GLOBAL ENTREPRENEURSHIP MONITOR

1999 Executive Report

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EXECUTIVE SUMMARY

The Global Entrepreneurship Monitor (GEM) was created in September 1997 as a joint research initiative by Babson College and London Business School. The central focus was to bring together the world's best scholars in entrepreneurship to study the complex relationship between entrepreneurship and economic growth. From the outset, the project was designed to be a long-term multinational enterprise. In order to obtain reliable, comparable data, GEM focused on the G7 countries (i.e., Canada, France, Germany, Italy, Japan, United Kingdom and United States). Three additional countries, Denmark, Finland and Israel, were added the first year because selected scholars in these countries had particular expertise relevant to the project.

The GEM research design included data from national secondary sources, adult population surveys and in-depth interviews with key informants in each participating country. In this first year more than 10,000 adults worldwide were surveyed and more than 300 interviews conducted with experts in entrepreneurship.

For the purpose of understanding the role of entrepreneurship in economic growth, entrepreneurship was defined as:

> *"Any attempt at new business or new venture creation, such as self-employment, a new business organization, or the expansion of an existing business, by an individual, a team of individuals, or an established business."*

Three fundamental questions were implicit in the overall aim of this project:

- *Does the level of entrepreneurial activity vary between countries, and, if so, to what extent?*
- *Does the level of entrepreneurial activity affect a country's rate of economic growth and prosperity?*
- *What makes a country entrepreneurial?*

Based on first year results, the evidence is compelling . . .

- Efforts to initiate new firms in the winter of 1999 varies between countries from a low of one per 67 adults in Finland (1.4 percent) to a high of one in 12 in the United States (8.4 percent).
- The level of entrepreneurial activity is positively correlated with recent gains in GDP for the 10 countries in the study. Variation in rates of entrepreneurship may account for as much as one-third of the variation in economic growth.
- The 10 countries in the 1999 study can be placed in three different groups on the basis of their level of entrepreneurial activity: **High** (Canada, Israel, U.S.; average level of entrepreneurial activity is 6.9 percent); **Medium** (Italy, United Kingdom; average level of entrepreneurial activity is 3.4 percent); and **Low** (Denmark, Finland, France, Germany and Japan; average level of entrepreneurial activity is 1.8 percent).
- In the most active countries (i.e., U.S., Canada and Israel) entrepreneurial activity is an integral and accepted feature of economic and personal life. In the remaining GEM countries, however, entrepreneurship through enterprise creation remains a structural and cultural anomaly. In such countries it may take decades of sustained changes in many national, cultural, political and economic institutions if they are to join the "elite" of entrepreneurial economies.

GEM provides a robust framework within which national governments can evolve a set of effective policies for enhancing entrepreneurship. Ten propositions resulting from this year's study are highlighted below.

- **Proposition 1:** Promoting entrepreneurship and enhancing the entrepreneurial dynamic of a country should be an integral element of any government's commitment to improving economic well being.
- **Proposition 2:** Government policies and programs targeted specifically at the entrepreneurial sector will have a more significant, direct impact than programs simply aimed at improving the national business context.
- **Proposition 3:** To be effective, government programs designed to encourage and support entrepreneurial activity must be carefully coordinated and harmonized so as to avoid confusion and to enhance their utilization by those for whom such programs are designed.
- **Proposition 4:** Increasing entrepreneurial activity in any country will entail raising the participation level of those outside the most active age group of 25-44 years old.
- **Proposition 5:** For most GEM countries, the greatest and most rapid gain in firm start-ups will be achieved by increasing the participation of women in the entrepreneurial process.
- **Proposition 6:** Long-term, sustained enhancement of entrepreneurial activity requires a substantial commitment to and investment in education at the post-secondary level (i.e., college, university or graduate programs).
- **Proposition 7:** Developing the skills and capabilities required to start a business should be integrated into specific educational and vocational training programs at all educational levels.
- **Proposition 8:** Regardless of education level, emphasis should be placed on developing an individual's capacity to recognize and pursue new opportunities.
- **Proposition 9:** The capacity of a society to accommodate the higher levels of income disparity associated with entrepreneurial activity is a defining feature of a strong entrepreneurial culture.
- **Proposition 10:** Government and public policy officials and opinion leaders from all spheres have a key role to play in creating a culture that validates and promotes entrepreneurship throughout society.

The purpose of the following report is to provide a brief overview of the GEM initiative, to present key findings for all 10 countries and to provide support for the principal public policy implications. In addition to the *1999 Executive Report*, GEM has published a full *Research Report*, which provides a more detailed examination of the research design and in-depth findings, and an *Operations Manual*, which outlines the technical procedures for how the project is conducted. Individual country reports are also available from each of the GEM National Teams.

I. ENTREPRENEURSHIP AND PUBLIC POLICY: AN OVERVIEW

Entrepreneurship is now center stage in the public policy arena of most countries. The ascendance of entrepreneurship in the last decade is reflected in several major policy initiatives around the world. Consider the following illustrative examples:

- At the end of 1998 the United Kingdom government's white paper, *Our Competitive Future*: *Building the Knowledge Driven Economy*, focused on a series of initiatives designed to enhance entrepreneurship.[1]
- Germany has an increasing number of programs designed to provide financial support for new firms, to ease the process of start-up and to encourage the participation of women. In the past decade approximately 200 innovation centers have been established providing space and other resources to start-up companies.
- In 1995 the *Decennium of Entrepreneurship* was launched in Finland. Coordinated by the Finnish Ministry of Trade and Industry, the aim was to bring together under one umbrella a host of individual initiatives in three broad areas: creating an entrepreneurial society, promoting entrepreneurship as a source of employment and fostering the growth of new ventures.
- In Israel, partly in response to the challenge to assimilate an increasing number of immigrants, a range of small business measures have been enacted by the Technological Incubators Programmer. More than 500 businesses have been established in 26 incubators. The Small Business Authority of Israel was created in 1994 with a wide mandate encompassing training and the provision of advice centers and financial resources. In addition, there has been an explosive growth of venture capital in Israel, and more than 100 Israeli companies are now quoted on NASDAQ.
- In France, major initiatives are under way to promote the teaching of entrepreneurship in universities, particularly to engineering students. University-based incubators are being created, a national competition for new high-tech companies was launched, and the Foundation of the Academy of Entrepreneurship was established.

Around the world, interest in entrepreneurship extends beyond national governments. The subject has attracted attention from many multi-national organizations as well. Again, consider the following:

- In 1998 the Paris-based Organization for Economic Co-operation and Development (OECD) published a report, *Fostering Entrepreneurship: A Thematic Review*, with the explicit aim of understanding the state of entrepreneurship in all OECD countries and identifying which policies might be most successful in fostering it.[2]
- In 1998, the European Commission presented a report to the Council of Ministers, *Fostering Entrepreneurship: Priorities for the Future*. Among the proposals was a commitment to simplifying the start-up process for companies, improving access to financing and developing a "spirit of enterprise and risk taking." Underpinning this program was the conviction that, "Europe's place as an economic power depends on its future entrepreneurs and the competitiveness of its enterprises. They will be the motor of the market economy."

Turning to another domain — the creation of capital markets for entrepreneurial businesses — we see more indications of increasing interest. The launch of EASDAQ, a pan-European stock market, was modeled in large part on the success of NASDAQ, the stock market favored by technology companies in the U.S. A series of other new capital markets soon sprang forth in principal European countries; these include EURO.NM which is facilitating cooperation between some of the European markets such as the Neuer Markt and Le Nouveau Marche.

Other domains reflect a strong interest in entrepreneurship. The World Economic Forum, sponsor of the annual Davos Conference for the world's leading multi-national businesses, has recently adopted "Entrepreneurship in the global public interest" as its motto and is currently extending its membership categories to include "Global Growth Companies."[3] Also, business schools throughout Europe, North America and Asia report an acute shortage of faculty capable of teaching entrepreneurship.

All such developments point to the fact that entrepreneurship is at the top of the public policy agenda in many countries around the world. The question is, "Why?"

For many countries, the answer to this question lies in the greatest example of national commitment to entrepreneurship and economic progress: the United States. In addition to thousands of state, local and private initiatives designed to encourage and support entrepreneurship, the U.S. government annually spends hundreds of millions on business support programs. Because of their relative success, many of these programs are viewed as models by other countries looking to increase their level of entrepreneurial activity. This is illustrated by the United Kingdom government's creation of a Small Business Services Agency in 1999 modeled on the U.S. Small Business Administration. But how significant are the entrepreneurial activities and the resulting economic gains in the U.S.? The data are startling:[4]

Level of Entrepreneurial Activity and Economic Progress

- Since 1980, Fortune 500 companies have lost more than five million jobs, but more than 34 million new jobs have been created.
- In 1996 small businesses created 1.6 million new jobs. Fifteen percent of the fastest-growing new firms (i.e., "gazelles") accounted for 94 percent of the net new job creation, and less than one-third of these gazelles are in high technology.
- Small businesses (i.e., those with fewer than 500 employees) employ 53 percent of the private workforce and account for 47 percent of sales and 51 percent of private sector Gross Domestic Product (GDP).
- Sixteen percent of all U.S. firms have been in existence for less than one year.

Looking more generally at the U.S. economy, a similarly healthy picture emerges:[5]

- U.S. GDP grew at an annualized rate of 4.5 percent in the first quarter of 1999, the ninth time in the last 10 quarters that the growth rate has been 3 percent or higher.
- Personal consumption expenditures rose at an annual rate of 6.7 percent in the first three months of 1999.
- The U.S. has enjoyed eight years of economic growth, the longest period of sustained growth this century.

From an outsider's perspective, the conjunction of intense entrepreneurial dynamism and rapid economic growth — coupled with low unemployment and low inflation — seemingly points to only one conclusion: entrepreneurship fuels economic growth, creating employment and prosperity. The buoyancy of the U.S. economy appears to be a function, at least in part, of the entrepreneurial vitality evident even to the most casual observer. The United Kingdom government's white paper, *Our Competitive Future: Building the Knowledge Driven Economy*, referred to earlier, having raised the question why entrepreneurship and innovation matter, provides the following succinct answer.[6]

> *"Entrepreneurship and innovation are central to the creative process in the economy and to promoting growth, increasing productivity and creating jobs. Entrepreneurs sense opportunities and take risks in the face of uncertainty to open new markets, design products and develop innovative processes."*

At one level, these impressionistic illustrations are somewhat superficial. Beyond them, however, is a much deeper and well-established stream of evidence in

support of the proposition that entrepreneurship does play a pivotal role in economic growth. In almost all advanced economies, new and small firms account for 99 percent of all firms. A recent study of European Union (EU) countries suggested that 83 percent of the annual change in gross national product is accounted for by the growth in sales revenue of smaller firms outstripping the growth of larger firms.[7] Where data is available, new and small firms are consistently found to be the major source of new jobs.[8]

Entrepreneurship is at the top of the public policy agenda because of the seemingly unambiguous relationship between the level of entrepreneurial activity within a country and that country's degree of economic prosperity. But therein lies the mystery. Despite the impressionistic and empirical evidence that entrepreneurship makes a difference to economic well-being, there is scant understanding of (a) how the process makes a difference, (b) how much of a difference it actually makes and (c) what specific factors enhance the level of entrepreneurial activity within a given country.

The purpose of the Global Entrepreneurship Monitor (GEM) is to unravel or at least shed light on this mystery. By understanding the entrepreneurial process and its impact on economic growth we should be better prepared to give clear policy guidance as to how governments can enhance the entrepreneurial process.

Before proceeding, however, we must first review what we know about the entrepreneurial process and how our understanding has evolved. Such a review ensures that we have identified the appropriate factors that both support and are supported by entrepreneurial processes. A conceptual framework is also necessary for guiding any future data collection, analysis and interpretation.

III. UNDERSTANDING ENTREPRENEURSHIP: THE GLOBAL ENTREPRENEURSHIP MONITOR MODEL

Understanding economic growth — how to measure it, how the growth process operates and what factors determine it — is at the heart of economics. To address this phenomenon, economists have developed a variety of approaches. They range from descriptive models, some of which focus on the stages of growth or development through which an economy evolves, to formal models, which emphasize factors that are either external to the economic system (e.g., technological sophistication) or internal (e.g., the level of savings).

These different approaches share certain common characteristics. First, they focus on large, established firms rather than smaller firms. Second, they assume that large firms constitute the real locomotive of economic growth. Third, they are preoccupied with the relationship between national conditions (e.g., legal institutions) and the impact that these have upon the performance of firms. The corollary at the policy level is a focus on creating the national economic conditions within which businesses can flourish. In some instances, policies are deliberately established to foster the development of key industries or "national champions" capable of competing on the world stage. This conventional view of the economic growth process and the important factors it includes is depicted in Figure 1.

Even a casual study of the model in Figure 1 prompts an immediate question: Where is entrepreneurship? The answer is that it is accorded a role as part of the secondary economy in the micro-, small- and medium-sized firm sector. These firms are considered to provide a supporting role as suppliers of goods and services to the established firms in the primary economic sector. This is essentially a subordinate role. As such, the model provides relatively little understanding of the specific contribution entrepreneurship makes to economic growth and little guidance on how to enhance the level of entrepreneurial activity.

The GEM initiative begins with the assumption that the role of entrepreneurship is critical to economic growth. The role of the entrepreneurship process in economic growth is presented in Figure 2.

Figure 1
Conventional Model of National Economic Growth

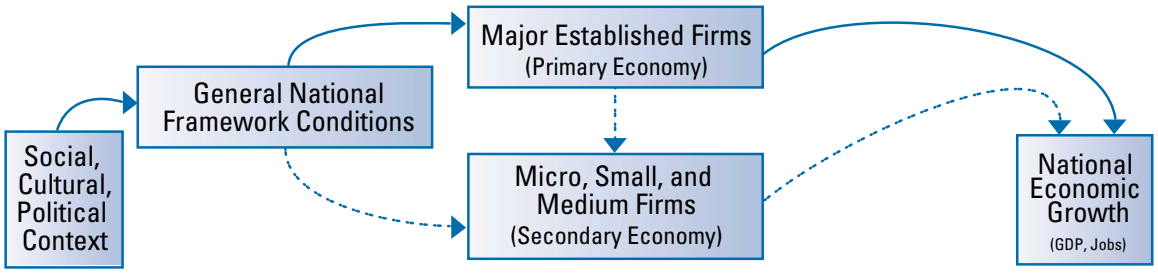
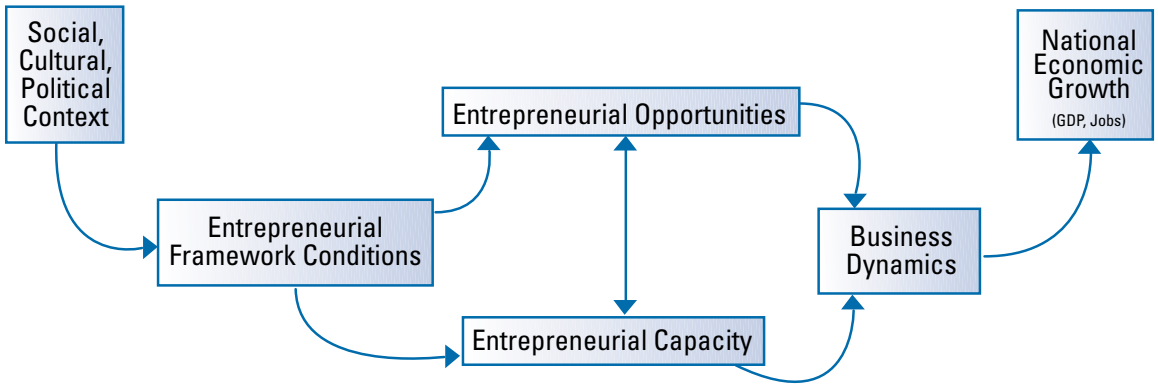


Figure 2
Model of Entrepreneurial Processes Affecting National Economic Growth



The model in Figure 2 captures a number of things ignored in the conventional framework. First is the recognition that entrepreneurial activity is shaped by a distinct set of factors (referred to as *Entrepreneurial Framework Conditions*). Such factors include training in entrepreneurship and the availability of start-up financing. Next, the level of entrepreneurial activity is a function of the degree to which individuals recognize the entrepreneurial opportunities available and that they have the capacity — motivation and skills — to exploit them. Then, the interaction between perceived entrepreneurial opportunities and the entrepreneurial capacity to pursue them will give rise to a greater number of start-up efforts, new firm births and jobs. As more new firms and jobs are created, there subsequently may be greater firm deaths and job destruction. Firm and job turbulence or "churning" is what is often referred to as *Business Dynamics*, which usually accompanies economic growth. Lastly, economic growth is shown to be determined, in part, by the intensity of business dynamics.

We have, therefore, two perspectives. The first focuses on large established firms and the associated secondary role of smaller firms. The other focuses on the entrepreneurial sector itself, the conditions that shape it and its direct economic consequences. To properly understand economic growth both perspectives are needed. In fact, they are complementary. Economic growth reflects both sets of processes, although the mix or contribution made by each will vary between countries. To illustrate, both perspectives are combined in Figure 3.

Figure 3
Consolidated Model of Entrepreneurial Processes Affecting National Economic Growth

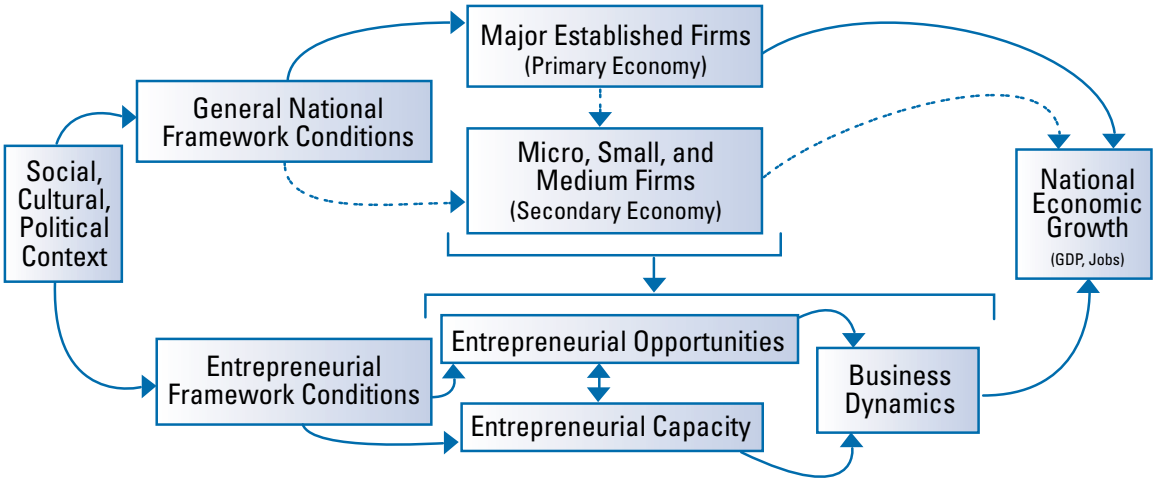
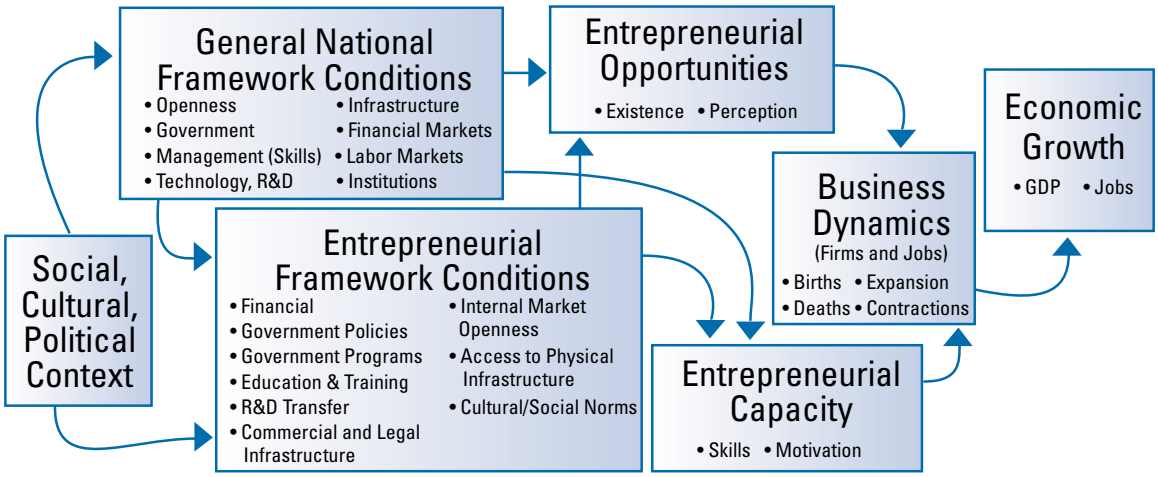


Figure 4
Global Entrepreneurship Monitor:
A Detailed Model of Entrepreneurial Processes and Economic Growth



Combining both perspectives has several advantages. First, it reflects the contributions of both large established and new entrepreneurial firms. Second, it makes clear that existing firms can be a significant source of start-ups. Third, it presents the context in which the entrepreneurial sector operates. Understanding the causal relationships in the model is an integral element of the GEM project. These causal relationships depicted in Figure 3 are both incomplete and presented in summary form. Therefore, the full GEM model is presented in Figure 4. This framework constitutes a more complete depiction of the entrepreneurial process than was included in lower half of Figure 3.

As noted, a central aim of GEM is to understand the relationship between entrepreneurship and economic growth. The GEM model sets out key elements of this relationship and the way in which the elements interact. Moving from left to right across the model shown in Figure 4, the key variables are best considered in terms of five major groups: 1) Social, Cultural and Political Context; 2) General National Framework Conditions and Entrepreneurial Framework Conditions; 3) Entrepreneurial Opportunities and Entrepreneurial Capacity; 4) Business Dynamics; and 5) National Economic Growth.[9]

Social, Cultural and Political Context: This group encompasses a range of factors that play an important role in shaping both the general framework conditions and the entrepreneurial framework conditions. Analyzing all of these is well beyond the scope of GEM, but certain key issues have been considered including demographic structure, investment in education, social norms and attitudes associated with independence and the perception of entrepreneurs.

General National and Entrepreneurial Framework Conditions: This group includes national contextual factors such as the role of government and financial institutions, levels of research and development (R&D), the quality of the physical infrastructure, labor market efficiency and the robustness of legal and social institutions. The group also includes entrepreneurial contextual variables such as the availability of financial resources for new firms, government policies and programs designed to support start-ups, education and training for entrepreneurship, effectiveness of technology transfer mechanisms and access to professional support services such as lawyers and accountants.

Entrepreneurial Opportunity and Capacity: Opportunity refers to both the existence and perception of market opportunities available for exploitation. Capacity refers to the motivation of individuals to start new firms and the extent to which individuals have the skills required to pursue entrepreneurial initiatives.

Business Dynamics: This group of variables includes measures of new firm starts and the growth, decline and death of existing firms.

National Economic Growth: This refers to a number of measures including GDP growth and the level of employment.

In testing the GEM model a wide variety of data were assembled.[10] The data can be summarized into three categories. First, standardized national data on a wide range of factors were assembled from a variety of sources (e.g., OECD, UNESCO, World Bank) supplemented, where necessary, by data provided by the national teams on their own country.[11] Second, adult population surveys were commissioned for each of the 10 countries and completed with at least 1,000 respondents in each country during February and March 1999. After a brief standardized interview schedule was adopted, translations were approved by each national team before the phone interviews were initiated.[12] Third, in nine of the GEM countries, all except Italy, the National Research Teams completed one-hour personal interviews with up to 40 experts (also called key informants) on the entrepreneurial sectors of their own country. During these interviews, each expert completed a brief questionnaire (70+ items) that involved standardized assessments, again translated into the appropriate languages, of important features of their country's entrepreneurial sector.

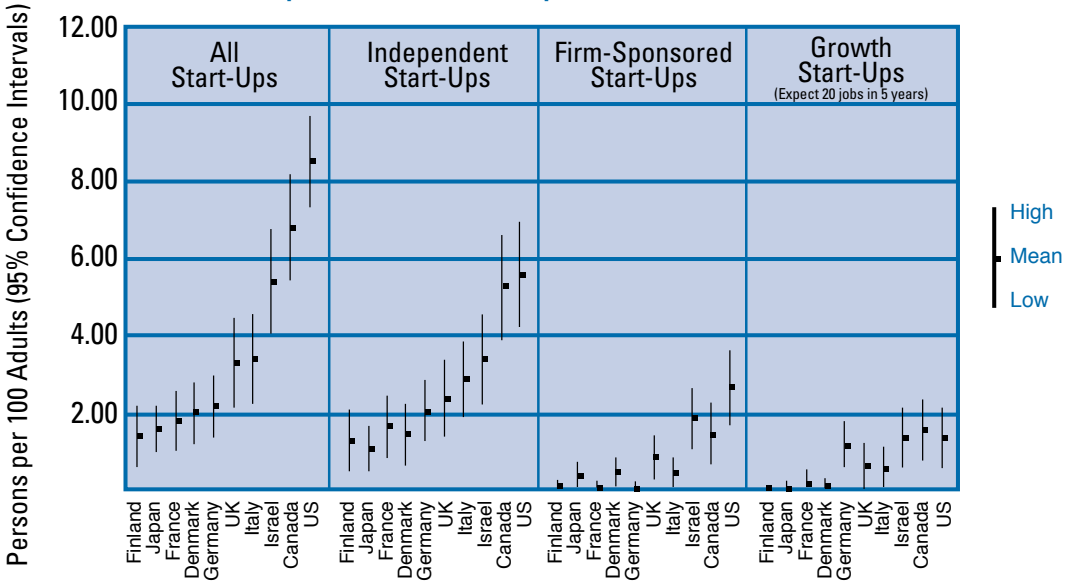
IV. LEVELS OF ENTREPRENEURIAL ACTIVITY

The first question GEM addresses is whether the level of entrepreneurial activity varies between countries, and, if so, by how much. The answer to both is "yes," and by quite a bit.

Among the better measures of the level of national entrepreneurial activity are estimates of active participation in new business creation. The population surveys in the 10 countries are used as the basis for the current measure. A representative sample of 1,000 adults was asked a series of questions about their participation in entrepreneurial activities, including whether or not they were currently starting a firm on their own or for their employer as part of their job. Those who responded yes to either or both questions were considered "nascent entrepreneurs" if they also were expecting to own part of the new firm and the initiative was not an operating business at the time of the interview. A follow-up question was asked about anticipated employment levels five years after the firm was expected to become an operating entity. Those initiatives that expected 20 or more employees were considered "growth start-ups." All 1,000 respondents were also asked if they had, in the past three years, invested personal funds in someone else's start-up business.

The results are presented for the 10 countries in Figure 5. Four types of comparisons are provided, and within each type the countries are rank ordered in terms of overall start-up rates. Reading from left to right, the four measures of start-up activity are: all start-ups, independent start-up efforts, business firm sponsored start-ups and growth start-ups. The vertical bars around the average value represent the 95 percent confidence interval, a measure of the precision of the estimates. In this case, if the same survey procedure was replicated 20 times, the average value would be expected to be in the range represented by the vertical bar on 19 surveys.[13]

Figure 5
National Prevalence of Start-Ups: All, Independent, Firm-Sponsored and Growth

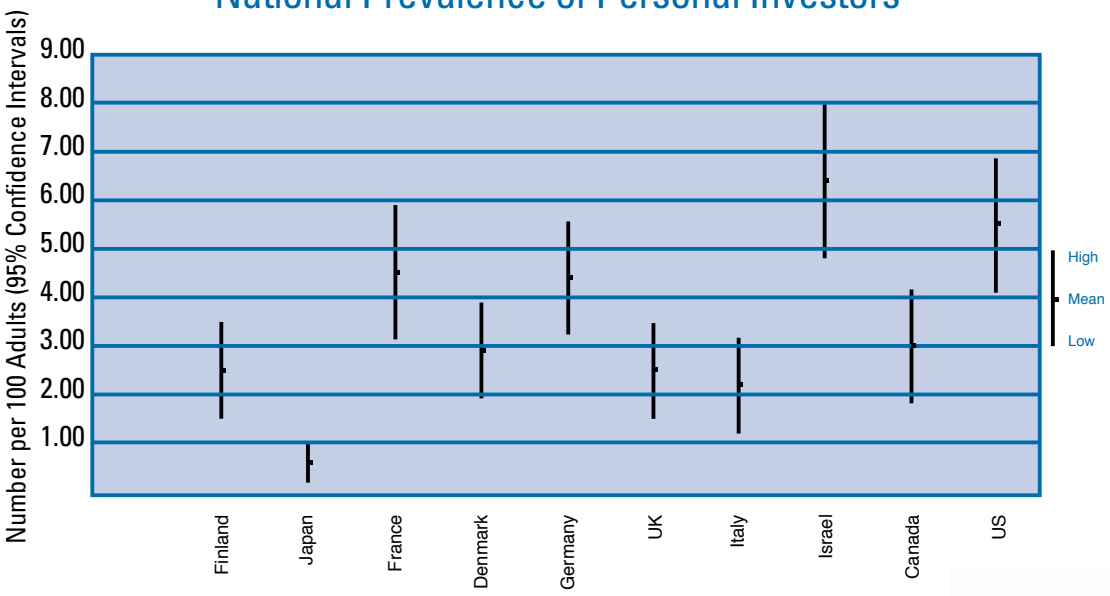


The differences in participation in new firm start-ups are enormous, from more than 8 percent of the adult population — one in every 12 persons in the U.S. to less than one in every 67 persons in Finland. This is more than a five-fold difference. In the highly active countries (i.e., U.S., Canada and Israel), it is rare to find a person who doesn't personally know someone who is trying to start a business. In the less active countries (i.e., Finland and Japan), it may be rare to find a person who knows of anyone trying to start a new firm.

It is useful to separate those working on independent start-ups from those sponsored by an existing business. Approximately one in four start-up efforts (or 0.7 per 100) for the 10 countries is a business-sponsored effort, while the other three (or 2.9 per 100) are independent efforts. About one in six may be considered a growth start-up, with prevalence rates ranging from one per 100 adults in the U.S. and Canada to virtually none in Japan and Finland. National patterns on these different types of start-ups correlate highly with the overall start-up rate. Autonomous start-up rates correlate 0.99 with all start-ups rates. Firm-sponsored start-up rates correlate 0.96, and growth start-up rates correlate 0.87 (all correlations are statistically significant). Hence, the higher the rate of start-ups, the higher the level of activity in all types of start-up efforts: independent, business-sponsored and growth-oriented.

Differences in personal financial support of new firms are also considerable for the 10 GEM countries, from less than 1 percent (Japan) to more than 6 percent (Israel) of all adults interviewed (see Figure 6.) However, these rates have only a moderate correlation[14] with the level of start-up activity. This personal form of financial support may, therefore, reflect both the level of entrepreneurial activity and the cultural norms reflecting expectations of support in family networks within different countries. And, these cultural norms may vary across countries.

Figure 6
National Prevalence of Personal Investors



The results presented in Figure 5 suggest that the countries may be considered in terms of three distinctive levels of entrepreneurial activity: *high* (U.S., Canada and Israel); *medium* (Italy and United Kingdom); and *low* (Denmark, Finland, France, Germany and Japan). These three groups are presented in Table 1. The average level of start-ups in the high group is twice that of the intermediate group; the level of start-ups in the intermediate group is twice that of the low group. The differences in average start-up rates between these groups are statistically significant. Thus, it is appropriate to use this classification scheme as the basis for further cross-national comparisons of entrepreneurial activity. Differences in the rates of personal investment shown in Table 1 are not statistically significant.

Table 1
Level of Entrepreneurial Activity: Three Groups

Level of Entrepreneurial Activity	Countries	Average Business Start-Up Rate (#/100 persons)	Average Personal Investment Rate (#/100 persons)
High	United States Canada Israel	6.9	5.0
Medium	Italy United Kingdom	3.4	2.4
Low	Denmark Finland France Germany Japan	1.8	3.1
(Statistical Significance)		(0.0002)	(0.1326)

V. ENTREPRENEURSHIP AND ECONOMIC ACTIVITY

The second question GEM addressed was whether the level of entrepreneurship has an impact on national economic growth. The early results point to a strongly suggestive relationship between the level of entrepreneurial activity in a country and its economic growth or prosperity. The tentative phrasing here is quite deliberate for reasons that will be explored later. For now, let us review the evidence.

When examining this relationship, two measures of economic prosperity were used.[15] The first measure was the change in GDP, perhaps the most widely used measure of national economic growth. The second measure was the level of *employment* within a country; this measures the percentage of people who want to work who have jobs. The employment level, or the percentage of the labor force with jobs, was arrived at by simply subtracting the unemployment rate from 100 percent. The relationship between new and small firm growth and job creation was emphasized in earlier studies by David Birch and others,[16] and has the advantage of being simpler to measure and compare across countries than measures that rely on currency or other measures of value. The complexity of modern economies is reflected in the rather low level of agreement between these two measures of economic well being. There is also no systematic relationship for the GEM countries. The relationship between the three levels of entrepreneurial activity and these two measures of economic growth are presented in Table 2.

Table 2
Level of Entrepreneurial Activity and Economic Well Being

Level of Entrepreneurial Activity	Countries	Average Business Start-Up Rate (#/100 persons)	Average 1998 Quarterly Growth in GDP	Employment Rate: Jan 1999
High	United States Canada Israel	6.9	1.17%	92.8%
Medium	Italy United Kingdom	3.4	.25%	90.8%
Low	Denmark Finland France Germany Japan	1.8	.41%	91.8%
(Statistical Significance)		(0.0002)	(0.186)	(0.78)
			Without Finland	Without Japan
High			1.17%	92.8%
Medium			0.25%	90.8%
Low			0.26%	90.8%
(Statistical Significance)			(0.13)	(0.64)

Although not statistically significant, there is clearly a systematic pattern in Table 2. The three countries with the highest levels of entrepreneurial activity have higher average growth in GDP and higher levels of employment. The lack of statistical significance is largely due to the small number of cases and the unusual patterns found between the countries with intermediate and low levels of entrepreneurial activity. This, in turn, is due to some rather special circumstances in some countries. In particular, one firm in Finland, Nokia, is responsible for 25-35 percent of all economic growth in that country.[17] Clearly, this is an unusual circumstance not found in other advanced market economies. Second, unemployment figures for Japan are very unusual. The Japanese unemployment rate is at the highest level in several decades and is just now exceeding that of the U.S., which is at the lowest level in several decades. Thus, whatever is represented by the Japanese unemployment figures is not comparable to that of other advanced countries.

Comparisons based on the national level of entrepreneurial activity are, thus, presented in the bottom of Table 2 without Finland for economic growth and without Japan for employment. While still not statistically significant, the results have a pattern replicated frequently in the following analysis. There is a distinctive difference between countries with a high level of entrepreneurial activity and the other two groups; there is little or no difference between countries with an intermediate or low level of entrepreneurial activity.

Since the relationship between levels of entrepreneurial activity and national economic well being is an important issue, an alternative treatment is justified.

Scattergrams and the best-fit linear regression lines are presented for start-up rates and average recent growth in GDP (i.e., average for all quarters in 1998) in Figure 7 and the January 1999 employment rate in Figure 8. For the reasons mentioned above, Finland is excluded from the analysis in Figure 7 and Japan is excluded from the analysis in Figure 8.

Figure 7
Level of Entrepreneurial Activity and Growth in GDP
(Finland Excluded)

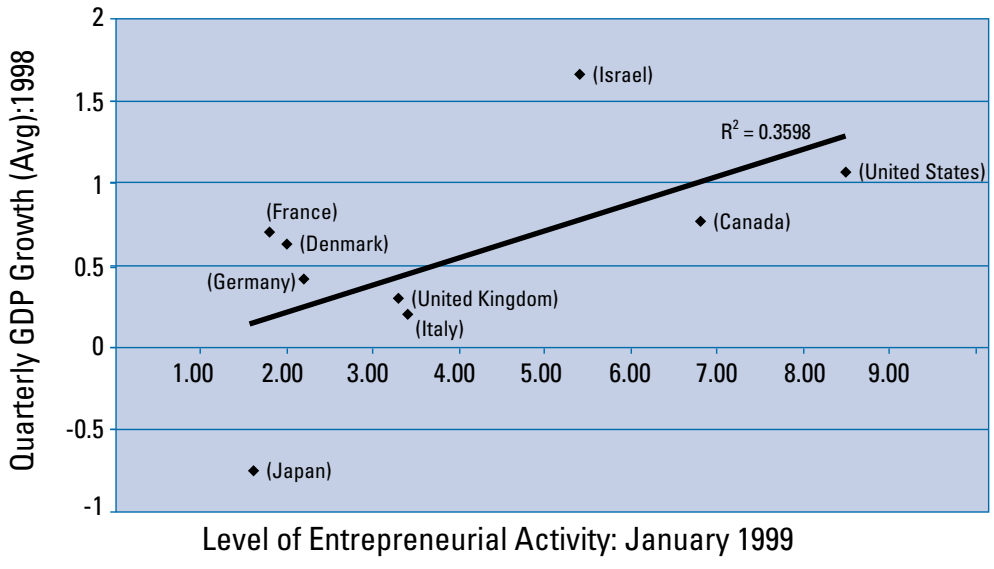
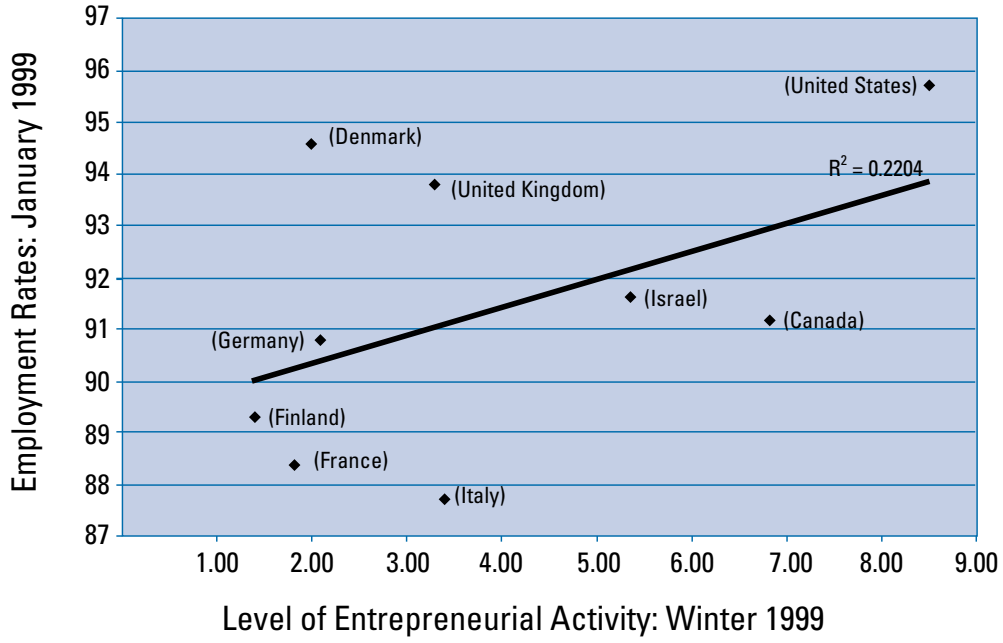


Figure 8
Level of Entrepreneurial Activity and Employment
(Japan Excluded)



The primary measure of association, the correlation, is 0.61 for the relationship between start-up rates and economic growth and is marginally significant (p=0.08). The correlation between start-up rates and January 1999 employment is 0.46 but is not statistically significant. Given the many factors that affect economic growth and employment and the small number of cases in this analysis, these results are very encouraging. Assuming that start-up rates are stable over time and have an effect on economic growth, this level of association would suggest that about one-third (36 percent) of the variation in economic growth was due to variation in firm start-up rates.

These patterns support the following conclusions:

- There is a relationship between the level of entrepreneurial activity and economic growth.
- None of the countries in this sample had a high level of start-ups and low level of economic growth.
- Variations in the level of entrepreneurial activity may account for one-third of the variation in national economic growth.
- Confirmation of these patterns will require more countries and longitudinal data so that the level of entrepreneurial activity can be measured prior to measures of economic well being.

VI. WHAT MAKES A COUNTRY ENTREPRENEURIAL?

Determining what makes a country entrepreneurial, the third question of the GEM initiative, is particularly difficult. Whereas one can readily establish a quantifiable measure of the level of entrepreneurial activity across countries and assess its relationship to economic prosperity, determining what makes a country entrepreneurial calls for a deep understanding of the country itself coupled with a range of qualitative assessments. In many respects these assessments are intrinsically subjective. Moreover, any attempt to answer the question has to take into account a large number of factors.

It is essential therefore that in trying to assess what makes a country entrepreneurial extreme care is taken, particularly when talking about the 10 GEM countries as a whole. It would be easy to overlook differences between countries, thereby obscuring the distinctive factors and features associated with each. The GEM results will, therefore, be presented in two parts. First, an overall assessment for all 10 countries will be provided in this section. The next section will provide an in-depth look at many of the qualitative features that distinguish each country.

To provide the most useful framework within which public policy debate can take place, the factors making up the GEM model have been distilled into those that are most important in explaining what makes a country entrepreneurial. Inter-country differences notwithstanding, it is possible to identify six key factors that vary in terms of their causal proximity to start-up rates. The two that are closest are:

Factor 1: Entrepreneurial Opportunity

Factor 2: Entrepreneurial Capacity

These two factors, in turn, will be affected by the following factors:

Factor 3: Infrastructure

Factor 4: Demography

Factor 5: Education

Factor 6: Culture

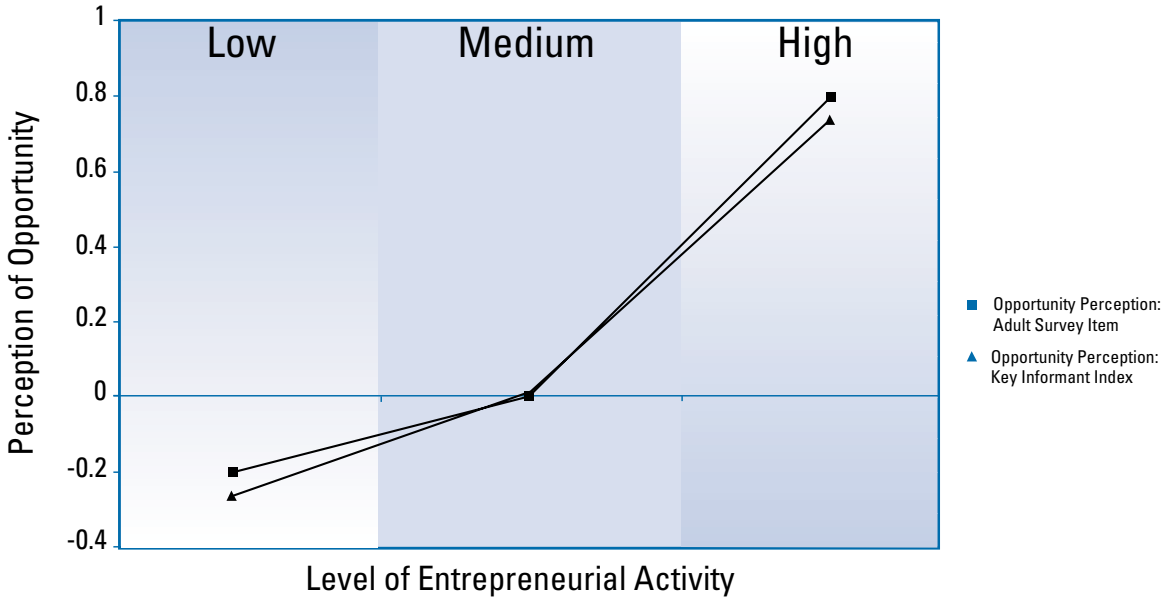
These last four are not listed in rank order and all have a significant association with the start-up rate. Taken together, these six factors capture what matters most in accounting for differences in entrepreneurial activity between countries. There is considerable overlap among these dimensions, but until a larger number of countries is studied over a longer period of time, it is not possible to determine the independent influence of each factor. A discussion of the nature and extent of the influence of each factor will now be presented.

Factor 1: Entrepreneurial Opportunity

Entrepreneurship is anchored in opportunity. Any entrepreneurial initiative springs from a sense that a genuine market opportunity exists for the product or service that a new firm may provide. Market opportunity is, in a fundamental sense, the wellspring of entrepreneurship. Understanding the level of entrepreneurial activity within a country entails understanding the extent to which the people who actually start businesses perceive opportunity.

This was measured directly in the 10 country survey of the adult population, where each person was asked, “Do you think that in the next six months good opportunities will have developed for starting a new business in your country?” It was measured indirectly by asking the key informants a series of questions about the existence of entrepreneurial opportunities within their country with five items, such as “In my country, one sees more good opportunities than people able to take advantage of them”

Figure 9
Level of Entrepreneurial Activity and Perception of Opportunity



and "In my country, opportunities to create a truly high-growth firm are rare." Responses, provided on a five-point scale, were combined to create an "index of perceived opportunity." The patterns found when the three levels of entrepreneurial activity were compared are presented in Figure 9.

In this, as in other comparisons in this section, the different measures are derived from different procedures. In order to provide a standardized comparison, each index has been transformed so that the value for the intermediate countries (Italy and United Kingdom) is zero and that the value for the high level (Canada, Israel and United States) and low level (Denmark, Finland, France, Germany and Japan) are as a proportion of the difference between the highest and lowest value. This allows comparisons of the relative differences as well as patterns related to the level of entrepreneurial activity.

Differences between the high, intermediate and low entrepreneurial groups could be depicted in several patterns. Differences may be reflected in a straight line through the three points, suggesting that a gradual change in the index was associated with a gradual change in the level of entrepreneurial activity. Another pattern might be a reversed "L" shape, suggesting a major difference between the high and intermediate group, but a very small or no difference between the intermediate and the low group. The reversed "L" pattern would imply that a major change in the factor is required to make a shift from the intermediate to the high activity group.

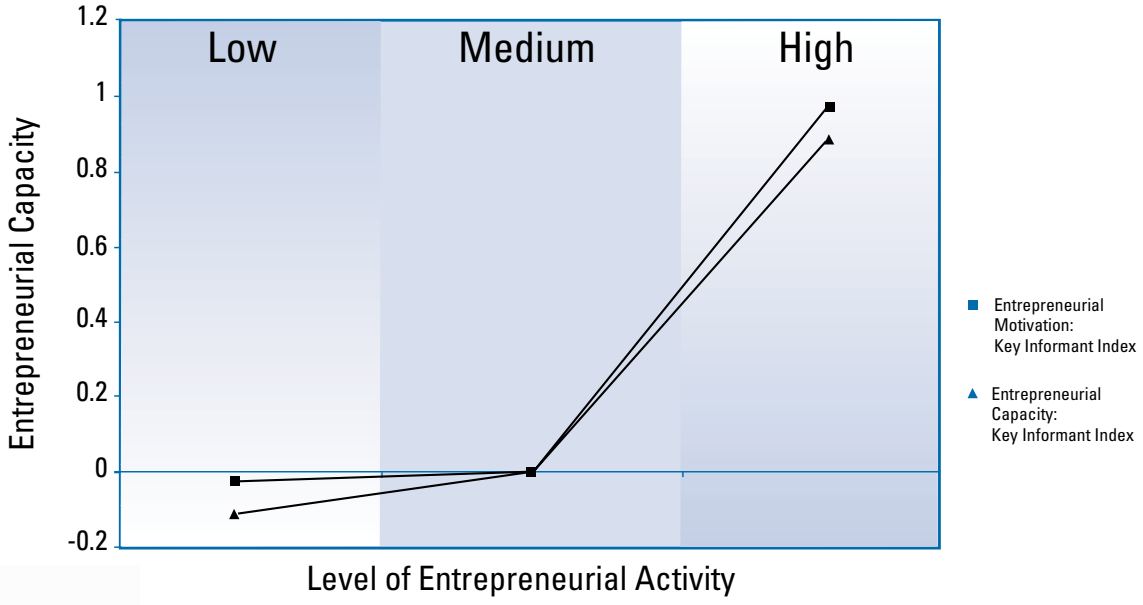
The pattern in Figure 9, and in many of the following presentations, suggests that small changes in the factor may contribute to a country's shift from the low to the intermediate level of entrepreneurial activity, but that a major change is required to move to the highest level. This pattern is repeated in several of the following analyses. There is no question that the level of perceived opportunity for entrepreneurial initiatives is dramatically higher in the most active countries. The perceived richness or paucity of opportunity is a key determinant of the level of entrepreneurial activity.

Factor 2: Entrepreneurial Capacity

As noted, entrepreneurship is anchored in the recognition within a population that genuine new business opportunities exist. However, while opportunity is a necessary condition of entrepreneurship, it is not sufficient. For an entrepreneurial initiative to occur one must possess the capacity (i.e., the motivation and skill) to take advantage of the opportunity by starting a new firm. Entrepreneurship is the point at which entrepreneurial opportunity and entrepreneurial capacity meet. It is quite possible to imagine a situation rich in opportunity but impoverished in terms of entrepreneurial activity simply because few individuals have the motivation or capability to do anything about the opportunity. The flood of West German entrepreneurs into East Germany immediately after the wall came down was a vivid response to such an imbalance.

Two measures of this factor were developed from the key informant interviews. The first was a five-item index related to judgements about the capacity of people to start new firms. Examples include "In my country, many people have experience in starting new businesses" and "In my country, many people can react quickly to good opportunities for a new business." A second five-item index measured judgements about the motivation of individuals in the country to become involved in entrepreneurial endeavors. Examples of these items included "In my country, most people consider becoming an entrepreneur a desirable career choice" and "In my country, you will often see stories in the pubic media about successful entrepreneurs." The results, adjusted as described above, are presented in Figure 10.

Figure 10
Level of Entrepreneurial Activity and Entrepreneurial Capacity



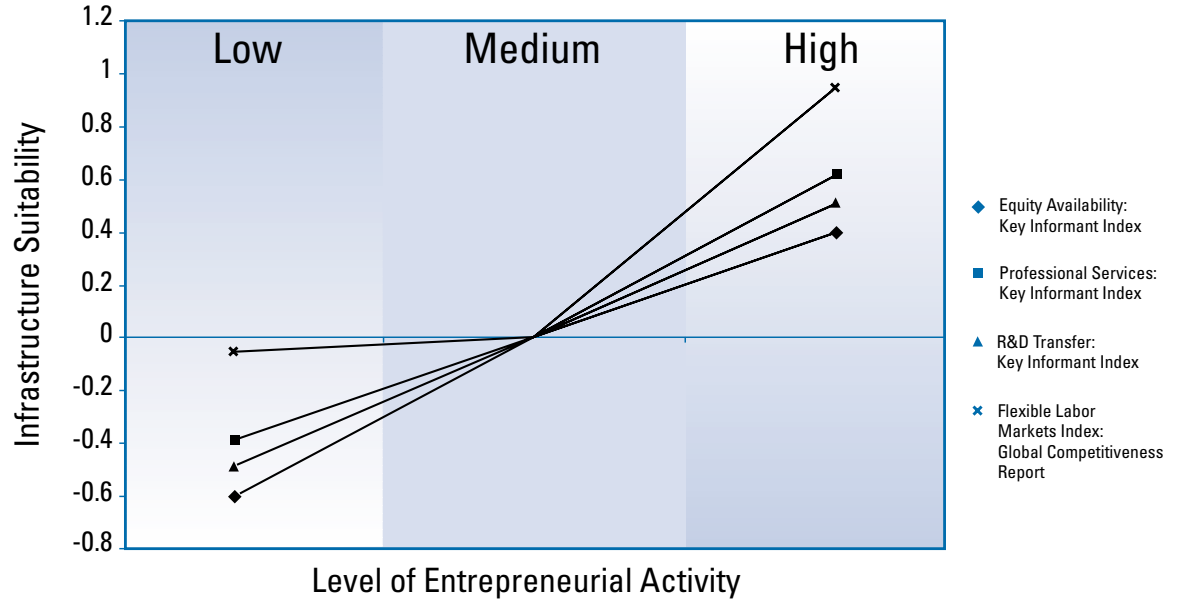
Again, the same pattern found with entrepreneurial opportunity is present with entrepreneurial capacity. The difference between the high and intermediate levels is dramatic. The difference between the intermediate and low level of activity groups is very modest, but in the expected direction. These results suggest that in countries where the potential and motivation to start a new business are quite weak, that the level of start-ups will be quite low regardless of the public's perception of the availability of good opportunities.

Factor 3: Infrastructure

Few features have received as much attention regarding entrepreneurial capacity as the infrastructure, broadly defined to include the availability of financing, land, facilities, employees, suppliers, government assistance, utility costs, good transportation, tax concessions, subsidized loans and any other item or component or factor required in producing goods or services. A substantial part of the analysis and a major feature of the interviews with the key informants focused on the extent and suitability of the infrastructure.

Four aspects of the infrastructure appear to have a systematic relationship to national variations in entrepreneurial activity. Three were indices developed from the questionnaires completed by the key informants. These included three multi-item indices based on the key informant interviews. One reflected the availability of equity financing, with items such as "In my country, private individuals (other than founders) have provided major financial support for new and growing firms." A second multi-item index reflected the availability and costs of suitable professional services, with items such as "In my country, it is easy for new and growing firms to get good, professional legal and accounting services." The third multi-item index reflected the potential for R&D transfer within the country with items like "In my country, new and growing firms have just as much access to new research and technology as large, established firms." A fourth feature was taken from the Global Competitiveness Report 1997, a multi-item index related to the flexibility of the internal labor markets.[18] The relative

Figure 11
Level of Entrepreneurial Activity and Infrastructure Suitability



difference among the three groups of countries on these four items is presented in Figure 11.

The pattern in Figure 11 is somewhat different from that in previous figures. In this case, the difference between the high and intermediate countries is about the same as that between the intermediate and low countries. Labor market flexibility, however, reflects the same step function as with the previous factors, with a small difference between the intermediate and low group of countries. This would suggest that infrastructure may have a continuous and gradual influence. A modest improvement in infrastructure may result in a modest improvement in national entrepreneurial activity.

A wide range of other infrastructure factors, however, did **not** have any significant impact on the level of activity. These include the availability of debt or loan subsidies; good legal, accounting and banking services; access to the physical infrastructure; government policies and procurement orientations; complications with government regulations, taxes and licensing procedures; internal market openness; and judgements about the helpfulness of government programs (considered to be of little value in all countries).

Perhaps most dramatic on this list of infrastructure features which make **no** difference were those related to government policies, suggesting that proactive government policies, which may seem significant compared to other government efforts, are unable to provide the massive changes required to enhance a nation's level of entrepreneurial activity. Evidence from other research, however, suggests that government programs are generally helpful for individual start-ups or existing firms. This would imply that the scope of most government initiatives may be too small to have a significant influence on an entire economy.[19]

Factor 4: Demography

People start firms, obviously. But what is less obvious is which people. Those engaged in starting a business represent a small minority of the population — 8.4 percent in the U.S., 1.4 percent in Finland. This minority is in turn drawn from select parts of the population. One of the purposes of GEM is to understand the link between the demographic make-up of a country and the achieved level of entrepreneurial activity. As it turns out, this link exhibits a very strong causal relationship. Several demographic dimensions emerge as being critical: the age structure of a population, the level of participation by women in the entrepreneurial process, and anticipated population growth.

Table 3
Level of Entrepreneurial Activity and Age and Gender

(Number per 100)	Men	Women	Both Genders
18-24 Years old	4.8	3.7	4.3
25-34 Years old	8.3	3.2	5.7
35-44 Years old	6.0	3.0	4.4
45-54 Years old	6.2	2.5	4.3
55-64 Years old	2.4	1.1	1.7
65 and older	1.0	0.1	0.5
All ages: 18 and older	5.0	2.2	3.6

A. Age, Gender and Start-Ups

Numerous studies have found that participation in start-ups is dramatically affected by the age and gender of potential nascent entrepreneurs. This is illustrated in Table 3 (previous page) which shows the proportion of men and women of different ages who are associated with start-ups based on the full adult sample from all 10 countries. Two patterns are clear: men are much more active in start-ups than women and the levels of activity are highest for those 25-34 years old.

The gender difference varies by country. Taking only those 25-44 years old for comparison, the start-up participation rates for men and women are presented in Table 4 for each country. It is clear that a major reason for the low start-up rates among some countries is the lack of participation by women. Women participate at 58 percent of the rate for men in the high-participation countries but this declines to 31 percent in the low-participation countries. Countries that wish to increase the level of start-up efforts may make major gains by helping women to become more involved.

B. Population Age Structure

If those who initiate start-ups are most likely to be between 25 and 44 years old, will countries with more individuals in this age range have more start-ups? The answer is "yes." The correlations between the percentage of men and women of different ages in the work force, defined as those 18-64 years old,[20] and the start-up rates are presented the right hand column of Table 5.

Table 4
Level of Entrepreneurial Activity and Gender and Country

Entrepreneurial Emphasis	Country	Men	Women	Women/Men Ratio
High	United States	12.5	7.6	61 %
	Canada	13.5	6.8	50 %
	Israel	7.7	4.9	64 %
(Average for High Level)		(11.2)	(6.2)	(58%)
Medium	Italy	8.6	2.6	30 %
	United Kingdom	6.5	2.7	41 %
(Average for Medium Level)		(7.6)	(2.6)	(35%)
Low	Germany	7.0	1.2	17 %
	Denmark	5.8	0.6	10 %
	France	3.5	1.7	49 %
	Japan	3.2	1.2	38 %
	Finland	3.0	0.9	30 %
(Average for Low Level)		(4.5)	(1.1)	(31%)

Table 5
Level of Entrepreneurial Activity and Percentage of Mid-Career Adults

All those 20-64 years old	Ten country average %	Minimum %	Minimum %	Correlation with business start-up rates
Percentage men 25-34 years old	25.3	22.3	28.3	0.38
Percentage men 35-44 years old	24.7	20.0	28.3	0.74*
Percentage women 25-34 years old	24.6	21.8	26.9	0.39
Percentage women 35-44 years old	24.6	21.8	26.9	0.39
* Statistically significant.				

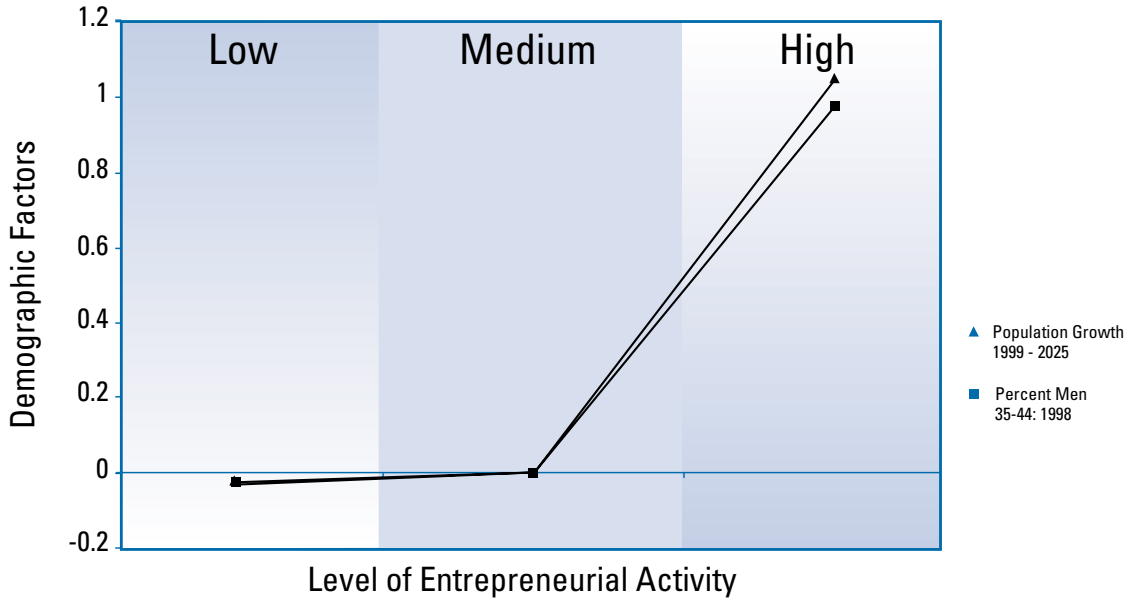
The correlation of 0.74 for men 35-44 years old (which is statistically significant), suggests that the presence of early career individuals in the population is an important determinant of the level business start-ups. There is no ambiguity about the causal relationship. Countries with a low proportion of early career men, such as Japan, may need to adjust efforts to encourage start-ups from other age groups.

C. Population Growth: 1999-2025

Increases in the demand for goods and services is a major source of new entrepreneurial opportunities. The expectation of future opportunities may affect the participation in new firm start-ups. There is substantial variation among the 10 countries in this analysis in expected population growth from 1999 to 2025, from a decline of 11 percent for Italy to an increase of 35 percent for Israel.[21] As it turns out, this has a very high measure of association with firm start-up rates measured early in 1999.

The association between these two demographic factors and the national level of entrepreneurial activity is presented in Figure 12. As with several of the earlier presentations, this allows for a standardized comparison of the relative effects of the participation of women in start-ups, the proportion of early career men in the population and the expected population growth over the next 25 years. In all cases the high participation countries are different than the intermediate participation countries; the difference between the intermediate and low activity countries is very small.

Figure 12
Level of Entrepreneurial Activity and Demographic Factors



In terms of national policy, these factors pose the greatest challenge. It is very difficult to affect either the age structure of the population or future population growth. A shortage of those most likely to pursue entrepreneurship under normal circumstances, early career men, suggests that government policies may need to encourage other groups, such as women, to pursue entrepreneurial options. How easy it will be to change the expectations associated with women's work careers remains to be determined.

The anticipation of no or negative population growth is a major complication. Those living in countries with stagnant populations are quite aware of these trends and may find it difficult to pursue entrepreneurial career options in traditional, stable sectors or stagnant geographic regions. They may need assistance to find the opportunities in growing economic sectors or geographical regions with economic growth potential.

Factor 5: Education

Entrepreneurship flourishes when opportunity meets an individual with the motivation and skills needed to turn the perceived opportunity into a business reality. Opportunity *per se* is worthless without individual commitment and the capability to take advantage of it. Since part of entrepreneurial capacity is the set of skills needed to exploit an opportunity, the question immediately arises as to the impact that education has upon entrepreneurship.

Developing new products and services or creating new ventures calls for some degree of training and education. Certain very sophisticated products entail a great deal of training to produce, market and use. It is reasonable to expect that the better educated the population the higher the level of entrepreneurial activity. Does the evidence support this intuitive line of reasoning?

Here an immediate difficulty arises, namely providing standardized measures of educational activity across countries with very different education systems. Without such measures there is no chance of making valid comparisons. One solution has been offered by the World Bank. The Bank examined the depth of participation in education programs across countries. First, a distinction was made between three levels of education: primary (pre-high school), secondary (or high school) and tertiary (or post-high school). A measure is then taken of the proportion of the total eligible population participating in programs at each of these levels. In other words, what percentage of those eligible in tertiary programs are actually enrolled at this level? If those older than the eligible ages participate, these indicators could exceed 100 percent.

The results for the 10 GEM countries are presented in Table 6 at two points in time, 1980 and 1995.[22] In this table the countries are presented in rank order by new firm start-up rate, as calculated by GEM. The relationship between start-up rates is presented in the correlation measure in the bottom row of Table 6.

Table 6
Level of Entrepreneurial Activity and National Educational Emphasis

Country	Start-up Rate: 1999	Primary Enrollment as a % of Eligible Age Group: 1980	Secondary Enrollment as a % of Eligible Age Group: 1980	Tertiary Enrollment as a % of Eligible Age Group: 1980	Primary Enrollment as a % of Eligible Age Group: 1995	Secondary Enrollment as a % of Eligible Age Group: 1995	Teritary Enrollment as a % of Eligible Age Group: 1995
United States	8.4	99 %	91 %	56 %	102 %	97 %	81 %
Canada	6.8	99 %	88 %	57 %	102 %	106 %	103 %
Israel	5.4	95 %	73 %	29 %	99 %	89 %	41 %
Germany	4.1	—	98 %	34 %	102 %	103 %	43 %
Italy	3.4	100 %	72 %	27 %	98 %	74 %	41 %
United Kingdom	3.3	103 %	83 %	19 %	115 %	134 %	48 %
Denmark	2.0	96 %	105 %	28 %	99 %	118 %	45 %
France	1.8	111 %	85 %	25 %	106 %	111 %	50 %
Japan	1.6	101 %	93 %	31 %	102 %	99 %	40 %
Finland	1.4	96 %	100 %	32 %	100 %	116 %	67 %
Correlation with start-up rate: 1999		-.25	-.26	0.78	-.07	-.31	0.61

This exhibit tells an interesting story. From the columns for primary and secondary enrollments, in both 1980 and 1995, it is evident that there is little or no relationship between the proportion of the eligible population enrolled at each level and the new firm start-up rate in any country. This is entirely to be expected. With enrollment levels of more than 95 percent in all 10 GEM countries there is barely any variation between countries. The picture emerging from the tertiary level data is, however, quite different.

Looking for example at the 1980 data, there is a positive correlation of .78 with business start-ups; the figure for 1995 is slightly lower at .61. This relationship, which is statistically significant for 1980, is highly suggestive. Simply put, it implies that the greater a country's investment in education at the tertiary level, the higher the rate of new firm formation. An obvious inference from this would be that graduates are more heavily engaged in starting new firms than those without graduate level training.

Somewhat paradoxically, however, the results presented in Table 7 suggest otherwise. All the research that has been done on people who start firms indicates that there is only a modest relationship with educational attainment beyond the level of completed secondary education. This is confirmed in Table 7. This table presents the relationship between level of education and participation for eight of the 10 countries in the adult population surveys. No educational attainment information was available from surveys in the United Kingdom and France.

Table 7 clearly shows that those that have not completed basic primary education (the North American equivalent of a high school degree) are unlikely to participate in a start-up. On the other hand, those with college/university degrees or a graduate

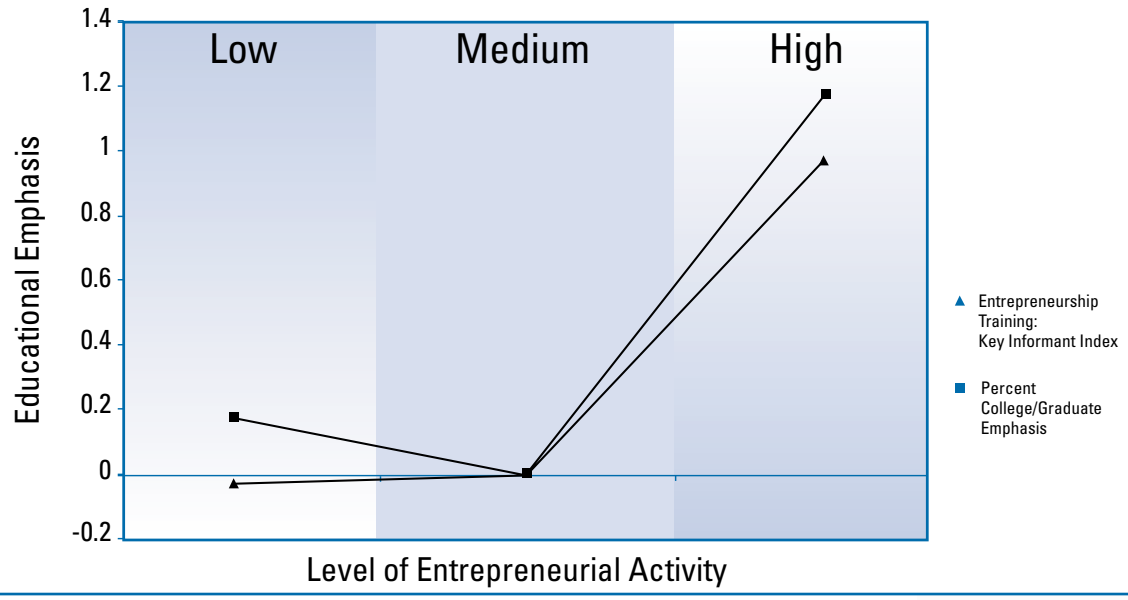
Table 7
Level of Entrepreneurial Activity and Educational Attainment

	Participation in Firm Start-Ups (n=7986)	Percentage of All Start-Up Efforts (n=306)
Not Completing High School	1.8 %	10 %
High School Degree	3.6 %	38 %
Post-High School, No College Degree	5.0 %	27 %
College Or University Degree Or More	5.0 %	25 %
All Respondents/Total	3.8 %	100 %

experience are no more likely to pursue start-ups than those with any other type of post-high school training. The right-hand column of Table 7 makes clear the consequence for start-up efforts; three in four start-ups are initiated by those without college/university degrees.

The relative impact of educational emphasis on the level of business start-ups for the three groups of countries is presented in Figure 13. Two measures are presented. The first measure is the rating of the key informants in each country on the suitability of the national educational programs, both general and those specific to entrepreneurship. This measure was derived from a five-item index completed at the end of the key informant interviews. A typical item was "In my country, the quality of teaching in primary and secondary education provides adequate instruction in market economic principles." The second measure was the relative national emphasis on college, university or graduate education. As before, there is a major difference between the countries with a high and intermediate level of entrepreneurship; there is no difference of consequence between those countries with an intermediate and low level of entrepreneurial activity.

Figure 13
Level of Entrepreneurial Activity and Educational Emphasis



The patterns in Figure 13 make it clear that a move to a high level of entrepreneurial activity requires a substantial investment in education. First, all citizens should be encouraged or have the opportunity to complete a basic education. This would remove one of the major personal barriers to pursuing firm start-ups among the population.

Certainly as important, if not more so, is an emphasis on investment in higher education. The greater this societal investment, the more likely it is that a country will have a strong entrepreneurial dynamic. However, as with many aspects of GEM, much more work is needed to understand the causal relationships. Some preliminary interpretations can be offered:

- First, education equips individuals with the capacity to think for themselves; it fosters an independent sense of identity and enhances awareness of alternative career choices. The sense of autonomy and independence, combined with greater self-confidence needed to start a business, is a positive outcome of education. Of course this is not true for all, but it makes a difference to a significant number and encourages acceptance of autonomy as a cultural value.
- Second, education broadens horizons and, by doing so, better positions individuals to perceive opportunities. The capacity to observe an opportunity, to think through what is involved in exploiting it, and to learn from experience are all strengthened through education.
- Third, investment in education provides a societal asset base in the form of intellectual ideas, knowledge, information, inventions, patents, copyrights and the like — the knowledge resources available in any society. This knowledge base may lead to the development or discovery of new entrepreneurial opportunities for those interested in starting new firms. It also provides a pool of capable employees and technical competence needed to get a business off the ground. The image that comes to mind is that of a water table. The higher the level of the knowledge table, as it were, the more fertile the soil in which new businesses can start and flourish. But the richness of the soil is not determined by education alone. A critical ingredient is the broader set of social and cultural values that drive entrepreneurship. This constitutes the fourth contextual factor.

Factor 6: Culture

Providing a cultural analysis of 10 countries is beyond the scope of GEM. Nonetheless, an attempt has been made to understand how entrepreneurship is perceived in each country, the recognition that is given to entrepreneurs and prevailing attitudes toward their success or failure. Underpinning this is the belief that no matter how rich a country is in opportunity and how well endowed it is with capacity for business start-ups, the extent to which society regards the pursuit of opportunity as socially legitimate will impact the level of entrepreneurial activity. A set of social and cultural values that legitimizes — indeed encourages — new enterprise is a prerequisite of entrepreneurial activity and a defining feature of an entrepreneurial society.

One cultural factor, the expectations regarding women and their participation in entrepreneurial activities, was discussed along with demographic factors. It is clear that countries with higher levels of entrepreneurial activity have more women involved in firm start-ups. But several other national

features associated with entrepreneurship and firm start-ups have also been identified. Two reflect dispositions or attitudes relating to national norms regarding entrepreneurial efforts and the social values of independence. The third is related to the level of income disparity within the 10 countries in this analysis.

The data assembled from the key informants included six items related to the value placed on independence and autonomy in the workplace. Typical items were "In my country, the social security and welfare systems provide appropriate encouragement for people to take the initiative to be self-sufficient" and "In my country, most younger people believe they should not rely too heavily on the government." The result was an index that shows a very high association with levels of firm start-ups; there was a correlation of about 0.9 between the "independence index" and the level of business start-ups.

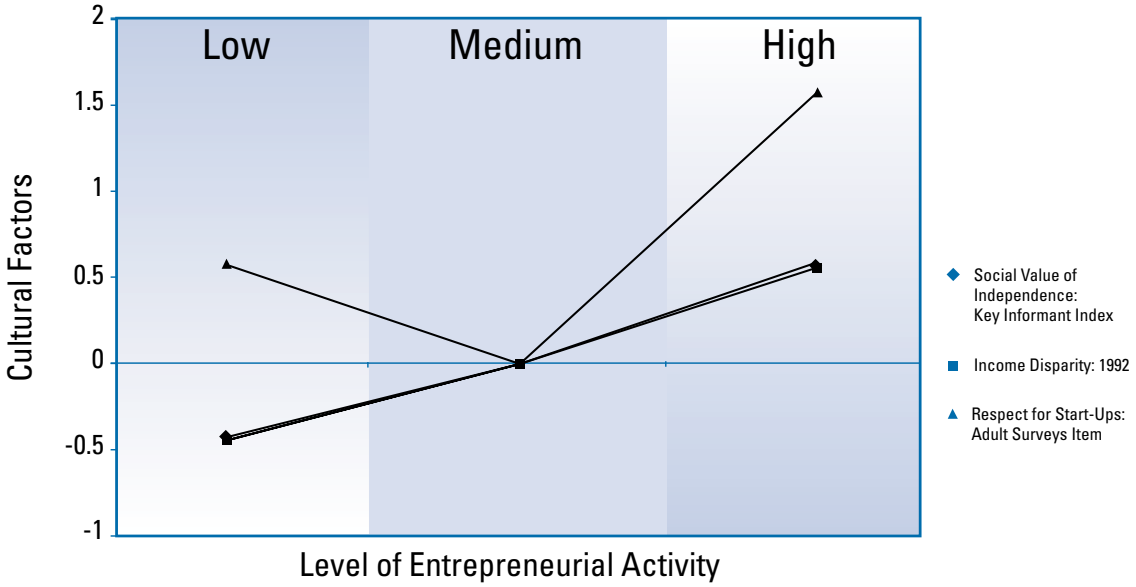
A second measure was an item included in the adult population surveys, including "Do you think starting a new business is a respected occupation in your community?" The percentage that responded "yes" varied from 8 percent for Japan and 38 percent for the United Kingdom to 86 percent for Canada to 91 percent for the United States. This also has a positive correlation with firm start-ups of about 0.45.

There is one further component of an entrepreneurial culture: its capacity to accommodate differences in the level of income among individuals or households.[23] One useful measure is the ratio of total income (or consumption) controlled by the wealthiest 20 percent of the population divided by the total income (or consumption) controlled by the poorest 20 percent. In the early 1990s this varied from 3.6 for Denmark and Finland, where the 20 percent of the households with the highest annual income controlled 360 percent more income than the 20 percent with the lowest annual incomes, to the United States, where the ratio was 9.4 — almost a ten-fold difference. This measure of income disparity is strongly associated with higher levels of firm start-ups with a correlation of about 0.81.

The causal relationship is, however, problematic. On one hand, higher levels of income disparity may provide higher levels of demand and markets for unique goods and services, as well as a pool of financial resources for investments in new firms. On the other hand, entrepreneurship, while it creates wealth for a society in the form of economic growth and employment, also creates wealth for individuals who succeed in the process. A strong association has been established between income differentials in the early 1990s and start-up rates within a country. The probability is that the higher the rate of start-up the greater the number of wealthy individuals. Tolerance of income disparity, respect for those who accumulate wealth through entrepreneurial endeavors, and the absence of stigma attached to those whose entrepreneurial initiatives fail are the hallmarks of a strong entrepreneurial culture.

The relationship between these three aspects of cultural differences — a national emphasis on independence and self-reliance, respect for those starting new businesses and the degree of income disparity — and the level of entrepreneurial activity is presented in Figure 14.

Figure 14
Level of Entrepreneurial Activity Groups and Cultural Factors



Two of these items have a strong linear relationship with the level of national entrepreneurial activity: the "independence index" and the level of "income disparity." The respect for start-ups is very high for the countries with high levels of entrepreneurial activity, somewhat lower for those with a moderate level of activity, and slightly higher for those with a low level of activity. This suggests that the people in those countries may have learned that it is socially acceptable to express verbal approval for the idea of start-ups even if they are not doing it themselves. This is certainly a step in the right direction toward general cultural acceptance.

What is noteworthy is the clear perception among key informants that culture, broadly defined, plays a key role in entrepreneurship. In some countries, this perception is shared by the government as well. In the United Kingdom, for example,[24]

> "the government's aim is to create a broadly based entrepreneurial culture, in which more people of all ages and backgrounds start their own business. In the U.S., entrepreneurship is widespread because entrepreneurs are highly regarded and well rewarded. In the United Kingdom, entrepreneurs are still too often viewed as mavericks". (Competitiveness White Paper, 1998, Page 15.)

The use of the word "maverick" encapsulates the point perfectly. Derived from the name of the 19th century Texan cattle owner who left the calves of his herd unbranded, maverick has two definitions in the Oxford English Dictionary: a late 19th century definition as "a masterless person, one who is roving and casual," plus a more contemporary definition, "an unorthodox or independent-minded individual." Contemporary entrepreneurs may not be "roving and casual" but they certainly value independence. Whether or not a society is entrepreneurial depends in part on the legitimacy and esteem accorded to those who pursue the entrepreneurial route or, as it is often called, "the road less traveled."

VII. NATIONAL COMPARISONS

In this section, summary findings are presented for each GEM country. Using the array of data resources developed in this project, the summaries provide an excellent profile of each country's most significant findings in three areas: Level of Entrepreneurial Activity; Unique National Features; and Key Issues. The national summaries are listed in descending order according to their level of entrepreneurial activity.

High Level of Entrepreneurial Activity

United States

Level of Entrepreneurial Activity:

- At any point in time, 8.5 percent of the U.S. adult population is starting new businesses — the highest start-up rate among the GEM countries.
- The percentage of women starting new businesses (7 percent) is more than 10 times higher than the two countries with the lowest rate (Finland and France, .6 percent).
- Approximately 5.5 percent of the population invests directly in new business start-ups. When extrapolated to the entire population, this level of private investment activity suggests that tens of billions of dollars are being funneled into start-ups through informal channels.

Unique National Features:

- The robust rate of start-ups in the U.S. is grounded in a strong entrepreneurial culture. U.S. citizens value entrepreneurship and the independence associated with starting and managing a business.
- Compared to other countries, the U.S. population is highly capable of recognizing entrepreneurial opportunities. A strong infrastructure encourages and supports the pursuit of those opportunities.
- Adults are perceived to possess a greater capacity to start new businesses in part because society esteems entrepreneurship education and entrepreneurial role models are plentiful.

Key Issues:

- Despite efficient diffusion of new technology and the world's most sophisticated formal venture capital network, high technology businesses in the U.S. tend to cluster geographically creating regional imbalances (e.g., Silicon Valley).
- To accommodate the high level of start-ups, it is important to continue growing the capacity of the entrepreneurship support infrastructure, particularly the provision of risk capital to early-stage initiatives and access to technological developments.
- More emphasis is needed on entrepreneurship education at the primary and secondary levels to further enhance the public's acceptance of and involvement in the recognition and pursuit of opportunities.

Canada

Level of Entrepreneurial Activity:

- With an active entrepreneurial culture, Canada's level of start-up activity (6.8 percent) is the second highest among the GEM countries.
- Approximately 3.4 percent of the population directly invests in new business start-ups, which is average for all GEM countries.
- Both key informants and the adults surveyed perceive a relatively large number of opportunities for new start-ups. The level of motivation and capacity to pursue those opportunities are also considered to be higher in Canada than in most other GEM countries.

Unique National Features:

- Like other active entrepreneurial countries, the Canadian culture is perceived to be very supportive of entrepreneurship and society places a relatively high value on personal independence in the pursuit of opportunity.
- Relative to the other GEM countries, the Canadian infrastructure is supportive of a high level of entrepreneurial activity.
- The Canadian venture capital industry is relatively young and the industry pioneers migrated from the banking industry. Thus, a gap exists between what is needed to properly evaluate and structure an equity arrangement in a burgeoning and constantly changing technology sector.

Key Issues:

- Entrepreneurs in Canada have a high level of access to and awareness of debt financing. Their access to both formal (i.e., venture capital) and informal (i.e., private angels) equity capital is more limited, which tends to reduce the availability of start-up stage risk capital.
- The tax and regulatory burden on entrepreneurial businesses is perceived to be excessive in Canada, and government programs designed to encourage and support entrepreneurial activities are inconsistent and lack a proactive, long-term strategy.
- Canada needs to enhance its educational and societal resources toward a greater focus on entrepreneurial skills at all levels of education, training for entrepreneurs on how to access and utilize equity financing, and training for scientific personnel on how to commercialize new technologies.

Israel

Level of Entrepreneurial Activity:

- With a start-up rate of approximately 5.4 percent, Israel ranked, with the U.S. and Canada, as one of the most entrepreneurially active GEM countries.
- In angel activity, Israel ranked first among GEM countries with 6.4 percent of the adult population investing directly in new business start-ups.
- Despite a relatively high level of entrepreneurial activity, the extent to which Israeli adults believe there are ample opportunities for new businesses (28 percent) was just above the average for all GEM countries.

Unique National Features:

- Three key factors account for a large share of Israel's high level of entrepreneurial activity: the rapid pace of the development and transfer of defense technology; a highly educated and motivated workforce; and governmental programs that successfully encourage entrepreneurship.
- Investment in the education and training of the young generation is regarded as a national priority. The Israeli government recognizes the value of education for encouraging potential entrepreneurs, particularly within the high technology sector.
- Israel has recently experienced a significant change in culture and social norms with respect to entrepreneurship. Today, greater emphasis is placed on individualism and on the importance of self-employment. Adult survey findings show that independence is highly valued.

Key Issues:

- Key informants expressed appreciation for the government's programs in support of entrepreneurship, but were concerned about policies and restrictions that still significantly impact the economy (e.g., taxation policies).
- Key informants called for more investment in education to encourage more women to study in technology fields and to provide entrepreneurial training at primary and secondary levels. Informants also suggested that scientific-technological education should include management training to enhance the commercialization of new developments.
- Non-tech entrepreneurship should be recognized as an important source for new firms and employment and should receive assistance as necessary to abolish bureaucratic obstacles and discriminatory legislation.

Medium Level of Entrepreneurial Activity

Italy

Level of Entrepreneurial Activity:

- The business start-up rate in Italy among the adult population is 3.4 percent — slightly higher than all other European countries.
- The rate at which individuals make private investments in new start-up businesses (2.2 percent) is slightly less than that of all other European countries. This is consistent with the key informants conclusion that access to risk capital is problematic in Italy.
- Key informants and the adult survey perceptions maintain that the level of opportunities for new business start-ups in Italy is the highest of the European countries but below average in comparison to all GEM countries.

Unique National Features:

- The level of entrepreneurial activity in Italy among young adults (18-24 years of age) is approximately 8 percent — second only to the U.S.
- In response to high unemployment rates and a decline in jobs in the public sector, an increasing number of young career men in Italy are choosing self-employment as a viable career option.
- Key informants indicated a significant difference in the level and nature of entrepreneurial activity between the South of Italy and the North. In the North, entrepreneurship is highly valued and entrepreneurs are recognized as role models. In the South, however, a variety of cultural issues have prevented such an entrepreneurial culture from developing.

Key Issues:

- Entrepreneurs in Italy are challenged with a variety of issues, particularly with the cost of labor, an increased administrative burden due to compliance with regulations, and a relatively high value added tax.
- The expected future decline in the population (approximately 11 percent by 2025) could be problematic to Italy's efforts to maintain a moderate level of entrepreneurial activity or perhaps to see its level of activity increased.
- Ensuring that the environment is supportive of higher levels of entrepreneurial activity will require more clarity in the legal system, the establishment of appropriate fiscal incentives, and the transformation of the educational system.

United Kingdom

Level of Entrepreneurial Activity:

- The rate of business start-ups in the United Kingdom (3.3 percent) is significantly lower than the most active countries, but not significantly different from other participating European nations.
- The rate of angel investment in new start-ups in the United Kingdom (2.2 percent) is below average for all GEM countries and only greater than that of Japan (.6 percent).
- The general public's relatively low perception of opportunities for new start-ups (16 percent) and the fact that only one-third think that if good opportunities did exist they would start a business is lower than all other all other GEM countries, except Denmark. Key informants also perceive the entrepreneurial capacity to pursue the available opportunities in the United Kingdom to be below the average of all other GEM countries.

Unique National Features:

- The United Kingdom is unique among the GEM nations in having relatively benign government policies.
- Entrepreneurial capacity in the United Kingdom is depressed because a substantial majority of its citizens have inadequate skills. In addition, entrepreneurship education is significantly underdeveloped.
- The entrepreneurial infrastructure in the United Kingdom is more than adequate for the existing level of entrepreneurial activity, and the nation's science base is strong and relatively under exploited.

Key Issues:

- Continued progress must be made in the quality and effective delivery of entrepreneurship education. While advancements are being made in university-based curricula, little is being done at the primary and secondary levels.
- Government support is needed for the new National Enterprise Campaign to enhance the understanding and public support of the beneficial role of entrepreneurship in economic growth.
- Regional Development Agencies should strive to strengthen the entrepreneurial infrastructure by nurturing social networks between entrepreneurs, commercial service providers, technology sources, and formal and informal pools of investment capital.

Low Level of Entrepreneurial Activity

France

Level of Entrepreneurial Activity:

- Despite an average rate of GDP growth, France's rate of new business start-ups (1.8 percent) is among the lowest of all GEM countries.
- Fewer women in France are involved in starting a business than any other GEM country.
- Approximately 4.4 of every 100 adults in France are actively investing their personal funds in new business start-ups. Among GEM countries, France's rate of angel investing is only less than that of Israel (6.4 percent) and the U.S. (5.5 percent).

Unique National Features:

- Both key informants and the adults surveyed see very little opportunity for new businesses in France. Additionally, the key informants believe that the French lack the capacity to recognize and pursue those opportunities that do exist.
- Key informants rated the social value of independence in France lower than any other GEM country.
- Despite a typical proportion of early career men and an above-average participation in graduate education, experts perceive very little motivation or incentive to pursue entrepreneurship.

Key Issues:

- The greatest limit to the level of entrepreneurial activity in France appears to be the social pressure for adults to conform to collective norms and not to independently pursue opportunities.
- Experts believe the government programs designed to support entrepreneurial activity are inconsistent and unpredictable and, in fact, do more to discourage entrepreneurship.
- The experts felt that the educational system in France is mostly oriented toward thinking more than "doing." Though the rate of adults pursuing higher education is relatively high in France, the general business education curriculum is not interdisciplinary. Thus, potential entrepreneurs are not gaining the educational skills they need to adequately recognize and pursue opportunities.

Denmark

Level of Entrepreneurial Activity:

- Entrepreneurial activity in Denmark (2.0 percent) is significantly less than that of the most active GEM countries and below the average for the other European participants.
- Between the ages of 25 and 44, men are almost 10 times more likely than women to be starting a new business in Denmark — the highest male to female ratio in this age group among the GEM countries.
- Key informants regard the availability of opportunities for new businesses in Denmark as being lower than in any other GEM country.

Unique National Features:

- The unemployment rate in Denmark has recently declined to its lowest level in decades, reducing much of the motivation to start a business among the most likely entrepreneurs.
- Denmark's business culture is marked by an absence of large firms, numerous small firms in fragmented industries and a strong disposition towards self-employment.
- Society's "safe-seeking" mindset and numerous small businesses partially explain why Denmark has the lowest level of income disparity among GEM countries.

Key Issues:

- Government programs designed to encourage and support entrepreneurial activity are often too small to have an impact and are highly sensitive to political whims.
- Experts perceive the infrastructure to be generally supportive, but there are concerns over a general lack of risk capital. Such concerns are magnified given the entrepreneurial community's overreliance on debt financing.
- The number of perceived opportunities and the motivation to pursue them are limited in part by the public's general lack of respect for the opportunity-seeking entrepreneur.

Finland

Level of Entrepreneurial Activity:

- The start-up participation rate for the general adult population in Finland (1.4 percent) is among the lowest of all GEM countries.
- Finnish private investment in new start-ups (2.2 percent) is among the lowest of all GEM countries.
- The 1999 World Competitiveness Index, which evaluates the national context for established firms, ranked Finland as the third most competitive country in the world, just after the U.S. and Singapore.
- A series of new policy initiatives are aimed at fostering entrepreneurship; for example: alleviation of administrative burdens and related compliance expenses; reducing indirect salary-related costs; and supporting the EU decision to introduce a lower value-added tax rate.

Unique National Features:

- The Finnish public's tolerance of entrepreneurial success and failure is relatively high; entrepreneurship is perceived to be a worthy career option.
- One fact that might explain the discrepancy between low start-up rates and superior economic growth is the "Nokia Phenomenon." Nokia, the global leader in mobile telecommunications, accounts for more than one-third of GDP growth in Finland.

Key Issues:

- Further cultural change will be required for entrepreneurship to take root in Finland. Key informants noted the absence of a "growth culture" and the need for successful role models.
- Increasing start-up participation rates are likely to entail changes in institutional issues such as the tax regime, social security system and bankruptcy laws.
- The risks inherent in founding and growing new ventures are not adequately provided for in personal and corporate bankruptcy laws or the access to and availability of private equity capital. As a result, a high number of bankruptcies and heavy personal debts were incurred by small business owners in the recession of the early 1990s.
- Even though entrepreneurship is gaining ground in the Finnish education system, a great deal remains to be done if it is to significantly enhance entrepreneurial capacity.

Germany

Level of Entrepreneurial Activity:

- Germany has a below average start-up rate, but among the highest for GEM countries in the low start-up activity group (2.2 percent).
- Germany's entrepreneurial climate has improved recently, and the adult population has a relatively high regard for those involved in starting a new business.
- The rate at which private individuals invest in new start-ups in Germany (4.4 percent) is just slightly less than that of Israel (6.4 percent) and the U.S. (5.5 percent).

Unique National Features:

- Personal wealth creation or bankruptcy, though common consequences of entrepreneurship, are both regarded negatively among the German people.

- Though the key informants thought there were ample entrepreneurial opportunities in the marketplace, only 15 percent of the adults surveyed did. This is consistent with the high risk aversion and "safety-first" mindset prevalent in German society.
- Germany's entrepreneurial support infrastructure is perceived to be relatively weak, particularly the availability of equity financing, professional services and access to new technology, although a wide variety is present.

Key Issues:

- Experts feel that too many government programs, the lack of clarity between public and private initiatives, and the number of restrictive regulations impede the rate of start-ups in Germany.
- Germany lacks effective mechanisms for matching entrepreneurs with sources of private investment.
- One of the most critical issues affecting the level of entrepreneurship activity in Germany is the lack of adequate entrepreneurship education at all levels within the German education system.
- Government programs should serve to create a more positive image of entrepreneurship and to minimize the effects of society's risk aversion and general negative impression of self-reliance.

Japan

Level of Entrepreneurial Activity:

- Japan has one of the lowest rates of independent start-ups among the GEM countries at less than 1.5 percent of the population.
- Only 1 percent of adults surveyed believe that good opportunities for new businesses exist in the Japanese marketplace.
- Private investment in start-up firms is practically non-existent.

Unique National Features:

- Only 8 percent of adults believe that those starting a business are respected; entrepreneurship is not recognized as a legitimate career option in Japan.
- Key informants rated the social value of independence in Japan lower than any other country, except France.
- The motivation to pursue new business opportunities is further reduced by the practice of many larger established firms to promote "lifetime" employment and to base incentive pay on length of service and age.
- Entrepreneurs who fail in their business are unlikely to be able to try again.

Key Issues:

- The Japanese approach to education is encapsulated in the saying, "The nail that sticks up is hammered down." This view along with very little commitment to formal entrepreneurship education is a major inhibiting factor to the level of entrepreneurship activity in Japan.
- The projected decline of the Japanese population by 5 percent between now and 2025 is likely to further depress the rate of new firm formation.
- Though necessary for increasing Japan's level of entrepreneurial activity, the government's commitment to boosting entrepreneurship faces significant obstacles in every direction — social, cultural and institutional.

VIII. ENTREPRENEURSHIP AND PUBLIC POLICY: TEN PROPOSITIONS

Long-term plans for GEM include significantly increasing the number of participating countries. However, even with only 10 countries participating this year, several striking differences emerged. These include differences in the level of entrepreneurial activity, its impact on economic growth, and the specific factors that promote or hinder entrepreneurship within each country. But what is most striking is that, inter-country differences notwithstanding, certain general patterns are already evident. These patterns provide an excellent backdrop against which to elaborate a set of general policy propositions. Principal among the general patterns are the following:

- The strong, positive association between new firm start-up rates and measures of economic prosperity, particularly changes in GDP.
- The fact that there are no countries with high levels of start-up rates and low levels of economic growth. High start-up rates and high levels of economic growth are always associated.
- The correlation of start-up rates with short-term measures of GDP growth was 0.6, suggesting that 36 percent of the variation in national economic growth is accounted for by variation in new firm start-up rates. It is probably appropriate to assume that one-third of national economic growth is related to the activities of established firms, one-third to the entrepreneurial sector and the remainder to the interaction between these two sectors, measurement error or unknown processes. Clearly, this approximation requires further testing and validation over time. In the meantime, GEM data gives strong support for this inference.
- There is a clear quantitative difference between the countries in the high entrepreneurial activity group and those in the intermediate and low activity groups. There is much less difference between the intermediate and low activity groups.

These general patterns endorse the argument that entrepreneurship makes a difference to economic prosperity and that a country without high start-up rates is risking economic stagnation. It is hard to imagine that any government could ignore the contribution made by the entrepreneurial sector to economic well being. Reinforcing this picture is a further pattern for which full data has yet to be assembled; the effect of change in the number of new firms starting, expanding, contracting or closing. This churning or turbulence within the entrepreneurship sector, the process by which entrepreneurial endeavor both creates and destroys economic activity and employment, is an integral part of a strong, healthy economy. This process, labeled "creative destruction" by the Austrian economist Joseph Schumpeter,[25] is captured well in a 1995 report to the U.S. President on the *State Of Small Business:*[26]

> "a high rate of business formation and dissolution is characteristic of a dynamic economy. Changing tastes and preferences, new technologies, and changes in demography and geography are all accommodated by the entry and exit of firms".

The reference to "entry and exit" is important. Countries that are able to replenish the stock of businesses and jobs, and have the capacity to accommodate volatility and turbulence in the entrepreneurial sector, are best positioned to compete effectively in the world arena. The backdrop to the GEM policy propositions is therefore

framed by two core phenomena: the demonstrable impact that entrepreneurship has upon economic growth and the association, which requires further validation, between economic prosperity and the entrepreneurial process of "creative destruction." Hence the first GEM policy proposition.

Proposition 1: *Promoting entrepreneurship and enhancing the entrepreneurial dynamic of a country should be an integral element of any government's commitment to improving economic well being.*

All other policy propositions follow from this first one. Each will now be set out and the rationale behind it summarized.

Proposition 2: *Government policies and programs targeted specifically at the entrepreneurial sector will have the most significant, direct impact.*

- GEM considered two sets of framework conditions: national framework conditions and entrepreneurial framework conditions. The relationship between the national framework conditions and the level of entrepreneurial activity within a country is relatively weak.
- Efforts to improve the general economic and institutional climate for business will benefit the entrepreneurial sector, but the impact is relatively difficult to demonstrate compared to measures designed to improve factors of immediate relevance to the entrepreneurial sector.
- Key factors include the availability of equity finance, cost and access to professional services, and provision of suitable education and training.

Proposition 3: *To be effective, government programs designed to encourage and support entrepreneurial activity must be carefully coordinated and harmonized so as to avoid confusion and enhance their utilization by those for whom such programs are designed.*

- Frustration with government programs emerged as a key issue in at least five GEM countries: Denmark, Finland, France, Germany and Japan. These happen to be the five GEM countries with the lowest level of entrepreneurial activity.
- Key informants in these countries expressed a common set of concerns relating to program duplication, fragmentation and lack of clarity, often reflecting a lack of coordination between relevant government agencies.
- There is evidence, particularly from the U.S., that entrepreneurs using these programs are more likely to successfully launch a business and subsequently develop it. Better program coordination combined with good measures of effectiveness represents a significant policy opportunity.

Proposition 4: *Increasing entrepreneurial activity in any country will entail raising the participation level of those outside the core age group of 25-44 years old.*

- There are substantial age-related differences in terms of those engaged in starting new firms. This is true across all countries.
- Participation in start-ups by those aged 25-44 is greater than that for any other age group.
- Assuming that current age-related levels of participation in entrepreneurship remain unchanged, the impact of projected demographic changes in the next 25 years will, for some countries, significantly depress the level of entrepreneurial activity.

Proposition 5: *For most GEM countries the biggest and most rapid gain in firm start-ups can be achieved by increasing the participation of women in the entrepreneurial process.*

- Men are between 1.5 (Israel, U.S.) and 10 (Denmark) times more likely to be involved in starting new firms than women.
- The relative participation of women engaged in entrepreneurial activity is the highest in those countries with the highest start-up rates: U.S., Canada and Israel.
- Role models exert a powerful influence on prospective entrepreneurs in many GEM countries. Highlighting successful women entrepreneurs could play a significant part in encouraging other women to start their own businesses.

Proposition 6: *Long-term, sustained enhancement of entrepreneurial activity requires substantial commitment to and investment in education at the post-secondary level (college, university or graduate programs).*

- The greater a country's investment in tertiary education, the higher the rate of new firm formation.
- Investment in education creates a knowledge base from which those starting new businesses are able to draw from in the form of skilled employees, technical and other business resources.
- Participation in new venture creation by those who fail to complete secondary education is substantially lower than that for others in the same age group.

Proposition 7: *Developing the skills and capabilities required to start a business should be integrated into educational and vocational training programs at all levels.*

- Individuals are more likely to start a business if they believe they have some of the skills needed to succeed.
- Differences in the assessment of entrepreneurial skills and capabilities of the GEM countries accounts for a significant proportion of the variation in the start-up rates between these countries.
- The GEM key informant assessment of the entrepreneurial skills of the U.S., the country with the highest level of entrepreneurial activity, is at the opposite end of the spectrum to that made by the Japanese experts whose country has the lowest start-up rate.

Proposition 8: *Regardless of education level, emphasis should be given to developing individual capacity to recognize new opportunities.*

- All entrepreneurial initiative springs from the perception of market opportunity.
- The assessment of opportunity made by both GEM key informants and adults in the population surveys has the strongest association with the level of entrepreneurial activity within a country.
- One percent of adults in Japan perceives there to be good opportunities as compared with 57 percent in the U.S. It seems unlikely that Japan has an extreme shortage of opportunities. It seems more likely that the Japanese have not learned how to recognize or value entrepreneurial opportunities.

Proposition 9: *The capacity of a society to accommodate the higher levels of income disparity associated with entrepreneurial activity is a defining feature of a strong entrepreneurial culture.*

- Entrepreneurship fosters national economic growth, generates employment and creates personal wealth; entrepreneurial activity and income disparity are two sides of the same coin.
- There is a strong empirical association between the level of income disparity and new firm start-up rates.
- It is quite possible that income disparity itself leads to higher rates of new firm formation, but it is probable that high start-up rates lead to an accumulation of wealth by those directly engaged in the entrepreneurial process.

Proposition 10: *Government and public policy officials and opinion leaders from all spheres have a key role to play in creating a culture that validates and promotes entrepreneurship throughout society.*

- No matter how rich a country might be in terms of entrepreneurial opportunity, entrepreneurship will not flourish unless the pursuit of opportunity is regarded as socially legitimate, entrepreneurs are respected and their success — or failure — is socially accepted.
- A key measure of an entrepreneurial culture, the social value of independence, has a strong association with the level of entrepreneurial activity.
- In half the GEM countries, more than one-third of all key informants identified prevailing social and cultural values as the single most significant inhibitor of entrepreneurial activity. None of these countries was in the group with the highest level of entrepreneurial activity.

Summary:

For those countries where entrepreneurial activity is an integral and accepted feature of economic and personal life, start-up rates are high (Canada, Israel and U.S.). In all other GEM countries, entrepreneurship and enterprise creation is a structural and cultural anomaly and those involved are considered mavericks. Though two countries have slightly increased their levels of start-up activity (Italy and United Kingdom), there is no evidence of major cultural or structural changes in either of them. It may take dramatic, sustained changes in all aspects of the cultural, political and economic institutions to make the quantum leap forward to join the entrepreneurial economies. Creating a culture of enterprise and the associated conditions to support entrepreneurship will take decades — perhaps generations — requiring a sustained national commitment that transcends the political cycle and a short-term emphasis on the "next election."

IX. CONCLUSION

GEM was originally conceived as a long-term project involving a large number of countries. The first year initiative has served as a pilot and has been very successful. The GEM conceptual model works, a unique cross-national measure of the level of participation in start-ups has been devised and implemented, and a rigorous procedure based on standardized interviews and questionnaires with key informants has proved highly effective in capturing the distinctive dimensions of each country. With minor modifications, all the GEM research procedures can be replicated and extended with confidence.

Fully understanding the core issue addressed by GEM — the relationship between entrepreneurship and economic well being — will entail collecting data from more countries over a longer period of time. Year one provides a snapshot. The limitations of a snapshot not withstanding, what GEM unambiguously shows is that the level of entrepreneurial activity differs significantly between countries. This difference reflects major variations in the degree to which opportunities are perceived to exist, rather than differences in opportunities themselves. Entrepreneurship makes a major contribution to economic well being, both in terms of economic growth and job creation, accounting for roughly one-third of the difference in economic growth rates between GEM countries. Among the many factors that contribute to entrepreneurship, perhaps the most critical is a set of social and cultural values, along with the appropriate social, economic and political institutions, that legitimize and encourage the pursuit of entrepreneurial opportunity.

Given this, it is inconceivable that any government can afford to ignore the contribution that entrepreneurship makes to economic prosperity. Indeed, there is clear evidence of a change taking place, with governments throughout the world making major commitments to boosting entrepreneurship. All too often, however, these commitments are hamstrung by a lack of real understanding of how the entrepreneurial process operates. The plethora of programs and initiatives evident in many GEM countries is symptomatic of this uncertainty. By demonstrating the way in which entrepreneurship contributes to economic well being, GEM aims to create a framework within which effective government policy can be developed. The ten policy propositions outlined earlier constitute the first step in constructing such a framework.

Just as governments cannot afford to ignore entrepreneurship, neither can those engaged in research on major economic or social processes, from whatever field, responsibly ignore the entrepreneurial dimension. To do so is to construct an incomplete picture with limited explanatory power or public policy value. The GEM model and associated data collection has provided a strong conceptual and empirical base for future work.

END NOTES

[1] Report presented to Parliament by the United Kingdom Secretary of State for Trade and Industry, December 1998, Our Competitive Future: *Building the Knowledge Driven Economy* (http://www.dti.gov.uk/comp/competitive)

[2] OECD (Organization for Economic Co-operation and Development.) *Fostering Entrepreneurship: A Thematic Review.Paris:* Organization for Economic Co-operation and Development. 1998.

[3] See descriptions of the organization and programs at http://www.weforum.com.

[4] Birch, David. 1981. "Who Creates Jobs?" *The Public Interest* 65:3-14.

Zoltan Acs and Bruce Phillips. 1997. "Why Does the Relative Share of Employment Stay Constant?" Reynolds, Paul D. et al (Eds), *Frontiers of Entrepreneurship Research*: 1997. Wellesley, MA: Babson College. U.S. Small Business Administration, 1999, www.sbaonline.sba.gov. David Birch. 1987. *Job Creation in America*. N.Y.: Free Press.

[5] *Financial Times*, 1/2 May 1999.

[6] See endnote 1.

[7] Thurik, R. "Small Firms, Entrepreneurship, and Economic Growth." Rotterdam, The Netherlands: Erasmus U. F. de Vries Lecture, 1994.

[8] Schreyer, Paul. 1996. "SMEs and Employment Creation: Overview of Selected Quantitative Studies in OECD Member Countries," Paris, France: OECD, STI Working Papers 1996/4.

[9] More complete conceptual and operational definitions are provided in the *Reference Report* and the *Operations Manual*.

[10] Details of all data collection procedures, including all interview schedules, and the creation of the master data file (which contains more than 400 items) is provided in the GEM Operations Manual. The actual data, much of which is confidential, is considered proprietary, for use only by the GEM national teams at this time.

[11] OECD (Organization for Economic Co-operation and Development.) Quarterly National Accounts Database. Jan.- March 1999 (http://ww.oecd.org/std/gdp.htm).

UNESCO. (United Nations Educational, Scientific, and Cultural Organization.) Statistical Yearbook: 1997. Paris, France: UNESCO Publishing and Bernan Press, 1997. United States Census Bureau. International Data Base. Washington, D.C. (http://www.census.gov/ftp/pub/ipc/www/idbnew.html). World Bank. *World Development Indicators*: 1998. Washington, D.C.: The World Bank, 1998. Major sources for Israel, which is not part of the OCED, included sources from the Israel Central Bureau of Statistics (http://www.cbs.gov.il) and the Bank of Israel (http://www.bankisrael.gov.il).

[12] This work was coordinated through Audience Selection (a division of Taylor Nelson Sofres plc) of London, United Kingdom, who have working relationships with commercial survey research firms in all 10 of these countries.

[13] This makes clear the level of confidence justified by the data collection procedure. If the vertical bars do not overlap, then the differences are statistically significant at the 0.5 level. In most cases, if the sample size is doubled, the confidence intervals are cut in half. They are never zero.

[14] The most widely used measure of association in research is the Pearson Product Moment Correlation, generally referred to as "the correlation." It is basically a means for precisely describing the degree of association between two variables, measured on an interval scale (with constant, meaningful differences between the who values, as with temperature.)
A correlation of zero indicates no association between two variables; a correlation of 1.0 indicates a perfect correlation. If a correlation was unlikely to have occurred by chance less than 5 percent of the time (in less than one in 20 occurrences), it is generally considered statistically significant. Very low correlations (or 0.05) may be statistically significant if based on a large number of observations. Conversely, only very high correlations are statistically significant (0.75 or greater) when the number of observations is small, as with the nine or 10 cases available for the current analysis. If one variable is considered to be a cause of a second variable, the amount of impact may be estimated by squaring the correlation. For example, if the correlation between a cause variable and an effect variable is 0.70, the cause variable may be considered to account for 49 percent of the variation in the effect variable. The other 51 percent would be attributed to other sources of influence.

[15] The source was OECD (Organization for Economic Co-operation and Development.) Quarterly National Accounts Database. Jan.- March 1999 (http://ww.oecd.org/std/gdp.htm), supplemented by data from government sources in Israel, described in a previous endnote.

[16] Birch, David. 1981. "Who Creates Jobs?" *The Public Interest* 65:3-14.

[17] Estimates provided in a personal communication from The Research Institute on the Finnish Economy in Helsinki (1 April 1999).

[18] The data was taken from K. Schwab and J. Sachs. *The Global Competitiveness Report: 1997*. Geneva, Switzerland: World Economic Forum, 1997. However, considerable work was required to adjust rank order data to provide interval level data for each country. These were estimated using multiple regression analysis.

[19] A panel study of start-ups and new firms in Wisconsin in 1993-95 found that those that received government assistance were grateful for the help, rated it highly and had more successful initiatives, P. Reynolds and S. White, *The Entrepreneurial Process*, Westport, CT: Quorum, 1998.

[20] All population data for all 10 countries were taken from United States Census Bureau. International Data Base. Washington, D.C. (http://www.census.gov/ftp/pub/ipc/www/idbnew.html)

[21] Projections for 100 years into the future are available from the United States Census Bureau. International Data Base. Washington, D.C. (http://www.census.gov/ftp/pub/ipc/www/idbnew.html)

[22] Table 2.10 of World Bank. *World Development Indicators: 1998*. Washington, D.C.: The World Bank, 1998.

[23] Table 2.8 of World Bank. *World Development Indicators: 1998*. Washington, D.C.: The World Bank, 1998.

[24] U. K. Department of Trade and Industry, Competitiveness White Paper, 1998, Page 15.

[25] Schumpeter, J.A. 1934. *The Theory of Economic Development*. Cambridge, MA: Harvard U. Press.

[26] U.S. Government Printing Office. 1996. *The State of Small Business: A Report of the President, 1995*.

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