GEM

GLOBAL ENTREPRENEURSHIP MONITOR

National Entrepreneurship Assessment • United States of America

2000 Executive Report

Andrew L. Zacharakis • *William D. Bygrave* • *Dean A. Shepherd*

BABSON COLLEGE

KAUFFMAN CENTER FOR ENTREPRENEURIAL LEADERSHIP
AT THE EWING MARION KAUFFMAN FOUNDATION

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Executive Summary

According to the Global Entrepreneurship Monitor (GEM) 2000 Executive Report, the United States continues to be one of the most entrepreneurial countries in the world. Moreover, the conditions supporting entrepreneurship appear favorable well into the future. Some highlights of the U.S. Executive Report are as follows:

Level of Entrepreneurial Activity

- The entrepreneurial activity prevalence rate in the United States is 12.7 percent, the third highest among GEM 2000 countries behind Brazil and Korea.
- The percentage of people investing in start-ups has increased to 7.0 percent (or 1 in every 15 adults) from 5.5 percent in 1999. The average annual amount of funding is nearly $4,000 per angel investor. Extrapolating to the U.S. population as a whole suggests that angel investors contribute about $54 billion per year in venture financing.
- The entrepreneurial activity prevalence rate among women is 8.8 percent, but the ratio of women to men, 0.53, did not increase between 1999 and 2000.
- The percentage of people who *"perceive good opportunities to start a business in the next six months"* dropped to 52 percent in 2000 from 57 percent in 1999.

Unique National Features

- The United States leads the world in the awareness and desirability of entrepreneurship. Entrepreneurs are viewed as role models; failure is accepted as a learning experience; and people continue to see entrepreneurship as a career path with potential.
- Judging from the last few years, the United States is not only in the midst of an entrepreneurial revolution, it is also in the midst of a financial revolution that has provided an abundance of risk capital to fund new ventures. Venture capital and the NASDAQ market for initial public offerings (IPOs) are crucial factors in the new economy.
- The U.S. venture capital sector has grown exponentially and continues to outpace the rest of the world. In 1999, venture capitalists invested $48 billion versus only $19 billion in 1998. Through the first nine months of 2000, venture capitalists have invested nearly $80 billion.
- The ratio of venture capital invested to gross domestic product (GDP) was 0.53 percent in the United States, which was four times greater than the average for all other GEM 2000 nations.
- Entrepreneurship involving the Internet continues to explode despite some difficulties in business-to-consumer and business-to-business segments. Internet-related companies attracted 76 percent of the venture capital invested in the first nine months of 2000.
- Seventy-eight percent of all venture capital invested in the United States went to companies in the information technology (IT) sector.
- Venture capital invested in IT companies in the United States accounted for an astonishing 86 percent of the total venture capital invested in IT companies in all the GEM 2000 countries combined.
- The average amount of venture capital invested per company in the United States was $13.21 million, 10 times the average for all the other GEM 2000 countries.
- Two hundred and seventy U.S. venture-capital-backed companies raised $20.9 billion through IPOs in 1999, an all-time record.
- The one-year return on venture capital was 62.5 percent in 1999, another record. Seed-stage and early-stage venture capital funds returned 91.2 percent.
- Commitments to new venture capital funds topped $46 billion in 1999, up from $27.7 billion in 1998.

- Venture capital is being "exported" from the United States at record levels, especially to the UK, Israel and Japan. U.S. pension funds were the main investors in the UK venture capital industry in 1999 for the third year in a row.
- Women and minorities generally lack sufficient networks and the access to venture capital needed to pursue high potential ventures.
- After reaching a high of more than 5,000, the NASDAQ has dropped almost 50 percent in 2000.

Key Issues

- Geographic disparity in entrepreneurial activity (especially high technology entrepreneurship) and infrastructure support for entrepreneurship (especially risk capital) continue to be a problem in many parts of the United States.
- Two-thirds of the total venture capital invested nationwide in 1999 went to five states.
- Physical infrastructure (especially transportation) is considered inadequate in many of the U.S. entrepreneurial hot spots (e.g., Austin, Silicon Valley and Boston). There is concern among experts that if this leads to a deterioration in the quality of life, these regions may lose some of their entrepreneurial momentum.
- There also is a shortage of skilled personnel nationwide (especially software engineers) leading to a call for more H1B visas for immigrants.
- As the Internet continues to prosper, experts are torn as to whether e-commerce should be taxed, and, if so, what should be the form of that taxation.
- There is concern that if investors lose their appetites for stocks of "new economy" companies, it will inhibit the financing of those companies, and, as a result, will slow down entrepreneurial activity.

Key Policy Implications

- Increased and broadened education is important on a number of fronts:
  - > The level of entrepreneurial sophistication is improving, but many new ventures still suffer from novice errors.
  - > There is a critical need for more students trained in engineering and science, areas that often provide the impetus for entrepreneurial innovations.
  - > Increasing the number of women and minorities in higher-level business education (e.g., MBAs) gives them access to many of the networks needed to succeed. However, the percentage of women and minorities pursuing MBAs has leveled off and may even be declining. Women and minorities are also underrepresented in higher education among engineering and science programs.
  - > Entrepreneurship education in geographic regions lagging the entrepreneurial hot spots of the West Coast, East Coast and Texas can provide some momentum for entrepreneurship into the future.
- The debate over taxation of e-commerce needs resolution. The tradeoff is whether taxation will stunt the development of the developing sector or whether the revenues gained through taxation might be used to ease pressing physical infrastructure issues.

The Role of Entrepreneurship in the United States

Entrepreneurship has been going on in this country since its inception. In fact, you can say the country really started because of political entrepreneurs.

Fred Bollerer
Morino Institute

The 1999 GEM report validated an underlying belief that entrepreneurship is important to the economic well-being of the United States. Based on two years of data collection and analysis, it appears that entrepreneurial companies account for between one-third and one-half of the variance in GDP between countries. Entrepreneurship is strongly associated with economic growth. Among countries with similar economic structures, the correlation between entrepreneurship and economic growth exceeds 0.7. Dr. Harold Welsch, a professor at DePaul University in Chicago, highlights the importance of entrepreneurship, "*Entrepreneurship is still the best private vehicle we have to turn around and improve the economic health of a community*."

The shift to an entrepreneurial orientation continues and many people, especially the young, now desire an entrepreneurial career and lifestyle more than the traditional Fortune 500 "job for life" that their parents aspired to.

The willingness of young people to take risks in their first several jobs, with the hope of getting a big payoff, is relatively new. If, in fact, it turns out that if you don't succeed as an entrepreneur you can always go back [and try again] at some later date. What's different is the notion that taking a chance to get the brass ring early doesn't preclude you from succeeding in a more traditional way later on.

David Sylvester
Hale and Dorr LLP

The kids coming out of school today are very savvy to the whole entrepreneurial track ... it's not, 'hey, let's go get my degree and go work for IBM or work for Hewlett-Packard.' It's, 'how can I get into a hot IPO potential start-up.'

Steven DeWitt
Founder of Cobalt Networks

The rapid rise in the NASDAQ mirrors this entrepreneurial enthusiasm. The fuel behind its unprecedented growth is many of the "new economy" superstars such as Cisco, Amazon.com, Yahoo! and others. John Doerr, renowned venture capitalist with the venerable Kleiner Perkins Caufield & Byers in Menlo Park, California, notes that the technology explosion of the 1990s has been "the greatest legal creation of wealth in the history of the planet."

The red-hot NASDAQ stock market, which enabled young IT companies to raise record amounts of money with IPOs, was one of the outstanding features of the entrepreneurial landscape in 1999. The other outstanding feature, closely related to the market for IPOs, was the incredible surge of venture capital investments in IT ventures, especially those with Internet-related products and services. Because of its prominent role in financing start-up and young, growing companies in the new economy, venture capital was explored in greater depth in the GEM 2000 study.

The plethora of entrepreneurial activity in hotbeds for venture capital activity, such as Silicon Valley, is in stark contrast to the dearth of entrepreneurship on Indian reservations. This year, the GEM report also includes a special section on entrepreneurship and Native Americans.

The Global Entrepreneurship Monitor

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. Thus, to obtain reliable, comparable data, GEM focused on the G7 countries (Canada, France, Germany, Italy, Japan, United Kingdom and the 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 scope of the project has doubled for 2000 with research teams from more than 21 countries participating, including all 10 countries from 1999. The new countries are Argentina, Australia, Belgium, Brazil, India, Ireland, Korea, Norway, Singapore, Spain and Sweden.

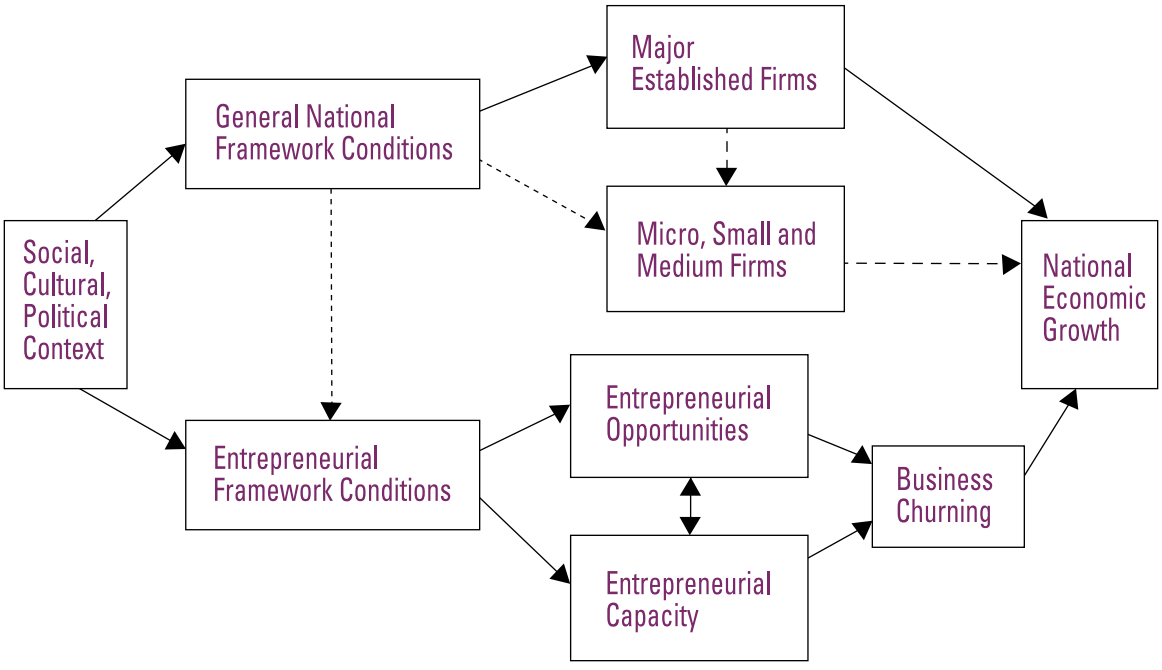
For the purpose of understanding its role in economic growth, entrepreneurship has been defined as: "*Any attempt to create a new business enterprise or to expand an existing business by an individual, a team of individuals, or an established business.*"

Three fundamental questions were implicit in 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?*

The GEM model depicted in Figure 1 identifies the key variables that are proposed to impact a country's economy and the relationships between them. Moving from left to right, the variables include: Social, Cultural and Political Context; General National Framework Conditions; Entrepreneurial Framework Conditions; Entrepreneurial Opportunities; Entrepreneurial Capacity; Business Churning; and National Economic Growth.

FIGURE 1
GEM CONCEPTUAL MODEL (THE TOTAL PROCESS)



The **Social, Cultural and Political Context** encompasses a range of factors that have been shown to play an important role in shaping a country's national framework conditions. Analyzing all such influences was beyond the scope of GEM 2000; however, certain key issues have been considered including demographic structure, investment in education, social norms and attitudes associated with individual independence, and the perception of entrepreneurs.

General National Framework Conditions include the role of government and financial institutions, the level of R&D, the quality and strength of the physical infrastructure, the efficiency of the labor market, and the efficiency and robustness of legal and social institutions. **National Entrepreneurial Framework Conditions** are composed of the availability of financial resources for new firms, government policies and programs designed to support start-ups, the level of education and training for aspiring and practicing entrepreneurs and access to professional support services (e.g., lawyers and accountants). These factors are expected to be more volatile than the General National Framework Conditions, reflecting an intermediate stage in the overall causal sequence outlined in Figure 1.

Entrepreneurial Opportunities refer to the existence and perception of market opportunities available for exploitation. **Entrepreneurial Capacity** refers to the motivation of individuals to start new firms and the extent to which they possess the skills required to adequately pursue them. **Business Churning** encompasses the processes whereby new firms start, grow, contract or die. Finally, **National Economic Growth** incorporates a number of standard economic measures including growth in GDP, changes in employment and per capita income. The continual economic churn associated with the birth, death, expansion and contraction of business firms has been shown to relate closely to the rate of job creation.[1] It is assumed that as the rate of *economic churn* increases, the rate of economic growth will increase as well.

The empirical research for the GEM study comprised three major parts. The first part involved a survey of 2,000 households in each of the 21 participating nations to gauge the populations' involvement in and attitudes toward entrepreneurship. Second, a wide selection of standardized national data was assembled from a variety of sources (e.g., World Bank, United Nations, IMF, OECD and venture capital associations) on various measures of the General National Framework Conditions. Third, one-hour, face-to-face interviews were conducted with approximately 35 experts in each country to learn of their perspectives of the entrepreneurial framework conditions. The experts also completed a brief questionnaire that involved standardized assessments of important aspects of their country's entrepreneurial sector. In summary, more than 43,000 individuals were surveyed and 800 experts interviewed.

The primary objective for each participating country was to develop causal interpretations of the core variables in the entrepreneurship process and to assess their role in determining each country's level of entrepreneurial activity. The following report details the U.S. results and compares the United States with the other GEM 2000 countries.

U.S. Entrepreneurial Activity

I think that the whole eco-system — the whole infrastructure ... the angel groups, the early round financing that's available, the early round venture money that's available, the universities, the schools of entrepreneurship — the whole eco-system just supports entrepreneurship.

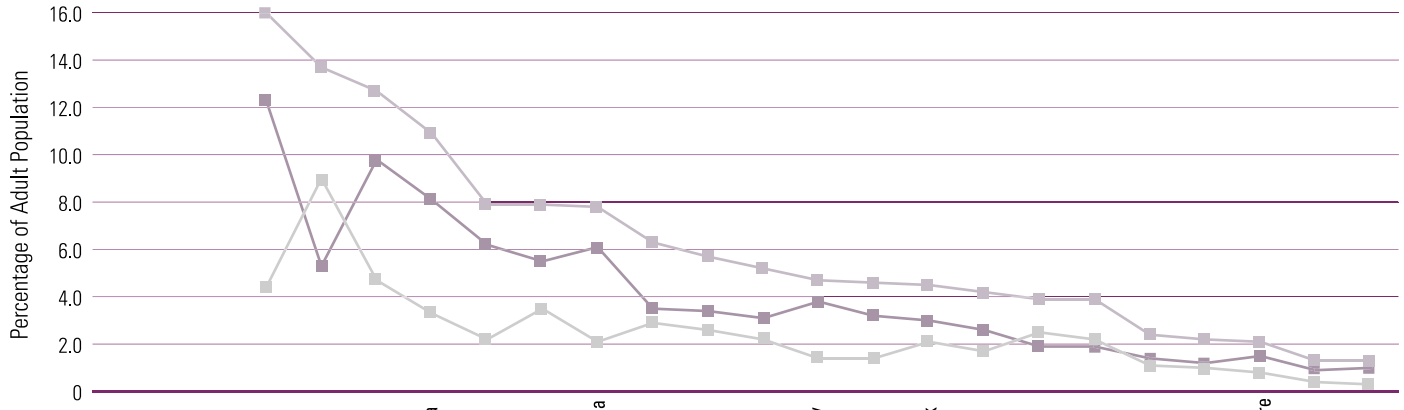
Fred Bollerer
Morino Institute

The Total Entrepreneurial Activity (TEA) Index is a new measure developed for the 2000 GEM study. The index is comprised of two measures: (1) the nascent start-up rate[2] plus (2) the new firm rate[3]. The 1999 GEM report focused only on the nascent start-up rate, which is basically unchanged from 1999. The TEA Index in the United States is high at 12.7 percent (see Figure 2), trailing only Brazil and Korea, which are both new GEM countries for 2000. One out of every 10 adults (9.8 percent)[4] is attempting to start a business at any given point in time. Only Brazil has a greater nascent start-up rate at 12.3 percent. Thus, the United States has a very robust level of firm creation. In addition, 4.7 percent of all adults between the ages of 18 and 64 are principal owners of firms less than 42 months old in 2000. Only Korea, at 9.0 percent, has a greater percent of its adult population engaged in new firms.

Considering that the United States is perceived as the world leader in entrepreneurship, it is worth briefly examining why Brazil and Korea rank higher in entrepreneurial activity in 2000. The Brazilian economy is highly dependent upon agriculture. More than 28 percent of adult males are engaged in agriculture, which is significantly higher than most of the other GEM countries where the percent of males employed in the agriculture sector is typically less than 10 percent. The interaction of agriculture and entrepreneurship needs further research, but it is believed that agricultural dependent economies create large underground entrepreneurial sectors. Korea, on the other hand, has rebounded from the Asian economic crises of 1998, which may explain its high new firm rate of 9.0 percent. New firm registrations in Korea have skyrocketed from 581,000 in 1998 to more than one million in 1999. This may be a reflection of the decline of many large Korean multinationals during the economic downturn a few years earlier. As in most depressed economies, displaced workers initiate entrepreneurial ventures to replace lost jobs.

Most other countries lag far behind the United States in entrepreneurial efforts. Whereas 1 in 10 Americans is currently attempting to start a new venture, only 1 in 25 in Germany, 1 in 33 in the UK, 1 in 50 in Finland and Sweden, and 1 in 100 in Ireland and Japan is engaged in a start-up effort. Likewise, the

Figure 2
Total Entrepreneurial Activity (TEA) Rates



	Brazil	Korea	U.S.	Australia	Canada	Norway	Argentina	India	Italy	UK	Germany	Spain	Denmark	Israel	Finland	Sweden	Belgium	France	Singapore	Japan	Ireland
TEA Index	16.0	13.7	12.7	10.9	7.9	7.9	7.8	6.3	5.7	5.2	4.7	4.6	4.5	4.2	3.9	3.9	2.4	2.2	2.1	1.3	1.3
New Firms	4.4	9.0	4.7	3.3	2.2	3.5	2.1	2.9	2.6	2.2	1.4	1.4	2.1	1.7	2.5	2.2	1.1	1.0	0.8	0.4	0.3
Nascent Startups	12.3	5.3	9.8	8.1	6.2	5.5	6.1	3.5	3.4	3.1	3.8	3.2	3.0	2.6	1.9	1.9	1.4	1.2	1.5	0.9	1.0

United States has a significant percentage of people involved in new firms. A high level of volatility or churn (the percent of new firms born plus the percent of old firms that die) is considered the rate at which an economy rejuvenates itself on a regular basis. In the United States, 1 in 25 people are involved in new firms compared to 1 in 30 in Australia and Norway and only 1 in 200 in Japan and Ireland.

Entrepreneurial Activity and Economic Growth

An important question posed by the GEM research is whether entrepreneurial activity impacts the rate of growth in the overall economy. In 2000, it appears that the level of entrepreneurial activity is strongly correlated to growth in GDP[5] at 0.69 (see Figure 3). When considering only the G7 countries, the correlation grows stronger, increasing to 0.76. Thus, holding all other factors constant, entrepreneurial activity appears to explain half of the difference in growth in GDP between GEM countries.

Access to capital needed to start and grow businesses is critical for a strong entrepreneurial sector. People may be directly involved in a nascent start-up by operating a new firm or they may be passive investors. Thus, the rate at which people provide funds for start-up companies is also an indication of entrepreneurial activity (see Figure 4). One of the strengths of the U.S. entrepreneurial sector is the involvement of such informal investors. The correlation between the TEA Index and the percent of the population involved in informal investment is 0.67.[6] In the last three years, 7 percent of the adult population, or 1 in every 14 people, has invested in one or more start-up ventures[7]. U.S. informal investor participation leads the world. Only 1 in 20 people in Korea and Norway, 1 in 25 in Germany, and about 1 in 100 in Ireland invest in new ventures.

Social, Cultural and Political Context

Five distinct features of the social and cultural context of the GEM countries were explored in the 2000 study. These include (a) population growth rates, (b) the age structure of the population, (c) the involvement of women in entrepreneurial activities, (d) education and (e) the level of income disparity.

Future Population Growth (1999-2025)[8]

A substantial body of research indicates that the most powerful factor encouraging entrepreneurial

FIGURE 3
TOTAL ENTREPRENEURIAL ACTIVITY AND ECONOMIC GROWTH
(ALPHA GROUP)

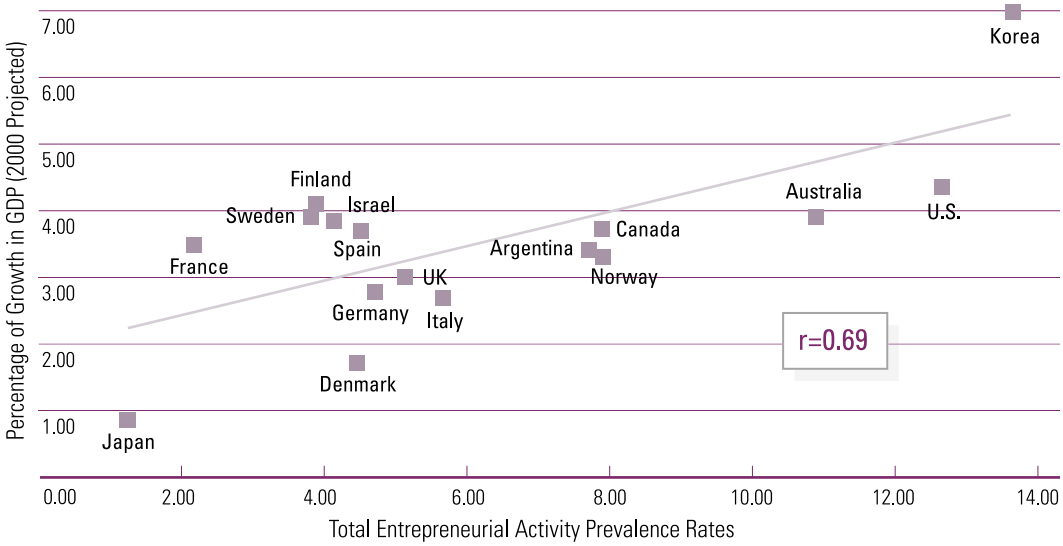
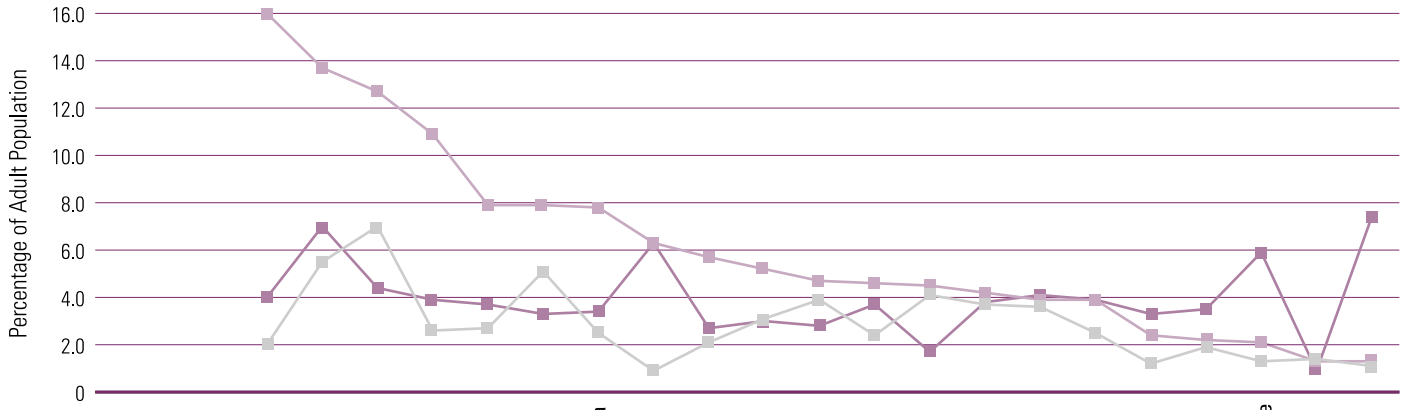


Figure 4
TEA, Informal Investor Participation and GDP Growth Rates: Cross-National Comparisons



	Brazil	Korea	U.S.	Australia	Canada	Norway	Argentina	India	Italy	UK	Germany	Spain	Denmark	Israel	Finland	Sweden	Belgium	France	Singapore	Japan	Ireland
TEA Index	16.0	13.7	12.7	10.9	7.9	7.9	7.8	6.3	5.7	5.2	4.7	4.6	4.5	4.2	3.9	3.9	2.4	2.2	2.1	1.3	1.3
Informal Investors	2.0	5.5	7.0	2.6	2.7	5.1	2.5	0.9	2.1	3.1	3.9	2.4	4.1	3.7	3.6	2.5	1.2	1.9	1.3	1.4	1.1
GDP2000	4.0	7.0	4.4	3.9	3.7	3.3	3.4	6.3	2.7	3.0	2.8	3.7	1.7	3.8	4.1	3.9	3.3	3.5	5.9	0.9	7.4

activity is anticipated increases in demand for goods or services. Expected population growth is a basic indicator of expected growth in demand. The expected population growth for the five countries with the highest TEA Index (7.9 percent or more) was more than 20 percent. For countries with a medium level TEA Index (3.9 to 7.8 percent), the expected rate of population growth was 5 percent. In countries with the lowest TEA Index (2.2 percent or less) the expected population growth rate was zero. The expected population growth rate for the United States between 1999 and 2025 is 23 percent.

Age Structure[9]

For all GEM 2000 countries, the majority of those involved in new firm start-ups are 25-44 years old. High TEA countries have 26 percent of their populations in that age group. Medium TEA countries have 24 percent of their populations in that age group, while low TEA countries have 22 percent in that age group. The United States has 30 percent of its population in the 25-44 age group as of 2000. Given that these are the individuals most apt to start a new business, the United States has a significant advantage over countries with a lower percentage of their population in this age range.

Involvement of Women

The disparity between men and women involved in entrepreneurial ventures is striking. In the United States the ratio of the female (8.8 percent) to male (16.7 percent) prevalence rates is 0.53, which is among the highest of GEM 2000 countries. Only Spain (0.83), Canada (0.77), Brazil (0.63) and UK (0.63) are higher. For the United States, it means that one woman is involved in entrepreneurship for every two men involved. At the other end of the spectrum of all GEM countries, one woman is involved for every five men. Increasing the level of involvement of women could a have profound impact on the overall entrepreneurial activity rate in the United States.

Ideally, the number of women involved in start-ups would at least equal that of men. Based upon interviews with experts, women face some obstacles that may hinder their involvement in entrepreneurship. Successful start-ups, especially the high technology, high potential ventures that have dominated the market for the last couple of years, require a network of support. Entrepreneurs need equity backing and connections to hire the best people. Key U.S. informants note that women often struggle to develop professional networks that are adequate for starting and building a new firm.

I think there are different kinds of participation [in social networks]. The networks of women and men are similar except that women have fewer men in their networks. This is a problem because the networks that have access to resources are typically comprised of men. For example, a venture capitalist said in a Red Herring *article that he has never done a deal that didn't happen from someone he knew. It is likely that most of his networks include other white males.*

Patricia Greene, Ph.D.
University of Missouri-Kansas City

However, many of these concerns are changing. For example, Andrea Silbert, a Harvard MBA with investment banking experience at Morgan Stanley, established the Center for Women and Enterprise in October of 1995. Since its inception, the Center has assisted 2,500 women in Eastern Massachusetts with their entrepreneurial efforts. Sixty percent of the women come from low to moderate income households.

Women entrepreneurs also face subtle biases, especially in the prime years of starting entrepreneurial ventures (25-44 years of age). Entrepreneurship is a time consuming process and many entrepreneurs work 60-80 hours a week. The perception among policy makers is that this level of effort could hurt families as young mothers struggle to manage the commitments of motherhood with new venture creation. As Dr. Greene noted: "*I think it's a different approach when there are public policy discussions about women and entrepreneurship. Almost every single time, work/family balance is a major part of the discussion. Now, I don't hear that when we're talking about minority and male entrepreneurs.*" Entrepreneurship is time consuming, but men face the same family balance issues. This ingrained double standard permeates U.S. society and may make equity providers less likely to back a woman entrepreneur.

Investment in Education and Advancement of Knowledge[10]

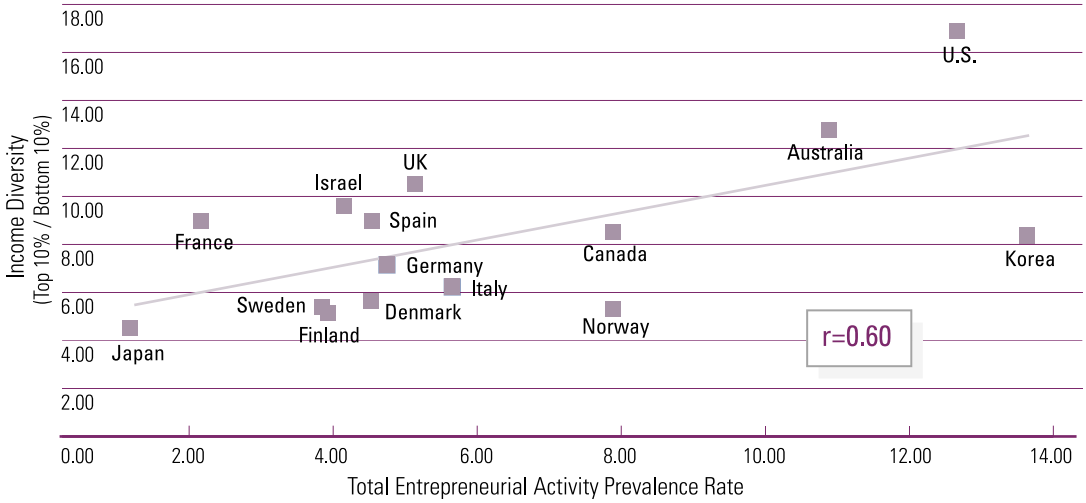
Education is critical to entrepreneurial activity. Most of the countries participating in the GEM 2000 study have close to 100 percent of their age-appropriate population enrolled in primary education. Enrollment drops off at the secondary levels however. The GEM study found a strong correlation between TEA and enrollment in any secondary education program (i.e., trade school, vocational school, college, university, professional or graduate training) of 0.64. All things being equal, the difference in education participation would account for nearly 40 percent of the variance in entrepreneurship activity between GEM countries. This may be a competitive advantage for the United States since more than 80 percent of the age-appropriate population is engaged in post secondary education. Only Canada, at 90 percent, is higher.

Nascent entrepreneurs and new firm owners tend to have higher levels of education, particularly in the United States. The majority of these entrepreneurs have some college. More than 70 percent of the age-appropriate population in each GEM 2000 country and more than 90 percent in the United States has graduated from high school. Table 1 provides a closer look at the education attainment of entrepreneurs within the United States. People with at least some college represent the largest group pursuing entrepreneurial opportunities. Interestingly, further education is associated with a decrease in the percent of the population in pursuit of entrepreneurial opportunities. This might suggest that those with college degrees face greater opportunity costs in pursuing new ventures.

Table 1
Education Attainment of U.S. Nascent Entrepreneurs and New Business Owners

Some Post Graduate	12.6%
College Graduate	23.6%
Some College	32.2%
High School Graduate	24.6%
Some High School	5.5%
Some Schooling	1.5%

Figure 5
Income Diversity and Total Entrepreneurial Activity



Income Dispersion[11]

All societies have some persons, or households, with more income or consumption than others have. GEM 2000 found that the correlation (0.60) of income differentials to the TEA Index is statistically significant. The degree of such dispersion is often measured by dividing the total income of the wealthiest 10 percent of a population by the total income of the poorest 10 percent of a population (see Figure 5). Among the GEM 2000 countries with available income diversity data (Argentina is missing), the United States is clearly the most diversified with a ratio greater than 17:1. This means that the total income (or consumption) of the top 10 percent of the population is 17 times greater than the total income (or consumption) of the bottom 10 percent.

The causality, in this case however, is ambiguous. Higher income dispersion may provide the accumulated savings required for investment in new firms, and high-income individuals and households may create demands for goods and services that provide opportunities for new firms. Hence, income dispersion may increase entrepreneurship. In contrast, the wealth accumulated by successful entrepreneurs may well increase the amount of income in the upper 10 percent, thereby increasing the degree of dispersion. Regardless of the causal relationships, the correlations are strong and pervasive. It is clear that toleration and perhaps acceptance of income diversity — such that there is no social or political backlash — could be a critical asset for increasing levels of entrepreneurial activity. This appears to be the case in the United States and, if it continues, would contribute to maintaining a high level of entrepreneurial activity. As David Sylvester observes, "*our perception of wealth, putting aside whether this is good or bad, and our desire to have as much of it as we possibly can, encourages entrepreneurship.*"

General National Framework Conditions

Findings from GEM 2000 suggest that some of the General National Framework Conditions have a significant impact on the Entrepreneurial Framework Conditions. In the United States, Government Presence and Labor Markets are of keen interest.

Government Presence

A review of all GEM 2000 countries finds that those with high TEA Indices have an average tax revenue, measured as a percent of GDP, of 21 percent. Countries with medium level TEA Indices have tax revenue as a percent of GDP of 33 percent, while the tax burden in low TEA countries averages 39 percent. In the United States, tax revenue as a percent of GDP is about 21 percent. However, there is concern in the United States that the physical infrastructure, supported by taxation, is not keeping pace with economic

development. Several key informants noted that various cities are under serious pressure as far as roads, schools, and other infrastructural needs is concerned due to economic growth.

In Southern California, there is not enough public infrastructure, all the way from public education, where the school buildings need updating and expansion, to the roads which need more capacity, to the airports, which are overwhelmed, down the line. Improving and expanding the public infrastructure is a huge problem.

William B. Gartner, Ph.D.
Henry W. Simonsen
Chair in Entrepreneurship
University of Southern California

How the federal, state and local governments deal with these issues could have significant ramifications on entrepreneurship activity. As the demand for key employees increases, quality of life issues become more important. Poor schools, congested roads and other infrastructure problems may inhibit the ability of a region to attract needed employees and entrepreneurs who might start and build new companies.

Labor Market: Shortage of Skilled Labor

Although many GEM countries expressed concern about labor market flexibility (i.e., the ability to hire and fire employees easily) and non-wage labor costs (i.e., social security, health care and pensions), experts in the United States generally do not believe this is a problem. In many European countries, for example, it is difficult to hire people due to stringent labor laws. Thus, companies have much more difficulty adjusting labor to production. The social costs of employment as a percentage of GDP borne by employers in high TEA countries (12 percent) is significantly less than that of countries with medium levels of activity (22 percent) and those with low levels of entrepreneurial activity (37 percent). Social costs of employment as a percent of GDP in the United States is only 7.5 percent.

One general framework condition that is becoming acutely important to entrepreneurs is the shortage of labor. Unemployment is at historic lows, making it increasingly difficult to hire people for positions ranging from the very least skilled to the most highly skilled. As Maribel Lopez Dolinov, an analyst with Forrester Research notes, "*The Internet has basically presented the need for an entirely new skill set and the people [with those skills] just don't exist. We find entrepreneurs are starting to do creative sourcing; a branch in Israel, a branch in India, etc.*"

Rafe Needleman, editor of *Redherring.com* adds: "*While [the United States] does have great educational institutions turning out thousands of great entrepreneurs and engineers, that doesn't begin to meet the demand that those people themselves are generating. Overall, our educational structure is not turning out enough qualified people, so we're looking overseas and to immigrants.*"

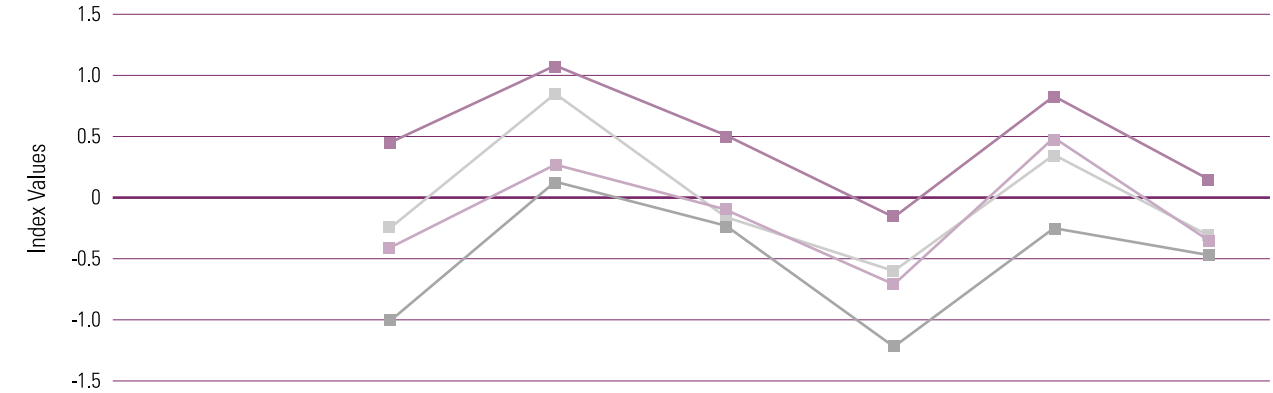
There is an acute shortage of skilled software engineers, and restrictions on H1B visas make it difficult to bring in talented immigrants. As such, many high-tech entrepreneurial start-ups need an articulate employment strategy before professional venture capitalists will even consider their proposals. In years gone by, it was relatively easy to hire talent at low salaries coupled with stock options. Today, software engineers are demanding both market rate salaries and attractive options packages. For example, software engineers in the Silicon Valley saw their base salaries climb 12 percent to $86,000 between 1998 and 1999. Chief Technology Officers saw an 18 percent increase to $125,000.[12] This acute shortage may hinder the ability of the United States to maintain its leadership in innovation. As renowned economist, Paul Romer of Stanford University notes: "*Successful countries will retain their college-educated citizens, and actually attract professionally trained talent from other countries. Only by maintaining this ample supply of college-educated professionals can countries remain competitive and prevent wage inequality. Certainly almost every Silicon Valley company has felt the squeeze in the market for engineering and executive talent, which has led to unprecedented inflation in professional-level salaries.*"[13]

Entrepreneurial Framework Conditions

As the 1999 GEM report indicated, national entrepreneurial framework conditions have a major impact on the entrepreneurial sector (see Figure 1). Assembling reliable data for cross-national comparisons of these framework conditions involved in-depth interviews with experts on the specific entrepreneurial dimensions. In each GEM 2000 country, research teams completed in-depth interviews and questionnaires with at least 35 key informants on entrepreneurship.[14] In the United States, at least three experts represented each of the nine entrepreneurial framework conditions. Due to the relative importance of culture and social norms, financial support and education in the 1999 study, at least five experts were interviewed on these dimensions. In addition, three experts on entrepreneurship among Native Americans were included to gain insight into the special issues facing entrepreneurs within the Indian Nations. The topics covered in the interviews included observations on national opportunities for entrepreneurship and the capacity of the population (i.e., skills and motivation) to pursue such opportunities. Multi-item indices were created from questionnaires to provide comparisons across countries for each dimension. A summary comparison of the major results for those framework conditions where the patterns were significant is presented in Figure 6. These expert ratings are supplemented, where possible, with responses to specific questions asked of all 2,000 respondents in the adult population surveys.

Comparisons across countries help to determine the extent to which the entrepreneurial framework conditions support entrepreneurial activity. Scores above zero indicate an aggregate positive impression on a particular index. Figure 6 illustrates that the United States is typically perceived more favorably on all the entrepreneurial framework conditions than other countries. Nonetheless, education is still an area of concern as shown by a slightly unfavorable perception. As expected, high TEA countries score higher on

Figure 6
Entrepreneurial Framework Conditions:
Cross-National Comparisons of Key Informant Multi-Item Indices



	Culture	Equity	Debt	Education	Professional Infrastructure	R&D
Low TEA Countries	-1.01	0.13	-0.23	-1.22	-0.25	-0.47
Med TEA Countries	-0.41	0.27	-0.10	-0.71	0.49	-0.35
High TEA Countries	-0.25	0.85	-0.16	-0.60	0.35	-0.31
U.S. 2000	0.45	1.08	0.51	-0.16	0.83	0.15

each of the indices than medium TEA countries, and medium TEA countries generally score higher than low TEA countries.

The remainder of this report details the findings for those conditions that were most highly correlated with the level of entrepreneurial activity across GEM countries, namely: Culture and Social Norms, Financial Support, Education and Training, Commercial and Professional Infrastructure, and R&D Transfer. A summary of the review of comments on Government Policies and Programs is also provided because of the interest in this topic. All of these factors are expected to affect the national entrepreneurial sector as reflected in the ability to observe opportunities as well as the capacity and motivation to exploit those opportunities.

Culture and Social Norms

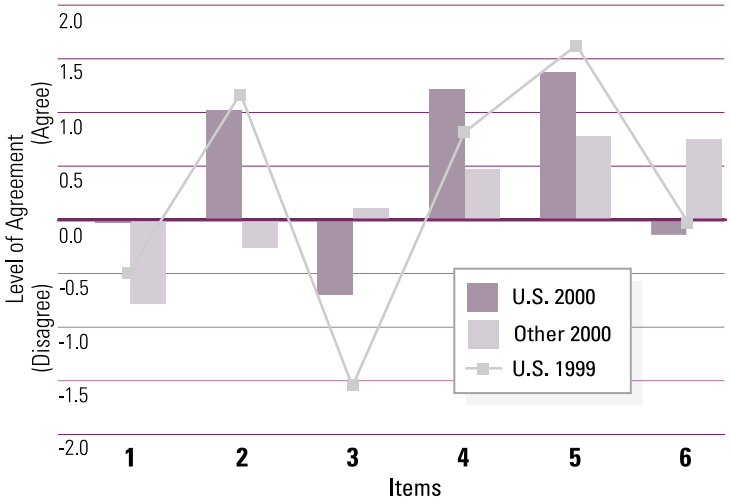
Entrepreneurs, like Michael Dell, who started his company in the dorm room, are heroes in Texas. The name of the game here in Texas is self-reliance, personal responsibility and self-starting.

Stuart Holiday
Advisor to Texas Gov. George W. Bush

Although Stuart Holiday, a policy advisor to Texas Gov. George W. Bush, was focusing his remarks on the state of Texas, much of what he says can be generalized to the country as a whole. The United States has a culture that values and supports entrepreneurship when compared to other GEM countries on all dimensions (Figure 7). Social norms, captured in the key informant questionnaire, indicate a society that values self-sufficiency, individualism and self-reliance, whereas other countries find less value in these attributes (see Item 2, Figure 7). In the United States, reliance upon the government is looked down upon (see Item 4, Figure 7). In many other GEM countries, the government is expected to assist individuals to a much greater degree than in the United States. Social norms in support of entrepreneurship are also evident in that Americans are generally ambivalent about working for large organizations (see Item 6, Figure 7), which, in times past, was equated with job security. People in other GEM countries would much rather work for larger corporations than people in the United States.

In addition, today Americans expect to make numerous career changes (see Item 5, Figure 7). This means that, given the right opportunity and circumstances, people are more likely to pursue their

Figure 7
Culture and Social Norms: United States vs. GEM Countries



Items:
1. The social security and welfare systems provide appropriate encouragement for people to take the initiative and be self-sufficient.
2. A high value is placed on self-sufficiency, autonomy, individualism, and personal initiative.
3. Most people would prefer that everyone had the same standard of living.
4. Most younger people believe they should not rely too heavily on the government.
5. Younger people expect to change jobs and occupation many times before they retire.
6. People prefer to work for well-established organizations rather than new firms.

own entrepreneurial start-up. Finally, Americans accept different standards of living (see Item 3, Figure 7) to a much greater degree than people from other GEM countries, meaning that successful entrepreneurs can reap financial rewards and enjoy the fruits of their labor. In sum, social norms in the United States foster entrepreneurial activity. As one of the key informants noted: "*If you don't have the culture, you cannot create it. You can nibble around the edges and try to change human beings and make them more interested in innovation, and make them more adaptable to change, and make them less fearful, and make them more accepting of individuality. You can work on that, but these are very, very, very deep fundamental characteristics of cultures ... and resistant to change.*"

The need for individual independence coupled with the acceptance of income disparity creates an environment where entrepreneurs are encouraged to start new businesses. The fact that Americans expect to have many different jobs in their lifetime along with the ambivalence of working for large corporations opens the possibility that one or more of those jobs will be self-created through a start-up endeavor.

The key informants' responses have not changed dramatically since 1999. The factor that changed the most is the "*belief that people should have the same standard of living*." Compared to all the other countries, Americans are still most likely to accept standard of living disparity. The predominant theme across the expert interviews was the perception that Americans view entrepreneurs favorably. The prevalence of entrepreneurs in mainstream media has accelerated in recent years, especially with the explosive emergence and growth of the Internet. A simple count of the times the words *entrepreneur* or *entrepreneurship* are mentioned in the media is staggering. In 1990, the word *entrepreneur/ship* appeared just shy of 24,000 times. But, at year-end in 1999, it had appeared more than 115,000 times, a growth rate of over 385 percent.[15] The number of magazines, web sites and other media outlets devoted exclusively to entrepreneurship has exploded. New magazines, such as *Fast Company* (circulation 540,000), *Business 2.0* (circulation 250,000) and *eCompany Now* (circulation 200,000) have generated significant circulations in short order. Traditional magazines have also made an effort to cater to entrepreneurs by not only covering them but also having special sections geared toward entrepreneurship. *Fortune* magazine, for example, added a section called *e-company* to every issue.

Another cultural dimension unique to countries with high levels of entrepreneurial activity is the fact that failure is not stigmatized. Not only is entrepreneurial failure within the United States not punished, it is sometimes rewarded.

I think there is recognition that not succeeding is NOT failure. That it's a very fluid environment where it is often said that you have to fail once or twice before you really can succeed.

John Taylor
National Venture Capital Association

The media often celebrate failure, although not directly. In stories where the entrepreneur is portrayed as a hero, the magazines often note past failures and the importance of persistence. The subtle message is that if you try hard and long enough, you can succeed. Venture capitalists and other equity providers often prefer to invest in a previously failed entrepreneur. The belief is that the seasoned entrepreneur has learned from his or her mistake, and, therefore, will be better prepared to succeed the next time around. Even if failed entrepreneurs do not pursue new entrepreneurial ventures, other companies often seek them out for managerial positions. Large corporations often seek former entrepreneurs because they present an opportunity to infuse the organization with entrepreneurial spirit.

Although the entrepreneurial spirit in the United States is high overall, many experts question whether the enthusiasm is evenly spread across women and minority groups. The results on start-ups between men and women bear out the experts' concerns. Men are more than twice as likely to engage in start-ups as women are. The population survey was not large

enough to accurately capture any difference between Caucasians and minority groups. However, the experts noted that minorities and women often lack access to the appropriate networks of financial providers, and other professionals who facilitate the start-up process. Robin Curle, entrepreneur and CEO of Journee Software in Austin, Texas, points out: "*My understanding is that a high percentage of businesses are started by women, however at the same time, only three percent of women-run companies were funded last year [accounting for only] five percent of venture capital.*"

The question is whether women are not pursuing the types of ventures that venture capitalists like to invest in (e.g., high technology) or whether they can garner the attention of these funds in the first place (i.e., are they outside the venture capitalists network).

A Special report: Entrepreneurship Among Native Americans

The United States is a heterogeneous society with many different ethnic creeds and religions. GEM 2000 examined one subgroup of U.S. society, Native Americans. Today, many Native Americans still live on reservations governed by tribal councils, which in turn are monitored by the Bureau of Indian Affairs. Social norms strongly influence the prevalence, or lack thereof, of start-ups among Native Americans. Whereas the United States as a whole can be considered individualistic with a propensity for independence, Native Americans are generally more community-oriented. As Michele Lansdowne, Professor at Salish Kottenai College in Montana, observes:

"The very word tribe means collective, working together on enterprises. If you're going to go on a buffalo hunt, everybody has their part in the hunt, and everybody shares the meat. So, there's a lot of education that needs to happen in Indian country just around the concept of entrepreneurship as being healthy for the community."

Experts conclude that there tends to be a very low tolerance for income disparity among Native Americans. The general feeling is that the "pie" is of fixed size and if someone is getting more than his or her fair share, the remaining tribe members suffer. Others contend that many reservation Indians are on welfare and have developed a "welfare mentality." The program is structured to eliminate benefits if the recipient works. Thus, many Native Americans choose not to work. While entrepreneurial role models do exist among Native Americans, they tend to keep low profiles so as not to draw attention to any income disparity that may arise from their efforts. In fact, many of the successful Indian entrepreneurs give away money freely to others within their tribes, which is a deep part of Indian culture.

Structural separation has in many cases hindered entrepreneurship on Indian reservations. In general, tribal councils control all the funds and lands of the tribe. An Indian entrepreneur seeking capital to start a business must approach the council to seek the necessary funds. However, some tribal councils have been known to take control of certain projects. As Dr. Charles Gourd, former Ambassador-at-Large and Secretary of Commerce for the Cherokee Nation and an entrepreneur, observes:

"What usually happens is that the tribal council puts themselves in control of these so-called private corporations, and dictates who gets hired, who gets fired, and quality of service, quality of product are out the window, because people know they're not going to get fired, or they're not going to get hired, so again, the incentive to work is squashed."

Michele Lansdowne adds:

"Some tribal council governments inhibit entrepreneurship, because when somebody wants to start a business, then the tribe has more resources, they see that good idea, then they go and do it. Or, some people say, well, they want to start a business and the tribe won't give them access to tribal lands to build that business. So one thing tribal governments can do to help entrepreneurs is stop hindering their progress. Just get out of their way."

Financial Support

The experts agree that business angels (see Item 4, Figure 8), venture capitalists (see Item 6, Figure 8), and initial public offerings (see Item 5, Figure 8) are important sources of funding for new businesses. The experts also feel that, as depicted in Figure 8, these sources are even more critical to new ventures in the United States than their counterparts in the other GEM 2000 countries.

Most experts also perceive, albeit less strongly, that there is available equity (see Item 1, Figure 8) and debt (see Item 2, Figure 8) for U.S. start-ups. But even with the explosion of venture capital recently, many experts still see a "seed capital gap," just as was discovered in the 1999 GEM study. However, there is an increasing perception, especially by the experts within the financial support domain, that among venture capitalists there is too much money chasing too few good deals. Subsidies

Experts agree that control and over-involvement by tribal councils creates instability. Additional instability is created because the laws and tax codes passed by tribal councils change frequently, especially when new councils are elected. Such actions discourage outside investment because there is no guarantee that past commitments will be kept.

One of the major hindrances to entrepreneurship among Indian nations is inadequate infrastructure. While many politicians speak of the "digital divide," many reservations have far greater infrastructure needs. Florence Stickney, a professor at San Francisco State University, notes:

"You have people [at Pine Ridge reservation] who are so poor, that even if they did have the money to pay for a computer and all that other stuff, half of them don't have electricity. Half of them are so hungry that all their money goes to paying for food. They have dirt floors. They don't have indoor plumbing. There is no running water. The water pipes have been stacked up there for years. I see them every time I go there. Big PVC pipes. The state hasn't dug the holes to put the pipes to run the water to the reservation. And they want this group of people to be on the Internet?"

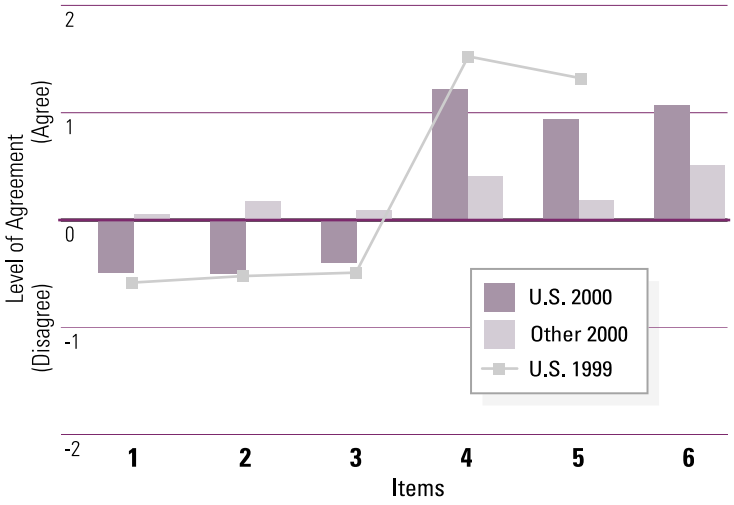
The quality of the systems for electricity, plumbing and telephones are often comparable to the least developed countries in the world. It is difficult to focus on creating a new venture when the infrastructure needed for starting businesses is so substandard.

How can entrepreneurship be fostered on reservations? Some of the answers are clear. First, the infrastructure must be upgraded. Although the need is apparent, it is not clear that the Indian Nations will get the funds necessary to address their infrastructure problems. Education is another critical element. Dr. Gourd notes that to break the "welfare mentality," education needs to take place with the very young (6-9 years old) so that as that generation ages, they will have developed a more "entrepreneurial mentality." Not only do these youngsters need to be taught valuable business skills, they also need to be socialized to recognize that the "pie is not a fixed size" and that they can create a larger pie to benefit the whole Indian Nation.

Currently, most entrepreneurship education is geared toward colleges. Although many Indian Nation colleges have Small Business Development Centers, they are not fully utilized because the university setting is intimidating to the would-be entrepreneur who may not have graduated high school. The experts believe that these centers need to be located outside of the university setting if they are to reach their fullest intended potential. Also, the entrepreneurship curricula need to be sensitive to how Native Americans learn. Storytelling is a common and preferred method of delivering new information. Michele Lansdowne is working on a project to create stories about successful Native American entrepreneurs, stories about how to launch a business that promote role models to build an entrepreneurial mentality. Role models are a strong influence in many younger generations, changing attitudes and increasing the attractiveness of entrepreneurship. As Florence Stickney observes:

"Role models ... American Indians can see that there are people out there like us who have made it, who have done something. It makes them proud and it says, 'Gee, I can do this, too'."

FIGURE 8
FINANCIAL SUPPORT: UNITED STATES VS. GEM COUNTRIES



Items:
1. There is not enough equity funding available for new and growing firms (e.g., from private individuals or venture capital funds).
2. The lack of debt funding prevents new firm creation and growth.
3. Public subsidies have a major impact promoting firm creation and growth.
4. Private individuals (other than founders) are an important source of financial support for new and growing firms.
5. Initial public offerings (IPOs) are an important source of equity for new and growing firms.
6. Venture capitalists are an important source of private support for new and growing firms.

(see Item 3, Figure 8) did not receive much attention and were viewed somewhat negatively.

A remarkable discovery of GEM has been the extent to which households are investing in entrepreneurial ventures. In 1999, 7 percent of adults in the United States were informal investors, investing an average of $3,827 per year during the three most recent years. They invested predominantly in new ventures started by family members, work colleagues, neighbors and friends. When the 1999 sample is extrapolated to the entire population, it is estimated that these micro-angels invest $54 billion per year — a sum somewhat greater than the amount of formal venture capital invested in 1999. While these micro-angels are an important source of funds for entrepreneurs, they invest almost entirely in millions of tiny enterprises. Professional venture capital firms, on the other hand, invest in an elite group of only a few thousand high-potential ventures with the promise of making a noticeable contribution to the U.S. economy.

Financing the New Economy

Entrepreneurs, technology and risk capital are crucial ingredients of the new economy. Judging from the last few years, the United States is not only in the midst of an entrepreneurial revolution but may also be in the midst of a financial revolution that has provided an abundance of risk capital to fund new ventures. The amount of classic venture capital[16] invested in start-up and growing companies in the United States increased dramatically in the 1990s from $2.4 billion in 1991 to $45.9 billion in 1999 — a twenty-fold increase. In the last three years, the increase has been almost four-fold (Table 2). Almost all the investment in 1999 was in technology-related ventures. Put in the context of the U.S. economy in 1999, the ratio of classic venture capital investment to the GDP was 0.53 percent. The ratio of venture capital investment to national R&D spending was approximately 20 percent.[17] According to industry experts, classic venture capital has created as many as one million jobs in the last three years.

Table 2
Amount Of Venture Capital Invested by Stage
($ millions)

Stage	1997		1998		1999	
Early	3,502	24.9%	5,279	27.5%	10,777	22.4%
Expansion	6,025	42.9%	7,986	41.6%	26,391	54.9%
Later	2,801	19.9%	3,662	19.1%	8,764	18.2%
Buyout	1,716	12.2%	2,286	11.9%	2,115	4.4%
Total	14,044	100.0%	19,212	100.0%	48,046	100.0%

Table 3
Venture Capital Invested per State in 1999

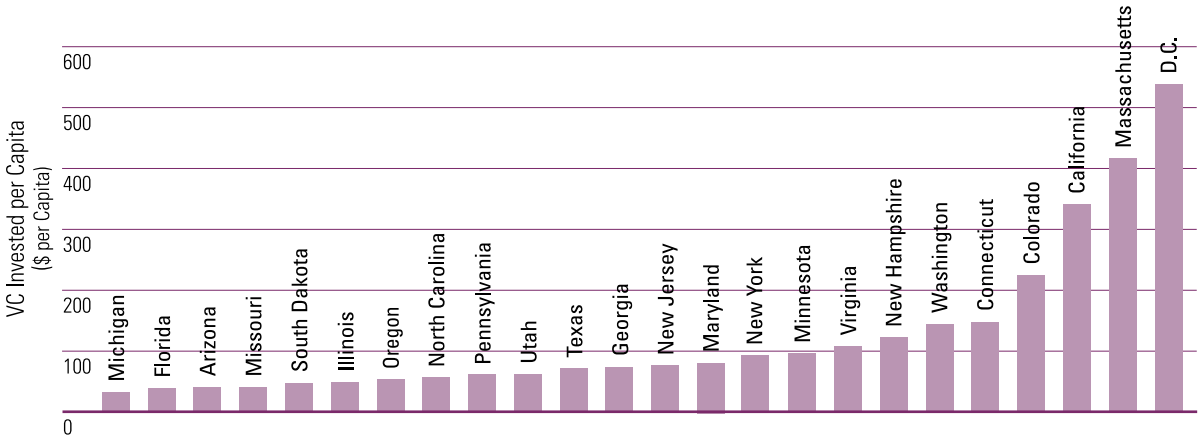
	Amount of VC invested in 1999 per state ($ millions)	Percentage of Total in U.S. (%)	Cumulative percentage of Total in U.S. (%)
California	20,664	43.1	43.1
Massachusetts	4,407	9.2	52.3
New York	3,099	6.5	58.8
Texas	2,448	5.1	63.9
Colorado	1,739	3.6	67.6
Washington	1,591	3.3	70.9
Virginia	1,386	2.9	73.8
Pennsylvania	1,095	2.3	76.1
Georgia	1,033	2.2	78.2
New Jersey	1,004	2.1	80.3
Other states and D.C.	9,430	19.7	19.7
Total	47,896	100.0	100.0

While the impact of the products and services of the new economy is felt throughout the United States, the venture-capital-backed entrepreneurial companies that are driving it are clustered geographically. Two-thirds of all the venture capital invested nationwide in 1999 went to five states (Table 3). California topped the list with a stunning 43.1 percent of the total venture capital invested in the United States, followed by Massachusetts (9.2 percent), New York (6.5 percent), Texas (5.1 percent), and Colorado (3.6 percent). The bottom 25 states combined received less than 2 percent of the venture capital invested in 1999. Looked at another way, the annual amount of venture capital per capita averaged during 1997 to 1999 in the top two states and Washington, D.C. was more than $400 (Figure 9). The median was $27 per person, and the bottom quartile was $11 per person. Of course, venture capital investments within states are clustered in relatively small geographic areas such as Silicon Valley in California and the greater Boston area in Massachusetts.

Venture capital alone is not sufficient to stimulate a high-tech entrepreneurial region. Rather, it is a necessary resource that is found in regions where there are opportunities and entrepreneurs with the motivation and the capacity to seize and develop those opportunities. Regions with little or no venture capital typically lack both opportunities and entrepreneurs.

Even regions such as Silicon Valley, where many observers believe there is an overabundance of venture capital, have a shortage of world-class opportunities and truly outstanding entrepreneurs. Stephen DeWitt, CEO of Cobalt Networks in Silicon Valley, a venture-capital-

FIGURE 9
VENTURE CAPITAL INVESTED ANNUALLY PER CAPITA OF POPULATION
(THREE-YEAR AVERAGE 1997-1999)



backed company which has one of the most spectacular IPOs in 1999, put it this way: "*There is no equivalency between supply and demand in terms of entrepreneurs and money. There's a glut of money and not enough entrepreneurs. You're also starting to see a wide gulf between entrepreneurs that can cut it and those that can't. You're starting to see more failures than you've seen in the past. Typically, you'd have 30 start-ups, now you've got 5,000 start-ups. But those 5,000 start-ups may only have 50 quality management teams that have the mettle to take the company to the next step.*"

Financial Returns and the IPOs

Venture capital investments rocketed into the stratosphere in recent years because venture capital and public equity markets are efficient. During the last few years, the returns on venture capital have justified the risk. The five-year return on classic venture capital through 1999 was 35.2 percent. The three-year return was 33.7 percent, and the one-year return was 62.5 percent. For venture capital funds specializing in early-stage investments, the returns were even more spectacular. The five-year return was 46.6 percent; three-year 47.9 percent; and one-year 91.2 percent. It's no surprise with returns this high, new money has flooded into venture funds. New commitments of capital to U.S. venture capital increased more than thirty-fold between 1991 to 1999, from $1.5 billion to $46.1 billion.

The reason for such high returns is the IPO market, which at times has had an insatiable appetite for the stock of venture-capital-backed companies. There is a very close relationship between the returns on venture capital and the amount raised with venture-capital-backed IPOs (Figure 10). The amount raised with IPOs by 270 venture-capital-backed companies in 1999 was $20.9 billion, an all-time record. Nothing illustrates the equity financing revolution for young companies better than this incredible level of funds, which was greater than the total amount raised by venture-capital-backed IPOs during the entire decade 1981-1990. The mantra of the U.S. venture capital industry in recent years seems to be as follows. *Invest lots of money in relatively few truly outstanding companies as early as possible, take them public as soon as possible, and thereby raise more money. If the price rises substantially after the IPO, raise even more money with a secondary offering.* It is a strategy that not only has produced tremendous financial returns for venture capital funds, but much more importantly, it has supplied entrepreneurial companies with plentiful amounts of money needed to grow at a breathtaking pace. Amazon.com is an excellent example. Since opening its doors in July 1995, Amazon has served more than 23 million customers in 160 countries. Overseas, its online stores are already the number one e-commerce sites in the UK and Germany, and they are the most visited online stores in a host of other countries. Amazon's total worldwide sales are annualizing at $2-3 billion.

Comparison of the United States with Other GEM Countries

As other countries see U.S. venture-capital-backed companies dominate their industries, they attempt to

FIGURE 10
VENTURE CAPITAL ANNUAL IRR VS TOTAL RAISED BY VC-BACKED IPOS

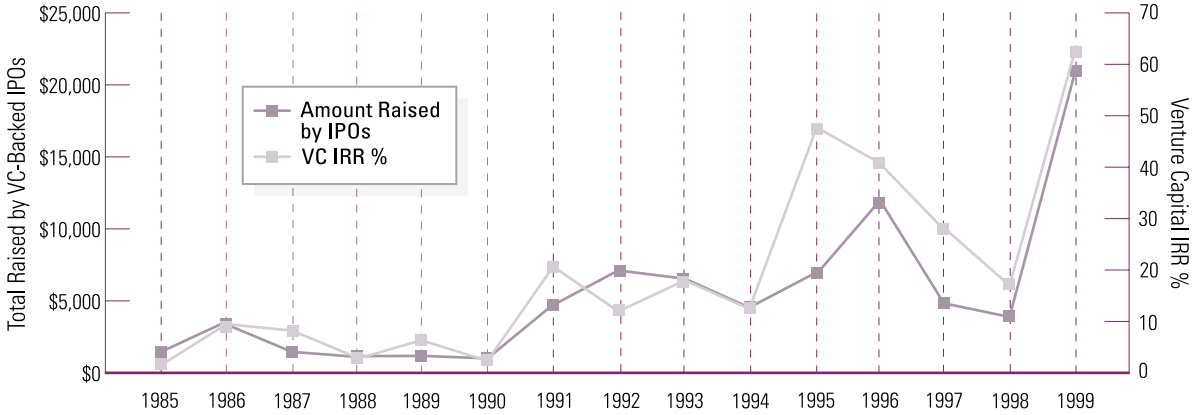
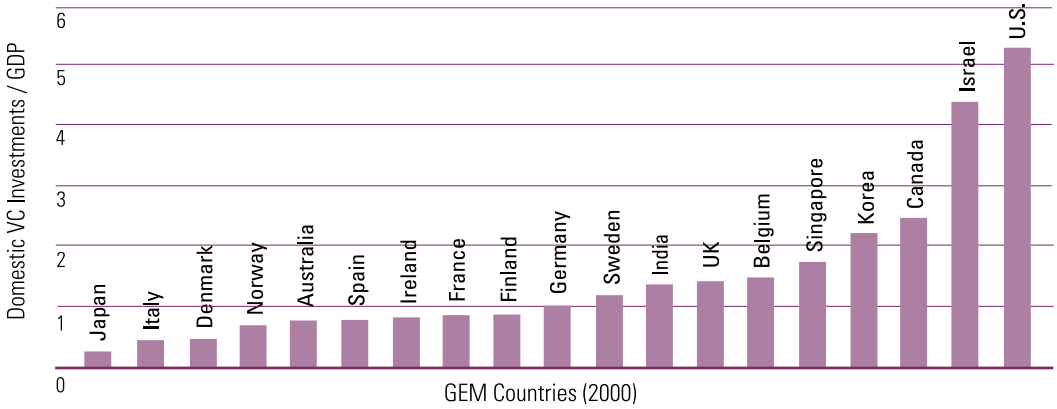


Figure 11
Ratio of Venture Capital Invested Domestically to GDP in 1999



emulate U.S. classic venture capital and, thereby, foster their own high-tech entrepreneurial sector. In comparison with the $45.9 billion of classic venture capital invested in the United States, $11.8 billion was invested in the 18 other GEM countries combined.[18] Put another way, the United States had 80 percent of all the classic venture capital invested domestically among the GEM countries. Some countries have much more venture capital in proportion to their GDP than do others (Figure 11). The United States ranks first for venture capital invested as a percent of GDP (0.53 percent), while Japan ranks last with a classic venture capital to GDP ratio of just 0.022 percent. Put differently, in proportion to GDP, approximately 25 times more classic venture capital was invested in the United States than in Japan.

Venture capital fits elegantly into the GEM model for economic growth. Countries with the highest levels of perceived entrepreneurial opportunity, capacity, and motivation also have the greatest levels of venture capital investment per GDP. Similarly, countries with higher levels of R&D transfer and availability of entrepreneurial education and training also have higher levels of venture capital investment.

In 1999, 3,478 U.S. companies received classic venture capital compared with 10,470 in all the other GEM 2000 countries. Hence, only 25 percent of the companies that received classic venture capital were located in the United States. However, those 25 percent received 80 percent of the total amount that was invested in all the GEM countries. U.S. companies received an average of more than $13.2 million per company compared with an average of $1.3 million per company in the other participating countries. The nations nearest to the United States in the amount invested per company were Israel with $3.1 million and the UK with $2.8 million (Figure 12). In France, Japan,

Figure 12
Amount of Domestic Venture Capital Invested Per Company in 1999
(U.S.$ 1,000)

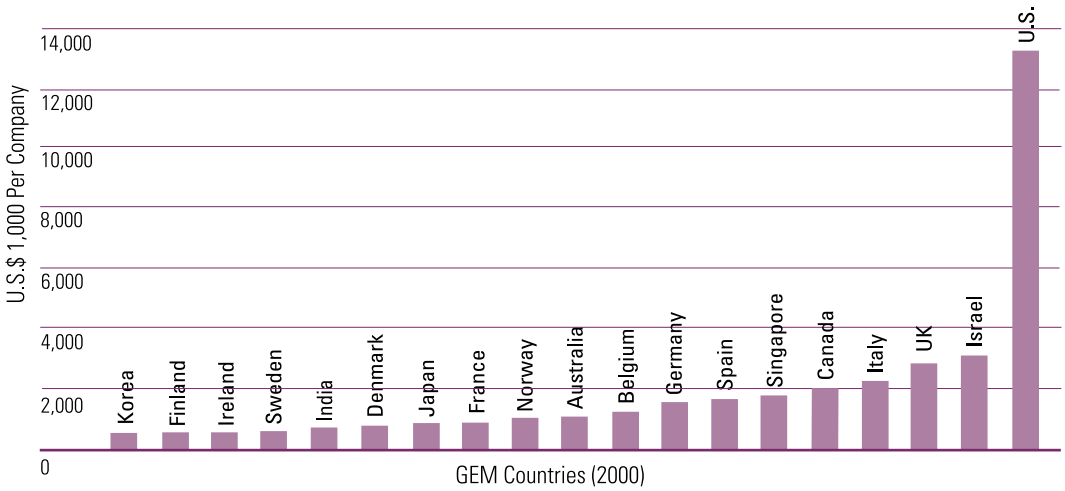
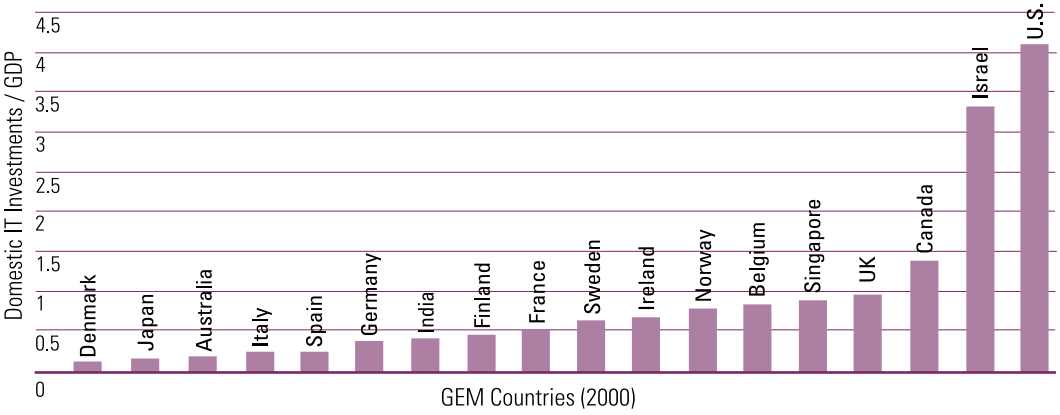


FIGURE 13
RATIO OF VENTURE CAPITAL INVESTED DOMESTICALLY IN ALL STAGES OF INFORMATION TECHNOLOGY COMPANIES TO GDP IN 1999



Denmark, India, Sweden, Ireland, Finland, and Korea, the average amount invested per company was less than $1 million. The strategy of U.S. venture capital firms is to invest in a relatively few companies that have the potential to become superstars. This is evident in the fact that although the amount of classic venture capital invested increased twenty-fold between 1991 and 1999, the number of companies receiving these funds increased only by a factor of 3.5.

Global Competitiveness

What does venture capital investing imply for the future competitiveness of nations? Examining venture capital activity in the IT sector, the heart of the new economy, gives us a unique perspective. In 1999, approximately 78 percent of all venture capital invested in the United States went to IT-related companies. To permit comparisons among countries, we agglomerated the amount of venture capital invested domestically in IT, which includes computer hardware and software, communications, and Internet companies at all stages, including buyouts and acquisitions. An astonishing 86 percent of all the venture capital invested in IT companies in the GEM 2000 countries went to companies located in the United States. Expressed as the ratio of venture capital invested to GDP, the United States and Israel tower over the other countries (Figure 13). In comparison with Japan, the United States invested almost 30 times more venture capital in IT relative to GDP.

As Figure 13 illustrates, the United States dominates venture capital investments in the new economy. The financing strategy that we discussed earlier has provided some young venture-capital-backed companies with big war chests, which have enabled them to grow aggressively not only in the United States but also in the global marketplace. American companies have established a global presence ahead of most of their rivals from other countries. For instance, Yahoo! is the leading portal on the Continent, with about twice the number of visitors of Deutsche Telekom's T-Online, which is the leading European Internet service provider and portal. eBay's sales in Europe are eight times more than its nearest competitor, London-based QXL. And Amazon.com's European sales are more than five times those of Bertelsmann BOL, Ltd, the biggest European online bookstore.[19]

In contrast, the U.S. venture capital investments do not dominate in the old economy. In the consumer sector, excluding e-commerce, the United States accounted for only 32 percent of the total amount invested among GEM countries in 1999. In proportion to GDP, the United States ranked fourth in investments in consumer companies behind the UK, Sweden, and Italy (Figure 14).

A High-Tech Downturn?

In 1999, there was widespread optimism that the new economy would continue to grow and prosper. Indeed, some were so optimistic as to believe that the

new economy was vigorous enough to more than overcome any downturn in the old economy. There was even talk that the business cycle had been abolished and that the new economy was recession proof. This is not the outlook today. While optimism still prevails, many observers are cautious. The most obvious cause for concern is the rather sudden collapse of many venture capital backed e-commerce companies when the financial markets turned decidedly skeptical about the viability of the underlying business models. Webmergers.com reported that in the first seven months of 2000, of 238 dot.com deals, 41 had collapsed, 29 had been sold at distressed valuations, and 83 had withdrawn their plans for IPOs.[20]

"What a difference a year makes!" This is what David Wetherell, Founder and Chairman of CMGI, one of the most successful investors in dot.com companies, said in October 1999, when discussing why most e-commerce companies were losing money. "It would be sinful to be making money on the Internet right now, when it's growing this fast."[21] Just 12 months later Wetherell's expectations had turned 180 degrees. In a *Business Week* article with the headline "Can CMGI Stop the Bleeding? Suddenly, Chairman Wetherell wants profits, not projects," David Andonian, CMGI's president of corporate development stated, "We've asked [our portfolio companies] to come back with plans that would improve their path to profitability."[22]

Some pessimists are fretting that the new economy boom may end rather suddenly with a bust.[23] The gist of their argument is that the old economy business cycle has been replaced by a new economy technology cycle driven by financial markets. When the financial markets for technology stocks turn bearish, the stock prices of the new economy companies will nose dive, the window for IPOs will close, venture capital returns will suffer, and commitments of new venture capital will dry up. This will squeeze the principal source of cash that fuels the growth of young technology-based companies in the new economy. Hence, the overall rate of innovation will slow and, along with it, the rate of productivity growth. When productivity slows, inflation rises and a recession is soon to follow.[24]

In the last quarter of 2000, there are some signs that the new economy is slowing down. Some stellar companies, including Intel and Dell, have issued warnings that their earnings will fall below analysts' expectations. The tech-laden NASDAQ is down approximately 50 percent from its high in March 2000. Revenue growth in the technology and telecommunications sectors is expected to slow. In addition, global spending on computers, networking, and software is expected to soften during the next 12 months. And PC sales growth is expected to slow in the near future. Despite these warning signs, it is too early to say what the long range impact will be on the financial markets and the U.S. economy overall.

Figure 14
Ratio of Venture Capital Invested Domestically in All Stages of Consumer Companies to GDP in 1999
(x 1,000)

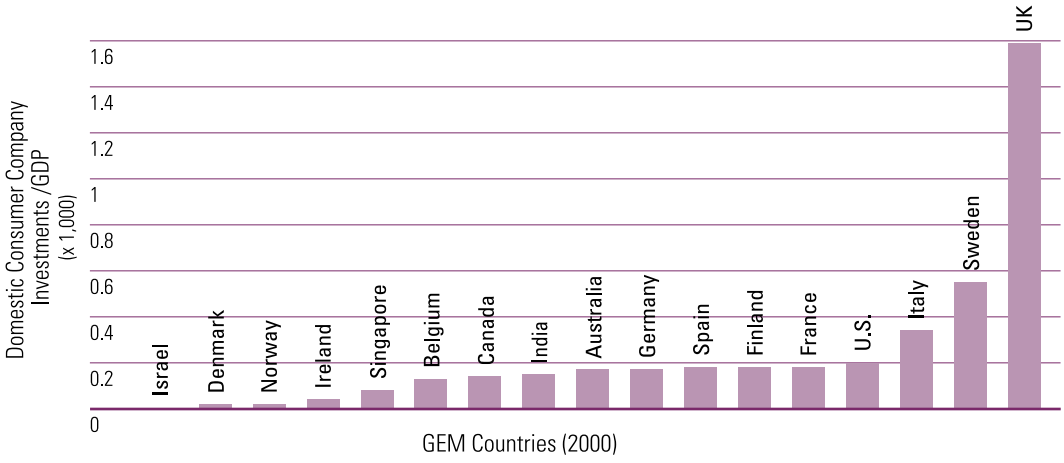
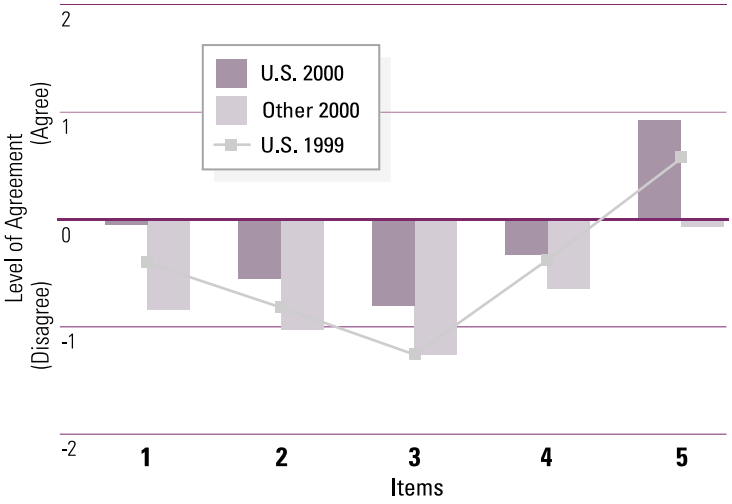


FIGURE 15
EDUCATION AND TRAINING: UNITED STATES VS. GEM COUNTRIES



Items:
1 Teaching in primary and secondary education encourages creativity, self-sufficiency, and personal initiative.
2 Teaching in primary and secondary education provides adequate instruction in market economic principles.
3 Teaching in primary and secondary education provides adequate attention to entrepreneurship and new firm creation.
4 Colleges and universities have enough courses and programs on entrepreneurship.
5 The level of business and management education is truly world-class.

Education

One of the primary issues during the 2000 presidential election was education reform. More than 75 percent of the population rated education as a very important factor in their decision on voting for president. Education also seems to be a major concern of the key informants interviewed for GEM 2000. The experts were relatively neutral as to whether our schools encourage creativity, self-sufficiency and personal initiative (see Item 1, Figure 15). However, they were much more negative of how well schools teach basic market principals (see Item 2, Figure 15) and entrepreneurship (see Item 3, Figure 15) at the primary and secondary levels. The other GEM countries were even less satisfied with the quality of entrepreneurship education. As noted in the 1999 GEM report, American adults perform poorly on tests of basic economics. Recently, adults scored an average of 57 percent and high school students scored an average of 48 percent on a test of basic economics.[25] In spite of the media coverage surrounding the increasing number of college graduates who pursue entrepreneurial ventures, the key informants in the United States and elsewhere still perceive that higher education can do a better job in entrepreneurship education (see Item 4, Figure 15). The bright spot remains the outstanding business and management education available through U.S. universities (see Item 5, Figure 15), especially in contrast to the other GEM countries.

In general, the key informants believe that the quality of entrepreneurship education at the university level is of high quality. Traditional classroom instruction has been enhanced with a variety of innovative programs, such as on campus incubators, deal evaluators and seed funds. Nonetheless, the perception seems to be that quality entrepreneurship education is not widespread. Even though more than 1,500 colleges offer some entrepreneurship education,[26] the vast majority only offer an introductory course. It appears, however, that momentum is building to expand entrepreneurship programs at many universities.

A study of graduates from the University of Arizona vividly demonstrates the impact of entrepreneurship education.[27] Graduates from the University's entrepreneurship program were three times more likely than their business school cohorts who chose to study another field to be involved in the creation of a new business venture or to be self-employed. Entrepreneurship graduates earned on average $12,000 more annually than their business school peers. Moreover, they accumulated 62 percent more in personal assets on average. This study dramatically illustrates the power of strong entrepreneurship education at the university level. Although university training is considered strong, the key informants believe there is room to improve primary and secondary education.

A major concern voiced by many of the U.S. experts is the overall quality of secondary education.

It is widely accepted that to be successful in the 21st century Americans need to be highly educated. A recent Department of Labor report shows that a college degree is increasing in value compared to a high school diploma. In 1970, the average male college graduate earned 36 percent more than a male high school graduate. That differential increased to 62 percent by 1997. Yet, the high school dropout rate in many areas is stubbornly high. According to Robin Curle, kids aren't as motivated as in the past: "*What de-motivated [these high school students]? They danced through high school dating and socializing, and that was their total center of the universe. They were not exposed to the rest of the world ... The students are graduating with terrible educations, and without motivation while they are in school to go on to higher education ... We are losing potential resources to hire because these people are not being motivated to go on ... They will be clerical for the rest of their lives or blue collar.*"

Kay Hammer, entrepreneur and founder of Evolutionary Technologies, states: "*We lose 30 percent of our new teachers in Texas by year three, and one of the reasons is that in year three they have to take their certification tests. We lose 50 percent by year five, because we pay terribly. You are either going to attract somebody where a job is a job, or you are going to attract somebody who wants to live a 'religious' life — and it's a mission for them, which is great, but it's rare. Once, again it is money.*"

Moreover, primary and secondary education quality is very much location specific since most schools are funded through local property taxes. Thus, less affluent communities often have lower quality schools. As David Sylvester notes: "*I think the biggest gap are the obvious ones; the gap between the 'haves' and the 'have nots.' If you go to Winnetka, Illinois, and compare the public schools in Winnetka, Illinois, to the public schools in downtown Chicago, there's a great, and I think unfair, difference. Those that have other resources have better facilities and institutions than those who don't. And I think that will obviously affect entrepreneurship, because if you don't get the basics, it's tough to be a successful entrepreneur.*"

One way in which many experts believe the quality can be improved is by introducing entrepreneurship education to primary and secondary levels. The experts also speculated on how the Internet is changing or will change traditional pedagogy. Asynchronous learning may become the dominant future method. The emergence of the Internet enables students to progress at a self-paced rate. Instructors may become more like coaches rather than content deliverers. Whatever the shape of Internet-based learning, it is likely to dramatically change how students learn.

In sum, education is critical to success in the new economy. The United States needs to continually upgrade its education at all levels of instruction. Added emphasis needs to be placed on the science and engineering fields since these are the areas that produce the most substantial gains in innovation and maintain the global competitive edge for the United States. However, as noted elsewhere in this report, there is a critical shortage of these people and the experts don't perceive that the situation will be improving in the near future. Gary Durbin, founder of Seeker Software, remarks: "*The Software Industry Association did a study [around 1990] that showed that the colleges in the United States were graduating about 50,000 fewer people than the industry needed. We're probably much more than a half a million people short at this point. So I'm sure the demand went up and the U.S. education system has simply not provided enough supply.*"

Commercial Support and Physical Infrastructure

While the experts believe that there are plenty of suppliers, consultants and subcontractors to support new and growing businesses (see Item 1, Figure 16), they also felt that the costs (see Item 2, Figure 16), were increasing somewhat. The experts also felt that new firms have more difficulty in getting quality subcontractors, suppliers and consultants in 2000 (see Item 3, Figure 16) then they did in 1999. As in 1999, the experts perceive that the availability of law and accounting professionals is high (see Item 4, Figure 16) and that it is relatively easy to get needed banking services (see Item 5, Figure 16). The differences between the United States and other GEM countries weren't as great on this dimension as they were on other dimensions, with the notable exception that

banking services aren't as easy to acquire in many of the other GEM 2000 countries.

Within the open-ended interviews, the experts were generally quite positive about the U.S. commercial infrastructure. The quality was rated high and the professionals were praised for their flexible fee structures. The experts did not address subcontractors, consultants or suppliers in any great detail. However, the experts did pinpoint issues with the tight labor markets. In addition, the experts suggest that since the U.S. economy has been extremely robust and unemployment is at record lows, the costs of supplies and subcontractors might be increasing. These providers may be more stringent in who they conduct business with because they have more business than they can handle. As such, high-risk new start-ups that may have more difficulty paying for services, are likely lower priority.

Research and Development

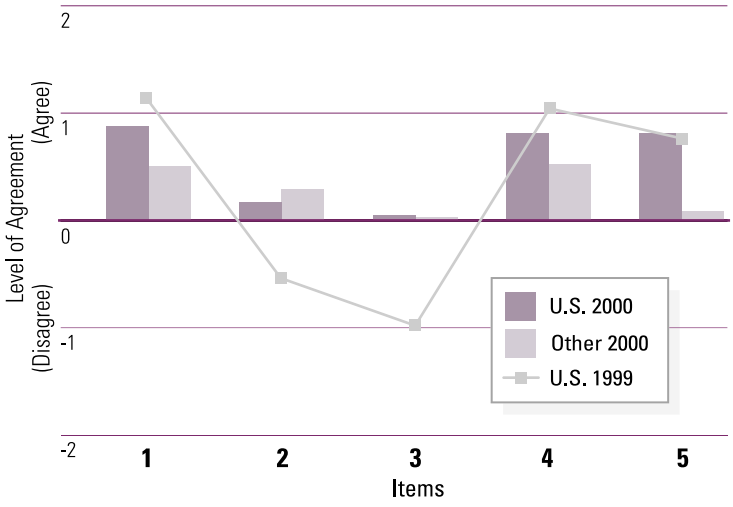
For the most part, key informants were neutral as to the efficient transfer of (see Item 1, Figure 17), access to (see Item 2, Figure 17) and cost of (see Item 3, Figure 17) the latest technology. The aggregate response for the other GEM 2000 countries tended to be less favorable on these items (Figure 17). Although some of the key informants perceived a need for government subsidies in this area (see Item 4, Figure 17), most were neutral on this issue as well. Without reservation, however, the key informants believe that the U.S. science and technology base supports the creation of new technology (see Item 5, Figure 17), which is strikingly different than the perceptions of the experts in other GEM 2000 countries. It was also noted by many that the volume of R&D transfer from universities and government labs is increasing.

Although a large portion of experts felt that the intellectual property rights were in balance, a similar number argued that it was impossible to protect intellectual property and that the only strategic solution was speed to market. The speed perception mirrors the frenzy of Internet start-ups over the last several years. Many of the start-ups have garnered huge war chests of equity capital. Valuations have soared and many of these firms have rushed to IPO to further boost their capital and help them with high "burn rates" during quarter after quarter of profitless growth. A perusal of the S-1's (documents filed with SEC prior to IPO) suggests that much of the raised capital is going for marketing and acquisitions. Both uses suggest that proprietary technology is less important among these new economy companies than size and market share.

Government Policies and Programs

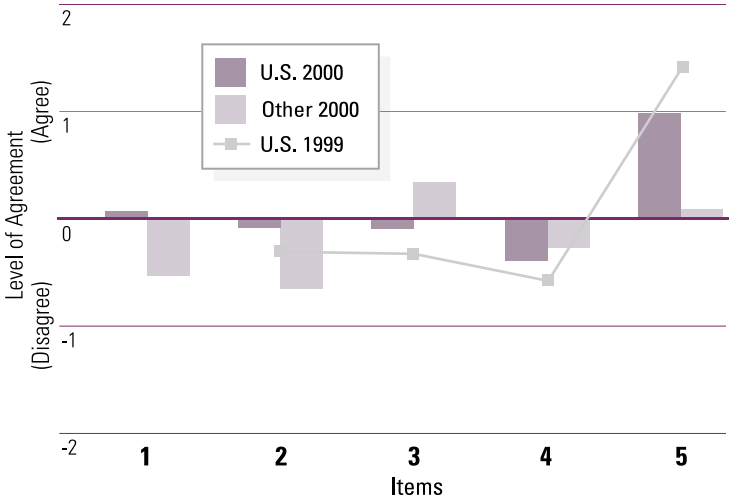
Most of the U.S. key informants are neutral in their view of the role the government should play in entrepreneurship. The questionnaire items reflect this laissez faire attitude as the responses on most items in this area are neutral. The open-ended interviews concur

Figure 16
Professional Infrastructure: United States vs. GEM Countries



Items:
1 There are enough subcontractors, suppliers and consultants to support new and growing firms.
2 The costs for subcontractors, suppliers and consultants are much too high for new and growing firms.
3 It is very hard for new and growing firms to get high quality subcontractors, suppliers and consultants.
4 It is easy for new and growing firms to get good, professional legal and accounting services.
5 It is easy for new and growing firms to get good banking services (checking accounts, foreign exchange transactions, letters of credit and the like).

Figure 17
R&D Transfer: United States vs. GEM Countries



Items:
1. Technology is efficiently transferred from universities and public research centers to new ventures and growing firms.
2. New and growing firms have just as much access to new research and technology as large, established firms do.
3. Acquiring the latest technology is too costly for most new and growing firms and growing firms cannot afford it.
4. There are adequate government subsidies for new and growing firms to acquire new technology.
5. The science and technology base supports the creation of world-class new technology-based ventures.

with the questionnaire results to a large degree, but some issues are evident.

For the most part, the experts believe that the government should stay out of the way of small business and that, to a large degree, the government does.

I think without government intentionally doing something to stop entrepreneurship, that entrepreneurs tend to be somewhat resilient to whatever government policy is out there. I think there are some government programs that might be marginally important to entrepreneurs, but I don't know that the government should sit down and say how can we design programs to help entrepreneurs?
Fred Bollerer
Morino Institute

Where the government can and should have a major impact is in providing the necessary infrastructure for all business (both small and large) to operate effectively (e.g., roads, schools, safety, etc.). Taxes, by and large, are not seen to have any impact on the level of entrepreneurship as measured by the percent of the population engaged in starting a new business.

One area of particular controversy, however, is whether the Internet should be taxed. Of the experts who addressed this issue (11 out of 37), more than 60 percent believe that e-commerce should be taxed, including many who operate within the Internet sector. Those favoring an Internet tax believe that such a tax would not adversely impact e-commerce. Their bigger concern is that, as the level of activity increases in e-commerce, government will lose significant tax revenues that could be used to support such business in other ways. In fact, one of the biggest concerns is that the physical infrastructure for commerce is overburdened in many regions, including many of the nation's most entrepreneurial areas. Failure to address these issues, the experts believe, could have a far larger negative impact on entrepreneurship and the economy as a whole than the marginal decrease in e-commerce activity that results from taxing e-commerce. Kay Hammer summarizes: "*I will give you my two cents, which is not popular. We ought to be charging Internet sales tax. There is a moratorium on it, and people are saying let's extend the moratorium. Of course politicians want to do that because it is popular with people. But we have to fund our basic services somehow, and we're just missing a lot of revenue there ... It is much harder to add it after the fact, so it is really important, I think, to go ahead and accept reality and say we are going to have to pay taxes. Not access tax — you want the Internet to be able to serve everybody. But if you buy over the net you ought to pay your tax.*"

Another pressing issue, as addressed elsewhere, is the shortage of H1B visas, which is directly related to the shortage of skilled software engineers. However, it appears that the federal government is cognizant of the

issue. In 2000, there were 115,000 H1B visas available. The predicted demand is for 300,000 visas and the Senate has a pending bill to raise the number to 200,000.[28]

Although many of the experts believe that government programs have only a marginal impact on the level of entrepreneurial start-up activity, a sizable number stressed the importance of such programs for underrepresented groups and distressed areas. The experts noted that women and minorities may not have sufficiently strong networks thereby limiting their access to start-up capital. Additionally, lower social economic groups often don't send their children on to higher education. Therefore, these would-be entrepreneurs lack the training and skills needed for new business start-ups. Government can have a large impact at the margins by facilitating the entrepreneurial efforts of these groups. The experts acknowledge that government, at all levels (i.e., federal, state and local), provide programs targeted toward these groups. The major criticism is that government does a poor job of measuring and monitoring the effectiveness of these programs, and that many are confusing. Thus, it is somewhat difficult to assess whether and which programs are working.

Although many of the experts questioned the importance of programs directly aimed to foster entrepreneurial start-ups, there was consensus that government grants for basic research are critical.

I think there is an enormous resource, I mean huge resource in this country with this research that's been done. In the case of DOE, it might be research you're not going to be able to use for eight or nine years. It's so far ahead of what they can commercialize. So I think there's an enormous inventory of R&D in this country that's not been commercialized but has huge potential.

Fred Bollerer
Morino Institute

Considering the nature of the new economy and the central importance of technology, several key informants argued that many of the technological innovations had roots in programs started at universities, within the federal space and defense programs.

Entrepreneurial Opportunities and Capacity

The Social, Cultural, and Political Context, the General National Framework Conditions, and the Entrepreneurial National Framework Conditions are all assumed to have an impact on the national entrepreneurial sector. In turn, the national entrepreneurial sector is considered to have several major features: the perception of opportunity, the presence of entrepreneurial capacity, and the motivation to pursue a new firm start-up. All three must be present before a viable effort to launch a new firm can begin. GEM 2000 used two types of information to assess these three aspects of the entrepreneurial sector; (a) the judgments of the key informants in each country and (b) selected items from the adult population surveys.

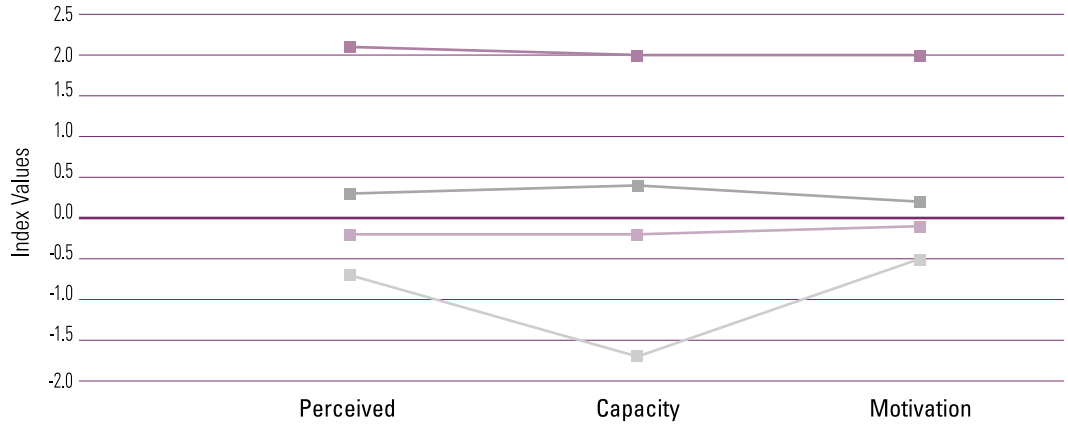
A summary of these comparisons is provided in Table 4. Most Americans believe that "*there will be good opportunities for starting a business in the next six months*," and they are more prepared to pursue these opportunities than people from most other GEM countries (Table 4). The top row of Table 4 gives the survey-based entrepreneurial activity rates (TEA) for each group of GEM countries and U.S. 2000 and U.S. 1999. The next five rows show (a) how opportunities are perceived (from both the general population survey and the national panels of key informants); (b) the perceived entrepreneurial capacity (key informants only); (c) the perceived motivation to start an entrepreneurial venture (key informants only) and (d) the level of respect for entrepreneurs (general population sample only). Measures for the general population sample are in percentages related to each item (i.e., percent agree or disagree). The key informant index values are standardized across the categories so that each country is measured in terms of standard deviation units from the mean (or average). High positive standard deviations, greater than 1.0, indicate that a group of countries is well above average in the category. A negative figure, less than -1.0, would indicate well below average.

As depicted in Table 4, Americans are far more likely than their counterparts in other countries to perceive opportunities for entrepreneurial ventures. Fifty-two percent of Americans perceive good opportunities, which is significantly higher than the means for any other country category. Likewise, the U.S. key informants perceive far more opportunities than did their peers in other countries (Index value of 2.1). Of some interest is that the perception of opportunity between adult surveys from U.S. GEM 2000

Table 4
Perceived Opportunities and Motivation to Pursue Entrepreneurial Opportunities

	High TEA	Medium TEA	Low TEA	U.S.2000	U.S.1999
Entrepreneurial Activity Rate Prevalence: %	10.6	4.9	1.7	12.7	NA
Opportunity Perceived: Key Informant Index	0.3	-0.2	-0.7	2.1	1.9
Opportunity Perceived: Survey Response: %	42.7	40.0	10.8	51.6	56.8
Entrepreneurial Capacity: Key Informant Index	0.4	-0.2	-1.7	2.0	1.3
Entrepreneurial Motivation: Key Informant Index	0.2	-0.1	-0.5	2.0	1.8
Respect for Start-Ups: Survey Response: %	83.5	85.5	54.1	76.2	91.0

FIGURE 18
PERCEIVED OPPORTUNITIES, CAPACITY AND MOTIVATION INDICES: CROSS-NATIONAL COMPARISONS



	Perceived	Capacity	Motivation
U.S. 2000	2.1	2.0	2.0
High TEA Countries	0.3	0.4	0.2
Med TEA Countries	-0.2	-0.2	-0.1
Low TEA Countries	-0.7	-1.7	-0.5

(52 percent) decreased from U.S. GEM 1999 (57 percent). The decrease may be a reaction to the shakeout in dot.coms on the NASDAQ. The year 1999 was spectacular, but the Internet stock market shakeout in April 2000 (a few months prior to the survey) dampened some of the perceived attractiveness of pursuing new venture opportunities.

Figure 18 graphically illustrates how the key informants viewed entrepreneurial opportunities. A closer look at the key informant responses reveals that they generally believe that Americans perceive opportunities and are capable and motivated to pursue them to a much greater degree than even the rest of the high TEA group.

Entrepreneurial capacity is composed of two dimensions: the motivation to start a new business and the skills to do so. Results from the U.S. study were mixed on this measure. The respondents were asked if "*people you know respect those starting a new business*." While 76 percent of the adults surveyed answered "yes," this figure was lower than the aggregate for both the high TEA and medium TEA groups. Even more surprising is that 76 percent is significantly lower than the 91 percent favorable impression of GEM 1999 respondents. This may be somewhat explainable by the dot-com slide and the subsequent impact on the population as a whole. Entrepreneurship may not be perceived as the easy way to riches that it was in 1999. Also, the media has glamorized many of the Internet "Wunderkids." Article after article has highlighted that many of these kid entrepreneurs have become wealthy beyond imagination. These new entrepreneurs haven't paid their dues and may come across as arrogant. As Dennis Murphree, a venture capitalist highlights: "*We have all seen young entrepreneurs in their 20s and 30s who hit it big their first time, and they think they know all the answers. They have not seen the other side. They are insufferably arrogant and cocky.*"

Implications for U.S. Policy

The entrepreneurial sector in the United States is among the healthiest in the world. As revealed in 1999 and again in 2000, entrepreneurial activity is highly correlated with growth in GDP. When looking at the factors that explain differences in entrepreneurial activity across the 21 countries that participated in GEM 2000, several patterns are evident. A look at those patterns and a brief recap of how the United States stands in comparison to the other GEM 2000 countries illustrates that the United States is in good position to continue its strong entrepreneurial economy.

(a) Fundamental importance of demographic structure The projected population growth of 23 percent and the 30 percent of the population in the prime entrepreneurial years of 25-44 bode well for the United States.

(b) Representation of women entrepreneurs Although less represented than men (only one female entrepreneur for every two males), the ratio of women to men in the United States is much stronger than in most other countries.

(c) Government involvement, taxation, flexible labor markets, and investment in education These factors are more favorable in the United States than in almost every other country.

(d) Perception of opportunities Although down from 1999, the majority of Americans still perceive good opportunities to launch new ventures.

(e) Capacity to pursue entrepreneurship Although there is room for improvement, the key informants believe that Americans are highly capable of starting new businesses.

(f) Availability of capital The United States is awash in capital as of 2000. On top of the $48 billion provided by professional venture capitalists, informal angel investors have invested more than $54 billion each of the last three years.

(g) Social acceptability of entrepreneurship Although respect for entrepreneurs has decreased since GEM 1999, more than 76 percent of the population still respects entrepreneurs and thus would likely consider an entrepreneurial career.

Even though the United States is still the standard bearer for entrepreneurship, it would be a mistake to rest on our laurels. Several implications emerge from the current report as areas prime for improvement.

The shortage of professional skilled labor hampers current entrepreneurial activity and may inhibit future entrepreneurial endeavors. There is no question that the current economy is healthy. Unemployment is at historic lows (less than 4 percent). However, the unemployment rate for skilled engineers and software programmers is virtually zero. To combat this problem, many companies are outsourcing engineering functions offshore (e.g., India). Although a creative solution, it is far more difficult for a new start-up to use this strategy. Identifying and conducting due diligence on offshore contractors is prohibitively expensive for a new start-up. Furthermore, America's biggest competitive advantage (technology leadership) is jeopardized if we (a) don't continue to develop the brightest talent, and (b) don't encourage the best and brightest to immigrate to the United States. Whether it is George Hatsopoulos of ThermoElectron, or Desh Deshpande of Sycamore Networks and formerly of Cascade Systems, some of America's most successful entrepreneurs are first generation immigrants. Although the United States has taken steps to increase the number of H1B visas, continued increases may be necessary.

Society needs to encourage more students to pursue engineering and science degrees. Technology innovations are the fuel for rapid economic growth and often come from highly trained engineers and scientist operating within universities, government labs or the private sector. However, the percentage of American students pursuing these degrees has remained stagnant or decreased somewhat. For example, in 1990, 27,000 or three percent of all degrees conferred were in computer science, but by 1997 the number of conferred degrees dropped to fewer than 25,000 and two percent of the total.[29] How can enrollment in these programs be encouraged? Scholarships and loans are one option. Celebrating visible role models is another.

Government needs to continue and increase support for basic research. The United States government has always been supportive of basic research, whether it is through the National Science Federation (NSF), defense spending or any other number of grants and programs to support technology development. This support is critical, because such research often isn't commercially viable for many years hence. Government support as a percentage of GDP continues to decrease from 0.98 percent in 1992 to 0.74 percent in 1999.[30] Moreover, private R&D spending is now outstripping government spending by a factor of four. If this trend continues, the vital flow of basic research may diminish which could have a large, negative impact on our economy in the future. These monies indirectly support students pursuing engineering and science degrees. A major policy implication is replacing some of these lost funds as the need for defense spending decreases.

Society needs to identify and celebrate role models, especially for underrepresented groups. Increasing the participation of women and minorities would have a large and sustained impact on the level of entrepreneurial activity. As the report shows, these groups often lack the networks needed to successfully launch a new venture. For example, GEM 2000 finds that almost 50 percent of the male respondents personally knew an entrepreneur versus only 37 percent of the women. The most powerful role model is one that an aspiring entrepreneur knows personally. Although the results do not show a similar discrepancy between ethnic groups, income does matter. Less than 30 percent of those who earn less than $20,000 per year personally know an entrepreneur, whereas more than 50 percent of those earning more than $50,000 per year personally know an entrepreneur. Greater than 60 percent of those earning more than $100,000 per year personally know an entrepreneur. Supporting programs either via private means or through the government that introduce underrepresented groups to entrepreneurs could have a strong impact. As alluded to earlier, the Center for Women and Enterprise is a good model for efforts geared towards women. The National Federation for Teaching Entrepreneurs provides an exemplar for programs geared to disadvantaged youths, the future entrepreneurs of America.

There is a need to broaden entrepreneurship education outside of the university. As the study at the University of Arizona dramatically represents, entrepreneurship education increases a person's standard of living. However, many people will not attend a university, so, just as in 1999, we are again raising the issue of how to educate all would-be entrepreneurs. Formalizing some exposure in high school or earlier educational level should be considered.

Government needs to build and maintain a physical infrastructure that supports all business. The Indian Nation example is extreme. Without a functioning infrastructure, entrepreneurship, let alone any business, cannot germinate. While the remedies in the Indian Nation case are obvious, the economic boom has created strains in physical infrastructure nationwide. Experts in most of the regions surveyed commented about the severe traffic problems that hurt productivity and create quality of life issues. Ameliorating these infrastructure problems is more complex. Building more roads has many side effects, some of which are undesirable. It also fails to address would-be entrepreneurs who may not own cars (e.g., lower income entrepreneurs). Some combination of roads, mass transportation, Internet access and other solutions are necessary. Policy makers have to, on the one hand, balance the need for better infrastructure with the cost of providing that infrastructure. As alluded to earlier, one of the factors that promotes entrepreneurship is a low, stable tax system. The United States has more latitude than most other countries since our taxes are generally among the lowest in the world. One solution in the near future may be assessing taxes on Internet commerce.

When and how should the Internet be taxed? This is an issue that several of the experts struggled with. The objective of encouraging growth of the Internet needs to be weighed against the lost revenue and impact on traditional methods. Nonetheless, policy makers should start assessing when and how to tax the Internet so that when the time comes it is done in a predictable (i.e., pre-announced) and stable way.

These are just some of the many implications that GEM 2000 raises. The entrepreneurial sector in the United States is enviable, but to maintain its influence requires proactive as well as reactive steps. GEM 2000 extends our understanding of the earliest part in new venture creation, the nascent start-up phase. Continuing to track the factors that impact entrepreneurship leads to deeper understanding so that policy makers can maintain the conducive environment that America enjoys.

End Notes

1 Reynolds, Paul D. 1999. Creative Destruction: Source or Symptom of Economic Growth? In Acs, Z.Et Al (eds): Entrepreneurship, Small and Medium-Enterprises and the Macroeconomy. Cambridge, UK: Cambridge U Press, Pg 97-136.

2 The nascent start-up rate is the proportion of adults between 18 and 64 years of age currently engaged in the process of creating a business based upon the population survey of more than 2000 Americans. A person was considered to be involved in a nascent firm if they had engaged in any activity to implement the firm in the last 12 months, expected to own all or part of the new firm once it became operational, and the initiative had not paid salaries and wages to anyone, including owner-managers, for more than three months.

3 A person was considered to be a principal in a new firm if they reported managing an operating business where they were a sole or part owner and the business had not paid salaries and wages to anyone, including owners and managers prior to 1997. This would include new firms from 0 to 42 months old. It should be noted that the TEA rate is not purely additive of the nascent and new firm rates because a certain percentage of adults were involved in both activities.

4 The nascent start-up rate is refined from the 1999 measure to include only adults between the ages of 18 to 64. Although people younger than 18 and older than 64 do engage in start-up efforts, the prevalence rate is significantly lower for these groups. Thus, in 1999, GEM reported a rate of 8.4 percent for the entire adult population (including those more than 64 years of age) which is statistically equivalent to the 2000 rate of 8.1 percent.

5 The analysis excludes two groups of outliers. Countries (Singapore, Belgium and Ireland) with a heavy export/import emphasis were removed as were countries with large agricultural sectors (India and Brazil) because these economies were substantially different than the other 16 countries. For deeper discussion of this analysis, please refer to the GEM 2000 Executive Report (Reynolds, Hay, Bygrave, Camp and Autio, 2000).

6 Again, this excludes outlier countries.

7 This figure only includes direct investment into new firms. It excludes public stock and mutual fund ownership.

8 Population data for all 10 countries were taken from **http://www.census.gov/ipc/www/idbnew.html** maintained by U.S. Department of Commerce.

9 Ibid.

10 World Bank: 1998. World Development Indicators: 1998. Washington, DC: World Bank.

11 *World Development Indicators: 2000*. Washington, DC: The World Bank, 2000. Table 2.8.

12 PricewaterhouseCoopers survey on salaries, April 17, 2000. **www.techweek.com/articles/4-17-2000/salaries.htm**.

13 From Perkins, A., & Perkins, M. (1999). *The Internet Bubble*, New York: Harper Collins, pg. 186.

14 A total of 37 experts were interviewed in the U.S. study.

15 The figure was compiled through Dow Jones Interactive which includes Dow Jones publications, the *Wall Street Journal* and *Barron's*, plus the *Boston Globe*, the *Los Angeles Times*, three months of the *New York Times*, and 6,000 other newspapers, magazines, news wires and trade publications.

16 Classic venture capital is money invested in early, expansion, and later stage companies using the definitions of the National Venture Capital Association. Sources of data for this study include the following:

Australian Venture Capital Journal, British Venture Capital Association, Canadian Venture Capital Association, European Venture Capital Association, Indian Government, Israel Venture Capital Online, National Venture Capital Association (U.S.).

17 *Business Week*, October 9, 2000, p 174.

18 The countries for which we have valid venture capital data are Australia, Belgium, Canada, Denmark, Finland , France, Germany, India, Ireland, Israel, Italy, Japan, Korea, Norway, Singapore, Spain, Sweden, the United Kingdom and the United States.

19 *Business Week*, August 7, 2000, pp 54-55.

20 Webmergers.com, August 8, 2000.

21 *Business Week*, October 5, 1999.

22 *Business Week*, September 25, 2000.

23 Mandel. Michael J. *The Coming Internet Depression: Why the High-Tech Boom Will Go Bust, Why the Crash Will Be Worse Than You Think, and How to Prosper Afterwards.* New York: Basic Books, 2000.

24 *Business Week*, October 9, 2000. pp 173-178 & p 226.

25 Brenner, L. (1999) What we need to know about money. *Parade Magazine*, April 18.

26 Charney, A., & Libecap, G. (2000) Impact of entrepreneurship education. *Insights: A Kauffman Research Series*. Kansas City: Kauffman Center for Entrepreneurial Leadership.

27 Ibid.

28 *Associated Press* (2000) Clinton predicts more high-tech visas. *The Boston Globe*, September 18: C5.

29 U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), "Degrees and Other Formal awards Conferred" surveys, and Integrated Postsecondary Education Data System (IPEDS), "Completions" surveys.

30 National Patterns of Research and Development Resources: 1999 Data Update. National Science Foundation (NSF 00-306), Arlington, VA, 1999. **http://www.nsf.gov/sbe/srs/stats.htm**.

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