-driven economies. The United States, Canada, Australia and New Zealand were absent from the sample of innovation-driven countries.

The GEM Model, shown in Figure 1, illustrates three sets of framework conditions that influence entrepreneurship, which in turn impact national economic growth. These three sets are basic requirements, efficiency enhancers and entrepreneurship and innovation. As the GEM Model shows, entrepreneurial education and training is represented as a specific entrepreneurial framework condition affecting entrepreneurial attitudes, activity and aspirations—and, as a result, economic development.

Much has been written about entrepreneurship education and training in innovation-driven economies, starting primarily in the 1980s and accelerating after the turn of the century as interest in entrepreneurship increased and the contribution of new businesses to the growth of a national economy gained recognition. Entrepreneurship education, in fact, has its roots in what are now classified as innovation-driven countries; the first efforts to deliver entrepreneurship courses were attributed to Shigeru Fujii of Kobe University in Japan in 1938 (Solomon et al., 2002) and Myles Mace at Harvard Business School in 1947 (Katz, 2003).

Table 1—GEM Countries Participating in the 2008 Education and Training Special Topic Focus, Grouped by Level of Economic Development

FACTOR-DRIVEN	EFFICIENCY-DRIVEN	INNOVATION-DRIVEN
Bolivia	Argentina	Belgium
Bosnia and Herzegovina (+)	Brazil	Denmark
Colombia (+)	Chile	Finland
Ecuador (+)	Croatia (+)	France
Egypt	Dominican Republic	Germany
India	Hungary (+)	Greece
	Iran	Iceland
	Jamaica	Ireland
	Latvia	Israel
	Macedonia	Italy
	Mexico	Japan
	Peru	Republic of Korea
	Romania	Slovenia
	Serbia	Spain
	South Africa	United Kingdom
	Turkey	
	Uruguay	

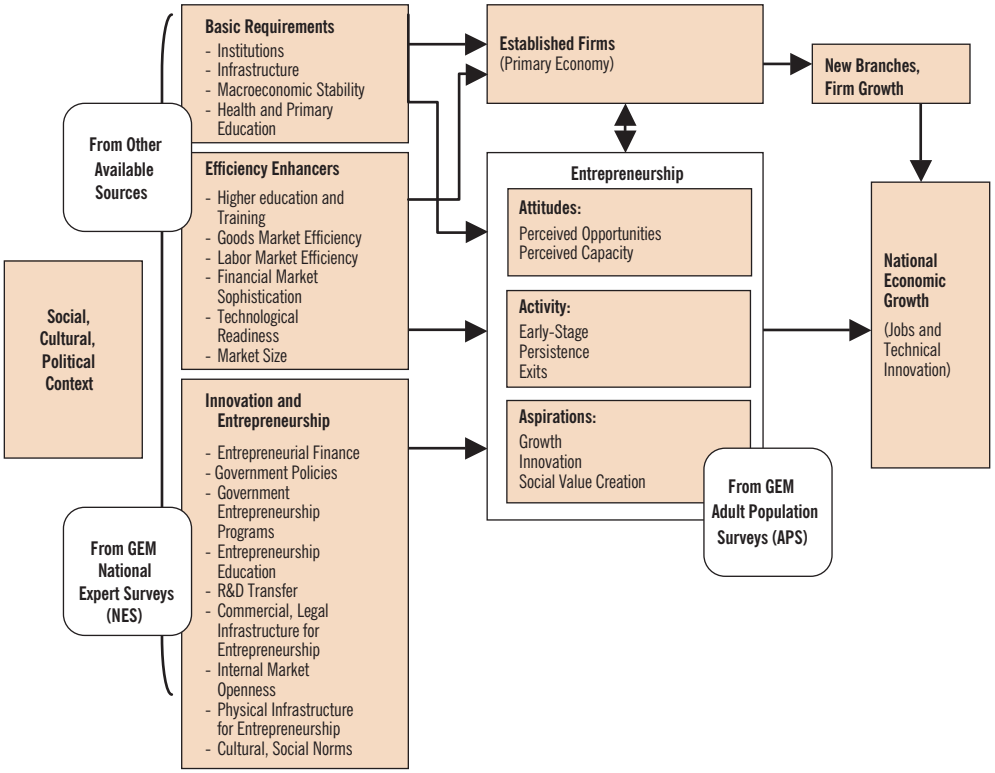
Note: The (+) indicates economies in transition to the next level of economic development.

In the innovation-driven countries, it was commonly thought that entrepreneurship could not be taught. Many still believe that education and training are not necessary for starting buisnesses. People like Bill Gates and Steve Jobs, both dropping out after a few years of college, made for interesting news stories. It became apparent, however, that these did not represent typical entrepreneurs, particularly for businesses with knowledge-based products and services. Many governments in innovation-driven economies have since declared their commitment to entrepreneurship education, identifying it as a key priority (Kyro, 2006; Sorgman and Parkison, 2008).

In these wealthier economies, entrepreneurship education is considered relatively established, and attention has turned toward assessing existing programs, sharing best practices, identifying constraints and providing recommendations. There have been numerous studies evaluating training, school and university education programs in countries such as the United Kingdom (Birley and Gibb, 1984; Gibb, 1987; Jones-Evans et al., 2000), Sweden (Klofsten, 2000), German-speaking countries (Klandt, 2004), Australia (Jones and English, 2004) and Oman (Khan and Almoharby, 2007)—to name a few.

Figure 1—The GEM Theoretical Model

Source: 2009 GEM Global Report



Katz (2003) declared that entrepreneurship education has reached maturity in the United States and that future expansion lies elsewhere. Indeed, the field may experience its greatest growth outside the innovation-driven countries. For example, Li et al. (2003) reported that entrepreneurship education has been well received in China, but is still a relatively new practice in higher institutions. Here, entrepreneurship education is an emerging concept. Yet it may have a significant role to play in transitioning entrepreneurial activity from necessity- to opportunity-based in the efficiency-driven countries, in addition to enhancing innovation and international competitiveness.

In factor-driven countries, training may be offered as part of a social or government campaign to improve skills and create jobs: for example, Finweek reports on a program in Namibia (Finweek, 2007). In these poorer countries, providing a basic education to as many people as possible is a major concern of policy makers. Entrepreneurship education and training is likely to take different forms than in the innovation-driven or efficiency-driven countries. As previous GEM reports show, in these countries entrepreneurship rates tend to be high, but mainly necessity-based and with low-growth aspirations.

2.3 DOES ENTREPRENEURSHIP EDUCATION AND TRAINING MAKE A DIFFERENCE?

While there is extensive literature on entrepreneurship education and training, evidence demonstrating the influence of training on entrepreneurial activity is still lacking (Béchard and Grégoire, 2005). Greater understanding is needed about how programs and learning strategies help develop skills that lead to the formation of new ventures (Garavan and O'Cinneide, 1994). The WEF Global Education Initiative report argued that there is strong evidence that entrepreneurship can boost economic growth and, in turn, alleviate poverty. However, it did not identify studies specifically linking entrepreneurship education to economic growth (WEF, 2009).

Can entrepreneurship education or training impact one's entrepreneurial orientation? Many studies have indicated a link between entrepreneurship and both need for achievement and internal locus of control (a belief in one's ability to control one's destiny). Hansemark (1998), for example, found that these

two traits were higher among enrollees in a one-year entrepreneurship program in Sweden compared to those not receiving training. While acknowledging these studies, one also needs to question whether entrepreneurship is a function of stable traits or learned behaviors. Past research has, for the most part, failed to identify a consistent set of personality traits associated with entrepreneurship, other than the two aforementioned traits. This is likely good news for educators, policy makers and practitioners, given that traits are generally considered inborn and unchangeable. As such, most of the literature on the impact of entrepreneurship education and training is oriented toward the influence of education on the perception of skills, attitudes and intent to start businesses.

A recent study for the Small Business Administration Office of Advocacy (Summit Consulting, 2009) found that university graduates who have taken entrepreneurship courses are more likely to select careers in entrepreneurship, work in small businesses and develop patented inventions or innovative processes, services or products. Researchers have suggested that education and training for entrepreneurship should positively influence actions by enhancing the skills required to start and grow a venture (Honig, 2004; Summit Consulting, 2009). For example, education and training can enhance one's cognitive ability for managing the complex process of opportunity recognition and assessment (DeTienne and Chandler, 2004). Classes that provide role models and examples of the entrepreneurship process can equip individuals with the ability to recognize, assess and shape opportunities (Fiet, 2000).

In contrast, Gatewood (1993) saw potential negative effects. Focusing on public sector venture assistance, she suggested that while these programs can improve the abilities and problem-solving approaches of potential founders, they could discourage entrepreneurs who are refused assistance. Moreover, those receiving training may not start their businesses because they may realize they do not have the right skills or that they do not have a viable opportunity, thus preventing learning by doing.

Perhaps the aforementioned research indicates that training can help ensure that those businesses actually started will be more successful. If high SME failure rates are a consequence of a lack of training, as Ibrahim and Soufani (2002) suggest, perhaps training can weed out inexperienced entrepreneurs or those with an infeasible opportunity. This, however, places the burden on sound screening and training practices in the early stages, when uncertainty is highest. Even then, concepts that are screened out of programs may result in missed opportunities, because capable entrepreneurs may shape poor-quality ideas into more viable ones. In addition, entrepreneurs gain experience that creates new learning and builds skills. This in turn raises a question about the exclusiveness of programs: Should they be selective or encourage broad participation? It also casts doubt on the effect of training: Are higher success rates among selective programs due to the pre-screening or the training itself?

While knowledge and skills can increase the success of a venture, these resources will not be put to use if the inspiration to start a business is not present in the beginning. Attitudes and intentions are important in boosting the chance individuals will attempt an entrepreneurial endeavor at some point in their lives (Souitaris et al., 2007). Studies on the influence of education and training on attitudes have found a positive link to interest in entrepreneurship, attitudes toward entrepreneurship and perception of the feasibility of starting a business. Examples include post-secondary education in Northern Ireland (Hegarty, 2006), university students in England (Souitaris et al., 2007) and Germany (Walter and Dohse, 2009) and secondary school pupils enrolled in an entrepreneurship program in Australia (Peterman and Kennedy, 2003). However, other studies have observed a decrease in intentions after entrepreneurship education programs, for example, in a Dutch school (Oosterbeek et al., 2009) and a German university (Weber et al., 2009). Other studies show that prior exposure to entrepreneurship and prior intentions can change the effect of entrepreneurship training programs (e.g., Fayolle et al., 2006).

These country-level studies provide tantalizing glimpses of possible relationships between entrepreneurship education and training and subsequent behavior. However, it is not at all clear from the literature whether people on average experience a gain from training in terms of their awareness of or attitudes toward entrepreneurship, their entrepreneurial intentions or indeed their entrepreneurial activity. The next chapter reviews the state of entrepreneurship education and training across the world, as seen by carefully selected experts in each of 31 countries.

3 The State of Entrepreneurship Education and Training: Expert Opinions

3.1 THE LEVEL AND QUALITY OF ENTREPRENEURSHIP EDUCATION AND TRAINING AS PERCEIVED BY NATIONAL EXPERTS

GEM national teams conduct National Expert Surveys (NES) in their countries, polling a selected sample of individuals who are deemed expert in at least one Entrepreneurial Framework Condition (EFC), or aspect of the environment for entrepreneurship. The principal EFCs recognized by GEM are: financial support for entrepreneurs, public policy support, bureaucracy and taxes, government programs, entrepreneurship education and training, R&D transfer, access to professional and commercial infrastructure, internal market dynamics and barriers, access to physical infrastructure and services and, finally, cultural and social norms. Typically, four experts are identified per EFC, of which one is an entrepreneur, two are providers of that EFC and one is an expert observer.

The results of this survey add insights on key framework conditions that can impact the entrepreneurial process in an economy. In this chapter, the expert opinions collected by 31 national teams are summarized. On average, each national team interviewed 42 experts, with a minimum of 31 and a maximum of 80 experts interviewed. Only one team interviewed fewer than 35 experts.

In each country, experts were presented with a series of statements designed to capture their views on a range of entrepreneurial framework conditions. They were asked to state their level of agreement or disagreement with each statement along a 5-point scale, from 1 representing "strongly disagree" to 5 representing "strongly agree." With respect to entrepreneurship education and training, they were asked to state their opinions on two issues: (1) the adequacy of formal entrepreneurship education and training provided at primary and secondary schools and (2) the adequacy of entrepreneurship education and training offered through a variety of sources beyond primary and secondary schooling, such as colleges and universities, government and professional programs, etc.

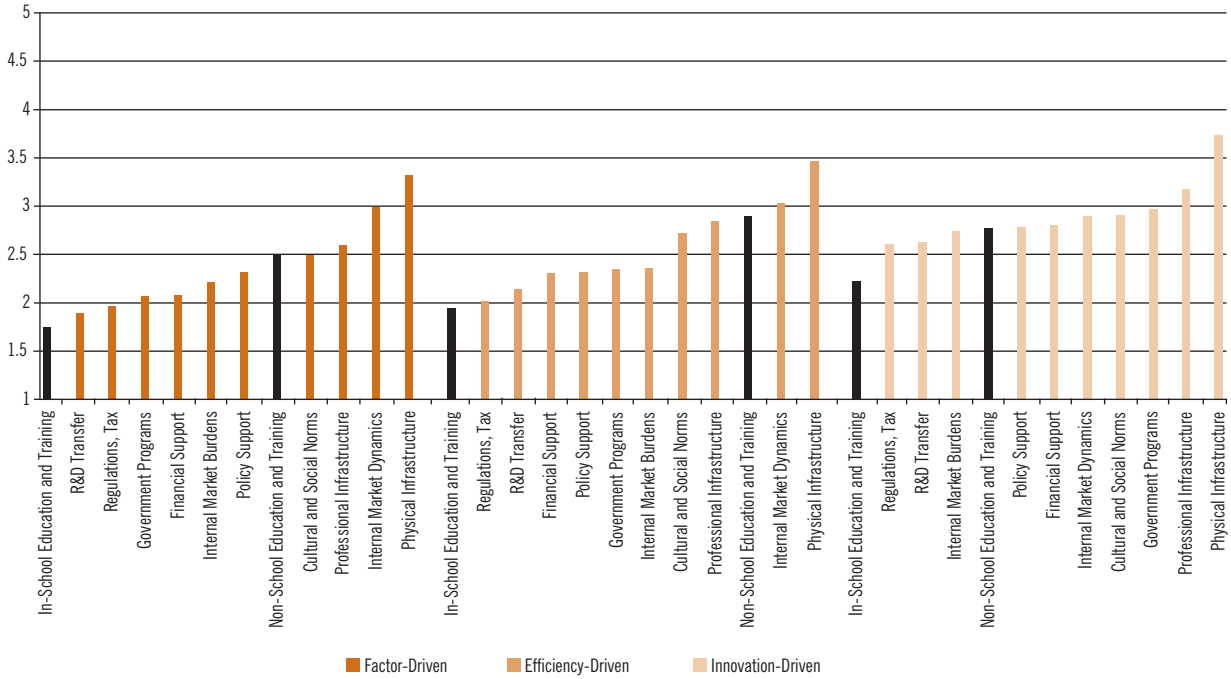
Figure 2 shows the average unweighted ratings of experts by economic group on these two issues in relation to the other entrepreneurship framework conditions measured. In each economic group, entrepreneurship education in primary and secondary schools received the worst evaluation by the experts. The average economic group rating for this EFC increases with increasing level of economic development, reflecting a general improvement in EFCs as countries develop economically.

Entrepreneurship education and training in schools has received low ratings every year since expert surveys commenced in 2000. Figure 3 shows the results for the period 2005 to 2008 for a selection of countries (for raw data, see Table 10 in the Appendix). In most countries, the ratings are consistent from year to year, even though the pool of experts changes. Two exceptions are Spain and the United States, where expert ratings have become more negative. Clearly, this issue is of concern to experts.

Experts rate the level of non-school training higher than in-school training, and it tends to rank in the middle range of all EFCs. In absolute terms, however, it only approaches a neutral rating on average in the efficiency-driven economic group. This suggests that experts in many countries feel that this EFC could be improved. Figure 4 shows the evolution of ratings for this EFC over the 2005 to 2008 period in a selection of countries (see Table 10 in the Appendix for raw data). The ratings are consistent over time in most countries, although in Brazil the ratings appear to have improved.

Figure 2—Average Ratings by National Experts on the Level of Entrepreneurial Framework Conditions in Their Countries, by Economic Group

Source: GEM National Expert Survey 2008



Note: Framework conditions are ordered from the lowest to the highest evaluation within each economic group. The measures range from 1 = poor to 5 = excellent. Total number of countries in sample: 31.

Figure 3—Average Ratings by National Experts on the State of In-School Entrepreneurship Education and Training in a Sample of GEM Nations for the Years 2005–2008

Source: GEM National Expert Survey 2005–2008

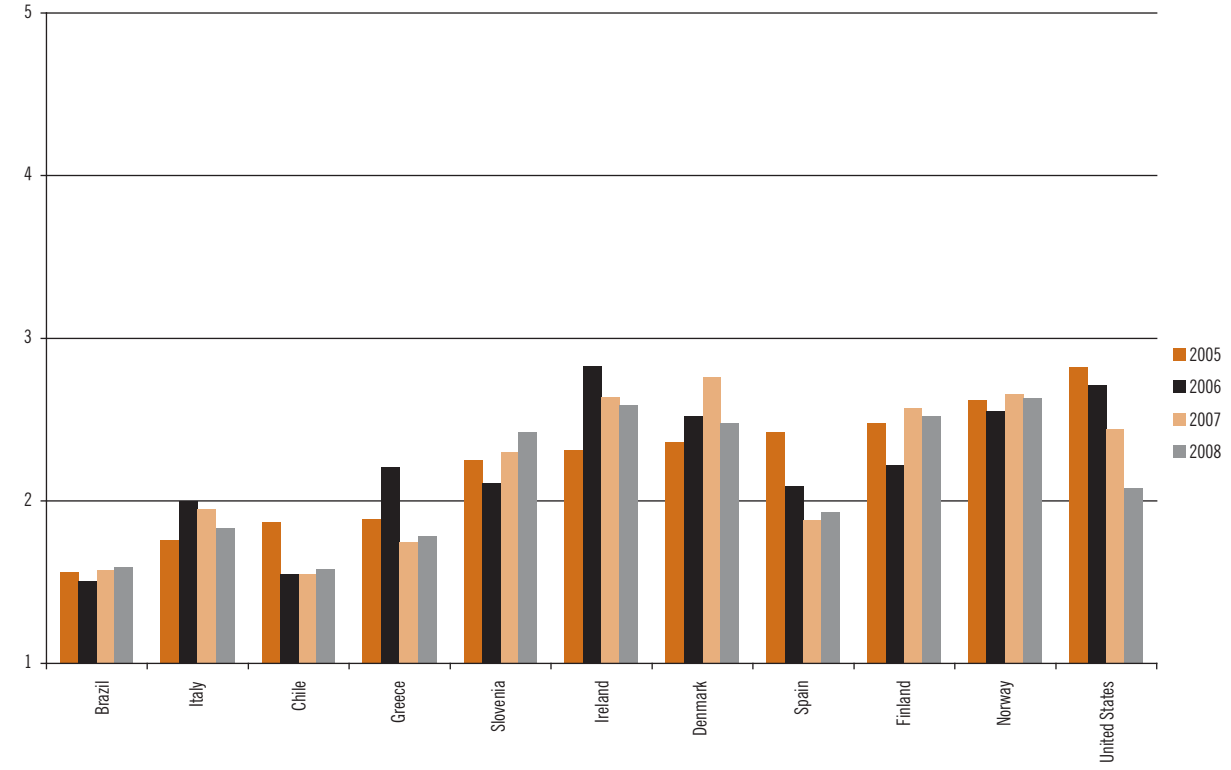
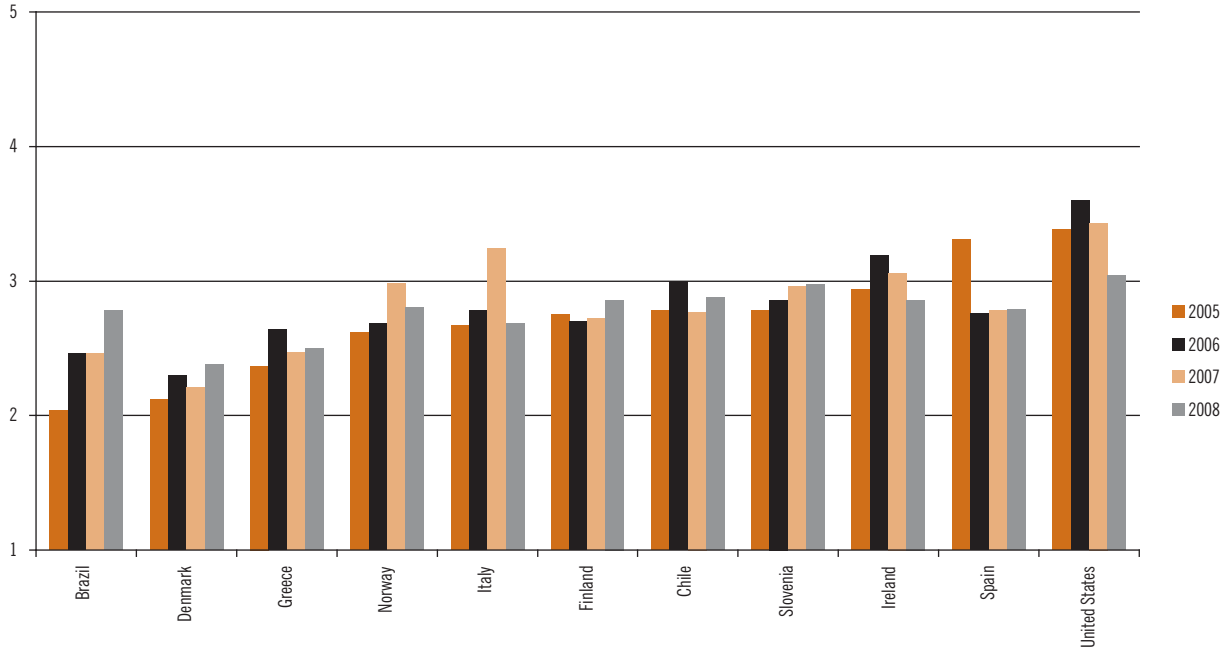


Figure 4—Average Ratings by National Expert on the State of Non-School Entrepreneurship Education and Training in a Sample of GEM Nations for the Years 2005–2008

Source: GEM National Expert Survey 2005–2008



3.2 ENTREPRENEURS' NEED FOR ASSISTANCE AND THE ADEQUACY OF TRAINING PROVISION OUTSIDE THE FORMAL EDUCATION SYSTEM

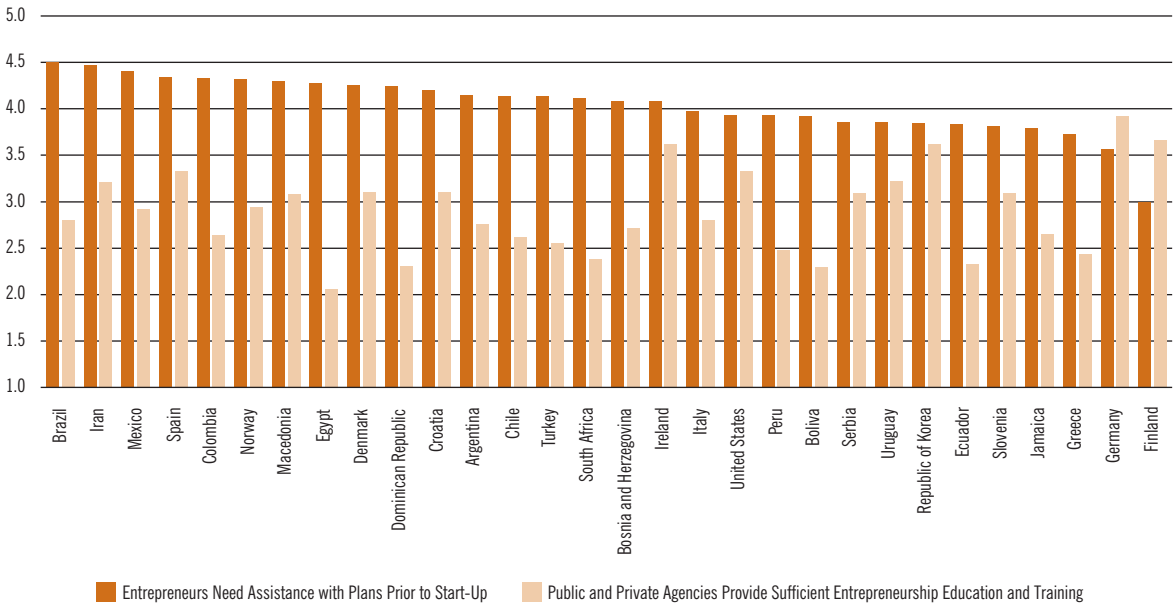
In 2008, of the 31 countries completing the NES surveys, 30 included two additional items. The first item elicited expert opinions on whether entrepreneurs in general in their country needed external assistance in planning their businesses prior to start-up. The second item covered the adequacy of entrepreneurship education and training provided by public and/or private agencies independent of the formal education system. Figure 5 shows the average ratings by experts on these items in each country. The results show a perceived need for external assistance for entrepreneurs starting businesses, with Brazil, Iran and Mexico reporting the highest levels. Only Finland received a neutral rating on this issue.

Figure 5 indicates that, in six economies (Germany, Finland, Republic of Korea, Ireland, Spain and the United States), experts believe that public and/or private agencies provide adequate entrepreneurship education and training outside the formal education system. The remaining countries report low or moderate perceptions on this factor. Only in Germany and Finland is the level of informal education and training rated higher than perceptions about the need for assistance in starting businesses. For the other countries, perceptions about the adequacy of training offered do not match the perceived need for assistance.

The unusually positive result for Finland is noteworthy. As Kyro (2006) reports, Finland's government has committed to entrepreneurship education throughout its school system. A report from Publications of the Ministry of Education, Finland (2009:9) states: "The aim of the Ministry of Education is to enhance an entrepreneurial spirit among Finns and make entrepreneurship a more attractive career choice." This may have led Finnish experts to rate their country's assistance as sufficient. It is also consistent with the APS survey results in the next chapter, which show that Finland has the highest level of entrepreneurship training among the 38 countries surveyed.

Figure 5—Experts' Average Evaluations in 30 GEM Countries Regarding Entrepreneurs' Need for External Assistance with Planning Prior to Start-Up and the Sufficiency of Entrepreneurship Education and Training Provided by Public and/or Private Agencies, by Country

Source: GEM National Expert Survey 2008



NOTE: 1=strongly disagree; 2=somewhat disagree; 3=neither agree nor disagree; 4=somewhat agree; 5=strongly agree

In addition to being asked to rate their agreement with a range of items, experts were also asked to list positive and negative aspects of the environment for entrepreneurship and make recommendations. The frequency with which experts mentioned an EFC provides another guide to its relative importance. In 2008, across 30 countries, 30% of mentions of constraints included the state of entrepreneurship education and training. This was the third most frequently mentioned constraint, after financial support and government policies. It constituted over half of constraints mentioned in Egypt and South Africa, compared with only 15% in Finland, 8% in Argentina and none in Iran.

Surprisingly, entrepreneurship education and training was the second most frequently cited EFC in relation to positive aspects of the environment for entrepreneurship. This suggests that while provision across most countries may be inadequate, there are good initiatives in many countries. On average, 25% of mentions of positive developments or initiatives were in the domain of this EFC. Over half of mentions of activities that fostered entrepreneurship in the United States described positive aspects of entrepreneurship education and training in the country, compared with 2% in Germany, 5% in South Africa, 6% in Iran and 7% in Turkey.

Experts were asked to make recommendations to improve the environment for entrepreneurship in their country. On average, 49% of the recommendations across the 30 countries were about entrepreneurship education and training—more than any other EFC. The exception was Iran, where only 5% of recommendations related to this EFC. By contrast, 71% of Turkish recommendations and 68% of South African recommendations were in this area.

In conclusion, it is clear that in most countries, entrepreneurship experts regard the provision of entrepreneurship education and training as inadequate. However, in all countries at least one expert mentioned examples of good practice in this area.

4 Prevalence and Sources of Training in Starting a Business

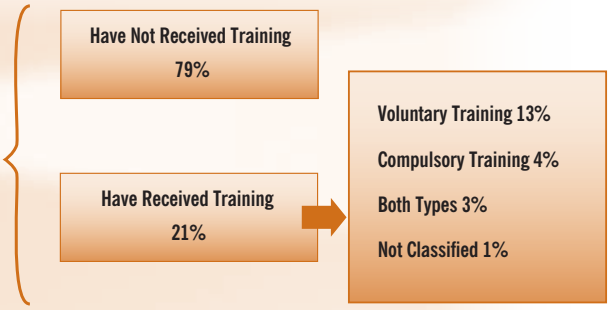
4.1 PREVALENCE RATES OF TRAINED INDIVIDUALS IN THE WORKING-AGE POPULATION

This chapter provides a report on the proportion of working-age adults who have received training in starting a business in the adult population across the 38 participating countries. Survey respondents reported if they had ever received training in starting a business, either during primary or secondary school, or outside school. GEM compares these rates across countries and economic groups, noting the proportions of voluntary and compulsory training. In addition to providing an estimate of the relative demand for training in a country, this information is valuable in estimating the effect of training on subsequent entrepreneurial behavior.

Figure 6 shows the average prevalence rate of working-age individuals who have received training in starting a business across the 38 countries for which data are available. In total, an average of 21% of working-age adults in these countries have received training in starting a business at some point in their lives. Of those receiving training, the majority (62%) engaged in this training voluntarily (13% of the total working-age population). Twenty percent of trained individuals had received only compulsory training (4% of the working-age population), while 14% had received both voluntary and compulsory training (3% of the working-age population). This indicates that training in starting a business is done mainly through self-selection. As mentioned above, this has important implications for the assessment of cause and effect, discussed in Chapter 5.

Figure 6 — Average Level of Training in Starting a Business in the Adult Working-Age Population (18–64 Years) Across All 38 Participating Countries

Source: GEM Adult Population Survey 2008



The country average summary of training depicted in Figure 6 needs cautious interpretation, for several reasons. First, factor-driven countries are under-represented in the sample. Second, country-level prevalence rates vary widely, even among countries with similar levels of economic development. Figure 7 presents the proportion of working-age people who have received training in starting a business, by country, in increasing order of prevalence. The results show wide variation, from 6% in Turkey to 49% in Finland. Most countries, however, fall within the range of 10% to 30%. High levels of training were reported in five countries (Belgium, Slovenia, Colombia, Chile and Finland), where more than 30% of the adult population has received training. At the low end, five countries (Turkey, Egypt, Dominican Republic, Romania and Brazil) reported training levels of less than 10%.

The wide variation in entrepreneurship training levels evident in Figure 7 indicates that country-level factors may be more important than practices or customs in different global regions. Figure 8 shows training levels for the three economic groups, organized by GDP level within the groups. As this figure shows, the uneven distribution pattern seen geographically is also evident in economic orderings. Within groups of countries that are at a similar stage of development (factor-driven, efficiency-driven and innovation-driven), there is a high level of variation, with at least one country with high training levels in each group (Colombia, Chile and Finland).

Figure 7—Percentage of the Adult Working-Age Population (18–64 Years) That Received Training in Starting a Business, by Country, Ordered by Increasing Prevalence

Source: GEM Adult Population Survey 2008

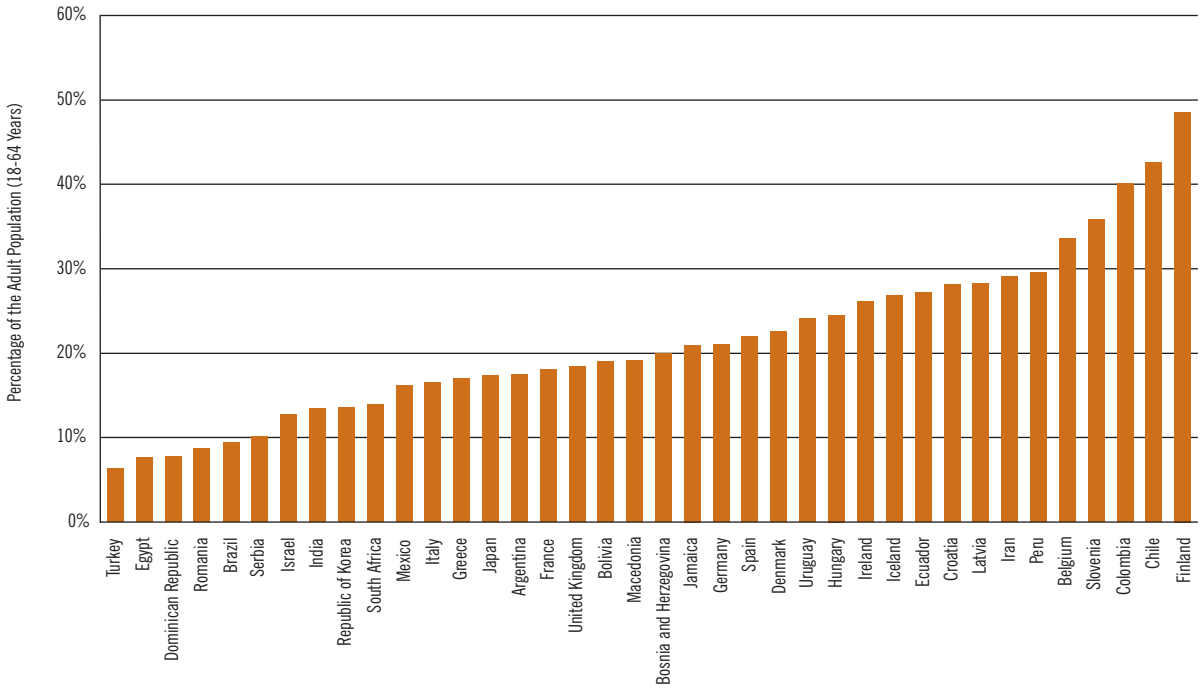
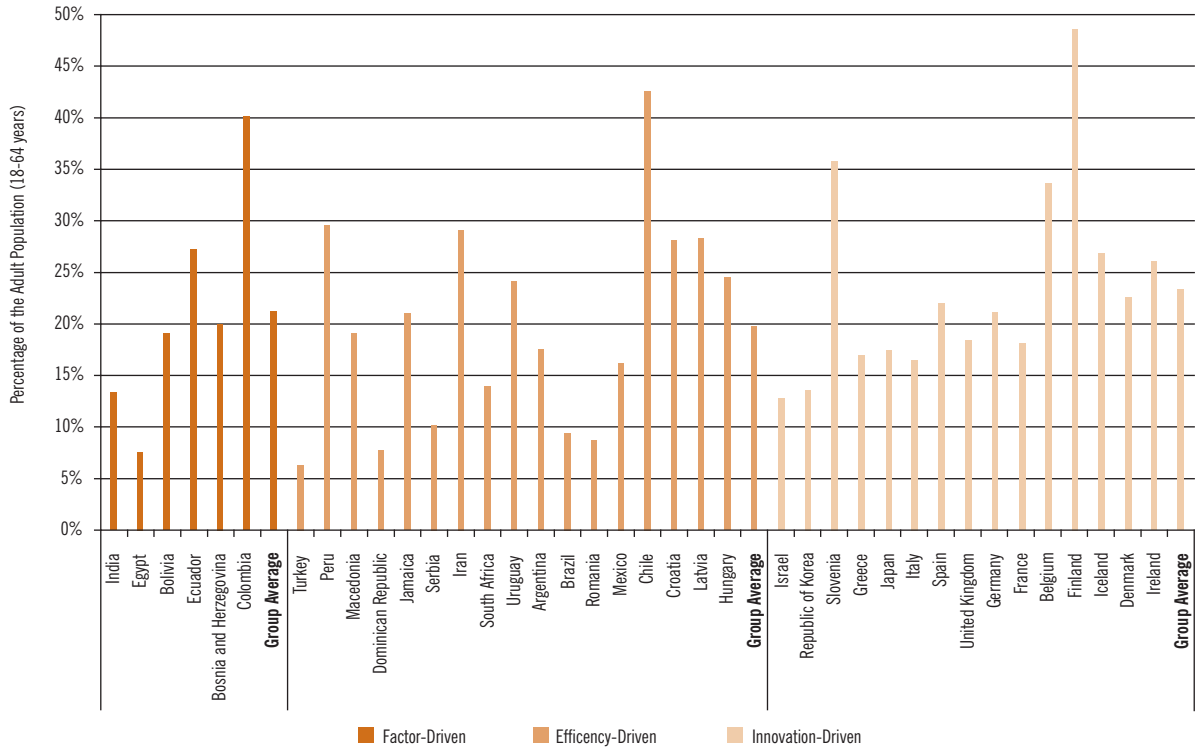


Figure 8—Percentage of the Adult Working-Age Population (18–64 Years) That Received Start-Up Training, by Country and Economic Group, Ordered by GDP

Source: GEM Adult Population Survey 2008



Next, the level of voluntary and compulsory training is examined. Individuals engaged in voluntary training have, by definition, chosen to take it, perhaps relative to other pursuits. Compulsory training, on the other hand, represents a required activity. For example, individuals could be required to take a course to complete a degree or certificate program, or to satisfy requirements relating to registering a business or receiving assistance or funding.

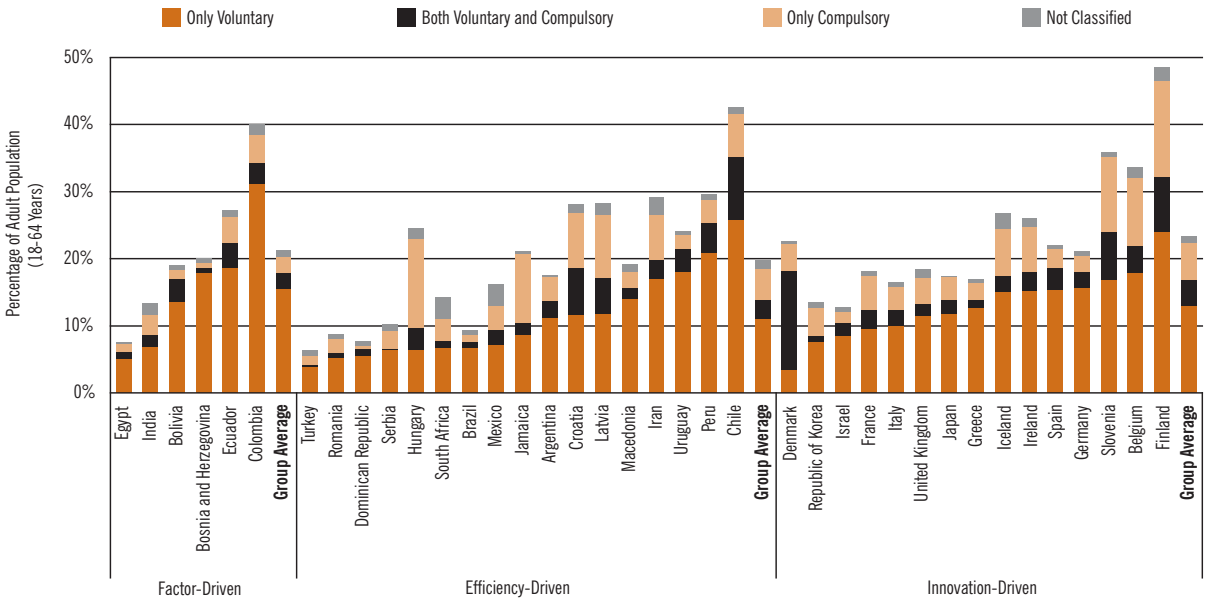
Figure 9 shows the breakdown in compulsory versus voluntary training by economic group. In factor-driven countries, less than one-fourth of trained individuals had received any compulsory training. In the other two groups, between one-third and one-half of those who received training had taken compulsory training. This is consistent with the GEM theoretical model, where improving basic requirements like infrastructure, health and primary education take greater priority in factor-driven economies. Factor-driven countries tend to show higher levels of early-stage entrepreneurial activity, but this is likely to be more necessity-based and less growth-, innovation- and international-based.

Some countries demonstrate relatively high proportions of compulsory training. In Denmark, for example, over 65% of those trained received both compulsory and voluntary training, with an additional 15% receiving only compulsory training. So four-fifths of trained individuals in Denmark were required to take training in starting a business. In Hungary, almost 60% of those who received training did so only on a compulsory basis (with an additional 14% receiving both compulsory and voluntary training). Other countries reporting a relatively high level of compulsory training include Jamaica, Croatia and Latvia in the efficiency-driven group, and Iceland, Ireland and Slovenia in the innovation-driven group.

There seems to be no relationship between early-stage entrepreneurial activity rates and the ratio of compulsory to voluntary training. For example, among innovation-driven countries, Denmark and Slovenia have low rates of early-stage entrepreneurial activity, while Ireland and Iceland have high rates. All show high ratios of compulsory to voluntary training.

Figure 9—Levels of Voluntary and Compulsory Start-Up Training, by Country and Economic Group, Ordered by Level of Voluntary Training

Source: GEM Adult Population Survey 2008



In summary, more than one-fifth of the working-age (18–64 years) population across the 38 participating countries had received training in starting a business as of mid-2008. The country-level prevalence rate varies considerably. Most countries show a level between 10% and 30%, with a few countries having higher or lower prevalence rates. On average, there is not a significant difference in level or variability between the three economic groups. For most countries, but not all, more than half of the trained population engaged in training voluntarily.

4.2 SOURCES OF TRAINING IN STARTING A BUSINESS

This section investigates how sources of start-up training vary across countries and economic groups. In an examination of training sources, a distinction is made between "in-school" and "non-school" training. In-school training is training provided as part of primary or secondary education. Non-school training comprises sources beyond primary and secondary schooling, such as colleges, universities, public agencies, chambers of commerce, trade unions and employers. Secondly, "formal" and "informal" training are defined. Formal training is received as part of a formal education, e.g. primary or secondary education, or as part of a tertiary-level certificate, diploma or degree program. Informal training refers to all other types of training. These might include non-credit evening courses at a university, local business organization or a government agency. These dimensions provide different perspectives on the nature of the training system in each country.

These distinctions are important because they can capture the extent to which a government is providing entrepreneurship training through the formal education system and how early that training occurs in a person's schooling. Additionally, they capture the relative importance of informal training sources, which may help people at a time when they are more directly engaged in starting businesses, rather than focused on their education generally. A closer examination of informal sources can reveal whether informal training is concentrated through one or many suppliers—whether it is the responsibility of universities, private organizations, government or other sources.

Figure 10 shows the prevalence of training broken down into in-school and non-school training, organized by frequency of in-school only training within economic groups. The level of in-school training in the adult population varies across countries: from 2% of the adult population in Turkey to around 25% in Belgium, Chile and Slovenia. Non-school training ranges from 4% in Egypt and Turkey to 40% in Finland. Only 30% of trained individuals in Japan and Serbia received in-school training, compared to around 75% in Ecuador, Jamaica and Belgium.

From Figure 10, it is seen that, on average, the proportion of non-school training to total training is similar (68-69%) across the three economic groups (this includes "non-school only" and "both in-school and non-school"). However, the proportion of in-school training is highest (62%) in the factor-driven economies and lowest (52%) in the innovation-driven economies (including "in-school only" and "both in-school and non-school"). The proportion of individuals that received training from both sources in relation to total training is also highest in the factor-driven economies (31%) and lowest in the innovation-driven economies (21%). These results imply that in-school and non-school training are roughly equally important sources of training in the factor-driven economies, but the relative importance of non-school training is greater in more developed economies. See Table 11 in the Appendix for further details on sources of start-up training.

As Figure 11 shows, most trained individuals have had formal training, and of these, most have had informal training in addition to formal training. Individuals who have had only informal training are more rare. The prevalence of individuals with formal training varies from 4% of the adult population in Serbia and Turkey to 40% in Finland. For informal training, the range is from 4% in Egypt, Turkey and Romania to 35% in Finland. The prevalence of individuals with both types ranges from 1% in Serbia to 27% in Finland.

Figure 10—Prevalence of In-School and Non-School Training, by Economic Group, Ordered by Frequency of In-School Only Training

Source: GEM Adult Population Survey 2008

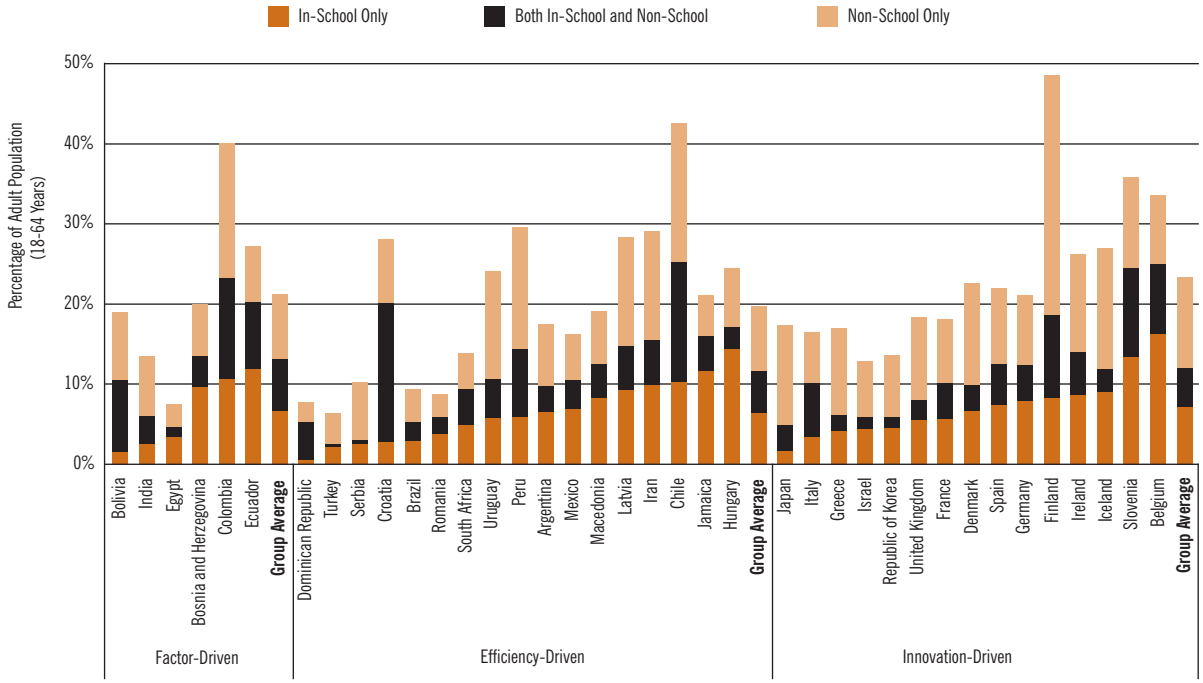
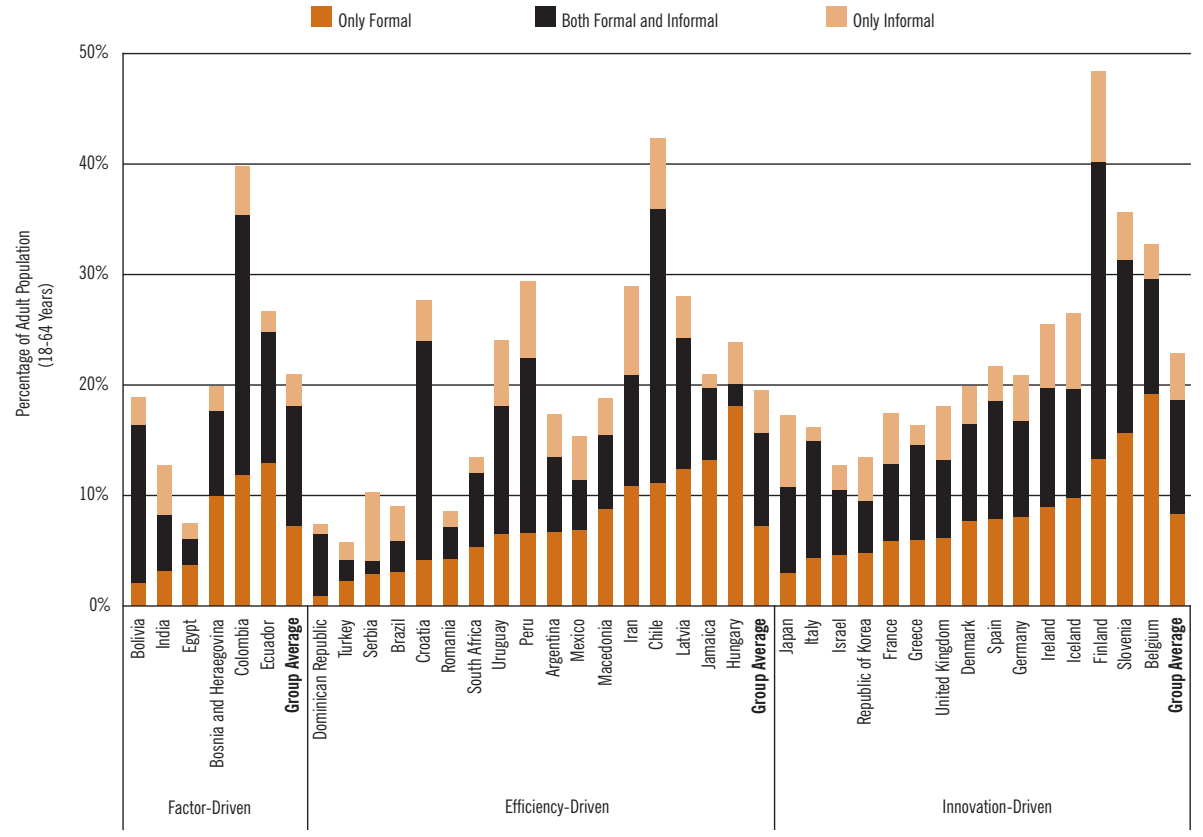


Figure 11—Prevalence of Formal and Informal Start-Up Training, by Country and Economic Group, Ordered by Frequency of Formal Only Training

Source: GEM Adult Population Survey 2008



The high level of overlap between formal and informal training indicates that both formal and informal systems are important sources of entrepreneurship training and suggests that they complement each other. See Table 12 in the Appendix for formal and informal training prevalence rates for each country.

Table 2 provides a more detailed view of formal training in the participating countries. It shows that school training as a proportion of total formal training ranges from 43% in Greece to 90% in Mexico.

Table 2—Prevalence of Formal Training, by Country and Economic Group, Ordered by Prevalence of School Training

Source: GEM Adult Population Survey 2008

COUNTRY	A TRAINING IN SCHOOL ONLY	B TRAINING AT TERTIARY LEVEL ONLY	C BOTH SCHOOL AND TERTIARY TRAINING	D SCHOOL TOTAL (A+C)	E TERTIARY TOTAL (B+C)	F RATIO OF TOTAL SCHOOL TO TOTAL TERTIARY (D/E)
Factor-Driven						
Colombia (+)	29%	41%	30%	59%	71%	0.8
Bolivia	41%	35%	24%	65%	59%	1.1
India	41%	27%	32%	73%	59%	1.3
Bosnia and Herzegovina (+)	67%	23%	10%	77%	33%	2.3
Egypt	65%	23%	13%	77%	35%	2.2
Ecuador (+)	57%	18%	24%	82%	43%	1.9
Group Average	50%	28%	22%	72%	50%	1.6
Efficiency-Driven						
Uruguay	42%	41%	17%	59%	58%	1.0
Latvia	44%	39%	16%	61%	56%	1.1
Peru	38%	36%	25%	64%	62%	1.0
Turkey	59%	36%	5%	64%	41%	1.6
Chile	44%	33%	23%	67%	56%	1.2
Argentina	61%	27%	13%	73%	39%	1.9
Iran	61%	25%	14%	75%	39%	1.9
Serbia	73%	24%	2%	76%	27%	2.8
South Africa	52%	22%	26%	78%	48%	1.6
Jamaica	66%	19%	15%	81%	34%	2.4
Macedonia	67%	19%	14%	81%	33%	2.5
Dominican Republic	70%	17%	13%	83%	30%	2.8
Romania	60%	17%	23%	83%	40%	2.1
Croatia (+)	56%	17%	27%	83%	44%	1.9
Hungary (+)	79%	15%	6%	85%	21%	4.1
Brazil	74%	11%	15%	89%	26%	3.4
Mexico	73%	10%	17%	90%	27%	3.4
Group Average	60%	24%	16%	76%	40%	2.2
Innovation-Driven						
Greece	33%	57%	9%	43%	67%	0.6
Japan	31%	55%	15%	45%	69%	0.7
Finland	27%	53%	20%	47%	73%	0.6
Israel	49%	43%	9%	57%	51%	1.1
Denmark	55%	40%	5%	60%	45%	1.3
Iceland	53%	39%	7%	61%	47%	1.3
United Kingdom	51%	39%	11%	61%	49%	1.2
Republic of Korea	54%	36%	11%	64%	46%	1.4
Spain	47%	33%	20%	67%	53%	1.3
Italy	56%	32%	12%	68%	44%	1.5
Ireland	55%	29%	16%	71%	45%	1.6
Germany	59%	27%	14%	73%	41%	1.8
Slovenia	56%	22%	22%	78%	44%	1.8
France	60%	22%	19%	78%	40%	1.9
Belgium	66%	16%	19%	84%	34%	2.5
Group Average	50%	36%	14%	64%	50%	1.4

(+) Nations in transition to next stage of competitiveness

Training at tertiary level as a proportion of total formal training ranges from 21% in Hungary to 73% in Finland. In most countries, in-school training is more prevalent than training at the tertiary level. On average, this ratio is higher for the efficiency-driven economic group than for the other two, but there is also a wide variation within each group. Tertiary-level training is more prevalent than in-school training in only four countries: Colombia, Greece, Japan and Finland.

Table 3 provides a more detailed view of informal training sources in the participating countries. The most frequent source of informal training in most of the countries is self-study, with up to 88% (Croatia) of those receiving informal training citing this source. The next most common source of informal training across the data set is informal university programs, followed by courses offered through business associations. The least frequently mentioned sources are training programs provided by public agencies and those offered through employer initiatives.

Table 3—Prevalence of Informal Start-Up Training, by Country and Economic Group

Source: GEM Adult Population Survey 2008

COUNTRY	PERCENTAGE OF INFORMAL TRAINING SOURCE													
	University, College		Local Business Associations		Public Agencies		Employer		Self-Studies		Other		Online	
Factor-Driven														
Bolivia	9.1	(34.6)	8.2	(24.1)	4.6	(16.6)	10.3	(27.9)	45.9	(86.5)	11.4	(26.0)	6.1	(21.0)
Bosnia and Herzegovina (+)	2.9	(28.9)	2.4	(24.1)	1.5	(15.1)	4.5	(45.3)	8.6	(86.2)	1.8	(18.2)	2.0	(20.1)
Colombia (+)	10.7	(37.9)	6.1	(21.5)	5.5	(19.6)	5.3	(18.7)	23.8	(84.5)	7.2	(25.4)	3.5	(12.3)
Ecuador (+)	4.6	(32.5)	4.3	(30.5)	2.7	(19.0)	3.5	(24.3)	10.5	(73.1)	3.8	(26.9)	2.3	(16.1)
Egypt	1.4	(37.0)	1.1	(28.0)	1.7	(43.6)	1.3	(34.0)	2.4	(62.0)	0.5	(12.0)	1.0	(27.0)
India	2.7	(26.3)	2.9	(28.8)	2.8	(27.9)	2.2	(22.1)	4.9	(48.9)	3.6	(35.8)	1.4	(13.6)
Efficiency-Driven														
Argentina	5.8	(54.0)	5.7	(52.9)	2.3	(21.4)	4.2	(39.2)	9.4	(86.6)	1.7	(16.0)	2.4	(21.5)
Brazil	2.0	(31.5)	4.4	(71.2)	1.1	(17.7)	1.0	(16.1)	2.3	(35.5)	2.3	(35.5)	0.5	(6.5)
Chile	11.3	(35.8)	8.5	(26.8)	10.9	(34.4)	11.8	(37.5)	25.7	(80.8)	14.4	(45.4)	19.9	(61.5)
Croatia (+)	9.7	(25.7)	7.7	(19.1)	4.8	(12.1)	12.8	(26.3)	53.9	(87.7)	10.0	(18.8)	12.4	(22.5)
Dominican Republic	6.9	(41.6)	6.2	(29.0)	3.3	(17.4)	6.4	(33.6)	53.5	(55.5)	0.9	(8.0)	1.1	(10.1)
Hungary (+)	1.9	(28.9)	0.9	(14.1)	1.5	(22.7)	0.9	(14.1)	1.4	(21.1)	0.1	(0.8)	0.3	(3.9)
Iran	4.0	(22.1)	2.4	(13.0)	9.2	(50.3)	3.1	(17.2)	9.8	(53.7)	3.4	(18.3)	1.8	(9.3)
Jamaica	2.8	(36.0)	1.2	(15.6)	2.7	(33.7)	1.3	(16.1)	4.5	(55.9)	0.6	(7.0)	0.6	(0.5)
Latvia	5.1	(32.0)	2.3	(14.7)	3.2	(20.3)	4.2	(25.9)	12.6	(78.4)	1.5	(9.7)	6.8	(39.4)
Macedonia	3.5	(33.5)	3.1	(29.7)	1.8	(17.0)	3.3	(31.9)	8.2	(79.1)	2.4	(23.1)	2.3	(21.4)
Mexico	1.7	(18.3)	2.4	(26.5)	1.5	(16.5)	3.0	(31.5)	3.6	(38.5)	2.4	(25.2)	0.9	(8.7)
Peru	12.5	(53.2)	6.5	(27.4)	5.2	(21.4)	7.7	(33.0)	17.3	(65.6)	7.7	(33.3)	4.6	(17.5)
Romania	1.4	(32.9)	1.1	(26.8)	0.8	(18.3)	1.5	(36.2)	2.8	(65.7)	1.7	(40.0)	0.7	(15.7)
Serbia	1.4	(19.5)	1.0	(13.5)	2.4	(32.3)	1.2	(16.5)	2.8	(37.6)	0.5	(6.8)	0.8	(11.3)
South Africa	4.4	(51.1)	3.3	(38.4)	2.6	(69.1)	2.9	(35.5)	5.6	(65.2)	2.2	(25.8)	0.8	(9.4)
Turkey	1.0	(24.0)	0.6	(14.7)	0.7	(17.7)	1.5	(37.5)	2.7	(67.7)	0.7	(17.7)	0.7	(17.7)
Uruguay	9.5	(54.2)	9.4	(53.1)	3.9	(22.2)	6.6	(37.5)	12.9	(74.0)	4.3	(24.3)	3.4	(19.1)
Innovation-Driven														
Belgium	4.7	(32.3)	3.0	(20.5)	4.4	(30.3)	2.0	(13.9)	7.7	(53.3)	4.0	(27.4)	1.1	(7.3)
Denmark	3.4	(22.1)	3.4	(22.1)	4.3	(27.4)	2.0	(13.5)	5.0	(33.3)	1.6	(10.9)	1.5	(9.9)
Finland	10.8	(30.6)	5.7	(16.2)	7.7	(21.6)	3.8	(10.9)	30.5	(86.4)	8.0	(22.6)	4.8	(12.8)
France	2.1	(17.2)	5.5	(45.3)	4.8	(39.3)	1.8	(15.2)	8.2	(67.2)	4.0	(33.0)	2.5	(20.3)
Germany	1.8	(13.9)	7.5	(57.2)	4.2	(32.5)	4.7	(35.7)	10.2	(78.5)	3.2	(24.2)	0.8	(6.1)
Greece	1.3	(12.1)	4.2	(38.1)	2.6	(23.7)	2.1	(19.2)	7.9	(72.4)	1.1	(9.8)	1.8	(16.7)
Iceland	4.4	(25.7)	2.6	(15.2)	2.8	(16.4)	4.5	(26.2)	14.2	(82.5)	4.2	(24.5)	7.8	(44.6)
Ireland	6.9	(40.5)	4.6	(26.7)	6.5	(38.1)	5.0	(29.3)	13.7	(80.5)	1.0	(5.8)	1.5	(8.8)
Israel	3.3	(41.0)	3.4	(41.4)	3.1	(35.9)	2.7	(33.1)	5.8	(71.7)	1.5	(17.9)	0.8	(10.3)
Italy	5.2	(22.2)	7.1	(32.3)	2.4	(7.2)	6.3	(26.8)	29.3	(80.1)	1.8	(8.6)	1.8	(15.0)
Japan	8.7	(60.7)	2.7	(18.8)	1.8	(12.6)	4.6	(31.9)	12.1	(84.4)	2.4	(16.7)	3.7	(25.6)
Republic of Korea	3.9	(44.1)	2.7	(30.1)	1.4	(15.8)	1.6	(18.2)	4.4	(49.4)	1.0	(11.4)	1.4	(12.4)
Slovenia	9.2	(45.5)	6.4	(31.7)	5.2	(25.8)	6.3	(31.0)	15.5	(76.8)	3.5	(17.9)	10.8	(51.2)
Spain	8.0	(56.4)	6.2	(43.8)	5.6	(39.5)	4.8	(33.7)	10.0	(70.2)	7.2	(50.6)	5.7	(39.4)
United Kingdom	4.5	(36.6)	3.2	(26.3)	3.1	(25.5)	3.0	(24.8)	9.6	(78.3)	0.6	(5.1)	1.2	(9.5)

(+) Nations in transition to next stage of competitiveness

Note: Percentages shown are for the adult population aged 18-64 years and, in parentheses, as a percentage of those receiving any informal training

Use of online programs is most frequent in Chile (62% of those receiving informal training) and Slovenia (51%). Frequency of use does not imply popularity. In Chile, online training is linked with business registration. Another notable pattern is the low frequency of government programs. Few countries show a high level of public agency training. Exceptions are South Africa with 69% and Iran with 50% of those receiving informal training.

In summary, both levels of in-school versus non-school training and levels of formal versus informal training vary widely across economies and levels of economic development. The high proportion of formal training reveals the importance of schools, colleges and universities in delivering this framework condition. In most countries, more people have received formal training from schools than from tertiary-level institutions, indicating that schools have a broader reach. The degree of overlap between formal and informal training suggests that formal training on its own is not enough for many people. A demand for informal training also exists, perhaps shortly before, during or after a venture is started. Finally, people have a variety of choices for pursuing informal training. The high frequency of self-study suggests that many individuals either cannot access or afford organized training—or perhaps doubt its efficacy.

4.3 DEMOGRAPHICS OF TRAINED INDIVIDUALS

This section describes the individuals who have and have not received training in starting a business, comparing them in terms of age, gender, education and income across economic groups.

Figure 12 compares the age profiles of trained and untrained individuals in each of the three economic groups. Unsurprisingly, populations age as countries develop; with better health care and education, people live longer. However, there are differences between the age profiles of trained and untrained individuals in all three economic groups. Trained individuals are more likely to be found in the two younger age ranges (18–24 years and 25–34 years) and less likely to be in the three older age ranges. This suggests that training in starting a business may have increased in recent decades and, in particular, provision for younger people may have increased, possibly through the formal education system.

Figure 12—Age Distribution of Trained and Untrained Individuals, by Economic Group

Source: GEM Adult Population Survey 2008

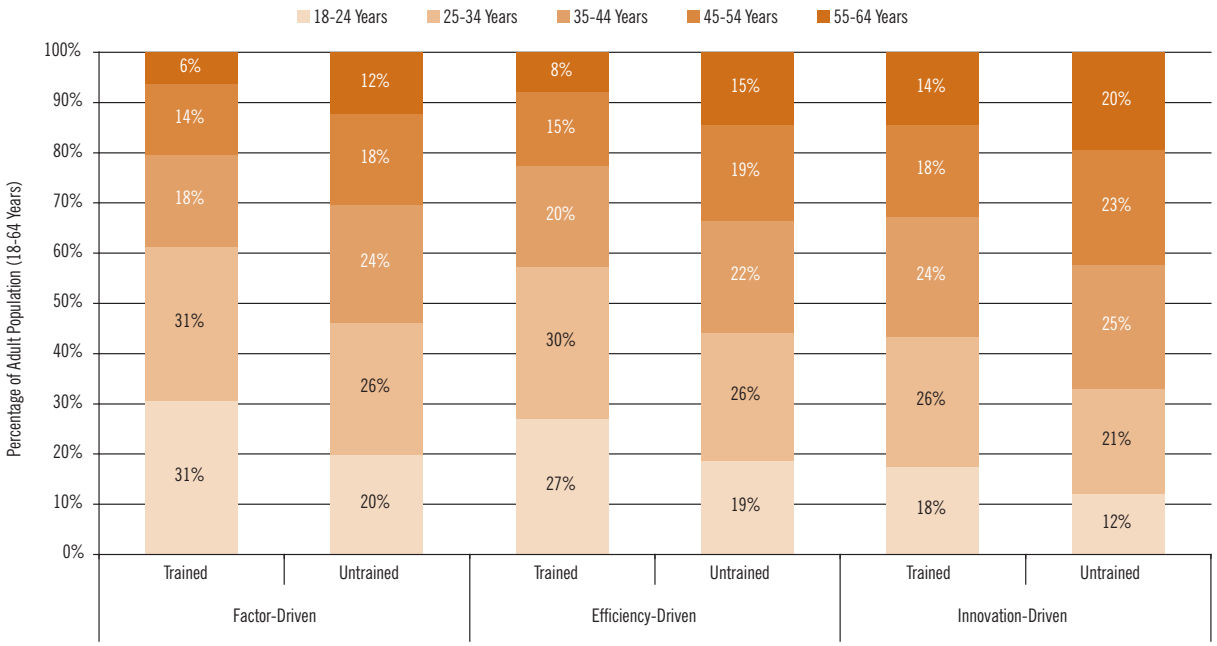


Figure 13 shows that trained individuals are more likely to be men than women, and untrained individuals are more likely to be women than men in all three economic groups. This is not surprising since in many countries, women show lower entrepreneurial intentions and activity than men, and so they are less likely to seek training voluntarily. While similar proportions of men and women had taken voluntary training in some countries, only in Latvia and Hungary were women significantly more likely than men to have volunteered for training. The proportion of men and women who have taken compulsory training also varied widely by country. However, on average in factor-driven countries, for every ten men with compulsory training there were seven women, compared with eight women in efficiency-driven countries and nine women in innovation-driven countries. Because voluntary training was more prevalent than compulsory training, the gender difference in training prevalence is mainly due to lower rates of voluntary training among women, and this did not appear to vary with increasing economic development (in all three economic groups, for every ten men who had volunteered for training, there were eight women).

Figure 13—Gender Distribution of Trained and Untrained Individuals, by Economic Group

Source: GEM Adult Population Survey 2008

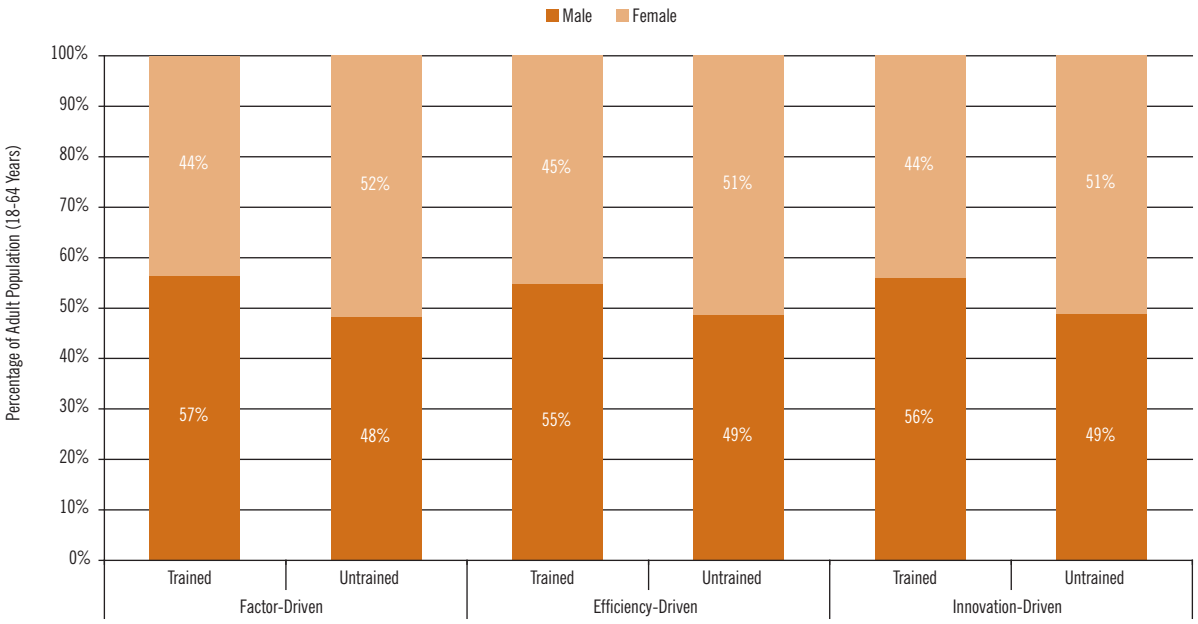


Figure 14 shows that individuals with at least some post-secondary school education are more likely to have received training in starting a business. In most countries, this is true for voluntary and compulsory training. Such individuals have spent more time in the formal education system, so they are more likely to have had more training opportunities. However, this group tends to be more entrepreneurial anyway—more likely to see a need to learn about starting a business and more likely to see value in such training.

Figure 14—Education Distribution of Trained and Untrained Individuals, by Economic Group

Source: GEM Adult Population Survey 2008

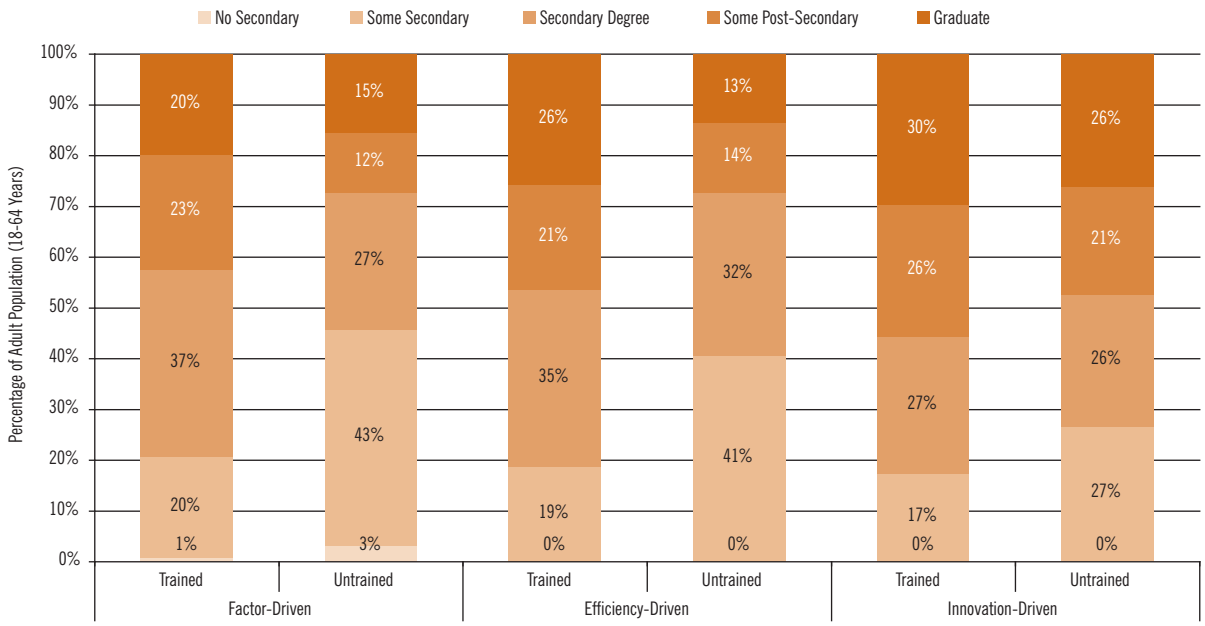
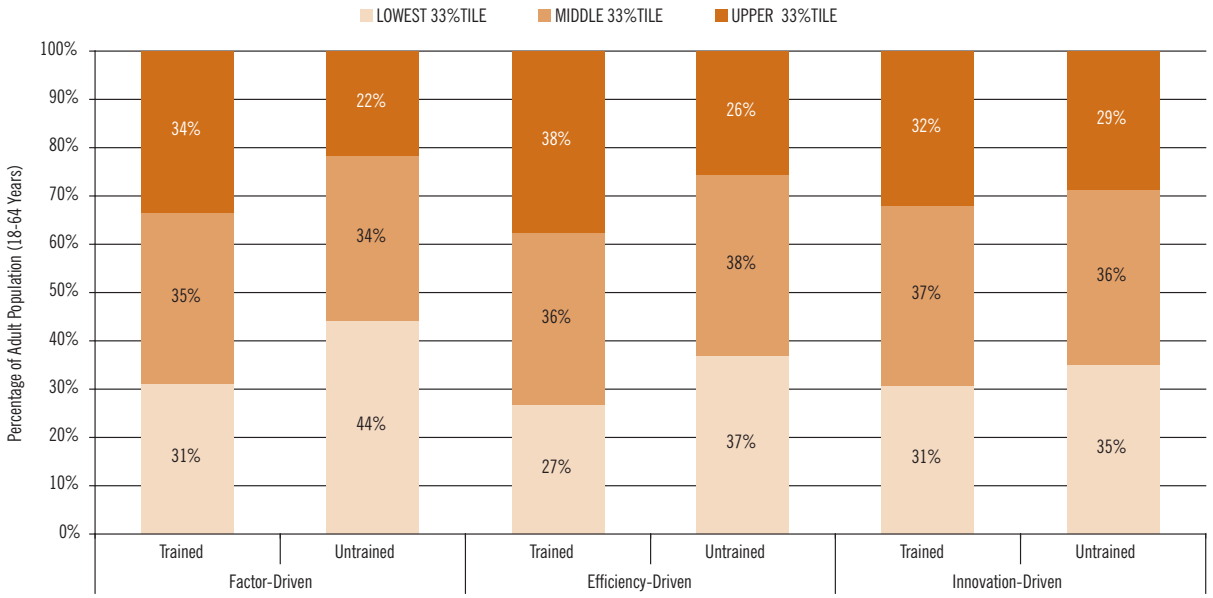


Figure 15 shows that the profile of untrained individuals is less wealthy than the profile of trained individuals. This association is stronger in factor-driven or efficiency-driven countries than in innovation-driven countries. In addition to the obvious reason, training may help make individuals wealthier, individuals from wealthy households may have more opportunity to engage in training and wealthier households can afford further education for their children. Moreover, poorer individuals may not have the time or money to devote to training.

Figure 15—Income Distribution of Trained and Untrained Individuals, by Economic Group

Source: GEM Adult Population Survey 2008



5 The Relationship Between Training in Starting a Business and Entrepreneurship

5.1 ISSUES IN MEASURING THE EFFECT OF TRAINING ON ENTREPRENEURIAL BEHAVIOR

This chapter considers the relationship between training and entrepreneurial awareness, attitudes, intention and activity. Previous chapters have reported on the frequency and nature of entrepreneurship education and training across economies and economic groupings. The sources of training and demographic information about those trained have also been revealed. In this chapter the question posed in Section 2.3 will be addressed: Does entrepreneurship education and training make a difference?

The literature reviewed in Section 2.3 indicates a lack of evidence demonstrating the influence of training on entrepreneurial activity (Béchard and Grégoire, 2005). There is some evidence, however, that entrepreneurship education and training may enhance skills (DeTienne and Chandler, 2004; Honig, 2004; Summit Consulting, 2009) and attitudes (Peterman and Kennedy, 2003; Hegarty, 2006; Souitaris et al., 2007; Walter and Dohse, 2009) toward entrepreneurship. In conclusion, there was a need to explore the relationships between this training and awareness, attitudes, intention and activity across multiple countries, using large, representative samples in each.

Many research studies on entrepreneurship training have had difficulty assembling adequate control groups to demonstrate effects, due to cost and data protection issues (Summit Consulting, 2009). GEM conducts random samples of the entire working-age population in a wide range of countries. By asking random samples of the population questions about their awareness, attitudes, intention and activity, and then, later in the interview, asking them questions about any training in starting a business they may have had, many sampling biases are avoided and natural control groups are created.

It is natural to assume that those who want to start businesses would seek out information on how to proceed. They might therefore seek training as part of their search. If one were to compare these people with those who did not take training, observed differences in awareness, attitudes, intention or activity might not just be due to their training, but to their prior orientation as well. For example, business school students tend to self-select into this type of education and, most often, into entrepreneurship training once they are enrolled in business school. Because individuals were asked whether their training was voluntary or compulsory or both, GEM can isolate those who had voluntary training and remove them from analyses of cause and effect, eliminating self-selection bias to a considerable degree.

By noting all the training that a representative sample of individuals received in their lives so far, and analyzing a broad array of outcomes, the GEM data address the issues of timing that have hampered progress in research on the effect of entrepreneurship education and training. People may receive entrepreneurship education and training at various times in their lives, whether at school, university or beyond their formal education. In addition, the effects may be deferred rather than instantaneous. For example, in the short term, graduates of entrepreneurship education may recognize the need to amass specific knowledge (Fiet and Pankaj, 2008), yet decide to defer action until they understand their chosen industry better. The GEM data also accounts for differences in how individuals learn. This learning can range from traditional education to experiential immersion in the phenomenon—through a placement or internship in an actual company, for example. GEM surveyed individuals about the full range of possible training sources, from primary school onward, which enables inclusion of all combinations of training. In addition, by measuring demographic characteristics of each individual in each sample, GEM can control for age group, gender, education, working status and other effects that might mask the training effect.

Finally, GEM can address limitations due to differences in context. In some countries, entrepreneurship is widespread, easily observable and culturally acceptable. In others, few individuals start businesses; any training that exists in these countries may provide a more significant source of learning. By surveying many countries, GEM can discern the differences in cause and effect that might be contextual.

This combination of advantages in the GEM methodology provides a unique opportunity to make a baseline contribution to the knowledge of the impact of entrepreneurship training. In addition, it can reveal opportunities for more focused follow-up research.

5.2 TRAINING IN STARTING A BUSINESS AND INVOLVEMENT IN ENTREPRENEURIAL ACTIVITY

The GEM APS survey assesses the proportion of working-age individuals in an economy that are in the process of starting a business (nascent entrepreneurs) or owners of new businesses (under 42 months old). This is the basic GEM measure of

early-stage entrepreneurial activity (TEA). As Figure 16 illustrates, across the 38 countries, entrepreneurs are more likely to have received training in starting a business (33%) than the rest of the working-age population (20%). This difference is statistically significant and suggests that current early-stage entrepreneurial activity is associated, at least to some degree, with past training in starting a business.

Figure 16 — Proportion of Trained vs. Untrained Individuals Involved in Early-Stage Entrepreneurial Activity (TEA), and Those Not Involved (non-TEA)

Source: GEM Adult Population Survey 2008

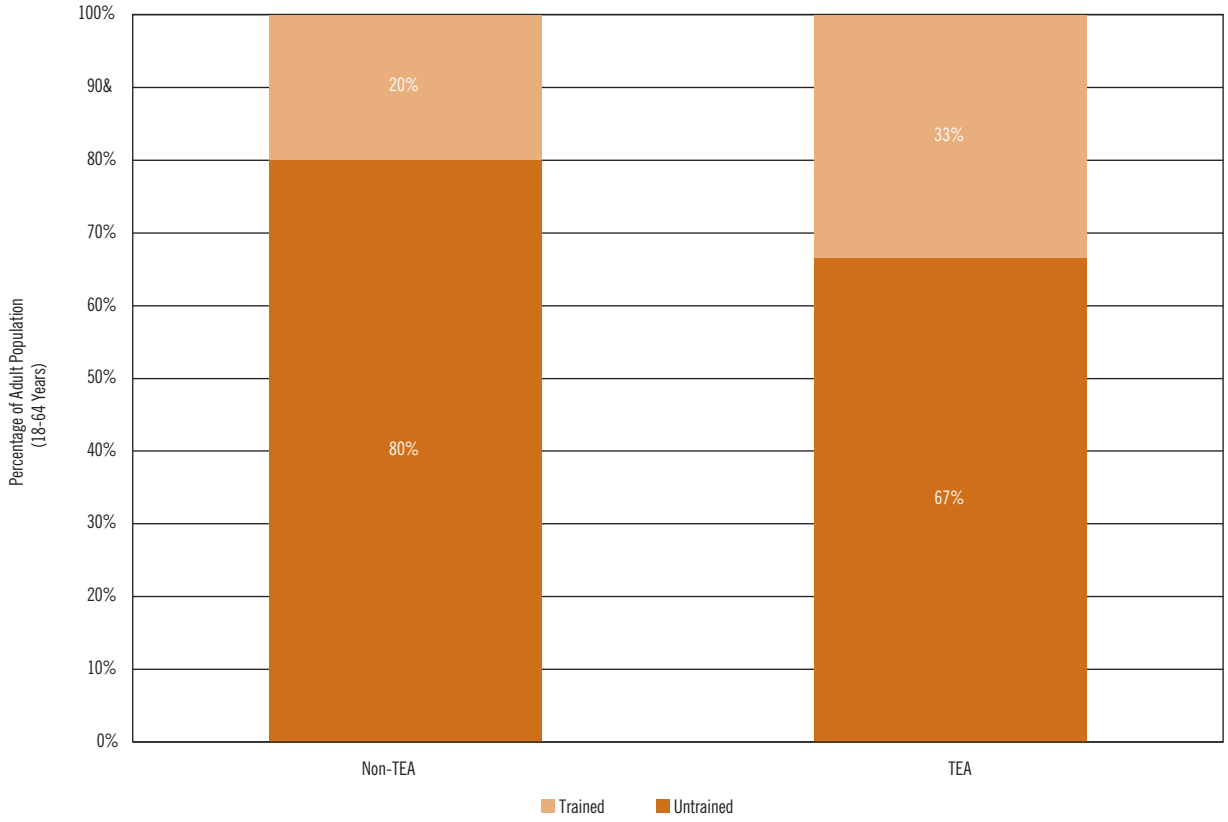


Table 4 compares the proportion of the whole working-age population and the proportion of early-stage entrepreneurs who have received training in each nation, in three economic groups, ordered by relative frequency of training. Training prevalence varies widely across countries, but the proportion of trained individuals and trained early-stage entrepreneurs is higher on average in innovation-driven countries. Around one-fifth of working-age individuals in factor-driven and efficiency-driven countries are trained; this rises to around one-third of early-stage entrepreneurs. This compares with around one-quarter of working-age individuals and two-fifths of early-stage entrepreneurs in innovation-driven countries.

The third column in Table 4, reproduced in graphical form in Figures 17–19, shows that in both factor-driven and efficiency-driven countries, as the level of training in the working population as a whole increases, so does the level of training in the population of early-stage entrepreneurs, but at a declining rate. In other words, the conversion of trained individuals to entrepreneurs appears to be higher in countries with a low rate of training than in countries with a high rate of training. This suggests that there may be diminishing returns to training in terms of conversion to entrepreneurial activity as training becomes widespread in these populations.

A different pattern is seen in innovation-driven countries (Figure 19), where the ratio increases—as training becomes widespread—then levels off and declines only when over a fifth of the working-age population has been trained. This suggests that increasing the quantity of training may generate increasing returns to entrepreneurial activity in innovation-led countries, up to a point. This pattern seems to fit the GEM model, which suggests that improving the entrepreneurship education and training EFC would be most effective in innovation-driven countries.

Table 4—Prevalence of Training in Starting a Business in the Total Working-Age Population and Among Early-Stage Entrepreneurs

Source: GEM Adult Population Survey 2008

COUNTRY	PERCENTAGE TRAINED INDIVIDUALS AGED 18-64	PERCENTAGE TRAINED NASCENT AND NEW ENTREPRENEURS	RATIO OF TRAINED ENTREPRENEURS TO TRAINED INDIVIDUALS
Factor-Driven			
Egypt	7.6	14.0	1.8
India	13.4	23.0	1.7
Bolivia	19.1	30.8	1.6
Bosnia and Herzegovina	20.0	31.4	1.6
Ecuador	27.2	39.4	1.4
Colombia	40.1	53.5	1.3
Group Average	21.2	32.0	1.5
Efficiency-Driven			
Turkey	6.3	15.1	2.4
Dominican Republic	7.7	15.8	2.1
Romania	8.7	16.1	1.9
Brazil	9.4	20.4	2.2
Serbia	10.2	20.8	2.0
South Africa	13.9	22.7	1.6
Mexico	16.2	24.8	1.5
Argentina	17.5	29.0	1.7
Macedonia	19.1	36.2	1.9
Jamaica	21.0	37.4	1.8
Uruguay	24.1	40.2	1.7
Hungary	24.5	40.7	1.7
Croatia	28.1	42.3	1.5
Latvia	28.3	42.4	1.5
Iran	29.1	50.4	1.7
Peru	29.6	55.0	1.9
Chile	42.6	61.1	1.4
Group Average	19.8	33.6	1.7
Innovation-Driven			
Israel	12.8	17.5	1.4
Republic of Korea	13.6	21.8	1.6
Italy	16.5	28.1	1.7
Greece	17.0	30.3	1.8
Japan	17.4	31.3	1.8
France	18.1	35.0	1.9
United Kingdom	18.4	37.8	2.1
Germany	21.1	41.2	2.0
Spain	22.0	44.3	2.0
Denmark	22.6	45.0	2.0
Ireland	26.1	46.6	1.8
Iceland	26.8	51.7	1.9
Belgium	33.6	55.4	1.6
Slovenia	35.8	58.2	1.6
Finland	48.6	69.6	1.4
Group Average	23.4	40.9	1.7

Figure 17—Ratio of Trained Entrepreneurs to Trained Individuals in the Working-Age Population Within the Factor-Driven Economic Group, Ordered by Increasing Percentage of Trained Individuals

Source: GEM Adult Population Survey 2008

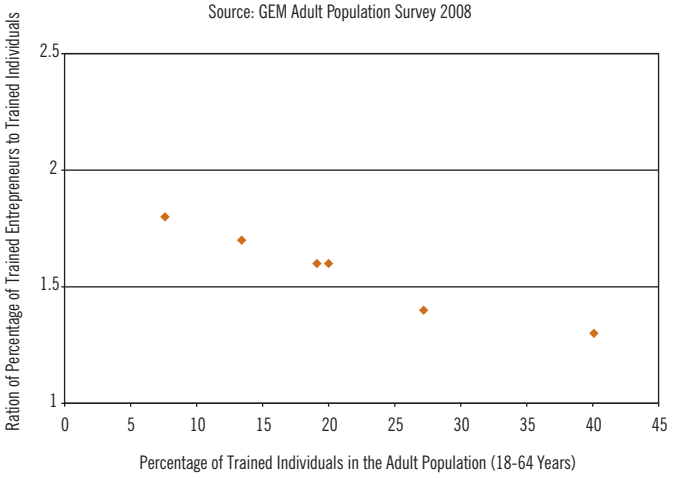


Figure 18—Ratio of Trained Entrepreneurs to Trained Individuals in the Working-Age Population Within the Efficiency-Driven Economic Group, Ordered by Increasing Percentage of Trained Individuals

Source: GEM Adult Population Survey 2008

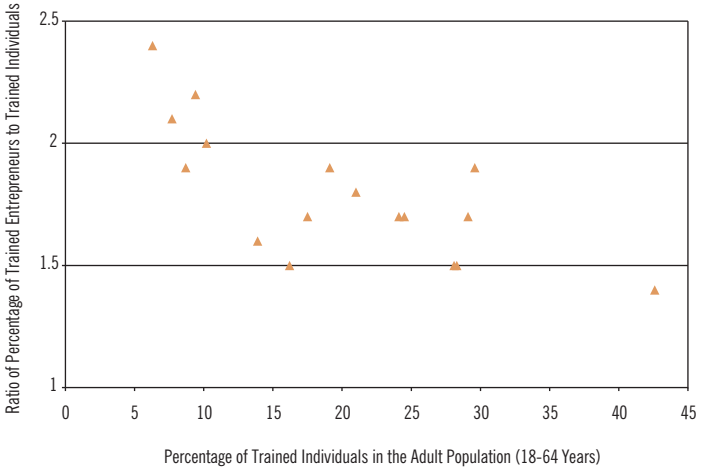
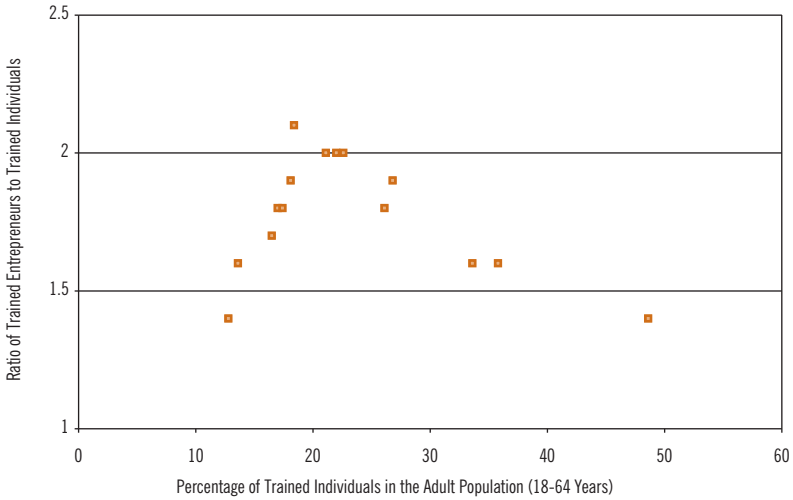


Figure 19—Ratio of Trained Entrepreneurs to Trained Individuals in the Working-Age Population Within the Innovation-Driven Economic Group, Ordered by Increasing Percentage of Trained Individuals

Source: GEM Adult Population Survey 2008



5.3 GAIN FROM TRAINING: GEM'S CORE MEASURE OF THE EFFECT OF TRAINING IN STARTING A BUSINESS

The core measure of effect used in analyzing the GEM training data is "gain from training." The gain from training is a numerical measure that estimates effect while controlling for issues that have hampered previous studies in this area (noted in Section 5.1). To address the self-selection problem, GEM compares the effect of having had compulsory training versus not having had any training on entrepreneurial awareness, attitudes (such as skills perception, opportunity perception or fear of failure), intention to start a business and early-stage entrepreneurial activity, controlling for the demographic background of an individual. Large random samples of the working-age population provide natural controls.

Gain from training is a country-based measure that can be interpreted at a group or individual level. First, it can be thought of as the increase in the proportion of people in the country who have a characteristic, such as a particular attitude, because of compulsory training (but not voluntary training) in starting a business, controlling for demographic differences (age group, gender, education and working status). Thus, a gain of two would mean the following: If two samples of people were taken—differing in that one group had received only compulsory training in starting a business and the other had not—one would find that twice as many people in the compulsory training group would have a particular attitude, compared to people in the other group.

Second, it can be thought of as the increase in the odds that individuals with a given set of demographic characteristics will have a particular entrepreneurial orientation if they have ever taken compulsory training (but not voluntary training) versus individuals with identical demographic characteristics but without such training. As an example, a gain of two would indicate that individuals' chances of having a particular orientation are doubled if they have taken compulsory training.

Table 5 reports the gain from training in TEA rates for each country for which sufficient data were available. Tables 13 and 14 in the Appendix display country estimates of gain from training in starting a business, grouped by level of economic development and by principal global region. The estimates of gain are for raising awareness of new business entrepreneurs, improving three different entrepreneurial attitudes (opportunity perception, start-up skills self-perception and fear of failure), increasing intent to start a business within the next three years and increasing early-stage entrepreneurial activity. For each country, the gain from training and level of significance (none, low, moderate or high) are reported.

Since compulsory training is relatively rare in many countries, it is possible that non-significant results are due to the small sample size. Therefore, the figures provided display economic group averages (Figures 20 and 21) and geographical global region averages (Figures 22 and 23). For each country group, the figures report the average gain (Figures 20 and 22) and percentage of countries in which the significance level of the gain from training is at least moderate ($p<.05$) (Figures 21 and 23). This enables the reader to make independent judgments about the general effect of training in different parts of the world.

Table 5—Gain from Training in Early-Stage Entrepreneurial Activity (TEA) for 37 Countries, by Country and Economic Group, Ordered by Increasing Gain in TEA Rate from Training

Source: GEM Adult Population Survey 2008

FACTOR-DRIVEN COUNTRIES	GAIN IN TEA RATE FROM TRAINING	EFFICIENCY-DRIVEN COUNTRIES	GAIN IN TEA RATE FROM TRAINING	INNOVATION-DRIVEN COUNTRIES	GAIN IN TEA RATE FROM TRAINING
Ecuador	1.0	Iran	0.8	Spain	1.1
Bolivia	1.2	Jamaica	0.8	Denmark	1.2
India	1.3	Latvia	1.2	Republic of Korea	1.3
Colombia	1.5	Peru	1.3	Slovenia	1.4
Egypt	1.6	Macedonia	1.3	Finland	1.5
Bosnia and Herzegovina	2.5*	Chile	1.5	Greece	1.8**
		Mexico	1.5*	Ireland	1.9**
		Hungary	1.5**	Japan	2.1*
		Dominican Republic	1.6	Italy	2.3**
		Croatia	1.7*	Iceland	2.3***
		Uruguay	1.7**	United Kingdom	2.4***
		Brazil	2.1**	Belgium	2.6***
		Serbia	2.1**	Germany	2.8***
		South Africa	2.6***	Israel	3.0***
		Romania	3.3*	France	4.3***
		Turkey	3.3***		
Average Gain	1.5	Average Gain	1.8	Average Gain	2.1
Percentage of countries with significant gain at 5% level	0%	Percentage of countries with significant gain at 5% level	38%	Percentage of countries with significant gain at 5% level	60%

Key to statistical significance levels: * low ($p < .1$); ** medium ($p < .05$); *** high ($p < .01$)

Note: Argentina was not included in the analysis due to missing variables.

Figure 20—Gain from Training in Entrepreneurial Awareness, Attitudes, Intention and Activity for 38 Countries, by Economic Group

Source: GEM Adult Population Survey 2008

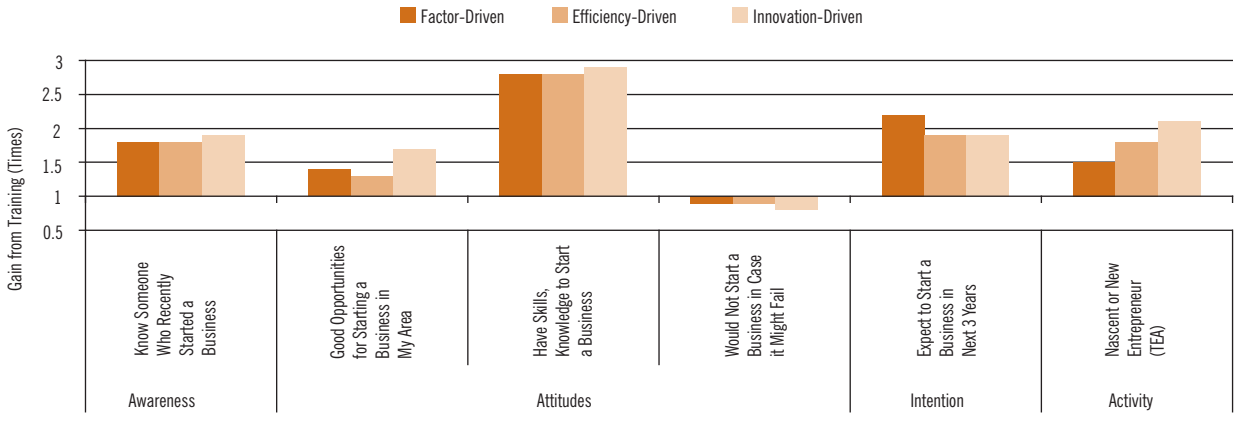
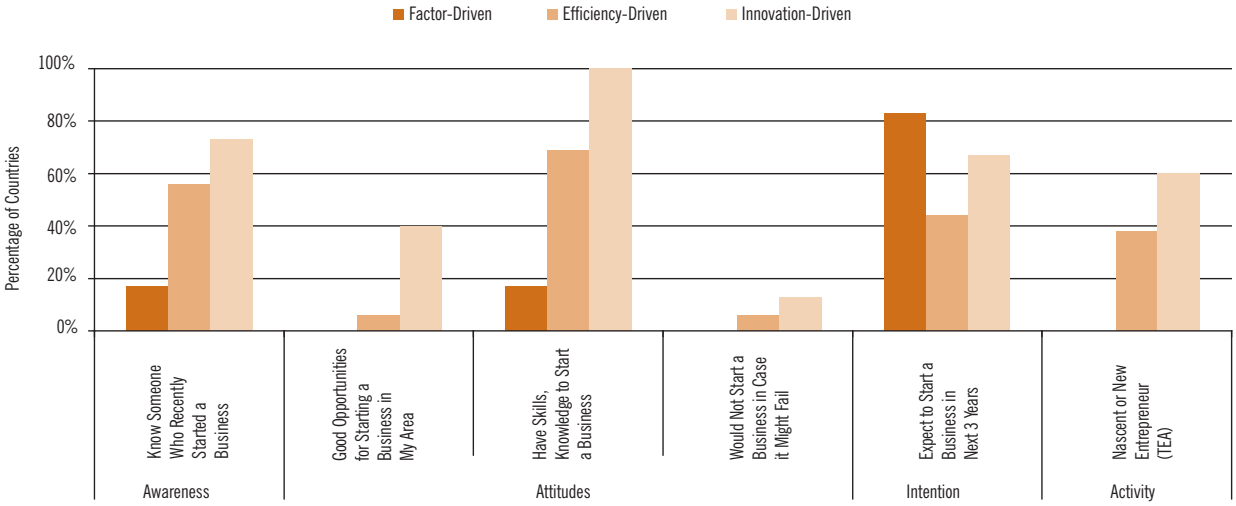


Figure 21—Proportion of Countries in Which the Gain from Training Is Statistically Significant, by Economic Group and Type of Entrepreneurial Orientation

Source: GEM Adult Population Survey 2008



A number of trends are evident in this data. Among factor-driven countries, the effects of training on awareness and attitudes are muted. This is perhaps unsurprising since in these countries, activity rates are typically high, with many people struggling to make a living for themselves. Thus starting a business, often born of necessity rather than opportunity, is normal and commonplace. Training appears to double intention rates but not activity rates in factor-driven countries. Again, this makes sense if one considers that the conditions for starting a business may be less than ideal in factor-driven countries. According to the GEM National Expert Survey, the average combined rating on the overall environment for entrepreneurship, based on a 1 to 5 point scale, was lowest for factor-driven countries (2.6), compared to that of efficiency-driven countries (2.8) and innovation-driven countries (3.0). Moving from intentions to actually starting businesses may therefore represent a greater challenge in factor-driven countries.

The efficiency-driven countries display a different overall pattern. At this level of economic development, training significantly increases awareness and skills self-perception. In these countries, TEA rates tend to be lower than in factor-driven countries, and training may increase awareness and self-perception of skills among those who have not previously considered this economic phenomenon. Figure 21 shows that only 44% of these countries saw significant increases in intention, with 38% increasing activity significantly. In both cases, the average gain was a doubling of either intention or activity rates for trained individuals.

Among innovation-driven countries, TEA rates are around half those of efficiency-driven countries, but the proportion of opportunity-to-necessity entrepreneurship is triple those of the other two economic groups. As Figure 21 shows, more than 70% of these countries exhibit significant gains in awareness among trained individuals, and 40% show gains in opportunity perception. Skills perception was significantly higher among trained individuals in all innovation-based countries, with an average tripling in the prevalence of skills perception. Two-thirds of countries registered significant increases in intention rates, and 60% of the countries saw significant increases in TEA rates, with an average 2X gain for both.

Across all countries, training did not seem to affect fear of failure, except in Hungary, Slovenia and Greece, where fear of failure decreased by between 60% and 80% among those who had taken compulsory training. On average, training appears to triple the level of skills perception across the entire data set, although small proportions of compulsory training in some poorer countries may have resulted in lack of significance on this measure. Start-up intention rates appear to double across all countries on average, but gain from training in early-stage entrepreneurial activity increases from factor-driven to efficiency-driven to innovation-driven countries. This may be a result of increasingly favorable institutional

settings for entrepreneurship in richer countries. In other words, weaknesses in the environment for entrepreneurship or the lack of triggering conditions (Shapero, 1975; Bird, 1988; Azjen, 1991) may prevent intention from translating into action.

Figure 22 summarizes the average gains from training at the regional level for four blocks of countries with natural contextual affinities. Only six sample countries out of the 38 were not included in these blocks: Egypt, South Africa, India, Iran, Israel and Turkey. Figure 23 shows the percentage of countries in each block in which the gain from training was significant for each type of entrepreneurial behavior. The patterns in Figures 22 and 23 support the proposition that institutional weaknesses may prevent a gain in intent from leading to a gain in activity. Differences between eastern and western Europe illustrate this point, where, despite significant gains in awareness and skills perception in most eastern European countries, a gap remains between intention and activity. There is no such gap in western Europe, however. A general measure of the environment for entrepreneurship from the NES survey shows a higher average score for western Europe (3.0 on a scale of 1 to 5), compared with 2.8 for eastern Europe and 2.7 for Latin American and Caribbean countries. In Republic of Korea and Japan, institutional barriers, as well as cultural perceptions, may also prevent the gains in awareness and attitudes from translating into intention and action.

Finally, training in Latin America and the Caribbean appears, on average, to have little or no effect. However, this is against a backdrop of high TEA rates, generally, and a less favorable institutional environment. In 2008, the average TEA rate in these countries was 18%, compared with 8% in eastern Europe and 6% in western Europe.

In conclusion, the GEM 2008 data conclusively points to a gain from training that varies by context. Training is most effective in contexts with favorable institutional environments, where the training-induced positive skills perceptions and intentions can be translated into action. Training appears to be particularly effective in western European countries with low rates of early-stage entrepreneurial activity, such as Belgium, France, Germany and the United Kingdom.

Figure 22—Gain from Training in Entrepreneurial Awareness, Attitudes, Intention and Activity for 32 Countries, by Global Region

Source: GEM Adult Population Survey 2008

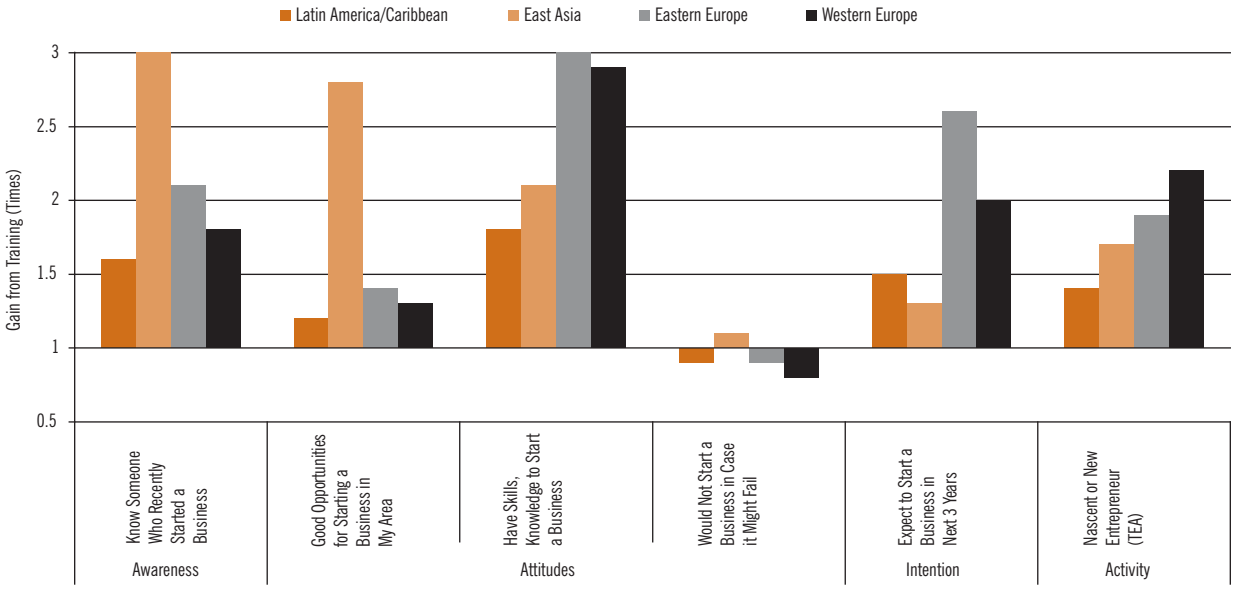
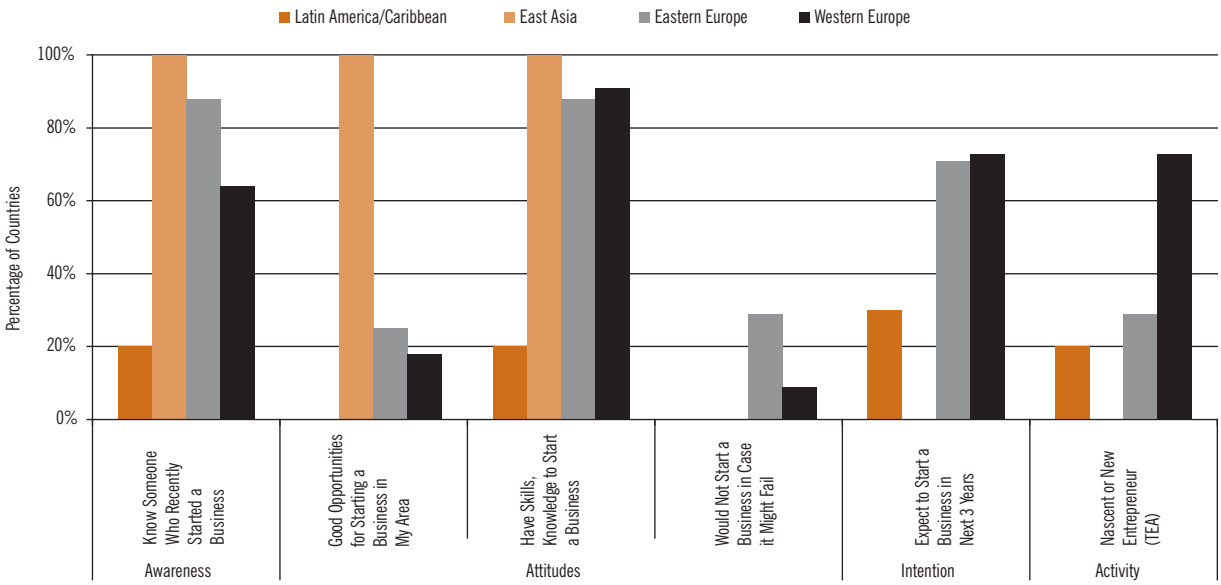


Figure 23—Proportion of Countries in Which the Gain from Training is Statistically Significant, by Global Region and Type of Entrepreneurial Orientation

Source: GEM Adult Population Survey 2008



6 The Use of Advisors by Entrepreneurs

6.1 TYPES OF ADVISORS

Advice from other people is a source of learning that complements and sometimes substitutes for the formal and informal programs of entrepreneurship training discussed in previous chapters. In 2008, five GEM national teams cooperated to conduct a study of the types of people that entrepreneurs go to for advice. This chapter reveals the range of advisors entrepreneurs can call on. It shows how this range can differ across countries and between entrepreneurs who have had training and those who have not had training in starting a business. The five surveyed countries (Brazil, Denmark, Iran, Republic of Korea and Latvia) represent a great diversity of cultures and continents. In this study, individuals identified as nascent entrepreneurs and business owner-managers were asked if they had received advice from any of a comprehensive set of 22 different types of advisors. For analysis, these advisors were grouped into five spheres of influence:

- **the private sphere** of family and friends, who are likely to give support or discouragement;
- **the job sphere** of managers and work-colleagues, who may serve as sounding boards;
- **the experience sphere** of experienced entrepreneurs, business people and people with expertise, who may convey tacit knowledge;
- **the professional sphere** of professionals such as bankers, lawyers and accountants, who offer codified knowledge; and
- **the market sphere** of competitors, collaborators, suppliers and customers, who may provide knowledge about the market.

These five spheres were identified in previous studies of entrepreneurs and their networks. An entrepreneur's advisory network is the set of all the advisors that provided advice for the new business (for nascent entrepreneurs) or the set of all the advisors that provided advice in the past year (for owner-managers of businesses that were up and running).

For this study, 1,993 networks of advisors of start-up entrepreneurs and owner-managers were analyzed in terms of the types of advisors in each network (554 in Iran, 529 in Brazil, 192 in Latvia, 467 in Republic of Korea and 251 in Denmark). Of the entrepreneurs reporting these networks, 25% had received training in starting a business (42% of the Iranians, 14% of the Brazilians, 52% of the Latvians, 14% of the Koreans and 29% of the Danes).

Table 6 shows the frequency of use of different advisor types in each of the five spheres of influence for each country. The countries are ordered according to their communal values as measured by the World Values Survey, from traditional to secular-rational. This seems appropriate when one is interested in how individuals interact with other people.

Patterns are apparent in the frequency of use of different advisor types. For example, in the private sphere, friends were employed as advisors more often than family members in all five countries. Use of parents and other family was more frequent in Iran and Brazil than in Republic of Korea and Denmark, with Latvia occupying an intermediate position. This may reflect differences in the degree to which parental authority and family connections matter in these countries. In the job sphere, entrepreneurs tend to have used work colleagues rather than managers as sources of advice. This is not surprising; employees who are planning to leave to start their own businesses may be reluctant to confide in their managers. In the experience sphere, over half of Danish entrepreneurs used mentors or experts, compared with less than 40% of Latvians and Koreans, less than a third of Iranians and less than a quarter of Brazilians. Danes were also significantly more likely to use professional and market sphere advisors than entrepreneurs from the other countries.

Table 6—Percentage of Advisor Type Networks That Include a Particular Advisor Type

Source: GEM Adult Population Survey 2008

		IRAN	BRAZIL	LATVIA	REPUBLIC OF KOREA	DENMARK
Private Sphere	Spouse	31	42	37	22	44
	Parent	45	33	31	15	18
	Other Family	43	47	36	25	20
	Friends	43	51	53	33	50
Job Sphere	Current Work Colleagues	22	24	29	23	48
	Earlier Work Colleagues	16	15	20	18	31
	Current Manager	8	5	10	10	26
	Earlier Manager	5	7	6	12	17
	Somebody Abroad	3	4	17	5	23
Experience Sphere	Someone Starting a Business	17	11	33	13	25
	Mentor	32	22	36	37	53
	Expert	29	23	25	39	58
	Investor	7	8	18	9	16
Professional Sphere	Researcher	7	4	13	6	14
	Banker	5	6	16	6	29
	Lawyer	4	5	24	3	23
	Accountant	5	12	27	9	49
	Advisor	4	7	13	7	18
Market Sphere	Collaborator	8	8	23	14	36
	Competitor	4	3	11	9	18
	Supplier	14	20	20	18	33
	Customer	20	28	28	24	40

Table 7 shows that, compared with entrepreneurs in three other countries, Danish entrepreneurs typically had almost twice as many types of advisors, with an average of seven types of advisors, while Latvian entrepreneurs had six and Brazilian, Iranian and Korean entrepreneurs, less than four.

The relative frequency of use of different advisor types and the prominence of different spheres also varies by country. The prominence of a sphere in a country was measured by calculating the relative frequency of use of advisor types in the sphere (for a network, the average number of advisor types used in the sphere as a percentage of the number of advisor types in the sphere) and dividing this by the number of advisor types, then averaging across the networks in the country. The prominence of the private sphere declines from left to right in Table 7. In fact, this measure correlates highly and negatively with communal values across the five countries ($r = -0.94$). The private sphere is the most prominent sphere in every country except Denmark, where it takes second place behind the experience sphere. While none of the public spheres correlate quite as strongly with communal values as the private sphere, they all correlate positively ($r = 0.69$ to 0.81). This is consistent with lower authority of the family and higher instrumentality of personal relationships in countries that have more secular-rational communal values.

Table 7—Summary Statistics on Advisor Types Used by Entrepreneurs in Iran, Brazil, Latvia, Republic of Korea and Denmark

Source: GEM Adult Population Survey 2008

	IRAN	BRAZIL	LATVIA	REPUBLIC OF KOREA	DENMARK
Mean Number of Advisor Types	3.8	3.9	5.6	3.6	6.9
Prominence of Advisor Types in Private Sphere	13.2	12.2	9.1	7.0	4.5
Prominence of Advisor Types in Job Sphere	1.9	1.7	2.3	2.6	3.6
Prominence of Advisor Types in Experience Sphere	3.5	2.3	3.3	5.3	5.1
Prominence of Advisor Types in Professional Sphere	0.4	0.8	2.1	1.0	4.1
Prominence of Advisor Types in Market Sphere	1.6	2.5	2.2	2.9	3.9
Number of Advisor Type Networks	554	529	192	467	251

Note: Prominence of a sphere is calculated as the relative frequency of use of advisor types in the sphere (for a network, the average number of advisor types used in the sphere as a percentage of the number of advisor types in the sphere) and dividing this by the number of advisor types, then averaging across the networks in the country.

6.2 USE OF ADVISORS BY TRAINED AND UNTRAINED ENTREPRENEURS

Table 8 compares the use of advisors in different spheres by entrepreneurs who have had training and those who have not had training in starting a business. It suggests that, with the exception of Iran, trained entrepreneurs have more advisor types in each sphere than untrained entrepreneurs. Table 9 summarizes this data and confirms that there was no overall difference in the number of advisor types selected by trained and untrained entrepreneurs in Iran. In contrast, trained entrepreneurs in Brazil and Latvia had double the number of advisor types, while the number increased by two-thirds in Republic of Korea and Denmark.

Table 8—Average Number of Advisor Types per Sphere of Influence Identified by Trained and Untrained Entrepreneurs, by Country

Source: GEM Adult Population Survey 2008

		IRAN	BRAZIL	LATVIA	REPUBLIC OF KOREA	DENMARK
Private Sphere	Trained	1.6	2.1	1.8	1.3	1.7
	Untrained	1.6	1.7	1.3	0.9	1.2
Job Sphere	Trained	0.5	1.1	1.1	1.0	1.7
	Untrained	0.6	0.5	0.6	0.6	1.4
Experience Sphere	Trained	0.9	1.4	1.6	1.4	1.8
	Untrained	0.8	0.5	0.6	0.9	1.4
Professional Sphere	Trained	0.2	0.9	1.2	0.6	1.6
	Untrained	0.3	0.2	0.6	0.3	1.2
Market Sphere	Trained	0.4	1.1	1.1	1.1	1.6
	Untrained	0.5	0.5	0.5	0.6	1.1
Number of Advisor Type Networks	Trained	234	76	100	64	73
	Untrained	319	453	92	403	178

Table 9—Average Numbers of Advisors Identified by Trained and Untrained Entrepreneurs, by Country

Source: GEM Adult Population Survey 2008

		IRAN	BRAZIL	LATVIA	REPUBLIC OF KOREA	DENMARK
Trained Entrepreneurs		3.7	6.6	7.4	5.4	8.3
Untrained Entrepreneurs		3.9	3.4	3.8	3.3	6.3
Number of Advisor Type Networks	Trained	234	76	100	64	73
	Untrained	319	453	92	403	178

One would expect that trained entrepreneurs have a wider variety of advisor types in each sphere because of the training they received, or if they undertook training voluntarily, due to the demonstrated desire of these entrepreneurs to seek external help. This is not apparent in Iran, and further research is needed to understand this result.

To test if training is associated with an increased variety of advisors entrepreneurs choose to take, GEM compared the variety of advisor types used by untrained entrepreneurs with the variety of advisor types chosen by entrepreneurs who had only undergone compulsory training. As shown in Section 4.3, entrepreneurs with higher levels of education are more likely to have had training than those with lower levels of education. For this reason, GEM controlled for level of education in a multivariate test, along with gender, age, type of entrepreneur (whether nascent entrepreneur or the owner-manager of an existing business) and country.

The results of this test on 1,631 different sets of advisor types, presented in Table 15 in the Appendix, are that the associations between variety of advisor types and both education and training are statistically significant and substantial. This suggests that entrepreneurs who have taken training have, on average, a wider variety of advisor types when education, gender, age, stage of the business and country are controlled for.

Taken together with the results from the previous chapter, these results suggest that education, training and getting advice from others are three sources of learning that appear to reinforce one another. In most countries, the more education individuals receive, the more they are likely to have taken training, and the more education and training entrepreneurs receive, the wider the variety of advisors in their networks.

7 Conclusions and Implications for Policy, Educators and Practice

7.1 CONCLUSIONS

This report represents an early effort to provide a global perspective on the prevalence, sources and effect of entrepreneurship training in national populations. The GEM research has long reported, through its National Expert Surveys, that entrepreneurship training is lacking in many countries across the world. This fueled interest in including this topic in the GEM Adult Population Survey for 2008. Additionally, although there is considerable literature on entrepreneurship education and training, much of it takes a supply-side perspective, focusing on the evaluation or review of programs offered. GEM's efforts provide useful information about who has received training, from what sources and whether past training is associated with current entrepreneurial perspectives and actions. The key findings are summarized below:

- Entrepreneurship experts in the participating countries consistently evaluated entrepreneurship education and training at primary and secondary school level as the weakest of the entrepreneurship framework conditions in their countries.

- Across the 38 countries in which training in starting a business was measured, 21% of the adult population has received training. There is a large variation at the country level ranging in most cases from 10–30%, but this variation seems to be unrelated to average wealth and stage of economic development of the country.

- Voluntary training is more common than compulsory training. Two-thirds of those who have received training have done so voluntarily. Only one-third received compulsory training.

- A majority of those who have received training, around 80%, have done so during their formal education. However, many of those receiving formal training also sought training through informal sources.

- People who have received training are most likely to be 35–54 years of age, are more likely to be men than women and have at least completed secondary school. Trained individuals in innovation-driven economies are more likely to be older and to have attained a higher education level compared to those in the other two groups, but these differences reflect general demographic differences between these economic groups.

- Training is likely to increase awareness of entrepreneurship, increase self-efficacy and heighten intentions. However, it has less influence on opportunity identification and fear of failure.

- Gain from training in terms of increased activity is greater in more developed economies, i.e. if basic requirements, efficiency enhancers and other entrepreneurial framework conditions are present. In factor- and efficiency-driven economies, increasing training coverage appears to generate diminishing returns, while in innovation-driven countries, it appears to generate increasing returns up to a point where around a fifth of the population has received training.

- Entrepreneurs who have received training in starting a business tap into a wider variety of advisors to help them start or run their businesses. The nature of advisors varies with the culture of a country. Entrepreneurs in more traditional countries tend to rely more on family and friends, whereas entrepreneurs in more secular-rational countries tend to choose other types of advisors.

7.2 IMPLICATIONS FOR POLICY, EDUCATORS AND PRACTICE

Based on the conclusions, GEM suggests a number of implications for policy makers, educators and entrepreneurs.

- Policy makers in innovation-driven economies may consider entrepreneurship training to be an efficient mechanism for increasing entrepreneurial activity, especially where the existing level of trained individuals in the working-age population is below around 20%. In factor-driven or efficiency-driven countries, on the other hand, the data set does not suggest that increased investment in entrepreneurship training would generate similar returns. On the other hand, this may be due to identifiable bottlenecks in the provision of basic requirements, efficiency-enhancers or other entrepreneurial framework conditions. Providing training may not have a major impact until there is adequate infrastructure, economic stability or market and technological readiness—or until other conditions are met. Therefore, the wider economic and social context should be taken into account in developing entrepreneurship education and training policy in factor- and efficiency-driven countries.

- An alternative reason for the lack of association between training and increased activity revealed in the analysis of factor-driven and efficiency-driven economies may be poor quality training. This has several implications for policy makers and educators. First, policy makers or educators could determine the particular training needs of entrepreneurs in a particular economy and then evaluate the adequacy of training programs in meeting these needs. Second, training programs could be evaluated within and across countries; this may be helpful in identifying the strengths and weaknesses of different training programs, as well as enabling people from different programs and countries to share ideas for effective training.

- The results indicate that individuals tend to get training in starting a business as part of their formal education. This shows how important schools, colleges and universities are in providing a foundation for entrepreneurship. Given the emphasis on providing this training as early as possible (WEF, 2009), and the views of GEM national experts, educators in primary and secondary schools could be encouraged to build effective training programs into their curricula. This may be particularly critical in countries where most of the population is less likely to pursue education beyond primary and secondary schooling. Experiential learning techniques and teaching a wide variety of students, not just those oriented toward business topics, may increase the reach and effectiveness of these programs. Program objectives should fit the country context. For example, in countries where non-school training opportunities are scarce, the objective may be to develop the skills and motivation for entrepreneurship. In countries where entrepreneurial activity is limited but non-school training is widely available, programs that enhance awareness and attitudes might be more appropriate.

- The finding that formal and informal training overlap implies that formal training may provide a foundation, but that many people need specific knowledge and skills, perhaps when they become interested in starting a business or have taken steps to do so. Cost effective, convenient training sources, such as self-study and web-based programs, are one way of meeting such needs, and they are becoming more widely available. Entrepreneurs could consider accessing these sources—or, indeed, supplying them.

- The results show that entrepreneurship training can be a lifelong pursuit that includes a foundation built in primary and secondary schooling as well as opportunities for both formal and non-formal training in the years beyond school. Entrepreneurship training at the tertiary level should not be limited to those taking business subjects. This would enable entrepreneurship to become an informed career option for everyone, which can be exercised when a combination of circumstances make it a viable alternative.

7.3 SUGGESTIONS FOR FURTHER RESEARCH

A number of issues have surfaced in the course of this research that would be worth investigating further.

- First, the analysis suggests that entrepreneurship training may enhance self-efficacy, or start-up skills self-perception, but seems to be poor at enhancing opportunity recognition. It may be that planning-based programs are good at making people believe they know how to start a business. However, the other crucial ingredient is recognition of an attractive opportunity. Research could investigate the extent to which training programs impart skills in opportunity recognition, perhaps through experimental designs or longitudinal studies of graduates.

- Second, little, if anything, is known about "what" is taught in the entrepreneurship training programs taken by the survey respondents and "how" they are taught. Apart from a limited number of prior studies (e.g. Sexton et al., 1997), one cannot know which parts of training curricula are most valued by entrepreneurs. A follow-up study could ask entrepreneurs what topics in their training provided the most valuable guidance in starting their businesses, and in which aspects of new business management they felt most unprepared. Related to content is delivery: What pedagogies or experiences worked best for trainees, and did these pedagogies differ between those who did and did not become entrepreneurs? These issues could be explored using case-based research or surveys.

- Third, there is a need for further research on learning from advisors. In Chapter 6, a pilot study of five countries revealed culturally bound differences in the way entrepreneurs choose advisors, but also suggested that entrepreneurs who have been trained in starting a business tap into a wider variety of advisors. Much more remains to be discovered about how entrepreneurs use advisors (including the number, not just type, of advisors) and the nature and quality of advice received. Social networking methodologies may be helpful in researching this topic further.

- Fourth, further research might help explain the apparent diminishing returns to increasing rates of training in factor- and efficiency-driven countries, and increasing returns followed by diminishing returns in innovation-driven countries as coverage of training increases in a country. While this might be an artifact of the cross-sectional research design, it may also be a consequence of identifiable bottlenecks in framework conditions. These bottlenecks may be identifiable by examining patterns in GEM National Expert Survey data and other secondary sources of information on framework conditions. This research could help governments use resources more efficiently and generate more entrepreneurial activity.

- Finally, additional analysis needs to be conducted to find out which sources of entrepreneurship training have most effect on entrepreneurial behavior. For example, does in-school training provide a vital foundation for embedding entrepreneurial thought, or is it too early in the education cycle? Is informal training more effective than formal training? The answers to questions like these could guide policy makers and educators in understanding the training needs of the entrepreneurs they rely on to generate new wealth in their economies.

Appendix

Table 10—Average Ratings by National Experts on the State of In-School and Non-School Entrepreneurship Education and Training in a Sample of GEM Nations, 2005–2008

Source: GEM National Expert Surveys 2005 to 2008

IN-SCHOOL	2005	2006	2007	2008
Brazil	1.56	1.51	1.57	1.59
Italy	1.76	2.00	1.95	1.83
Chile	1.87	1.55	1.55	1.58
Greece	1.89	2.21	1.75	1.78
Slovenia	2.25	2.11	2.30	2.42
Ireland	2.31	2.83	2.64	2.59
Denmark	2.36	2.52	2.76	2.48
Spain	2.42	2.09	1.88	1.93
Finland	2.48	2.22	2.57	2.52
Norway	2.62	2.55	2.66	2.63
United States	2.82	2.71	2.44	2.08
NON-SCHOOL	2005	2006	2007	2008
Brazil	2.04	2.46	2.46	2.78
Denmark	2.12	2.30	2.21	2.38
Greece	2.37	2.64	2.47	2.50
Norway	2.62	2.68	2.98	2.80
Italy	2.67	2.78	3.24	2.68
Finland	2.75	2.70	2.72	2.86
Chile	2.78	3.00	2.77	2.88
Slovenia	2.78	2.86	2.96	2.97
Ireland	2.94	3.19	3.06	2.86
Spain	3.31	2.76	2.78	2.79
United States	3.38	3.60	3.43	3.04

Note: The measures range from 1 = poor to 5 = excellent.

Table 11—Prevalence of Start-Up Training (In-School and Non-School), by Country and Economic Group (Percentage of Working-Age Population)

Source: GEM Adult Population Survey 2008

COUNTRY	A ONLY IN-SCHOOL TRAINING	B BOTH IN-SCHOOL AND NON-SCHOOL TRAINING	C ONLY NON-SCHOOL TRAINING	A+B ANY IN-SCHOOL TRAINING	B+C ANY NON-SCHOOL TRAINING	A+B+C TOTAL
Factor-Driven						
Egypt	3.4	1.4	2.8	4.8	4.2	7.6
India	2.6	3.5	7.4	6.1	10.9	13.4
Bolivia	1.5	9.1	8.5	10.6	17.6	19.1
Bosnia and Herzegovina	9.6	4.0	6.4	13.6	10.4	20.0
Ecuador	11.9	8.4	6.9	20.3	15.3	27.2
Colombia	10.7	12.6	16.8	23.3	29.4	40.1
Group Average	6.6	6.5	8.1	13.1	14.6	21.2
Efficiency-Driven						
Turkey	2.1	0.4	3.8	2.5	4.2	6.3
Serbia	2.6	0.4	7.2	3.0	7.6	10.2
Dominican Republic	0.6	4.7	2.5	5.3	7.2	7.8
Brazil	3.0	2.4	4.1	5.3	6.4	9.4
Romania	3.8	2.2	2.8	5.9	4.9	8.7
South Africa	5.0	4.4	4.5	9.4	8.9	13.9
Argentina	6.5	3.3	7.6	9.9	11.0	17.5
Mexico	6.9	3.6	5.7	10.5	9.3	16.2
Uruguay	5.8	4.9	13.4	10.7	18.3	24.1
Macedonia	8.3	4.3	6.5	12.6	10.8	19.1
Peru	6.0	8.4	15.2	14.4	23.6	29.6
Latvia	9.2	5.6	13.5	14.9	19.1	28.4
Iran	9.9	5.7	13.5	15.6	19.1	29.1
Jamaica	11.7	4.4	5.0	16.0	9.3	21.0
Hungary	14.5	2.7	7.4	17.1	10.0	24.5
Croatia	2.8	17.3	8.0	20.1	25.3	28.1
Chile	10.3	15.0	17.3	25.3	32.3	42.6
Group Average	6.4	5.3	8.1	11.7	13.4	19.8
Innovation-Driven						
Japan	1.7	3.2	12.5	4.9	15.7	17.4
Israel	4.4	1.6	6.9	5.9	8.4	12.8
Republic of Korea	4.6	1.4	7.6	6.0	9.0	13.6
Greece	4.2	1.9	10.9	6.1	12.8	17.0
United Kingdom	5.6	2.5	10.3	8.1	12.8	18.4
Denmark	6.7	3.3	12.6	10.0	15.9	22.6
France	5.7	4.4	8.0	10.1	12.4	18.1
Italy	3.5	6.7	6.3	10.2	13.0	16.5
Iceland	9.1	2.7	15.0	11.8	17.7	26.8
Germany	8.0	4.4	8.8	12.4	13.2	21.2
Spain	7.4	5.1	9.4	12.6	14.6	22.0
Ireland	8.7	5.4	12.1	14.0	17.4	26.1
Finland	8.3	10.4	29.8	18.8	40.3	48.6
Slovenia	13.4	11.1	11.3	24.5	22.4	35.8
Belgium	16.3	8.8	8.6	25.0	17.3	33.6
Group Average	7.2	4.9	11.3	12.0	16.2	23.4

Table 12—Prevalence of Start-Up Training (Formal and Informal), by Country and Economic Group (Percentage of Working-Age Population)

Source: GEM Adult Population Survey 2008

COUNTRY	A FORMAL ONLY	B BOTH FORMAL AND INFORMAL	C INFORMAL ONLY	A+B ANY FORMAL	B+C ANY INFORMAL	A+B+C TOTAL
Factor-Driven						
Egypt	3.7	2.4	1.4	6.1	3.8	7.5
India	3.2	5.0	4.5	8.2	9.5	12.7
Bolivia	2.1	14.3	2.5	16.4	16.8	18.9
Bosnia and Herzegovina	10.0	7.6	2.3	17.6	9.9	19.9
Ecuador	13.0	11.9	1.8	24.9	13.7	26.7
Colombia	11.9	23.5	4.4	35.4	27.9	39.8
Group Average	7.3	10.8	2.8	18.1	13.6	20.9
Efficiency-Driven						
Turkey	2.3	1.9	1.6	4.2	3.5	5.8
Dominican Republic	0.9	5.6	0.9	6.5	6.5	7.4
Romania	4.3	2.9	1.4	7.2	4.3	8.6
Brazil	3.1	2.8	3.1	5.9	5.9	9.0
Serbia	2.9	1.2	6.2	4.1	7.4	10.3
South Africa	5.3	6.8	1.4	12.1	8.2	13.5
Mexico	6.9	4.5	3.9	11.4	8.4	15.3
Argentina	6.7	6.8	3.9	13.5	10.7	17.4
Macedonia	8.8	6.7	3.3	15.5	10.0	18.8
Jamaica	13.2	6.6	1.2	19.8	7.8	21.0
Hungary	18.1	2.0	3.8	20.1	5.8	23.9
Uruguay	6.6	11.5	5.9	18.1	17.4	24.0
Croatia	4.2	19.8	3.7	24.0	23.5	27.7
Latvia	12.4	11.9	3.7	24.3	15.6	28.0
Iran	10.9	10.0	8.0	20.9	18.0	28.9
Peru	6.6	15.9	6.9	22.5	22.8	29.4
Chile	11.1	24.9	6.4	36.0	31.3	42.4
Group Average	7.3	8.3	3.8	15.7	12.2	19.5
Innovation-Driven						
Republic of Korea	4.8	4.7	3.9	9.5	8.6	13.4
Israel	4.7	5.8	2.2	10.5	8.0	12.7
Japan	3.0	7.8	6.5	10.8	14.3	17.3
France	5.9	7.0	4.6	12.9	11.6	17.5
United Kingdom	6.2	7.0	4.8	13.2	11.8	18.0
Greece	6.0	8.6	1.8	14.6	10.4	16.4
Italy	4.4	10.6	1.2	15.0	11.8	16.2
Germany	8.1	8.7	4.1	16.8	12.8	20.9
Denmark	7.7	8.8	3.4	16.5	12.2	19.9
Spain	7.9	10.7	3.1	18.6	13.8	21.7
Iceland	9.8	9.9	6.8	19.7	16.7	26.5
Ireland	9.0	10.8	5.7	19.8	16.5	25.5
Belgium	19.2	10.4	3.1	29.6	13.5	32.7
Slovenia	15.7	15.6	4.3	31.3	19.9	35.6
Finland	13.3	26.9	8.2	40.2	35.1	48.4
Group Average	8.4	10.2	4.2	18.6	14.5	22.8

Table 13—Gain from Training in Entrepreneurial Awareness, Attitudes, Intention and Activity for 37 Countries, by Country and Economic Group, Ordered by Increasing Gain from Training in Activity

Source: GEM Adult Population Survey 2008

	AWARENESS	ATTITUDES			INTENTION	ACTIVITY
	Know Someone Who Recently Started a Business	Good Opportunities for Starting a Business in My Area	Have Skills, Knowledge to Start a Business	Would Not Start a Business in Case it Might Fail	Expect to Start a Business in Next 3 Years	Nascent or New Entrepreneur (TEA)
Factor-Driven						
Ecuador	1.4	1.4	1.7	0.8	1.9**	1.0
Bolivia	1.5	1.0	0.9	1.3	1.9**	1.2
India	1.8**	1.6*	2.3***	0.7	1.6***	1.3
Colombia	1.7	0.6	1.6	0.9	1.3	1.5
Egypt	1.4	1.2	2.4*	0.9	2.1**	1.6
Bosnia and Herzegovina	3.1*	2.3	7.9*	1.0	4.1***	2.5*
Average Gain	1.8	1.4	2.8	0.9	2.2	1.5
Percentage of Countries with Significant Gain	17%	0%	17%	0%	83%	0%
Efficiency-Driven						
Jamaica	1.0	0.9	1.1	0.8	1.2	0.8
Iran	0.8	0.9	1.8***	1.1	1.4***	0.8
Latvia	1.6**	1.1	3.5***	1.0	3.2***	1.2
Peru	2.0***	1.4	1.4	1.2	1.2	1.3
Macedonia	2.2**	0.8	2.7**	0.8	1.6	1.3
Chile	1.2	1.4	3.3***	1.0	0.9	1.5
Mexico	2.1***	1.3	1.4	1.3	1.5**	1.5*
Hungary	1.8***	1.9***	3.1***	0.6**	2.5***	1.5**
Dominican Republic	1.9	1.0	0.8	0.6	2.1*	1.6
Croatia	1.8***	1.1	2.8***	0.9	1.2	1.7*
Uruguay	1.5	1.3	3.6***	0.7	1.3	1.7**
Brazil	1.5	1.8*	2.0*	0.6	1.5	2.1**
Serbia	1.9**	1.2	4.2***	0.8	1.3	2.1**
South Africa	2.8***	1.6*	4.9***	0.7	2.6***	2.6***
Romania	3.2***	1.2	4.5***	1.5	5.0***	3.3*
Turkey	1.0	2.0*	4.1***	0.4*	1.9**	3.3***
Average Gain	1.8	1.3	2.8	0.9	1.9	1.8
Percentage of Countries with Significant Gain	56%	6%	69%	6%	44%	38%
Innovation-Driven						
Spain	1.3***	1.2***	1.5***	0.9	1.3***	1.1
Denmark	1.2	1.2	2.4***	0.8*	1.3	1.2
Republic of Korea	1.9**	2.2**	1.9**	0.8	1.4*	1.3
Slovenia	1.4**	1.6***	2.4***	0.7**	1.7***	1.4
Finland	1.6***	1.0	3.4***	1.0	1.8**	1.5
Greece	1.7**	2.0**	1.8**	0.5***	1.0	1.8**
Ireland	1.2	0.9	2.6***	1.2	1.9**	1.9**
Japan	4.2***	3.4***	2.3**	1.3	1.2	2.1*
Italy	1.0	1.2	2.5***	1.0	1.2	2.3**
Iceland	1.7**	1.3	4.5***	0.5*	1.9***	2.3***
United Kingdom	2.0***	1.4*	2.2***	0.9	2.5***	2.4***
Belgium	2.7***	1.7*	5.3***	0.9	2.4***	2.6***
Germany	3.7***	1.2	2.5***	0.9	3.1***	2.8***
Israel	2.1**	4.2***	4.6***	0.6*	3.2***	3.0***
France	1.5	1.3	3.1***	0.7	3.2***	4.3***
Average Gain	1.9	1.7	2.9	0.8	1.9	2.1
Percentage of Countries with Significant Gain	73%	40%	100%	13%	67%	60%

Key to statistical significance levels: * low ($p<.1$); ** medium ($p<.05$); *** high ($p<.01$)

Table 14—Gain from Training in Entrepreneurial Awareness, Attitudes, Intention and Activity for 31 Countries, by Country and Global Region, Ordered by Increasing Gain from Training in Activity

Source: GEM Adult Population Survey 2008

	AWARENESS	ATTITUDES			INTENTION	ACTIVITY
	Know Someone Who Recently Started a Business	Good Opportunities for Starting a Business in My Area	Have Skills, Knowledge to Start a Business	Would Not Start a Business in Case it Might Fail	Expect to Start a Business in Next 3 Years	Nascent or New Entrepreneur (TEA)
Latin America/Caribbean						
Jamaica	1.0	0.9	1.1	0.8	1.2	0.8
Ecuador	1.4	1.4	1.7	0.8	1.9**	1.0
Bolivia	1.5	1.0	0.9	1.3	1.9**	1.2
Peru	2.0***	1.4	1.4	1.2	1.2	1.3
Colombia	1.7	0.6	1.6	0.9	1.3	1.5
Mexico	2.1***	1.3	1.4	1.3	1.5**	1.5*
Chile	1.2	1.4	3.3***	1.0	0.9	1.5
Dominican Republic	1.9	1.0	0.8	0.6	2.1*	1.6
Uruguay	1.5	1.3	3.6***	0.7	1.3	1.7**
Brazil	1.5	1.8*	2.0*	0.6	1.5	2.1**
Latin America/Caribbean Average	1.6	1.2	1.8	0.9	1.5	1.4
Percentage of Countries with Significant Gain	20%	0%	20%	0%	30%	20%
East Asia						
Republic of Korea	1.9**	2.2**	1.9**	0.8	1.4*	1.3
Japan	4.2***	3.4***	2.3**	1.3	1.2	2.1*
East Asia Average	3.1	2.8	2.1	1.1	1.3	1.7
Percentage of Countries with Significant Gain	100%	100%	100%	0%	0%	0%
Eastern Europe						
Latvia	1.6**	1.1	3.5***	1.0	3.2***	1.2
Macedonia	2.2**	0.8	2.7**	0.8	1.6	1.3
Slovenia	1.4**	1.6***	2.4***	0.7**	1.7***	1.4
Hungary	1.8***	1.9***	3.1***	0.6**	2.5***	1.5**
Croatia	1.8***	1.1	2.8***	0.9	1.2	1.7*
Serbia	1.9**	1.2	4.2***	0.8	1.3	2.1**
Bosnia and Herzegovina	3.1*	2.3	7.9*	1.0	4.1***	2.5*
Romania	3.2***	1.2	4.5***	1.5	5.0***	3.3*
Eastern Europe Average	2.1	1.4	3.9	0.9	2.6	1.9
Percentage of Countries with Significant Gain	88%	25%	88%	29%	71%	29%
Western Europe						
Spain	1.3***	1.2***	1.5***	0.9	1.3***	1.1
Denmark	1.2	1.2	2.4***	0.8*	1.3	1.2
Finland	1.6***	1.0	3.4***	1.0	1.8**	1.5
Greece	1.7**	2.0**	1.8**	0.5***	1.0	1.8**
Ireland	1.2	0.9	2.6***	1.2	1.9**	1.9**
Italy	1.0	1.2	2.5***	1.0	1.2	2.3**
Iceland	1.7**	1.3	4.5***	0.5*	1.9***	2.3***
United Kingdom	2.0***	1.4*	2.2***	0.9	2.5***	2.4***
Belgium	2.7***	1.7*	5.3***	0.9	2.4***	2.6***
Germany	3.7***	1.2	2.5***	0.9	3.1***	2.8***
France	1.5	1.3	3.1***	0.7	3.2***	4.3***
Western Europe Average	1.8	1.3	2.9	0.8	2.0	2.2
Percentage of Countries with Significant Gain	64%	18%	91%	9%	73%	73%

Key to statistical significance levels: * low ($p<.1$); ** medium ($p<.05$); *** high ($p<.01$)

Table 15—Linear Multiple Regression Showing Effect of Compulsory Training Versus No Training in Starting a Business on the Variety of Entrepreneurs' Advisor Types, Controlling for Education Level, Gender, Age, Stage of Business and Country

Source: GEM Adult Population Survey 2008

INDEPENDENT VARIABLE	MEASUREMENT	REGRESSION COEFFICIENT	STANDARDIZED COEFFICIENT	PROBABILITY VALUE
Compulsory Training	1 if compulsory trained; 0 if untrained	0.06	0.06	0.006
Education	Standardized	0.12	0.12	0.0001
Gender	1 if male; 0 if female	0.02	0.01	0.67
Age	Logarithm of years	– 0.43	– 0.13	0.0001
Stage	1 if established; 0 if nascent	0.05	0.02	0.44
Iran	1 if Iran; 0 if not	– 0.07	– 0.03	0.40
Brazil	1 if Brazil; 0 if not	– 0.05	– 0.02	0.53
Latvia	1 if Latvia; 0 if not	– 0.07	– 0.02	0.53
Republic of Korea	1 if Republic of Korea; 0 if not	0.02	0.01	0.84
Constant		1.53		0.0001

Notes: The dependent variable is number of advisor types, which ranged between 0 and 22. This was standardized within each combination of country and stage to reduce distortion effects of these variables on the effects of training and education upon networking. Education within each country is first measured on a five-point standard GEM scale and then standardized within each country. Dummy variables were used to control for country; Denmark is the reference group. R-square: .05

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The GEM program is a major initiative aimed at describing and analyzing entrepreneurial processes within a wide range of countries. The program has three main objectives:

- To measure differences in the level of entrepreneurial activity between countries
- To uncover factors leading to appropriate levels of entrepreneurship
- To suggest policies that may enhance the national level of entrepreneurial activity.

New developments, and all global, national and special topic reports, as well as data, can be found at www.gemconsortium.org.

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Sample Characteristics

COUNTRY	SAMPLE (WEIGHTED)	WORKING AGE POPULATION	SAMPLING ERROR: CONFIDENCE LEVEL 95% P = Q = 0.5
Egypt	2603	47,090,341	±1,92
Colombia	2000	26,799,898	±2,19
India	1919	661,837,406	±2,24
Bosnia Herzegovina	1586	3,049,769	±2,46
Bolivia	1879	5,094,706	±2,26
Ecuador	2142	7,897,563	±2,12
South Africa	2719	25,846,323	±1,88
Hungary	1994	6,511,664	±2,19
Romania	1667	14,650,654	±2,40
Peru	1990	17,043,658	±2,20
Mexico	2433	64,262,596	±1,99
Argentina	1731	24,219,999	±2,36
Brazil	2000	121,831,177	±2,19
Chile	4068	10,235,871	±1,54
Turkey	2400	45,383,270	±2,00
Iran	3119	42,857,350	±1,75
Latvia	2011	1,466,950	±2,18
Serbia	1813	6,402,248	±2,30
Croatia	1696	2,858,507	±2,38
Macedonia	1746	1,336,306	±2,34
Uruguay	1645	2,066,480	±2,42
Dominican Republic	2013	5,376,857	±2,18
Jamaica	2399	1,508,050	±2,00
Greece	1962	6,823,644	±2,21
Belgium	1997	6,512,597	±2,19
France	1573	39,375,053	±2,47
Spain	30879	26,187,435	±0,56
Italy	2970	36,868,766	±1,80
United Kingdom	5892	38,483,626	±1,28
Denmark	2012	3,409,248	±2,18
Germany	4751	51,727,463	±1,42
Japan	1879	78,717,802	±2,26
Korea Republic	2000	32,890,202	±2,19
Ireland	1924	2,631,091	±2,23
Iceland	2002	189,594	±2,18
Finland	2011	3,305,918	±2,18
Slovenia	3019	1,341,341	±1,78
Israel	1778	3,864,343	±2,32

Endnotes

[i] See www.determinedtosucceed.org.uk

[ii] The statements experts were asked to state their opinions on were:

1. In my country, teaching in primary and secondary education encourages creativity, self-sufficiency and personal initiative.

2. In my country, teaching in primary and secondary education provides adequate instruction in market economic principles.

3. In my country, teaching in primary and secondary education provides adequate attention to entrepreneurship and new firm creation.

4. In my country, colleges and universities provide good and adequate preparation for starting up and growing new firms.

5. In my country, the level of business and management education provides good and adequate preparation for starting up and growing new firms.

6. In my country, the vocational, professional and continuing education systems provide good and adequate preparation for starting up and growing new firms.

In factor analysis conducted in each year since 2000, items 1, 2 and 3 have consistently loaded on to one factor with high reliability, while items 4, 5 and 6 have loaded on to a second factor with high reliability.

[iii] The first item statement was "In my country, entrepreneurs in general need external assistance with their plans prior to start-up." The second item statement was "In my country, there are enough public and/or private centers or agencies that can provide persons with adequate education and training on entrepreneurship independently of the educational formal system."

[iv] (Chi Sq.=1154.8, p-value=0.000)

[v] Gain from training is calculated using an advanced statistical technique called binary logistic regression. This enables calculation of the "odds ratio" for compulsory versus no training, while controlling for other possible effects such as the demographics mentioned above. A further advantage of using this technique is that it estimates whether the effect of training is statistically significant, or a possible artifact of random fluctuations in the data.

[vi] Demographic data were not available for Argentina, and it is therefore absent from this analysis.

[vii] The factor-driven countries for which expert data were available were Bolivia, Bosnia and Herzegovina, Colombia, Ecuador, Egypt and Iran. The efficiency-driven countries were Brazil, Chile, Croatia, Dominican Republic, Jamaica, Macedonia, Mexico, Peru, Serbia, South Africa, Turkey and Uruguay. The innovation-driven countries were Finland, Germany, Greece, Denmark, Ireland, Italy, Republic of Korea, Slovenia and Spain.

[viii] The countries in western Europe for which NES data were available were Denmark, Finland, Germany, Greece, Ireland, Italy and Spain. NES data for eastern European countries were available for Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Slovenia. NES data for Latin American countries were available for Bolivia, Brazil, Chile, Colombia, Dominican Republic, Ecuador, Jamaica, Mexico, Peru and Uruguay.

[ix] Methodological note. All logistic regressions were checked for model fit and overall significance. A small number of regressions indicated poor model fit, suggesting important variables were missing from the model. These were: Bosnia and Herzegovina (TEA); South Africa (know entrepreneur); Turkey (intent, skills); Latvia (opportunity); Jamaica (know entrepreneur); Greece (know entrepreneur, intent, fear of failure); Spain (skills) and Japan (skills).

[x] Individuals starting businesses were asked the following: "Various people may give advice on your new business. Have you received advice from … your spouse or life partner? .. your parents? .. other family or relatives? .. friends? .. current work colleagues? .. earlier work colleagues? .. a current boss? .. an earlier boss? .. someone in another country? .. someone who is starting a business? .. someone with much business experience? .. someone with expertise on what you do? .. a researcher or inventor? .. a possible investor? .. a bank? .. a lawyer? .. an accountant? .. a public advising services for business? .. a firm that you collaborate

with? .. a firm that you compete with? .. a supplier? .. a customer? Existing owner-managers were asked: "Various people may give advice on your business. During the last year, have you received advice from … your spouse or life partner? .. your parents? …. (and so on, for the same 22 types of advisors)."

[xi] As an example of their diversity, on the world values survey scale of community values, which varies from -2 to +2, where -2 would be a highly traditional society and +2 would be a highly secular-rational society. The latest available scores for these five countries are: -1.22 (Iran); -0.98 (Brazil); 0.72 (Latvia); 1.11 (Korea); 1.16 (Denmark).

[xii] See www.worldvaluessurvey.org

[xiii] Each difference between two advisor type averages for each country/sphere combination in Brazil, Latvia, Korea and Denmark was found to be statistically significant in a one-tailed t-test.

[xiv] Denmark is an exception here, possibly because of the exceptionally high standard of education in that country.

[xv] A multiple regression of variety of advisor types (standardized within each country and entrepreneurial stage) was conducted, with dependent variables of training (compulsory versus no training), education (standardized within each country), and also gender (binary), age (logarithm of years), stage (binary for nascent versus established) and country (a set of binary variables).