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Paul Davidson Reynolds

Entrepreneurship in the United States

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The Future is Now

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The following assessment would not have been possible
without the contributions of scholars participating in the
Wisconsin Entrepreneurial Climate Study,
the Entrepreneurial Research Consortium, and
the national teams of the Global Entrepreneurship Monitor initiative.

This work is dedicated to these fine individuals, good colleagues all.

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Preface

The purpose of this monograph is to provide a description of the current state of entrepreneurial activity in the United States, combining data from several research programs. It is designed to give a general overview of the basic features, most of which have substantial empirical support. As an introduction, it has been developed to avoid lengthy treatment of many technical details and data consolidation issues. Selected technical procedures are reviewed in footnotes, endnotes, and appendices; many details are available in the references. As most of the data used for this assessment are, or will be, in the public domain, this treatment serves as an invitation to others to develop more precise and detailed assessments or explanations of specific issues.

A unique feature of this overview is a presentation of the high level of participation by typical adults in U.S. entrepreneurship. An effort is made to clarify the extent to which this is a critical feature of economic adaptation and change—both for the present and the future.

The techniques to locate individuals in the process of creating a new business, before the initiative is an operating business, were first developed in 1993, further refined in 1998–1999, and received additional enhancements in 2000–2006. Two types of research programs have made extensive use of this procedure.

The initial program—the Panel Study of Entrepreneurial Dynamics [PSED]—focused on locating individuals in the start-up processes, referred to as nascent entrepreneurs, and tracking their progress over time. The first project in this program, PSED I, was based on screening completed in 1998–2000 with follow-up interviews in 2001, 2002, and 2003. The second project, PSED II, completed the initial screening in fall of 2005, with follow-ups to be completed in 2006 and 2007.

The second research program—the Global Entrepreneurship Monitor [GEM]—emphasized comparing the level of entrepreneurial activity in different countries or regions. This led to the development of the Total Entrepreneurial Activity [TEA] index, an index that reflects the prevalence of individuals involved in two stages of the start-up process. The first assessment in this

program was completed with ten countries in 1999; the annual assessments have since expanded to include over forty-five countries.

The major thrust of these research programs has been to provide precise descriptions of both the level of entrepreneurial activity, as well as the actual business creation process. The first of two major findings, both surprises, has been the high levels of human involvement in business creation: as many as half a billion persons may be involved worldwide. The second surprise has been the diversity and complexity inherent in the business creation process—regardless of the national context or economic sector. This has complicated efforts to provide summaries of the basic features of entrepreneurship and critical elements in any country, including the United States. It also thwarts efforts to provide a small set of simple policy recommendations.

There are a wide range of interesting and important theoretical and practical issues that remain to be explored. It is hoped that this overview will inspire others to give more detailed attention to these issues.

Paul Reynolds
Miami, Florida
30 April 2007

Acknowledgments

The initial project, locating representative samples of adults who were engaged in new firm creation, was conducted in Wisconsin with financial support from the Wisconsin Housing and Economic Development Authority. The data collection procedures were developed by the University of Wisconsin Survey Research Laboratory; Associate Director Dr. Charles Palit playing a major role in the design.

The initial national study, the first Panel Study of Entrepreneurial Dynamics [PSED], was organized and implemented by the Entrepreneurial Research Consortium [ERC], a voluntary association of 34 member units with over 120 members; the ERC was able to support the implementation of the project as well as the first follow-up. The Ewing Marion Kauffman Foundation provided support for the second and third follow-up interviews and the cost of shifting the operational base of the program from the University of Wisconsin to the University of Michigan Institute for Social Research. This move was necessary when the University of Wisconsin elected to close the Survey Research Laboratory. Additional support was provided by the National Science Foundation for two enhancements: an over sample of women [Dr. Nancy Carter, principal investigator, Grant SBR-9809841] and an over sample of minorities [Dr. Patricia Green, principal investigator, Grant SBR-9905255]. Richard Curtin bears a major responsibility for integration of the PSED I data sets into a useful research resource.

The major sponsor of the second Panel Study of Entrepreneurial Dynamics, the Ewing Marion Kauffman Foundation has provided contracts to the University of Michigan Institute for Social Research [Dr. Richard Curtin, Principal Investigator] for all data collection and maintenance of the data sets and Web site. A parallel contract to Florida International University [Dr. Paul Reynolds, Principal Investigator] sponsors the development of the interview schedules and management of the project advisory committee. The screening of the U.S. population to locate nascent entrepreneurs was the basis for the 2005 assessment of the national level of entrepreneurial activity.

The Global Entrepreneurship Monitor [GEM] research program was developed by a team assembled by London Business School and Babson College; the Ewing Marion Kauffman Foundation was a major sponsor of the

coordination team from inception through 2004; they were also the sole sponsor of the U.S. national assessments during this same period. Additional funding for the coordination efforts was provided through the London Business School and by the thirty-six national teams that represented over 150 scholars. This research program is the source of annual assessments of the level of activity in the United States from 1999 through 2003. The 2004 U.S. assessment was an independent effort using the same procedures; the sponsor has chosen to remain anonymous. Data from the screening phase of the PSED II project was used for estimates of entrepreneurial activity in 2005 and 2006.

After the final manuscript was completed, Per Davidsson suggested that more attention might be given to the impact of screening item wording on the prevalence rates of nascent entrepreneurs and the TEA active individuals. Attention to these changes made clear this was a major issue and reanalysis suggested that once the impact of item wording was taken into account, there was virtually no change in prevalence rates in the US over the 1998-2006 period. All assessments related to changes over time and the relevant sections of the book were completely revised. A major debt is owed to Per Davidsson for preventing this oversight from incorporation into this assessment.

Major elements of this research adventure were completed while the author was a faculty member at Marquette University, Babson College, London Business School, and Florida International University; the support of these institutions was critical for the development of this research program.

Substantial contributions in the production of this monograph were provided by Diana Hechavarria (the FIU graduate research assistant that created the maps), Shellie Hurrle of A-1 Editing Services, Deborah Whitford of Publishing Support Associates (design and typesetting), and Ilona Kingsley (index preparation).

This work is based on a collective effort that involved many research institutions, dozens of funding sponsors, and hundreds of scholarly colleagues; the following is one effort to present an overview of the knowledge gained from this journey into the unknown.

1
Why Care?

Entrepreneurship is about doing something different—creating a business that did not exist, producing a new product, modifying an existing activity. Some differences are, of course, greater than others. Many people who practice entrepreneurship find it an exciting challenge and a source of considerable attention, and they sometimes make a lot of money, so why should anyone else, particularly policy makers, care about the amount of activity?

The most basic entrepreneurial activity—creating new firms—has a major role in the economy. First, the creation of new sectors or new industries is the history of new firm creation. Virtually every new industry or market sector reflects the impact of someone or some team creating a new firm. While those individuals who are first to launch new businesses are often seen as heroic pioneers, those who follow often provide important contributions and reduce costs for the customers.

Second, it is now clear that most new jobs in the United States are provided by new business entities. About half of new job growth comes from independent start-ups and the other half by the expansion of existing businesses as they create new branches and subsidiaries. Third, recent studies indicate that major sources of sector productivity growth—industry-wide productivity gains—are provided by more efficient new firms replacing less efficient, established firms. Fourth, much, though not all, economic innovation can be traced to independent smaller firms, many of which are new. Another major source of innovation is new ventures sponsored by existing firms. Fifth, efforts to understand the mechanisms that lead to economic growth of an industry, region, or country increasingly indicate that new-firm creation is a central feature of the process. Growth without entrepreneurship is rare.

Further, new-firm creation is a major career activity for many people. About 10-12% of U.S. adults may be involved in business creation at any given time. In 2005, about fifteen million persons in the United States were involved in trying to organize and launch about seven million new firms and another five million were managing two and half million businesses up to forty-two months old. In addition, up to half of those in the work force will have a period of new or small firm management at some point in their careers. So not only does a lot of business creation exist at any time, but tens of millions will have tried their

hands at business creation or small business management at some point. Some of these people will create firms that become substantial operations.

Entrepreneurship is also a major route for social mobility, particularly in market economies.[1] In all societies, some people or groups have more influence, wealth, and prestige than others do. Those occupying these roles constantly change—the circulation of the elites. Some change occurs over generations as individuals move up and down the social hierarchy in relation to their parents. Other change occurs as recent immigrants develop new careers and social positions within the system. Large numbers of individuals find that firm creation is a major route for participating in the economy. For many this leads to improvements in their overall influence, wealth, and prestige.

Evidence regarding each of these issues is reviewed below.

NEW SECTORS

Are new firms critical for the creation of new industries? Absolutely.

It would seem obvious that somebody had to create the first business of each type: the first car company, the first pizza restaurant, the first personal computer firm, and so on. What is less obvious is how many new firms may be required to create an entirely new industry and what proportion survive to become an established part of the new sector. A number of efforts to track the development of new industries have been completed.

A typical assessment documented the emergence of U.S. semiconductor firms from 1946 through 1985. The results are presented in Figure 1.1.[2] The bars represent the number of new firms, which varies from 3 to 78, that entered the industry in each year. The line in the chart reflects the number of firms active in the industry for each year, rising from 3 to 4 for 1946 to over 300 in 1970. The count of active firms stabilized at around 300 hundred per year for the next 15 years (until 1985).

The total number of firms active in 1985—about 308—is one-fourth of the total number of new entries over the history of the industry: 1,246. The size of the sector, however, in terms of total annual sales, grew over sevenfold from 1970 to 1985, from 2 billion dollars to over 14 billion dollars. This dramatic growth in sales was associated with a relatively constant number of active firms—about 300—although firm births and deaths continued throughout the period.

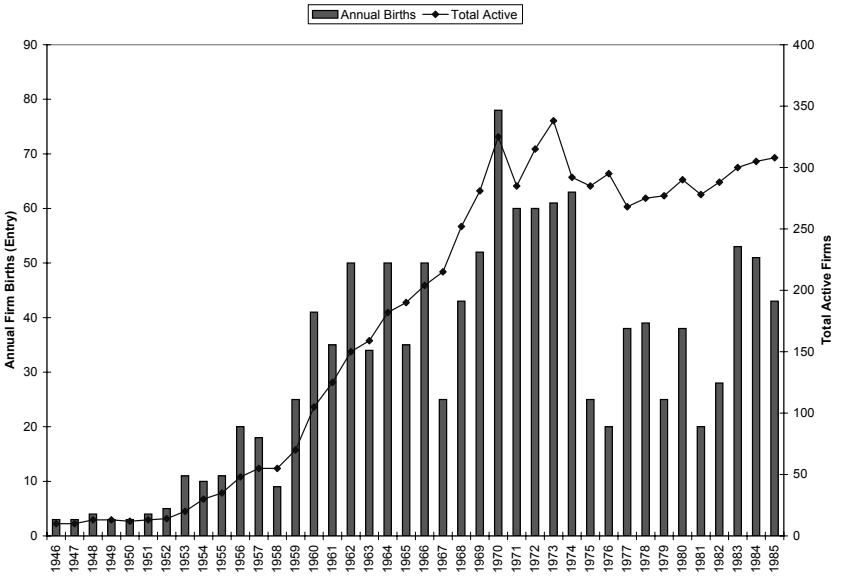


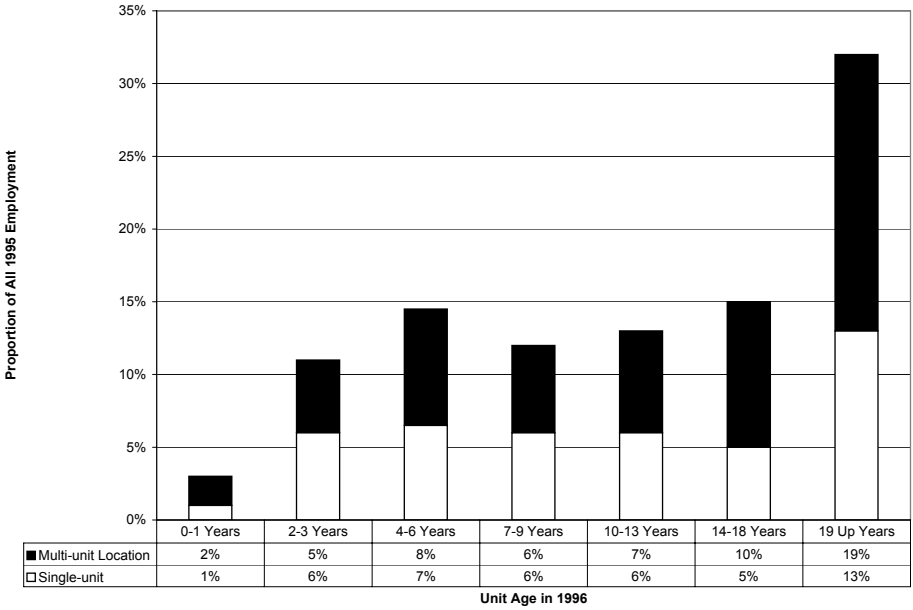
Figure 1.1. U.S. Semiconductor Firms and Industry Development: 1946–1985

JOB GROWTH

While it is clear that new industries reflect the creation of new firms, it is not so clear as to why there is a continuing turnover or churning among firms in existing industries. One of the major findings about the economy was the discovery of the importance of new firm creation to job growth. Until this was discovered in the 1970s, it was assumed that most job growth occurred in large, established corporations.[3] The initial analysis has been replicated a number of times across many developed countries, requiring their national business registries to be restructured to complete the analysis.

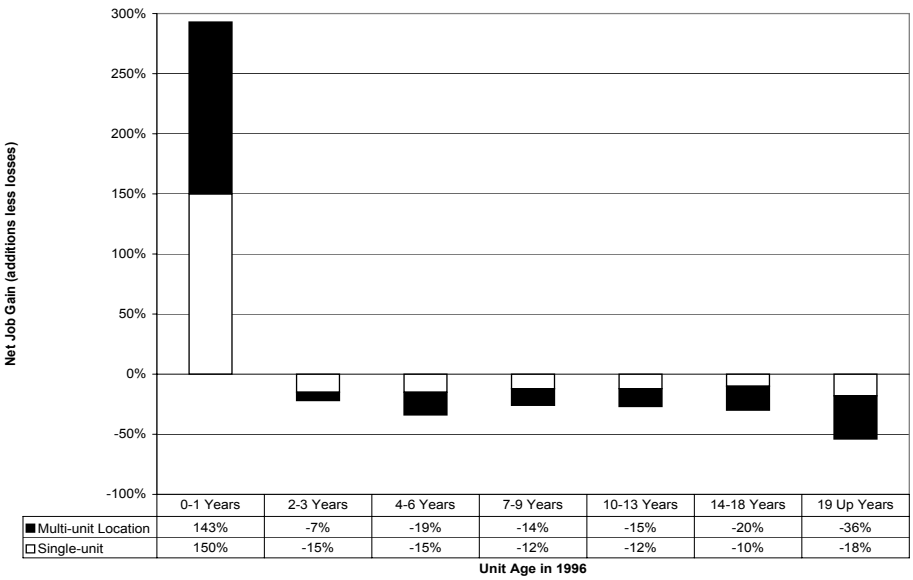
A recent assessment presented in Figure 1.2 shows the distribution of over 100 million U.S. jobs in employee establishments (business units that have employees) by the age of the establishment for 1995.[4] Note that the majority—over 61%—are in establishments that had existed in excess of 10 years. Less than half of the jobs—43%—are in single-site establishments where all activities are carried out at one physical location. Over half of the jobs—57%—are in branch or subsidiary establishments (a General Motors plant, a Wal-Mart store, a Kinko's/FedEx branch, etc.) owned and managed by a larger multi-unit corporation. Less than 3% of all 100 million jobs are in establishments less than two years old.

Figure 1.3 shows the sources of new jobs, again by age of the establishment. The chart shows the origin of 1.9 million new jobs by the age and type of



	0-1 Years	2-3 Years	4-6 Years	7-9 Years	10-13 Years	14-18 Years	19 Up Years
■ Multi-unit Location	2%	5%	8%	6%	7%	10%	19%
□ Single-unit	1%	6%	7%	6%	6%	5%	13%

Figure 1.2. Establishment Age and 1995 Job Counts



	0-1 Years	2-3 Years	4-6 Years	7-9 Years	10-13 Years	14-18 Years	19 Up Years
■ Multi-unit Location	143%	-7%	-19%	-14%	-15%	-20%	-36%
□ Single-unit	150%	-15%	-15%	-12%	-12%	-10%	-18%

Figure 1.3. Establishment Age and Job Creation: 1996

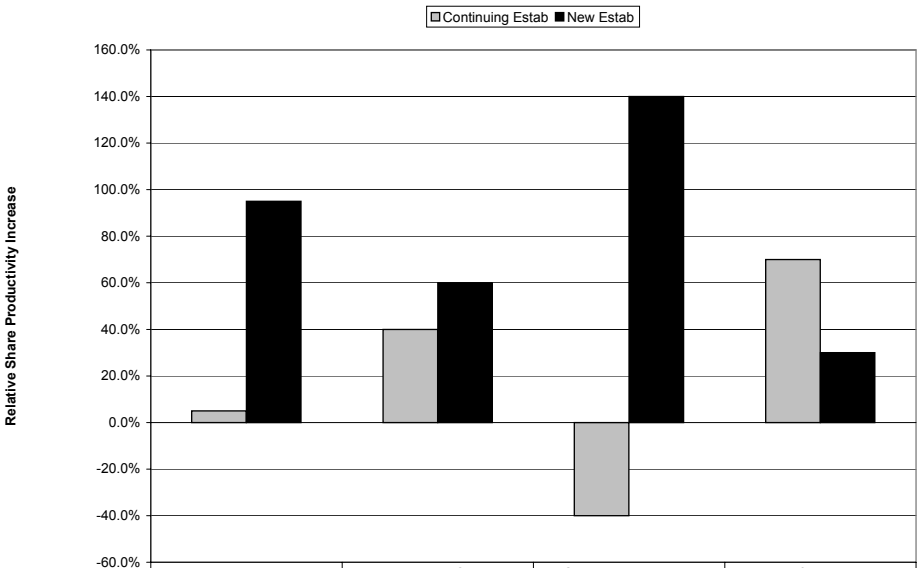
establishment. The net gain consists of the creation of 22.8 million jobs by new establishments; 11.7 million by autonomous start-ups; and 11.1 million by new branches and subsidiaries. This gain is reduced by the loss of 15 million jobs by older establishments; 6.4 million by independent businesses, and 8.6 million by multi-establishment firms. At every age beyond one year, there is a net job loss—the number of jobs gained through expansion is less than the number lost from contraction or terminations. In the first year the jobs gained from firm births and expansion far exceed those lost from contraction and terminations; business terminations are almost nonexistent in the first year.

PRODUCTIVITY

There are now longitudinal data sets providing establishment (plant) level details on the input costs and output revenue of U.S. businesses.[5] Carefully managed to avoid disclosure of details about specific plants, data can be used to determine the cost structure of each establishment and, in turn, its relative efficiency at specific points in time. That is to say, the labor costs per unit of output can be determined over the life course of the establishments. Those with higher labor costs and low productivity can be compared to those with lower labor costs and higher productivity. Information on the ages of the establishments allows the labor costs of new entrants to be compared with continuing establishes and recent "exits," establishments that are no longer producing the products. New establishments are found to be more productive—having lower labor costs—than existing establishments and are much more productive than establishments that have just "exited," or recently shut down. This can then be translated into the relative contribution of firms of different ages to overall productivity in a specific sector (or industry).

It turns out that there are some differences among industries. A summary is provided in Figure 1.4.[6] This indicates that almost all growth in labor productivity in retail over a ten-year period is due to "net entry." There is a clear difference in productivity between the more productive new retail establishments and the recently discontinued establishments; recent terminations in retail had higher labor costs. There is little growth in productivity among continuing retail establishments. For comparison, the contribution in manufacturing from net entry (new entrants less those terminating activity) was about 30%; productivity improvement among continuing (ongoing) manufacturing establishments was 70% of the overall productivity gains.

Within the retail sector, continuing department store establishments (Sears, J.C. Penny, etc.) provided some improvement—40% of the total—in labor productivity growth, while 60% of the improvement was the difference between new establishments (which would include new Wal-Mart outlets)



	Retail, All	Department Stores	General Merchandise	Manufacturing, All
Continuing Estab	5.0%	40.0%	-40.0%	70.0%
New Estab	95.0%	60.0%	140.0%	30.0%

Figure 1.4. Sources of Sector Productivity: 10-Year Period

and establishments that had shut down. Among the more specialized general merchandising establishments (selling shoes, liquor, hardware, etc.), there was a decline in labor productivity among continuing firms and all increases provided by new establishments replacing establishments that shut down. In other industries (sectors) improvements in productivity may come from different types of sector adjustments. An analysis among automobile repair shops (not shown in Figure 1.4) found that the major source of sector productivity improvement was the discontinuation of the less productive establishments, those with higher labor costs.[7]

While little effort is made in these analysis to separate the impact of independent start-ups from that of new branches or subsidiaries implemented by existing firms (which may be considered expansions rather than new firm creation), it seems appropriate to assume that half of the productivity increases occur from independent start-ups.

INNOVATION

Few topics are more difficult to study than innovations, particularly those that may be developed by a business. Businesses promote any change as innovative, different, and of great value to the customer—some may represent only modest adjustments. To overcome the challenge of sorting public relations fantasies

from reality, a major effort to identify significant innovations through a search of the scientific and technical literature was completed in the early 1980s. To qualify as a unique and distinctive product it had to be sold in the marketplace, which suggests that somebody considered the "new thing" to be so valuable that they would pay for it. The impact of the innovation was considered to fall into one of four categories: creating a new market or sector, first of a type in an existing market, significant innovation to an existing product, or a modest improvement to an existing product. None qualified as creating a new market, but 2% were the first of their type, 13% had significant innovations, and 85% had modest improvements.

The next step was to consider the origin of these innovations by determining whether the firm was small or large. Using the Small Business Administration (SBA) criteria, these were sorted based on having more or less than five hundred employees in all establishments in the firm. The proportions of the innovations developed in small and large firms are presented in the first four bars of Figure 1.5. For comparison, the proportion of all firms considered large and small are shown in the fifth bar; less than 1% are considered large firms. The proportion of all jobs—a measure of market presence—is provided in the far right bar; large and small firms each provide about half of all jobs.

This analysis illustrates several points. First, neither small nor large firms were the source of any significant innovations—none were identified during this time period. Second, small firms are responsible for a significant proportion

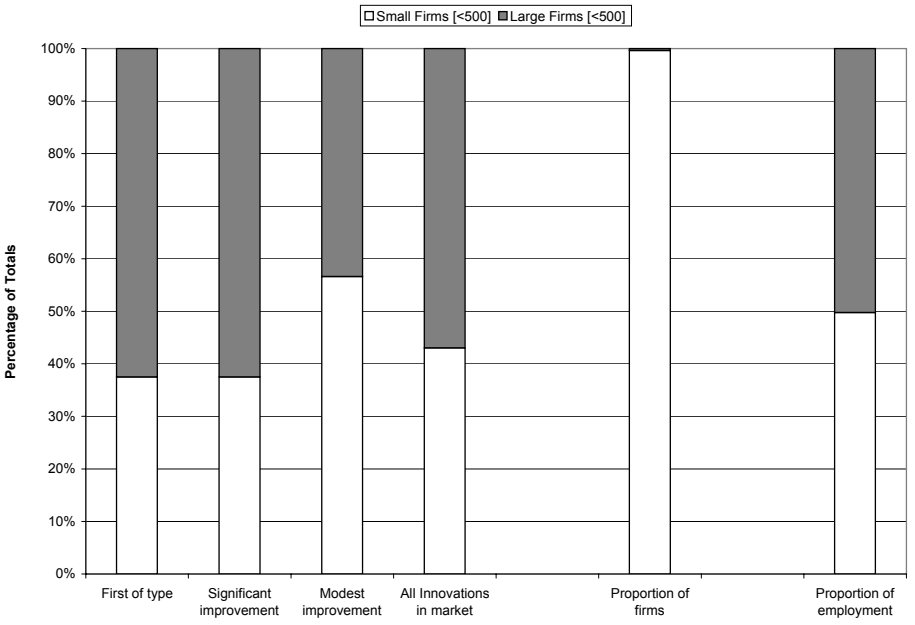


Figure 1.5. Market Innovation by Firm Size: United States 1982[8]

of the innovations, but clearly less than half. Third, this is related to firm size, not firm age. The proportion of new small firms providing innovations is certain to be less than the proportion of all small firms, many of which are old. If the project were to be replicated today, firm age would certainly be a major variable in the analysis.

Clearly this type of assessment will miss the dramatic, rare new businesses that dramatically change the business landscape—Rudolf Diesel's new engine, Henry Ford and the automobile, Bill Gates and Microsoft, and the like. But it makes clear that small, and presumably new, firms have a role in creating new innovations in the market.

ECONOMIC GROWTH

The role of new firms in economic growth is a complex issue. Examining the relationship requires a number of decisions about the appropriate unit of analysis, measures of entrepreneurship and economic growth, and the time lag. Determining actual causality is even more complex, as there are hosts of processes that may affect economic growth directly or indirectly by affecting entrepreneurship. On the other hand, if there was no evidence that measures of entrepreneurship had a significant level of association with subsequent economic growth, it would reduce confidence that any causal role could be found. Positive associations are, however, quite common, and the magnitude of the relationship is generally statistically significant and the same orders of magnitude.

While "correlation is not causation," several analyses of U.S. labor markets have attempted to do a more complete analysis, finding that even when other potential causal processes are controlled, there is a statistically significant impact of new firm creation on subsequent economic growth.

One assessment is based on labor market areas [LMAs] within the United States. These are sets of adjacent counties that are found, based on U.S. Census decennial data on travel-to-work patterns, to have a high internal density of journey-to-work travel patterns. There is much less travel to work between counties in different labor market areas. Based on the 1990 decennial census, there were 394 such LMAs (see Figure 1.6). The map looks strange because the state boundaries are hard to locate. State boundaries are obscured because one-third of the LMAs include counties from two states. The map for the 1980 decennial census-based classification of 382 LMAs is very similar.[9]

Data were assembled for the 1976–1988 period on new establishment births and deaths by these regions by the Small Business Administration; these counts were based on new entries into the Dun and Bradstreet credit rating files. A different measure of firm birth was used for 1990 and later years, it was based

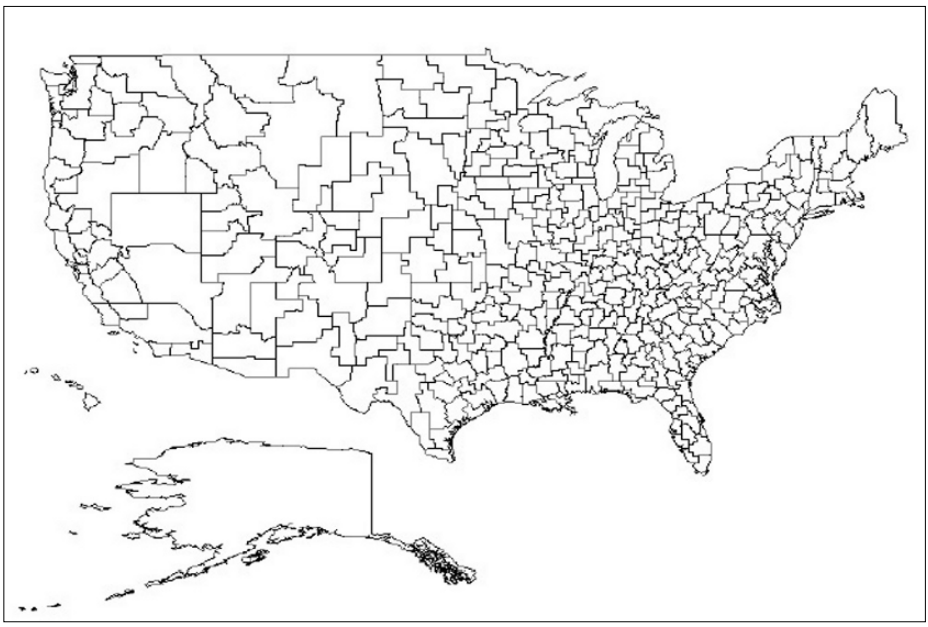


Figure 1.6. U.S. Labor Market Areas 1990

on establishments making federal social security [FICA] payments for the first time; data tracked by a U.S. Census program designed to provide a complete listing of all active U.S. establishments. Since FICA payments are the source of the data, it only counts employee establishments. Data on the jobs present in each county, which are tracked each year, can be used to determine the annual job growth in each LMA. The results of the relationships are show in Figure 1.7 (1976–1986) and Figure 1.8 (1999–2001).

Figure 1.7 uses data based on initial entry of new firms in a commercial credit rating service data file for six two-year periods (1976–1978, 1978–1980, etc.) as related to regional job growth two years later, a total of 2,892 data points. The birth rate is computed as new independent firms per one hundred firms at the beginning of the period, which has an annual average of 9.3 per 100 for this period. The correlation of 0.30 is highly statistically significant.[10]

Figure 1.8 uses data on initial registration of employer firms in the federal social security payments file and uses the average annual new firms per 1,000 in the labor force, which are about 3.3 per 1,000.[11] The measure of regional growth is the same, the percentage change in the labor force in the two years following 2001. Based on the 1990 U.S. Census journey-to-work patterns for the 394 labor market areas, the correlation is 0.39, again statistically significant.

This association is further confirmed in international comparisons among different countries. Figure 1.9 presents comparisons of countries, using a more general measure of participation in the entrepreneurial process, and gross

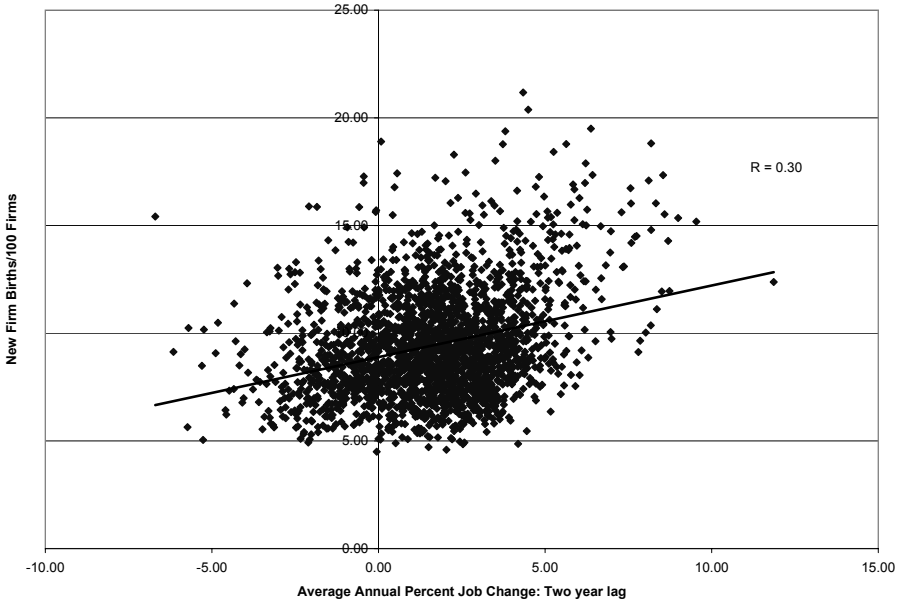


Figure 1.7. New Firm Births and Regional Job Growth: U.S. Labor Market Areas 1976–1986

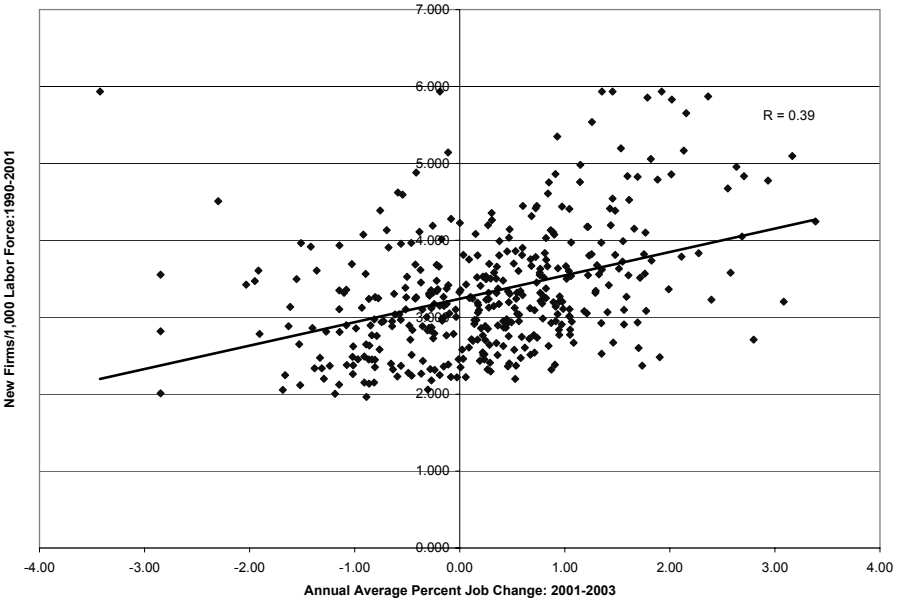


Figure 1.8. New Firm Births and Regional Job Growth: U.S. Labor Market Areas 1990–2001

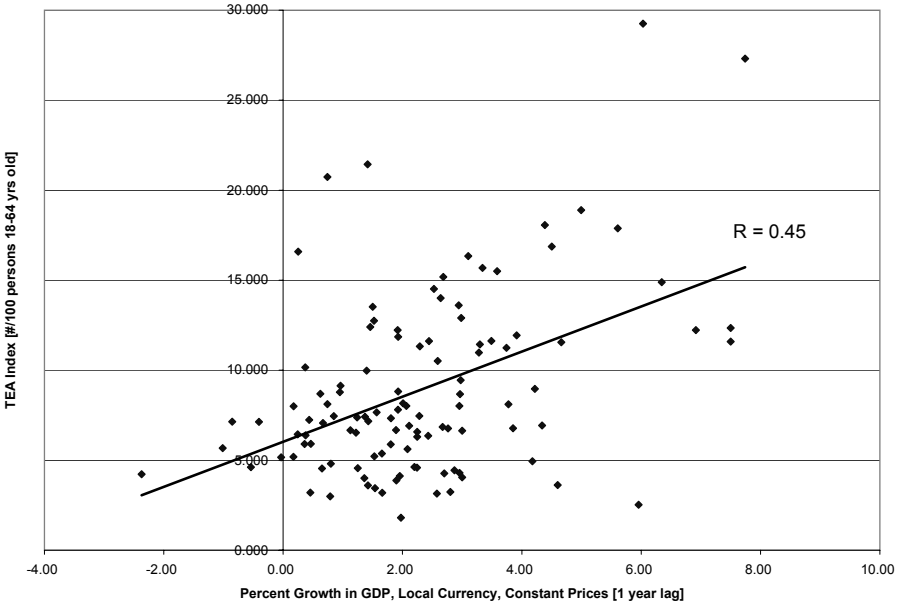


Figure 1.9. National Levels of Entrepreneurial Activity and Subsequent Economic Growth

domestic product [GDP] growth in the following year.[12] Data are pooled for several years and 140 data points represent the 35 countries over the 2000–2004 period. Again, the 0.45 correlation is moderately positive and statistically significant.

The level of association between measures of new firm creation and economic growth suggests that entrepreneurship is a critical element of the process; just how entrepreneurship makes a contribution has not been established.

PARTICIPATION IN BUSINESS START-UPS

About 13.8 million in the United States are involved in new firm start-ups in 2004; about 8.3 million are involved only in single new firm start-ups, while the other 5.5 million are the owner-managers of new or established firms. A further 5.6 million are only the owner-managers of new firms and about 11.2 million are the owner-managers of existing firms.

The estimates are considered in relation to other major life activities—parenting and marriage—in Figure 1.10. The chart represents 192 million US adults, business participation estimates are for those 18–74 years of age.

The 14 million involved in business creation is substantially more than the 4.4 million involved in about 2.2 million marriages and the 8 million responsible

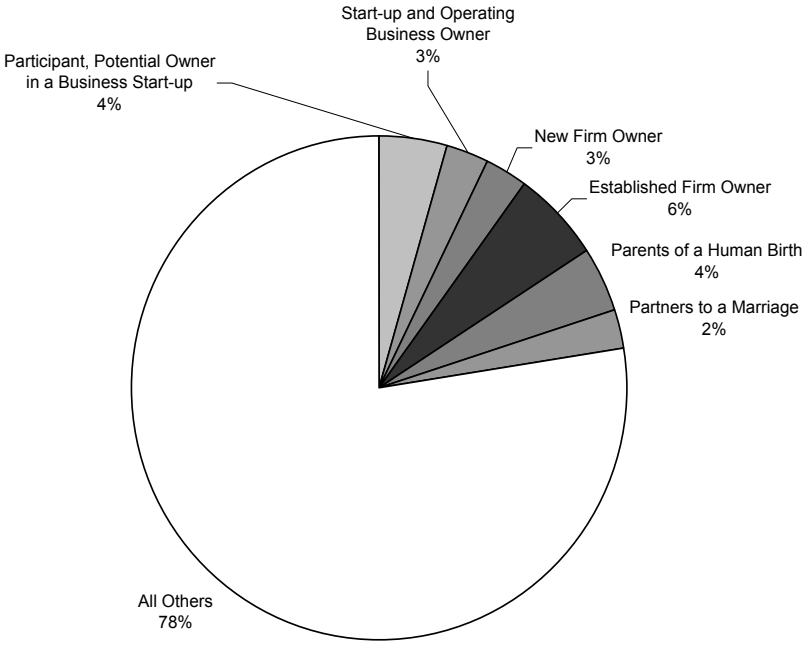


Figure 1.10. Participation in Life Activities among U.S. Adults: 2002

for 4 million human births.[13] Clearly, participation in business start-ups is a major activity among U.S. adults.

START-UP PARTICIPATION OVER THE WORK CAREER

While up to 12% of U.S. adults are active in creating new firms at any point in time, the proportion that become involved during their careers is much greater. Because it is expensive and complicated to track individuals over their entire life course, few projects can provide this information. One project, however, was implemented in 1968 to provide annual descriptions of a representative set of households and, in the process, the careers of the principal wage earners.[14] The Panel Study of Income Dynamics [PSID] provides annual records of the work activity of a representative sample of working men. This can be used to determine the percentage that report, in their careers, any period of self-employment and the length of the time they were self-employed.

Both are presented in Figure 1.11, reflecting 20 years of annual reports.[15] Because older men would have more opportunities to engage in self-employment, the responses are presented by age of the individual. As can be seen, those who are older are more likely to have reported periods of self-employment and are more likely to report longer periods of self-employment. While the data

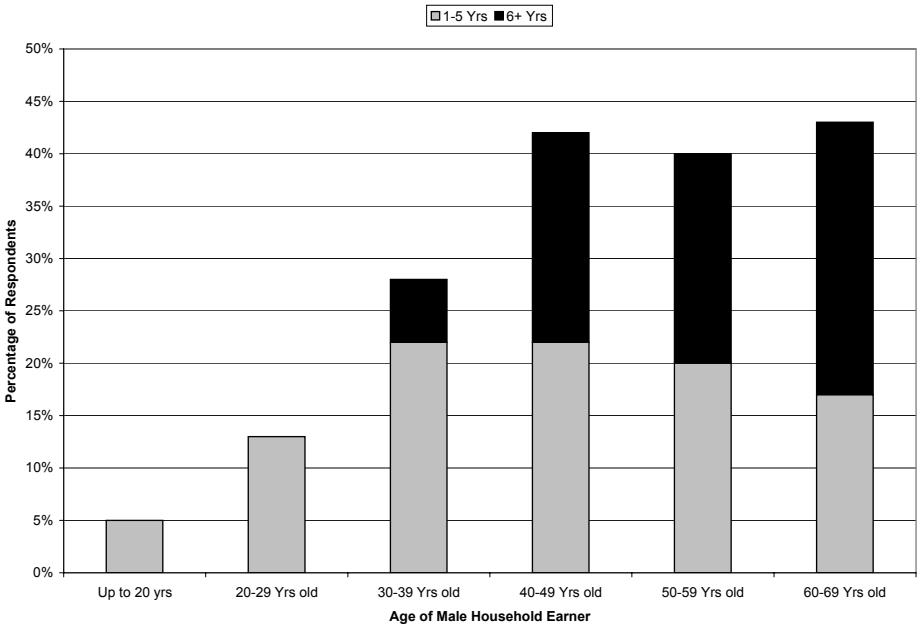


Figure 1.11. Prevalence and Duration of Self-Employment over the Work Career: U.S. Men

assembled in 1991 indicate that two in five men engage in self-employment at some point in their careers, the steady increase in the proportion of those that are self-employed would suggest that by 2005 this would be at least half of working men.

By the time they reach their retirement years, half of all working men in the United States probably have a period of self-employment of one or more years; one in four may have engaged in self-employment for six or more years. Participating in a new business creation is a common activity among U.S. workers over the course of their careers.

SOCIAL INTEGRATION, MOBILITY

Nothing is more fundamental to social standing than the role of an individual—or his or her family—in the economy. Both the nature of a person's occupation and the income associated with his work affects his prestige and influence. Developing and implementing a new business can provide an important route for integration and status enhancement for both native-born people and new immigrants. New immigrants often have more difficulty with established routes for occupational advancement and career success. They may lead a greater proportion of new immigrants to pursue new firm creation as an alternative.

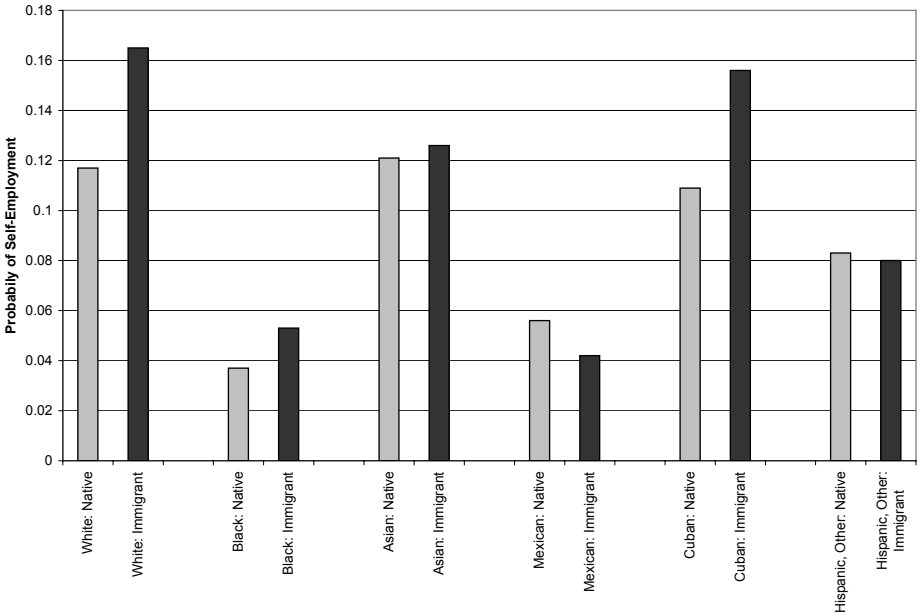


Figure 1.12. Probability of Self-Employment:
By Ethnic Background and Immigration Status: United States, 1980

Some evidence suggests that new immigrants from most ethnic categories—such as Whites, Blacks, and Cuban Hispanics—are more likely to pursue entrepreneurship (as indicated by those who are self-employed) than are native-born individuals. Sorted by ethnic background, Figure 1.12 indicates the probability that native-born people (lighter bars) and immigrants (darker bars) will pursue self-employment in 1980.[16] For some categories—Asians, Mexican Hispanics, and other Hispanics—the differences are less. Among Whites and Blacks it is clear that being a new immigrant increases the tendency to become self-employed.[17] On the other hand, the proportion of immigrants in the total population is small. Over 80% of adults are native born Whites and Blacks, so the majority of those engaged in self-employment (as an indicator of entrepreneurship) are native-born citizens.

For immigrants, however, the opportunity to pursue business creation is clearly an important career option. Both the personal stories of dramatic individual success, as well as a variety of examples of the ethnic group achievements, suggest that entrepreneurship has been and will continue to be an important route for integration into the U.S. economy.

OVERVIEW

Entrepreneurial phenomena are a systematic, pervasive, and important feature of U.S. personal and economic life. The creation of new firms:

- Is a source of new industries
- Is associated with much economic innovation
- Is major source of job creation
- Is a major source of improvements in sector productivity
- Has a pervasive, consistent association with economic growth
- Involves one in ten in the labor force at any given time
- Is pursued as an option during the work careers of a substantial proportion of the labor force
- Provides a significant route for social integration and mobility

While this is a persuasive list of reasons for attending to entrepreneurship, there is one more rationale. Although entrepreneurship is a fascinating topic, it is not well understood. It is an intellectual frontier with considerable amount of uncharted territory. And discovering the unknown is always exciting.

This work is designed to provide an introduction to the current situation regarding entrepreneurship in the United States. It takes advantage of a number of related research projects—reflecting two complementary research programs—implemented within the last ten years. One program emphasizes changes over time in the United States, and those factors that lead individuals to become involved in business creation: a U.S. longitudinal assessment. Similar projects have now been completed in a range of other countries. The other project is a more detailed review of exactly what happens as an individual or team becomes involved in the creation and implementation of new businesses, the Panel Study of Entrepreneurial Dynamics [PSED]. Much of the data are in the public domain, and scholars are invited to pursue additional analysis.

The material is presented in ten chapters. Chapter 2 discusses some conceptions of entrepreneurship, the rationale for focusing on business creation, and a brief comment on the procedures used to locate those creating new businesses. Chapter 3 discusses how much business creation activity is in place, as well as temporal changes in the United States since 1993. Chapter 4 discusses the special distribution of start-up activity and the types of regions with the largest amount of firm creation. A discussion of who becomes involved and their expectations is included in Chapter 5. Selected features of the start-up process and what seems to facilitate the transition to operating new firms are reviewed in Chapter 6. An overview of the differences over the firm life course is presented in Chapter 7. Because nothing is more significant and poorly

understood than the informal mechanism by which start-ups received financial support, recent evidence from national assessments is reviewed in Chapter 8. A comparison of the situation in the United States with over three dozen other countries is the focus of Chapter 9. The final chapter, 10, reviews the major conclusions and selected implications.

NOTES

1 Aldrich (2005).

2 From Figures 9.5 and 9.6 in Hannan and Freeman (1989).

3 Birch (1979, 1981).

4 Acs and Armington (2004).

5 There is a substantial literature on this topic, summarized in Bartelsman and Doms (2000). Overview of extensive work on the United States provided in Foster, Haltiwanger, and Krizan (1998, 2002) and Foster, Haltiwanger, and Syverson (2005).

6 Haltiwanger, John (2004).

7 Foster, Haltiwanger, and Krizan (2002).

8 Audretsch (1995). Tables 2.1, 2.5, 2.7 (pages 20, 26, 31).

9 Tolbert and Sizer (1996); Tolbert and Killian (1987).

10 Reynolds (1998); Reynolds and Maki (1990).

11 Firm birth data from Appendix, Camp (2005). Data on job growth taken from Regional Economic Information System current data files.

12 Reynolds, Bygrave, Autio, and others (2004).

13 Data on marriages and births are for 2002 and taken from U.S. Census Bureau, Statistical Abstract of the United States: 2004–2005, Table 70, page 60.

14 Hill (1992).

15 Table 1.2 (page 5) of Reynolds and White (1997).

16 Borjas (1986).

17 More precise delineation of various ethnic groups, into sixty subgroups of which most are variations of Whites, indicates substantial variation in self-employment and level of education, and being an immigrant is found to increase the probability that most ethnic groups will be self-employed. Fairlie and Meyer (1994).

2
What Is Entrepreneurship and How Do You Find It?

Everybody knows or knows of an entrepreneur—somebody (or something) they consider "entrepreneurial." The idea of entrepreneurship is widespread with an abundance of examples. In this regard it shares many characteristics of other attractive ideas, such as truth, beauty, happiness, and justice. While most people are comfortable discussing these topics, developing precise procedures for measuring these concepts is another matter. Likewise, precision in the measurement of entrepreneurship would facilitate two research objectives: identifying the activity for systematic study and estimating the scope of the activity—as a social or economic phenomenon.

Entrepreneurial, as an attribute, is often applied to a wide range of phenomena; there are references to entrepreneurial individuals, entrepreneurial institutions (e.g., hospitals or universities), entrepreneurial market sectors, entrepreneurial political parties, and even entrepreneurial countries. At least five different conceptions have received a great deal of attention:[1]

- Distinctive personality trait
- High growth and capitalization
- Innovation and innovativeness
- Opportunity recognition
- Business creation

These five emphases reflect three different units of analysis. The first is a personal attribute of natural humans. The next three—growth, innovation, and opportunity recognition—can be attributes of a person, an established business, specific new venture, or almost anything else. The last is more specific and precise, as it relates to a new entity participating as a producer in the economy. While all five emphases have advantages and disadvantages, the last seems to be the most useful for systematic research.

The great deal of empirical research devoted to identifying entrepreneurial personalities—as a human attribute—has not been productive and avoids the issue that a large proportion of successful business creation is a team effort.[2] A focus on growth tends to emphasize the outcome of a successful effort and clearly cannot be determined in advance, although aspirations for growth can

Gartner, W.B., Shaver, K.G., Carter, N.M., Reynolds, P.D. (Eds), "Handbook of Entrepreneurial Dynamics: The Process of Business Creation". pp 244–258, 2004 by Sage Publications.
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be identified. A focus on innovation or opportunity recognition is appealing, but trying to develop reliable measures of either continues to be complicated, with varying degrees of success.

It is a particular challenge to attempt to identity "opportunities to be exploited" before the exploitation takes place. This is similar to the issues surrounding describing the noise from a falling tree in a forest with no human observers. It is hard to identify an opportunity in the absence of business activity exploiting the opportunity. It has been suggested that "opportunity exploitation" is useful as a definition of entrepreneurial scholarship but has limited value as a guide to locating concrete instances of anything entrepreneurial.[3] This leaves the last option, the creation of new businesses, which has the advantage of emphasizing the creation of a new "something"—which can be measured.

That being said, and despite the substantial importance of new business creation to national economic well-being, the capacity for measuring and tracking new businesses has not been well developed in the United States—or anywhere else, for that matter.

Locating new firms, either all new firms or a representative sample, has been a research challenge for some time.[4] Several solutions to this problem have been implemented. One of the earliest efforts was to track new listings in the Yellow Pages, which may be useful for sectors oriented toward consumers who use the phone book.[5] More systematic efforts could involve new employer identification numbers (EINs), new listings in registries based on state unemployment insurance, federal social security, or federal income tax filings. Another source would be new additions to commercial credit rating databases, such as the one maintained by Dun and Bradstreet.

There has been some development in arriving at a consensus on a definition of a "new business," entrepreneurial or otherwise. The following, reflecting an economic perspective, is emerging as the preferred option for harmonizing national statistical agencies as they attempt to track new firm creation:[6]

- A [firm] birth is the creation of a combination of productive factors that are not branches or subsidiaries of existing businesses; they are independent, new ventures.

The emphasis is on a new—not distinctive or unique—combination of productive factors, which may be a replication of other business combinations. The definition further emphasizes the exclusion of any transfers or changes in ownership, separation of existing businesses into several parts, changes in characteristics of existing businesses, or reactivations of dormant businesses—although the period of dormancy is subject to some variation. The "restriction" that no existing businesses are involved is a complication, as about 20% of new firms are partially owned by other businesses and the proportion of ownership

can vary substantially, up to full ownership. For the following discussion, a new firm is considered to be the following:

- A new commercial activity that is not a wholly owned branch or subsidiary of an existing firm.

The analysis in this monograph emphasizes two complementary research programs that use human population surveys to locate individuals active in creating or managing businesses. Combining data from the U.S. Panel Study of Entrepreneurial Dynamics research program, screenings completed in 1998 to 1999 and 2005; annual assessments of U.S. entrepreneurial activity developed from 1999 to 2003 as part of the Global Entrepreneurship Monitor [GEM] program; and a special assessment completed in 2004. The unique feature of these efforts is the attention to the processes prior to the emergence of the new firm: the gestation or pre-organization or pre-birth activity.

There is no question that new ventures, products, or services are the result of individual action; a person or team must take the lead to create the new initiative. This leads to the development of procedures for locating such individuals—those involved in the process of creating a new business activity. This can be done by finding individuals who claim to have recently initiated the creation of a new business, or by tracking changes in labor force activity in sequential monthly interviews. In either case, the conceptualization of the process emphasizes individuals entering the business gestation or start-up process, as presented in Figure 2.1.

In this presentation it is assumed that individuals from two sources may enter the start-up process alone, with a team of autonomous individuals—nascent

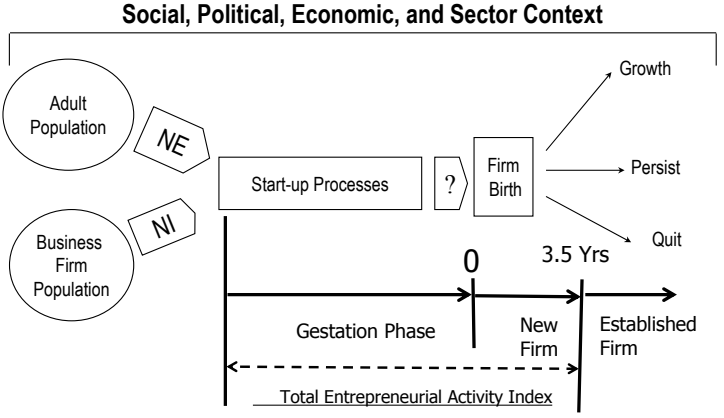


Figure 2.1. The Entrepreneurial Process and the Total Entrepreneurial Activity Index

entrepreneurs [NE], or with a team sponsored by an existing firm—nascent intrapreneurs [NI]. Once they begin to pursue activity—spending time and money to create a new business—they can be considered active in the firm's gestation or start-up phase. A substantial minority, about 3 in 10, will complete the process, launch a new business venture, and will become owner-managers of an operating business.[7] After a time, the new business may become an established feature of the economy; the owners may become less apprehensive about the survival of the firm. The entire entrepreneurial process takes place within a social, political, economic, or sector context. Different aspects of the context may affect the nature and outcomes of the start-up process.

This conceptualization of the process is the basis for several distinctions to be made in the following presentations. First, there is an emphasis on the individuals participating in the new firm creation. For some issues the attention shifts to the firm as a business initiative. As each person is reporting on a business initiative and, on average, each initiative has about two owners, some adjustments are required to shift the unit of analysis from individuals to firms. Second, an index representing the level of entrepreneurial activity consolidates both individuals in the gestation or nascent phase, as well as those managing a new firm [Appendix 2.1]. The Total Entrepreneurial Activity [TEA] index, then, reflects the first two stages of the business creation process. Third, for some analyses it is useful to distinguish between start-up, new, and established firms. Such comparisons provide an overview of differences among business activities at three stages in the firm life course.

POPULATION SURVEYS: U.S. ENTREPRENEURIAL ASSESSMENT

In order to develop descriptive information on the extent and nature of the entrepreneurial process in the United States, a procedure was developed to use surveys of the human population to locate those in the gestation or start-up process. Once these nascent entrepreneurs and intrapreneurs are identified, they are asked a number of questions about the nature of their endeavors, as well as their own backgrounds and aspirations. Those that are currently owners and managers of established business are also identified and asked about the nature of these operating businesses.

The samples from these procedures provide a good representation of smaller employer firms, the 5.6 million businesses with fewer than five hundred employees. These employer firms provide 49.9% of all private employment.[8] Population samples also provide a good representation of the ten million self-employed or individuals making a transition into self-employment, those managing business initiatives without employees. Such samples do not provide

a good representation of the 17 thousand large employer firms that include the publicly traded corporations such as the Fortune 500. These large firms, or 0.3 % (one in 333) of all employer firms account for 50.1 % of private employment. Despite this complication, having comparative data on nascent, new, and established firms is a major advantage. These descriptions are based on details provided about start-up, new, or existing business during the course of the interview itself.

While exploratory work on these research procedures began in 1993, the first large-scale screening effort was implemented in 1998–1999 as part of the first Panel Study of Entrepreneurial Dynamics [PSED I]. Information that was more complete regarding all stages of the firm life course was first obtained in 2000 and annually thereafter, through 2004, as the U.S. component of the multinational GEM research program.[9] A second major screening effort was completed in fall 2005 and early winter 2006 as part of PSED II. Information derived from the screenings provide estimates of the prevalence of activities; detailed data on the start-up initiatives and outcomes were available only for PSED I at the time this monograph was prepared.

Point estimates from these various projects from the 1998 to 2006 period are provided in Figure 2.2. The estimates of the prevalence rate (number of persons per one hundred) is provide as a line related to the scale at the right, and the total number of individuals involved is provided by the bars using the scale to the left. These computations are related to those individuals in the United States

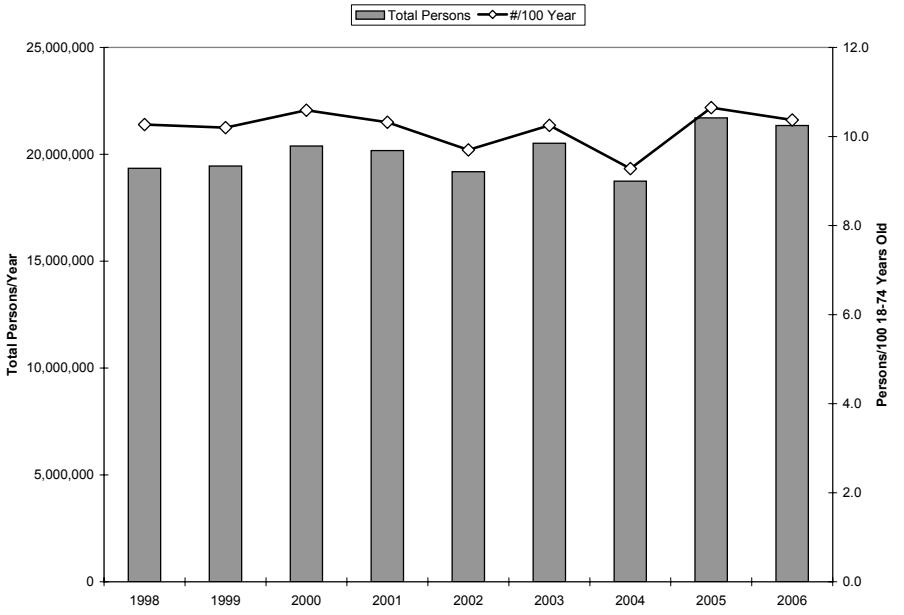


Figure 2.2. Participation in the Entrepreneurial Process [TEA Index] 1998–2006

who are 18-74 years of age; the number of such individuals increased from 1998 to 2006, from 188 million to 206 million.

A substantial proportion of the U.S. population reports participation in the business creation process; participation rates are relatively constant at about 10 per 100 across this 9 year period. There is an increase in the total counts from 19.3 to 21.3 million from 1998 to 2006; much of this accounted for by increases in the human population.

POPULATION SURVEYS: U.S. CURRENT POPULATION SURVEYS [CPS]

Tracking those who become self-employed has been developed as an indicator of new firm creation, which might be considered a societal measure of entrepreneurial activity.[10] This strategy is designed to utilize the data collected as part of the monthly Current Population Surveys (CPS) supervised by the U.S. Bureau of the Census and Bureau of Labor Statistics. This program is considered the most accurate ongoing survey of the U.S. population and is used as the benchmark for the calibration of most commercial and marketing population surveys.[11] While a sample of 130,000 individuals is interviewed each month, each person is interviewed monthly for two four-month periods. There is, however, an eight-month gap between these two periods. This allows month-to-month changes in the work activity of each person to be examined for each of these four-month periods.

Individuals are considered to have created a business under the following conditions. In the first month those that *do not* indicate that business ownership (or self-employment) as their primary work activity—they may have a regular job—and they are not devoting any time to any business ownership indicated as a secondary activity are identified.[12] If, when interviewed in the second month, the same individuals report that 1) business ownership (or self-employment) is their primary work activity; 2) they are devoting 15 or more hours a week to this self-owned business; and 3) this represents a change since the last interview (within the last month), they are considered entrepreneurs. That is, they are counted as entrepreneurs for that month, and only that month.

Several things would cause people to be excluded from this count of "business creation." For example: 1) those who never devote more than 15 hours a week to the business ownership/self-employment activity; 2) those who may devote more than 15 hours a week to the initiative but this is less than time devoted to any other salaried work. Those with full-time jobs, over 35 hours per week, who are devoting an additional 20 to 30 hours a week to new business ventures would *not* meet these criteria. Such multiple career emphases are quite common in the household surveys completed to identify nascent entrepreneurs.

These criteria, adopted to minimize inclusion of those not making a major commitment to a self-owned business only, may undercount businesses that have substantial revenue but require little time to manage, as is the case, for example, with some Internet marketing businesses.

In addition, about 20% of those identified as nascent entrepreneurs in household surveys also report they are managing a business they own, the start-up initiative is a second work force activity. It is unclear how such individuals would be classified using these criteria.

The size of the samples provided by the CPS, and the care given to data collection and processing to provide annual estimates of "increases in time devoted to business ownership," do allow for some estimates of the numbers of individuals engaged in increases in business management activity. Figure 2.3 shows estimates of the annual rate of monthly reports of increased business ownership emphasis. The number per 100 individuals who are 20 to 64 years of age is on the right axis and the total number of individuals involved each year from 1996 through 2005 is on the left axis. For this 10-year period the average annual rate is about 3.5 per 100 individuals and the total number of individuals is about is about six million, with little change over the 10-year period.

The CPS is primarily designed to capture the working activity of those in the U.S. labor force, not the character of the organizations in which people work, or the economic entities they may attempt to create. The two items of

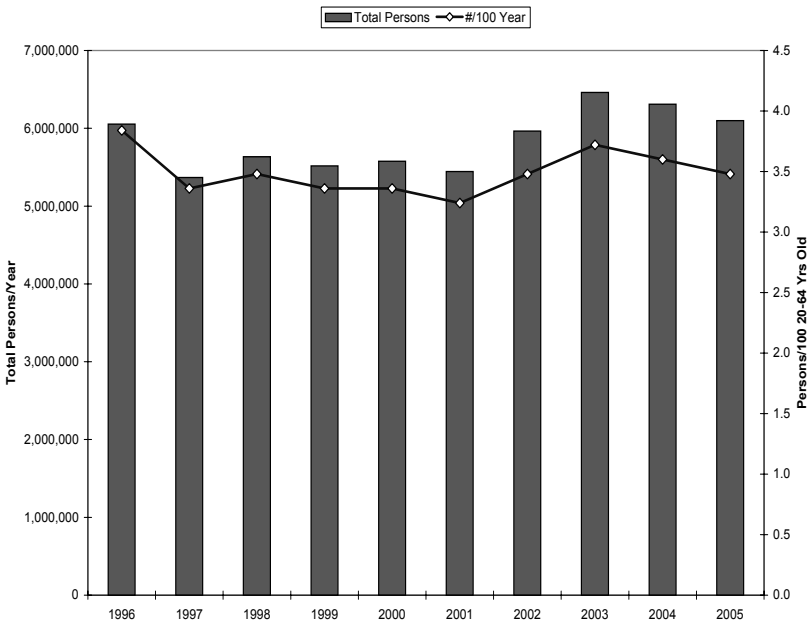


Figure 2.3. Persons Increasing Businesses Ownership Emphasis [CPS] 1996–2005

information on the self-owned business focus on whether or not the business is incorporated, as well as the industry sector in which it operates. No other data on the emerging self-employment initiative are obtained.

As a result, there are a number of ambiguities regarding the nature of the CPS identified new businesses. For example, without data on the number of owners—and over half of all new firms have multiple owners—it is hard to translate "an increase in time devoted to business ownership/management" into a number of unique businesses ventures. Second, the emphasis is restricted to the effort devoted to the business activity; there is no information regarding the extent to which this new venture is actually part of the economy—with sales to customers, purchases from suppliers, loans from banks, tax payments, employees, etc.[13] It may or may not be an independent decision-making entity—competing with other firms for customers and affecting the quality, price, and amount of products or services traded in the market.

NEW ENTRIES IN OFFICIAL REGISTRIES: U.S. CENSUS AND BLS

Two national efforts attempt to track new-firm creation based on comprehensive assessments of tax payments; both emphasize businesses with employees and, as a result, will not reflect those self-employed without workers. Business activities that do not include a formal employment relationship of any kind will not be covered; this would include any that may retain the services of subcontractors or consultants, or those paid with goods-in-kind, such as restaurant workers who receive meals as part of their compensation.

One business list is managed by the Bureau of the Census in cooperation with the Small Business Administration and is based primarily on annual counts of firms providing payments to the federal social security [FICA] system for the first time. An effort is made to sort out those new employer firms that represent single-site businesses from those that are new plants or locations established by a multi-location firm (such as General Motors or Wal-Mart); these latter would be considered expansions of existing firms. This allows more precise measures of annual counts of new firms with employees.

The patterns for 1990 through 2004 are presented in Figure 2.4.[14] The annual counts of new registrants, which total 500,000 to 600,000 per year, are represented by the vertical bars and related to the left axis; the prevalence per 1,000 persons 20 to 64 years old, which varies from 3.2 to 4.0, is represented by the line and is provided on the right axis. The patterns based on new business registrations of employer firms reflect a pattern of substantial stability and very modest changes in annual prevalence rates.

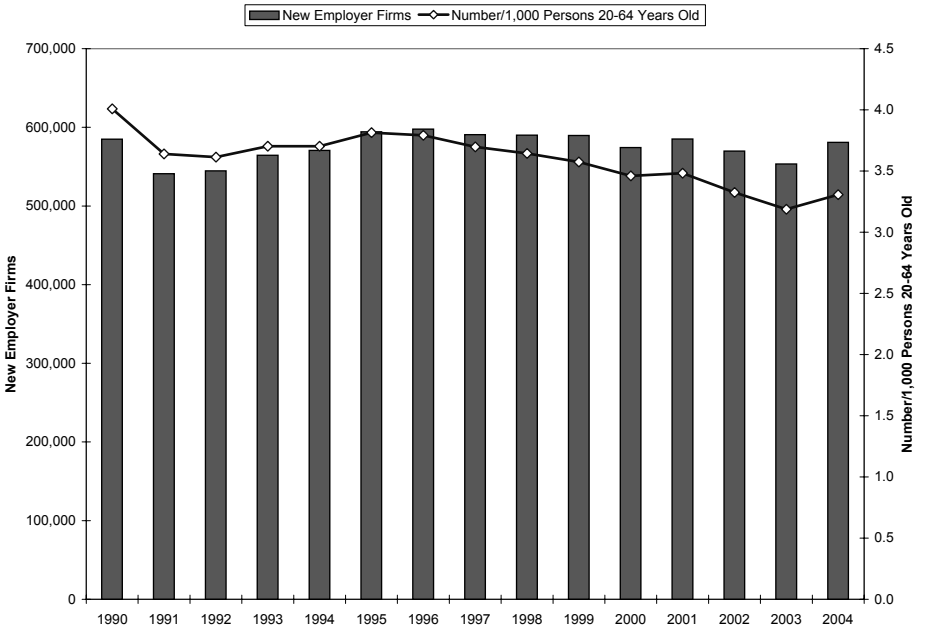


Figure 2.4. New Employer Firms: Annual Counts and Prevalence [U.S. Census] 1990–2004

A second national estimate is based on initial filings of state unemployment insurance payments consolidated by the Bureau of Labor Statistics (called the ES-202 files). In this case, the unit of analysis is the establishment. No effort is made to separate new single location establishments, which would represent the creation of a new firm, from a new branch or subsidiary, which could be considered an expansion of an existing firm (a new Home Depot, for example).

In addition, the files are organized to provide estimates of the new listings for each three-month period; the files for two points in time are compared every three months. Because a number of listings are present for short periods, this leads to a somewhat larger count than assessments based on comparisons twelve months apart (as with the previous example).[15] Some represent firms with short lives; other firms are seasonable in nature, such as a firm in the northern United States that may only be active building garages in the summer.

The result, both annual counts and prevalence rates, are presented in Figure 2.5.[16] As with previous tables, the bars represent the annual counts, with the scale to the left, and vary from 1.2 to 1.4 million per year. The prevalence per 1,000 persons 20 to 64 years of age, which varies from 7.6 to 8.6, is represented by a line with the scale to the right. In this case, the number of new establishments is gradually increasing, while the prevalence rate has peaked in 2000 with a slight decline through 2003.

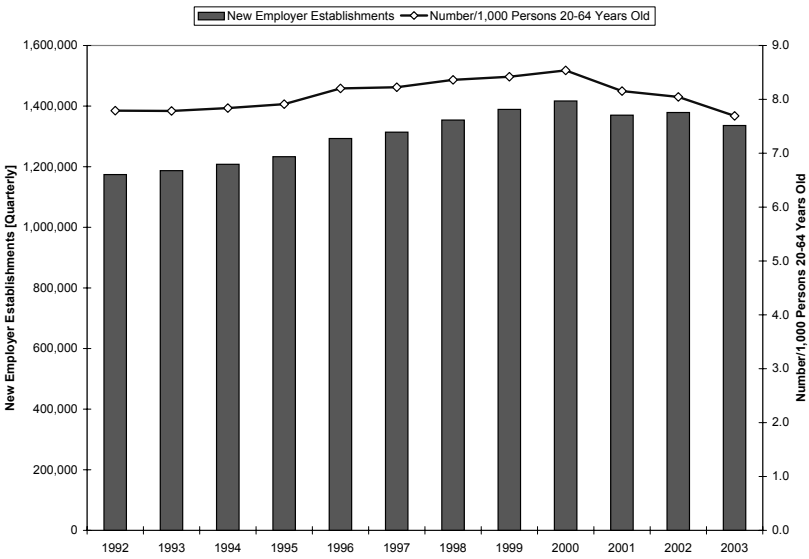


Figure 2.5. New Employer Establishments: Annual Counts and Prevalence [BLS] 1992–2003

The difference between the annual new firm-based counts presented in Figure 2.4 and the quarterly new establishment counts presented in Figure 2.5 is due to the difference in both the time period (quarterly versus annual) and unit of analysis (establishment versus firm). Both assessments indicate substantially less change over time than reflected in assessments based on surveys of the U.S. adult population.

CORRESPONDENCE BETWEEN PROCEDURES

These dramatic differences—population surveys measuring millions of new firms each year and tax registration files indicating hundreds of thousands of new firms each year—might suggest that these procedures are reflecting completely different phenomena. Is it possible, then, to reconcile these differences? The short answer is yes but it is technically complicated. A great deal of information is required from the individuals in the population surveys about the new venture to establish a correspondence between estimates from the two sources—household surveys and administrative records.

This has been done for data from PSED I, as is illustrated in Figure 2.6. The information from the screening and detailed interviews in PSED I is used to estimate the number of start-up efforts that would be captured in the new firm counts developed by the U.S. Census/SBA data set for the same period,1998 to 2000.[17] A number of adjustments are required and are reflected in Figure 2.6. Note that the vertical axis is a logarithmic scale.

	Nascent Entrepreneur Count	Start-up Initiative Count	New FICA Fillings Count	New FICA Fillings Count, Adjusted	SBA, New Employer Firms
Low	10,627,000	5,804,947	396,106	475,328	581,297
High	13,210,000	7,764,559	557,216	668,659	581,297
Mean	11,871,000	6,721,971	470,538	564,646	581,297

Figure 2.6. New Employer Firms: Survey Estimates and Administrative Record Counts

1. Total number of U.S. adults involved in start-ups is computed as 11.9 million, with a 95% confidence interval from 10.6 to 13.2 million.
2. As the typical start-up involves about 1.77 individuals, this is adjusted to estimates of new ventures, a point estimate of 6.7 million, with a 95% confidence interval of 5.8 to 7.8 million.
3. The Census/SBA count of employer firms is based on new FICA filings. Data from the detailed interview, where respondents are asked if they have filed initial FICA (social security payments), are used to reduce this count to 471 thousand, with a 95% confidence interval from 396 to 557 thousand.
4. It is known that a truncated callback procedure in the initial screening procedure will reduce prevalence rates.[18] The marketing research firm made three attempts to contact each household in the sample; it is estimated that a 10-callback criteria would increase prevalence rates by 20%. This adjustment brings the estimated count to 565 thousand new employer firms in the Census/SBA data set.

The result is an estimate of 565 thousand, very close to the administrative record count of 581 thousand for the same period; the 95% confidence interval of 475 to 689 thousand easily encompasses the actual count.

It seems reasonable to conclude that the two procedures—a human population survey and the assessment of new federal social security tax payments—are

providing measures of the same phenomena, reflecting different stages of the firm start-up process. A similar comparison for twelve other countries finds either a correspondence between estimates or differences related to idiosyncratic features of official national data sets.[19] It would seem that these different measures are reflecting different stages of the firm creation process—different aspects of the same phenomena.

It is not possible, this time, to produce a similar assessment of the difference between the CPS-developed estimates and the new registrations of employer firms.

OVERVIEW

The concept of entrepreneurship is broad and comprehensive, allowing for coverage of a wide range of phenomena and interests. While empirical measures of entrepreneurship are difficult to find and problematic to apply, precise measures of new firm creation have been developed for representative surveys of the human population. They can be shown to correspond with measures of new firm creation based on official administrative records. These two sources seem to reflect different aspects—or different stages—of the same phenomena.

One unequivocal pattern is that there are millions of people involved in new business creation. While precise estimates of the numbers at different stages of the process is difficult to determine at this time, new firm creation—a major aspect of entrepreneurship—is clearly a major career option for a substantial proportion of the work force.

NOTES

1 The last four are based on an overview provided by Aldrich (2005); the discussions in Davidsson (2004) are also valuable.

2 Gartner (1988).

3 Shane and Venkataraman (2001).

4 There is a substantial literature on how to develop representative samples of existing organizations. One effort to consider alternatives for sampling new businesses discusses different sampling lists based on alternative definitions of a "going business" (Katz and Gartner, 1988).

5 Shapero and Giglierano (1982).

6 Vale (2006).

7 This is discussed in more detail in Chapter 6.

8 Employer firm size data from 'www.sba.gov/advo/research/data.html' for 2001. Self-employment data from Table No. 586 U.S. Census Bureau, Statistical Abstract of the United States: 2004-2005.

9 Zacharakis, Reynolds, Bygrave (1999); Zacharakis, Bygrave, and Sheperd (2001); Zacharakis, Neck, Bygrave, and Cox (2002); Neck, Zacharakis, Bygrave, and Reynolds (2003); and Minniti and Bygrave (2004).

10 Fairlie (2006). The summary results in Table 1 are changed from the 2005 report on the 1996–2004 period after a review of the imputed observations for self-employment missing values suggested are more accurate assessment [Robert Fairlie, personal communication, 17 July 2006].

11 Details are provided at "http://www.bls.census.gov/cps/cpsmain.htm."

12 Those working from 1-14 hours per week on self-owned businesses in the first months are dropped from the sample. [Robert Fairlie, personal communications, 19 Jan 2006]. This is unlikely to have a major effect on the results.

13 See Basic Monthly Survey CPS Questionnaire [http://www.bls.census.gov/cps/bqestair.htm].

14 Data on firm births from Table A.9, page 189 of U.S. Small Business Administration, Office of Advocacy (2004). Data on U.S. Population from Statistical Abstract of the United States: 2004–2005 (Table 11), 2003 (Table 11), and 2001 (Table 12).

15 An assessment of the total new firms located in four three-month quarters compared to annual estimates found a 74% increase in the number of firm births for four years: 1998 through 2001; this ratio was very consistent across the four years. Table 3 from Pinkston and Spletzer (2004).

16 Data on establishment births from Table 3, page 34, of Spletzer, Faberman, Sadeghi, Talan, and Clayton. (2004). For population data see footnotes to table B-3.

17 This material and the table are from pages 256–257 of Gartner, Shaver, Carter, and Reynolds (eds). (2004).

18 Table A.8, page 473, from Gartner, Shaver, Carter, and Reynolds (eds). (2004).

19 See Table IX in Reynolds, Bosma, Autio, and others (2005).

3
How Much and When?

What has been the level of entrepreneurship—efforts to create businesses—in the United States over the past decade? It is possible to review trends since 1993, when the first surveys of adult populations were completed. Between 1993 and 2006, there have been over 134 independent samples, each of one thousand U.S. adults, all using one single-item measure. More comprehensive measures of participation in entrepreneurship, the prevalence of active nascent entrepreneurs and the Total Entrepreneurial Activity [TEA] index, were developed in 1998 and are available through 2006. The prevalence of entrepreneurial activity reflected in these indicators, based on household surveys, is then discussed in relation to tracking new firm management activity and incorporation of new employee businesses in tax registration files, as discussed in Chapter 2.

It is possible to consider the extent to which different groups of people have different patterns over the 1998-2006 period; there appears to be slightly more volatility among young men than any other group. The final section provides evidence regarding the personal context for entrepreneurship; those with a more positive personal context seem to be more active in business creation.

SINGLE ITEM INDEX: 1993–2005

One item, designed to capture independent efforts to create a business, has been used in every one of these 134 surveys. The initial version was "Are you, alone or with others, now trying to start a new business?" Additional clauses were then added related to "participation in any form of self-employment" and, later, "any exchange of money for goods or services." It turns out that the wording of these screening items has a significant effect on the proportion that answer "yes," so adjustments to compensate for wording effects are required to provide comparisons over time.[1] The proportion that answer yes to this item, adjusted for wording effects, is provided in Figure 3.1 for 1993 through 2006.

Based on this one item indicator there seems to have been a 50% increase, from 8 per 100 to 12 per 100, in participation in firm creation from the early 1990s to the late 1990's. There are no real changes over time after 1998; the statistically significant low value for 2004 may be a fluke. The prevalence

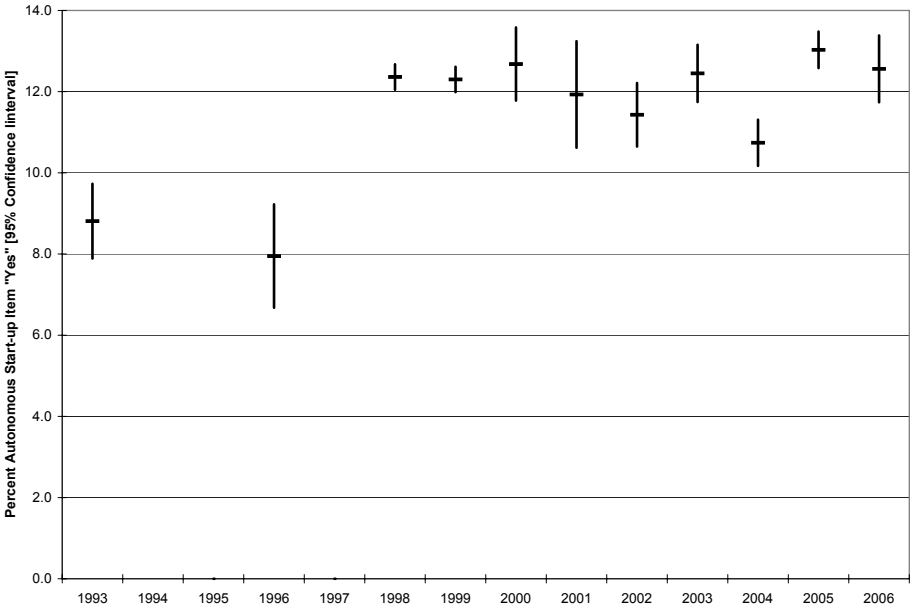


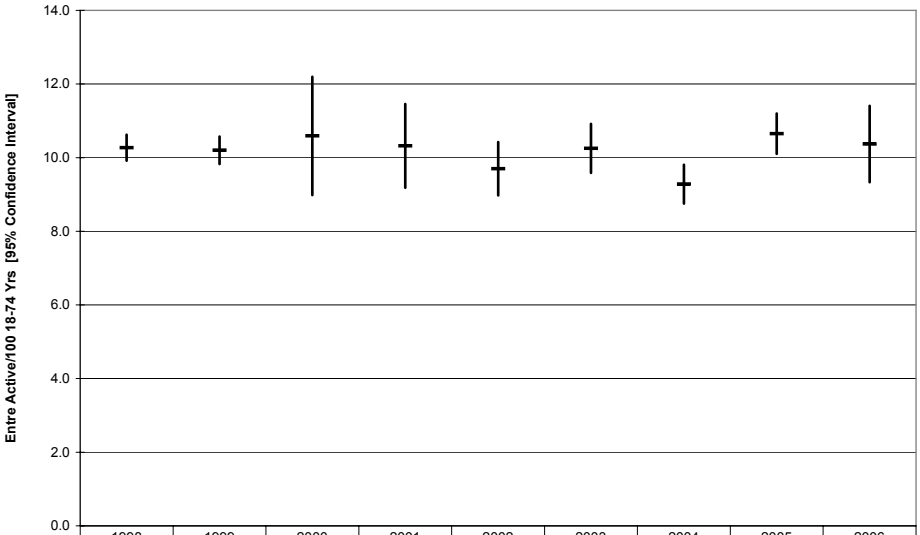
Figure 3.1. Entrepreneurial Activity, Single Item Index: United States 1993–2006

rates for 2005 and 2006 are, at 12-13 per 100, about the same as for 1998 and 1999. Answers to this single item provide an indicator of those that may be considered candidate nascent entrepreneurs. In general, less than one-third of these candidates are found to be active nascent entrepreneurs, those engaged in some activity in the previous 12 months and expect to own part of the firm and are involved in an initiative that has yet to reach financial breakeven.

TOTAL ENTREPRENEURIAL ACTIVITY INDEX: 1998–2006

The Total Entrepreneurial Activity [TEA] index combines those active in both the start-up and new firm phase of the business life course; this was illustrated in Figure 2.1. Direct measures of the TEA index were obtained in the 2000 to 2004 period. They were adjusted to compensate for screening item wording effects and the results used to estimate TEA values for the 1998-2006 period.[2]

The changes in the United States from 1998 to 2006 using the TEA index are presented in Figure 3.2 as prevalence rates: the number per one hundred individuals 18–74 years of age involved in either start-ups or new firms or both. It reflects individuals actively involved in new firm creation, an unambiguous real world interpretation. Note that the pattern of the TEA index from 1998 to 2006 in Figure 3.2 is very uniform with no apparent trend of any kind.



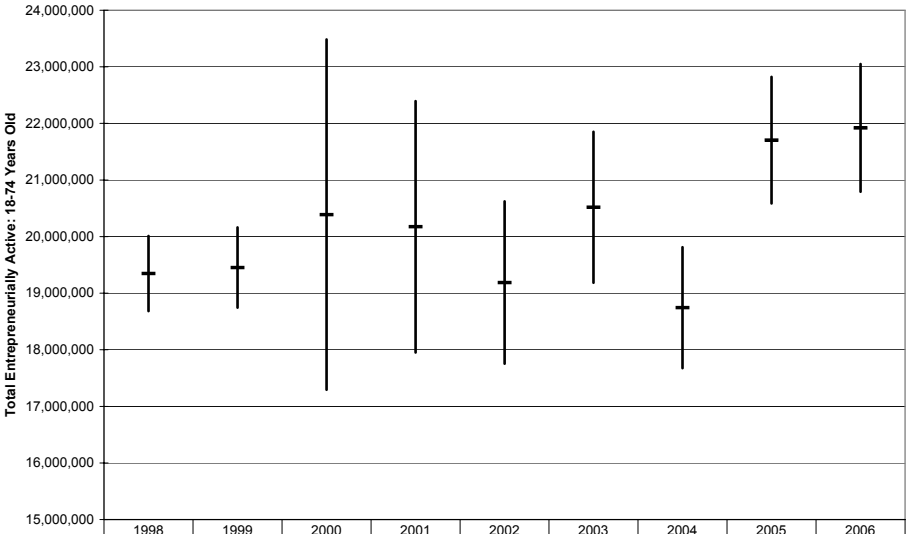
	1998	1999	2000	2001	2002	2003	2004	2005	2006
Low	9.9	9.8	9.0	9.2	9.0	9.6	8.8	10.1	9.3
High	10.6	10.6	12.2	11.5	10.4	10.9	9.8	11.2	11.4
Mean	10.3	10.2	10.6	10.3	9.7	10.3	9.3	10.7	10.4

Figure 3.2. Total Entrepreneurially Active Prevalence Rate: 1998–2006

The significance of these changes, in terms of the level of activity in the U.S. population, is indicated by the number of individuals involved, as presented in Figure 3.3. Estimates of the total number of persons are based on U.S Census counts of the number of U.S. adults 18 to 74 years old for each of the nine years and the prevalence rates shown in Figure 3.2. This scale has been adjusted to provide more precision in the presentation; the lower axis represents fifteen million individuals, not zero. There is some increase in participation, from 19.5 million in 1998 to 22 million in 2006, but much of this reflects increases in the population, and there was gain of 7.5 million individuals 18-74 years of age between 1998 and 2006.

The TEA index involves a combination of those active with a firm start-up as well as those managing new firms up to 3.5 years old. The measure is disaggregated to show estimates of the different activities in Figure 3.4—presented as the number of individuals involved in either a business start-up, managing a new firm, or both.[3] As with Figure 3.3, these changes reflect both shifts in participation and the increases in the number of individuals 18-74 years of age.

The patterns in Figure 3.4 suggest that the single largest source of individuals that make up the TEA index are those entering the start-up process as nascent entrepreneurs. It is, of course, relatively easy to shift into and out of the gestation process—rather like being engaged to be engaged to marry. The numbers of nascent entrepreneurs has been from 11 to 12 million a year from 1998 to 2006.



	1998	1999	2000	2001	2002	2003	2004	2005	2006
Low	18,681,724	18,742,707	17,294,315	17,951,411	17,753,321	19,184,834	17,675,741	20,585,842	20,791,300
High	20,010,912	20,163,153	23,482,903	22,395,867	20,622,401	21,852,886	19,813,603	22,822,706	23,050,490
Mean	19,346,318	19,452,930	20,388,609	20,173,639	19,187,861	20,518,860	18,744,672	21,704,274	21,920,895

Figure 3.3. Total Entrepreneurially Active Persons: 1998–2006

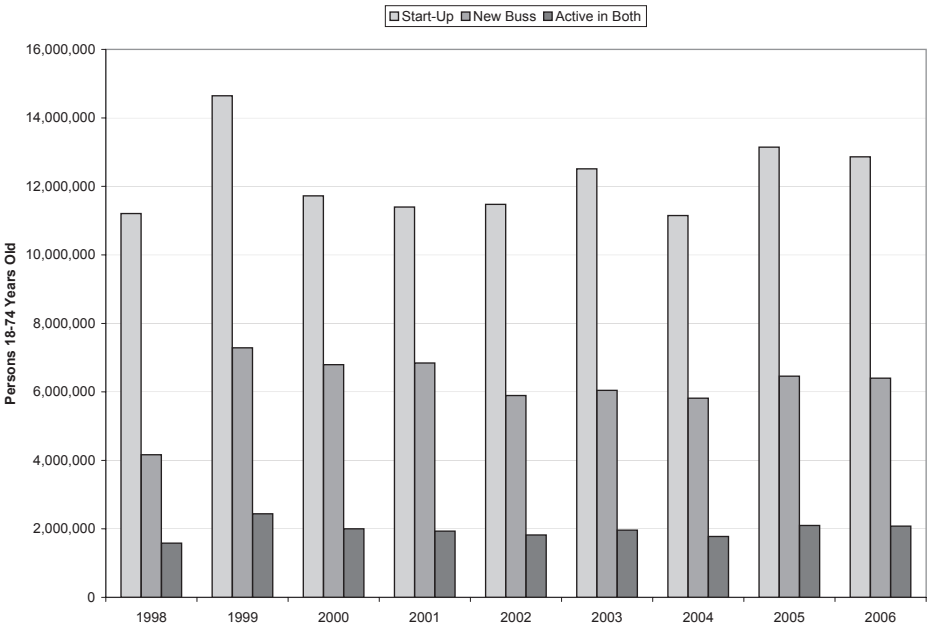


Figure 3.4. TEA Persons Active in Start-ups and New Firms: 1998–2006

The number owning and managing new firms has been relatively constant, at slightly more than 6 million. Remarkably, about 2 million each year are both managing a new firm and involved in the creation of another new business. In all cases the number of business initiatives is about half the number of active individuals, as the average effort involves almost two owners (potential or actual).

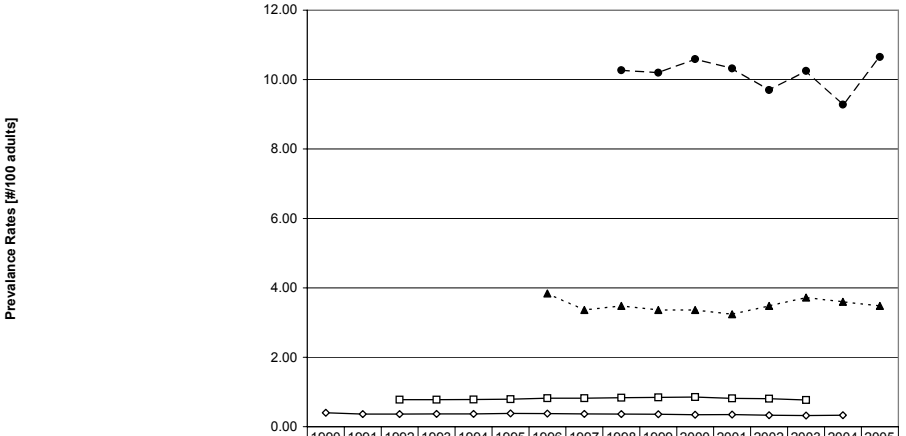
PREVALENCE OF PARTICIPATION AND EMPLOYER FIRM, ESTABLISHMENT REGISTRATIONS

These patterns would suggest considerable year-to-year stability in participation in the creation of new firms in the United States over the 1998-2006 period. Would other measures of U.S. new firm creation, discussed in Chapter 2, reflect the same trend? It is possible to compare measures based on two household population surveys (TEA and the CPS) and those efforts to assemble a complete census of all new registrations in employment tax payment files (firms by Census and establishments by BLS).[4] In all cases the results are presented as prevalence rates, number of new initiatives per 100 individuals, although the age range varies slightly for the different indicators.

The prevalence rates for all four measures are presented in Figure 3.5. Two patterns are striking. First, both survey-based measures are much higher, by a factor of 5 or 10, than the two measures based on new tax registrations. Second, all four measures related to prevalence in the human population show little change over the past 10–15 years. The dip in the TEA index measure for 2004 may be a temporary aberration.

The first pattern, the dramatic difference in the levels of activity, is exacerbated by the different units of analysis: individuals involved in business creation versus business entities with employees. Knowing that a typical business has about two owners, this difference is reduced by half. Annual prevalence rates of new employer firms are in the range of 0.35 per 100 individuals. Assuming the TEA active person measure is 10 per 100, this would be reduced to 5 per 100 businesses, whether start-ups or new. It would appear, then, that it takes about 15 (5/0.35) individuals reporting TEA activity to generate one employer firm. If the focus is on those reporting increased attention to self-owned businesses in the CPS, then it takes about 6 persons (2.25/0.35) to create a single employer firm. Even assuming that from 30-40% of these start-up efforts will be self-employed individuals with no employees, it would appear that it might take 4 to 10 persons in the start-up process to generate one firm with employees.

The second major pattern—the stability of all four patterns over time—is also of considerable interest. It would appear that business creation is a core feature of the business dynamics and career patterns in the United States. It



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
New Employer Firms: #/100 20-64 Yrs Old [Census/SBA]	0.40	0.36	0.36	0.37	0.37	0.38	0.38	0.37	0.36	0.36	0.35	0.35	0.33	0.32	0.33	
New Employer Establishments: #/100 20-64 Yrs Old [BLS]			0.78	0.78	0.78	0.79	0.82	0.82	0.84	0.84	0.85	0.82	0.81	0.77		
Enhanced Buss Management: #/100 20-64 Yrs Old [CPS]							3.8	3.4	3.5	3.4	3.4	3.2	3.5	3.7	3.6	3.5
Total Entrepreneurial Activity: #/100 Persons 18-74 Yrs Old [Surveys]									10.3	10.2	10.6	10.3	9.7	10.3	9.3	10.7

Figure 3.5. Four Measures of U.S. Business Creation: 1990–2005

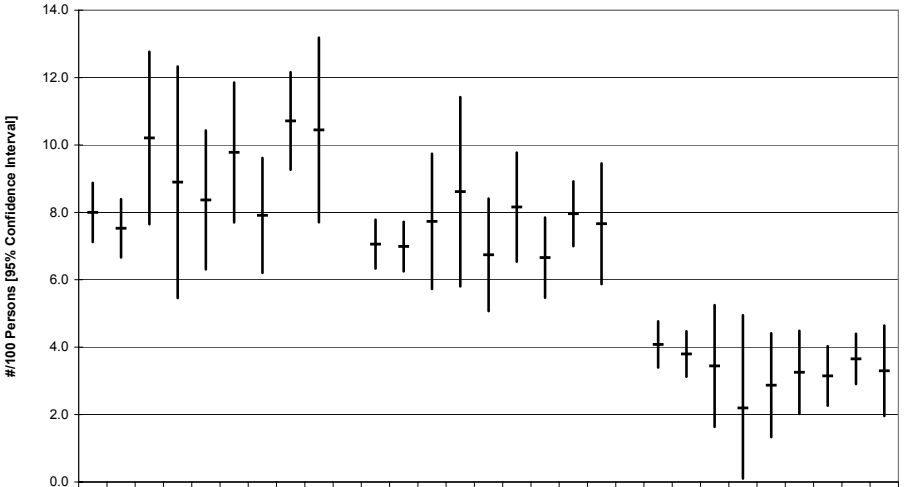
does not appear to reflect variation in macro-economic conditions, such as growth in National GDP, inflation, interest rates, etc.

The remarkable consistency in these measures would suggest that the level of opportunity (or demand) for new firms is very stable in the U.S.

ARE DIFFERENT GROUPS CHANGING PARTICIPATION OVER TIME?

The most fundamental factors that affect participation in business creation are age and gender. The impact of age and gender on a harmonized measure of participating in the start up process is presented for men and women in three age groups in Figures 3.6 and 3.7. These are estimates of active nascent entrepreneurs, those active in the start-up process in the previous 12 months, expectations of full or part ownership of the new firm, and the initiative has yet to reach break even in financial flows. The prevalence of active nascent entrepreneurs is provided for all years from 1998 to 2006.

In general, men are 50 to 80% more involved as active nascent entrepreneurs as women of the same age. For those 18-34 years old the average for men is 9.1 per hundred, 80% higher than 5.1 per hundred for women. Among those 35-54 years old the average for men is 7.5 per hundred, 50% higher than 4.9 per hundred for women. Among those 55-74 years old, the average for men is 3.3 per hundred, 80% higher than 1.8 per hundred for women.



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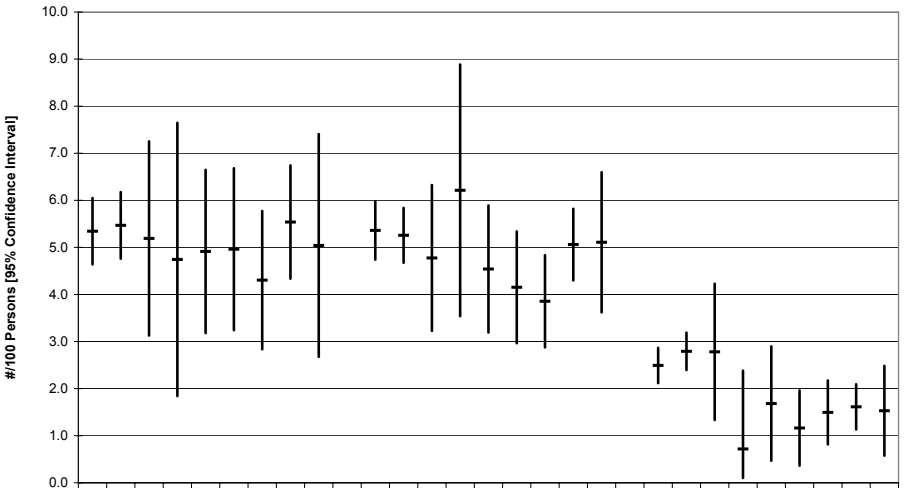
Lo	7.1	6.7	7.6	5.5	6.3	7.7	6.2	9.3	7.7	6.3	6.3	5.7	5.8	5.1	6.5	5.5	7.0	5.9	3.4	3.1	1.6	0.1	1.3	2.0	2.3	2.9	2.0
Hi	8.9	8.4	12.8	12.3	10.4	11.9	9.6	12.2	13.2	7.8	7.7	9.7	11.4	8.4	9.8	7.8	8.9	9.5	4.8	4.5	5.2	4.9	4.4	4.5	4.0	4.4	4.6
Mean	8.0	7.5	10.2	8.9	8.4	9.8	7.9	10.7	10.4	7.1	7.0	7.7	8.6	6.7	8.2	6.7	8.0	7.7	4.1	3.8	3.4	2.2	2.9	3.3	3.1	3.7	3.3

Figure 3.6. Active Nascent Entrepreneurs, Men by Age: United States 1998–2006



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Lo	4.6	4.8	3.1	1.8	3.2	3.2	2.8	4.3	2.7	4.7	4.7	3.2	3.5	3.2	3.0	2.9	4.3	3.6	2.1	2.4	1.3	0.1	0.5	0.4	0.8	1.1	0.6
Hi	6.0	6.2	7.3	7.6	6.6	6.7	5.8	6.7	7.4	6.0	5.8	6.3	8.9	5.9	5.3	4.8	5.8	6.6	2.9	3.2	4.2	2.4	2.9	2.0	2.2	2.1	2.5
Mean	5.3	5.5	5.2	4.7	4.9	5.0	4.3	5.5	5.0	5.4	5.3	4.8	6.2	4.5	4.2	3.9	5.1	5.1	2.5	2.8	2.8	0.7	1.7	1.2	1.5	1.6	1.5

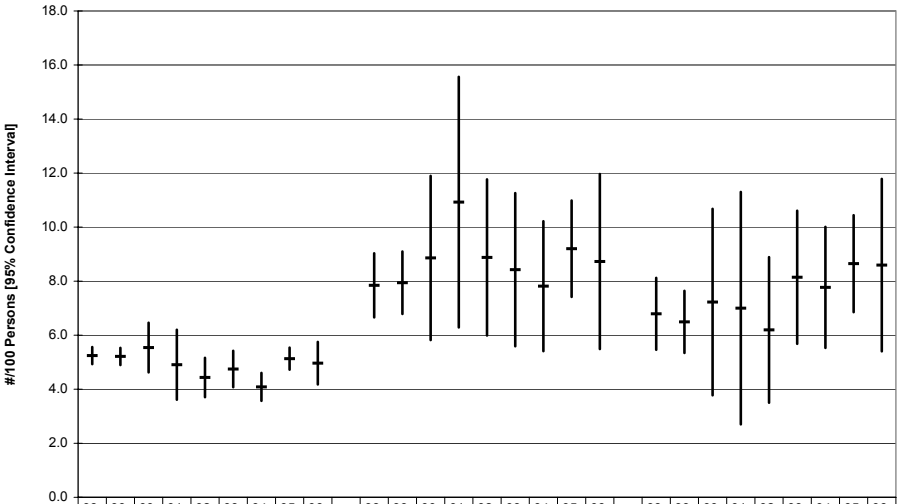
Figure 3.7. Active Nascent Entrepreneurs, Women by Age: United States 1998–2006

Few temporal changes are reflected in Figures 3.6 and 3.7. There may be an increase among younger men, those 18-34 years of age from 8 to 10 per hundred when 1998 is compared to 2006. There may be a decrease among older women, those 55-74 years of age, from 2.5 to 1.5 per hundred when 1998 is compared to 2006. These shifts, which may be statistically significant, are subtle. There is no apparent trend over the 1998 to 2006 period for the other age and gender groups.

Those from different ethnic backgrounds may confront different work and career choices and have different tendencies to participate in the firm creation process. A comparison of the prevalence of active nascent entrepreneurs among Whites [Whi], Blacks [Bla], and Hispanics [His] is presented in Figure 3.8. There are clear differences among ethnic groups. The average prevalence for Blacks is 8.7 per hundred, which is 78% higher than that for Whites, at 4.9 per hundred. Hispanics, at 7.4 per hundred, are 51% more active than Whites. Some of these differences will be discussed in more detail in later chapters.

There is, however, great similarity in the temporal pattern for these three groups. None reflect statistically significant changes over the 1998-2006 period. Whatever affects the tendency of U.S. adults to pursue new firm creation has the same impact on all ethnic groups.

One important measure of both the capacity to invest in business creation and an indicator of participation in the world of work is the level of household



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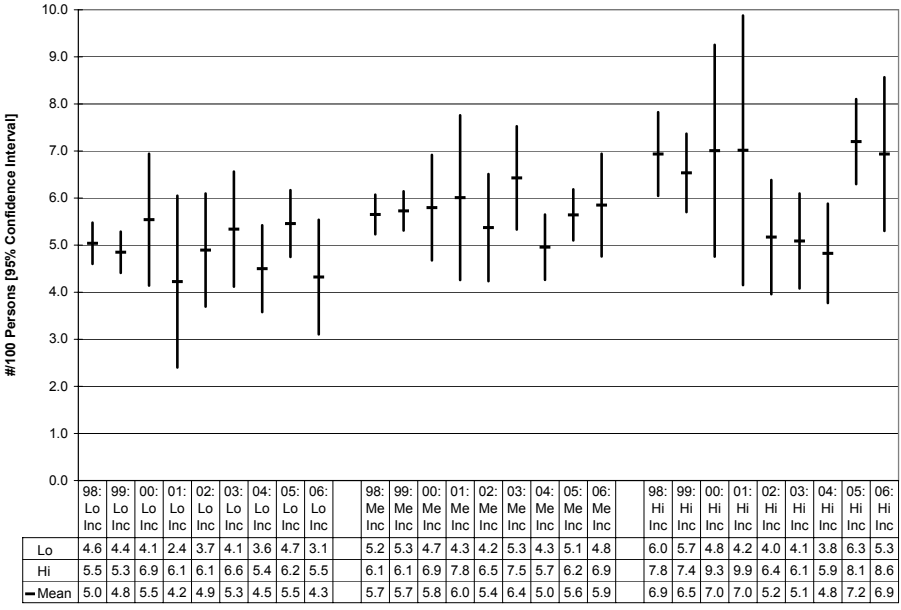
Lo	4.9	4.9	4.6	3.6	3.7	4.1	3.6	4.7	4.2		6.7	6.8	5.8	6.3	6.0	5.6	5.4	7.4	5.5		5.5	5.3	3.8	2.7	3.5	5.7	5.5	6.9	5.4
Hi	5.6	5.5	6.5	6.2	5.2	5.4	4.6	5.5	5.8		9.0	9.1	11.9	15.6	11.8	11.3	10.2	11.0	12.0		8.1	7.6	10.7	11.3	8.9	10.6	10.0	10.4	11.8
Mean	5.2	5.2	5.5	4.9	4.4	4.7	4.1	5.1	5.0		7.8	7.9	8.9	10.9	8.9	8.4	7.8	9.2	8.7		6.8	6.5	7.2	7.0	6.2	8.1	7.8	8.6	8.6

Figure 3.8. Active Nascent Entrepreneurs, by Ethnicity: United States 1998–2006

income.[5] For this assessment the annual household income reported by the respondent is sorted into three categories: up to $30,000 per year, from $30,000 to $75,000 per year, and $75,000 and more per year. These are labeled as low [Lo], medium [Me], and high [Hi] household income groups in Figure 3.9.

There is a slightly higher tendency to become involved in business creation among those living in higher income households. The participation rate for those from high income households, at 6.3 per hundred, is 10% higher than the 5.7 per hundred for those from moderate income households and 29% than the 4.9 per hundred for those from low income households. When aggregated across years, these differences are statistically significant. But a number of other factors are associated with household income, such as the level of education and a substantial proportion older retirees among low income households. Hence, household income alone is unlikely to be a major factor affecting the decision to become involved in new firm creation. This is consistent with more detailed analysis of the effect of household wealth on participating as a nascent entrepreneur.[6]

As with the patterns for different ethnic groups, there is little evidence of major temporal changes among those from households with different levels of annual income over the 1998-2006 period.



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Lo	4.6	4.4	4.1	2.4	3.7	4.1	3.6	4.7	3.1		5.2	5.3	4.7	4.3	4.2	5.3	4.3	5.1	4.8		6.0	5.7	4.8	4.2	4.0	4.1	3.8	6.3	5.3
Hi	5.5	5.3	6.9	6.1	6.1	6.6	5.4	6.2	5.5		6.1	6.1	6.9	7.8	6.5	7.5	5.7	6.2	6.9		7.8	7.4	9.3	9.9	6.4	6.1	5.9	8.1	8.6
Mean	5.0	4.8	5.5	4.2	4.9	5.3	4.5	5.5	4.3		5.7	5.7	5.8	6.0	5.4	6.4	5.0	5.6	5.9		6.9	6.5	7.0	7.0	5.2	5.1	4.8	7.2	6.9

Figure 3.9. Active Nascent Entrepreneurs, by Household Income: United States 1998–2006

PERSONAL CONTEXT

Individuals in a personal context where firm creation is a common activity and socially supported may be more likely to become involved in new firm creation. Information about personal context was obtained in surveys that were part of the GEM initiative and the U.S. Assessment from 2000 to 2004. All respondents—whether starting a firm or not—were asked about three topics related to their immediate context. The interview items inquire about a) personal knowledge of others that are starting a business, b) having the skills to pursue a start-up, and c) perceiving good opportunities for starting a business where one lives. These items could be then assembled into an index, with higher values reflecting a more positive personal context for entrepreneurship—knowing other entrepreneurs, having start-up skills, and perceiving business opportunities. This index for men and women, by age, is presented in Figure 3.10 and Figure 3.11.

The patterns reflecting personal entrepreneurial context are very similar to the prevalence of active nascent entrepreneurs presented in Figure 3.6 and 3.7. Comparing the two figures indicates that the personal context indices are uniformly more positive for men, averaging 4.0, compared to women, an average of 3.2. They also tend to be more positive for younger men and women. The patterns of temporal changes in the measures of personal context are quite similar to the changes in the level of participation in entrepreneurial activity; that

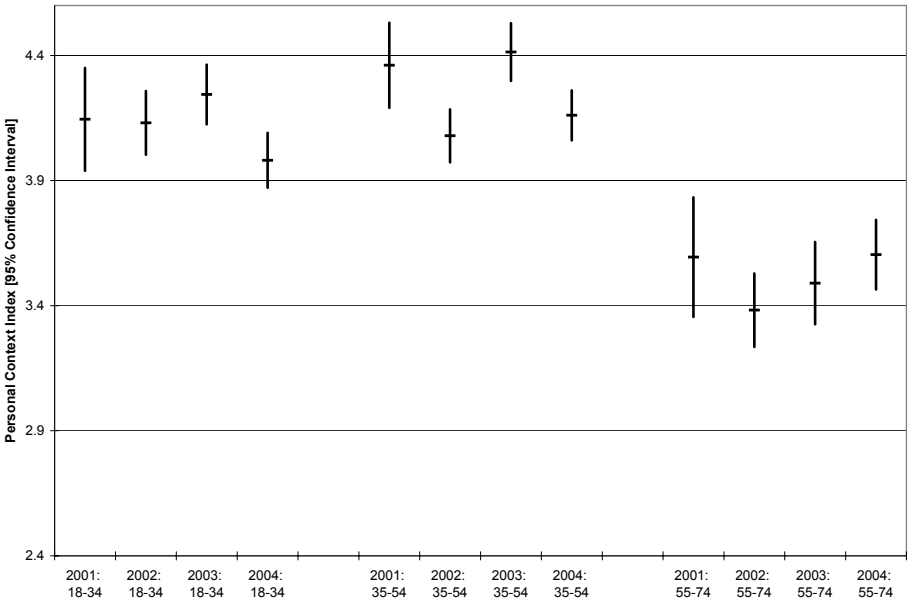


Figure 3.10. Personal Entrepreneurial Context Index: Men by Age: 2001–04

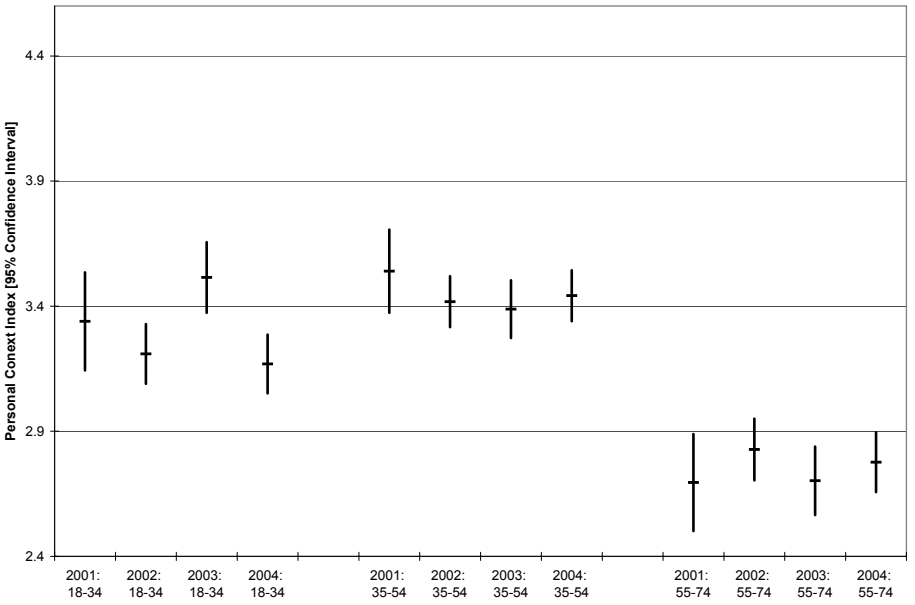


Figure 3.11. Personal Entrepreneurial Context Index: Women by Age: 2001–04

is to say, there is little temporal change. This suggests that the entrepreneurial behavior reflected a change in perceptions of events in the immediate personal context of these individuals; young and mid-career men and women are in a more positive personal context than older men and women.

OVERVIEW

The dominant pattern found in household population surveys designed to locate active participation in new firm creation suggests a remarkable consistency from 1998 through 2006. This is reflected in stability of the prevalence rates of screening items, active nascent entrepreneurs, and the TEA index. In addition, it is consistent with three other national efforts to provide time series estimates of new firm creation, two comprehensive sources of new entries into administrative business registries [BLS and Census] and estimates of increased business creation activity based on a monthly household surveys [CPS]. There is, however, substantial diversity across different regions of the U.S., which will be discussed in the next Chapter.

There are substantial differences by gender, men are 50-80% more active than women, as well as age, younger adults are the most active and those over 55 years of age much less involved. Ethnic differences are considerable, with Blacks 80% more active than Whites and Hispanics 50% more active. These

differences have not varied over the 1998 to 2006 period. There are differences among those from households with different levels of income. Persons from households with annual incomes of $75,000 per year or more are slightly more active than those from households with annual incomes of $30,000 to $75,000 per year. Those from households with income less than $30,000 per year are slightly less active. These differences are also relatively constant over the 1996-2006 period. Those age and gender categories where individuals report a more positive personal context for entrepreneurship are those with higher prevalence rates of active nascent entrepreneurs.

There is evidence that the attrition between participation as an active nascent entrepreneur and actually registering a new firm with employees is considerable; it may take 15 active nascent entrepreneurs to generate one firm with employees. This would suggest that a continuous flow of individuals into the firm creation process is important to gain the economic advantages of new firm creation. Fortunately, it would appear that participation in new firm creation is a stable and widespread activity among U.S. adults. What happens in the start-up process and who is able to successfully implement a new firm is the focus of Chapter 6.

NOTES

1 It turns out that the wording of the screening items has a major impact on the proportion of individuals that report participation in the firm creation process and are classified as candidate nascent entrepreneurs. A more complete assessment of this issue and procedures to adjust for screening item wording effects is provided in Reynolds (2007b) and summarized in Appendix A. The procedure, however, adjusts estimates for the proportion of individuals in a sample that may be identified as candidate nascent entrepreneurs. It does not provide for an adjustment of the responses of a specific individual. As a consequence, in order to develop estimates for different groups of individuals, say men 35-54 years of age in 1999, the predictive equation needed to be applied to each sub-sample. After weights were re-centered for each sub-sample, the estimates were developed. For example, this was done 27 times for each distinct sub-samples for men by age by year in Figure 3.6.

Based on the patterns found in the PSED II screening, it was assumed that 26.4 % of candidate nascent entrepreneurs meet all three criteria for active nascent entrepreneurs; this was applied to all sub-samples in all years. The standard error of the mean was assumed to equal that for the prevalence of individuals selected as start-up active and expecting ownership in the new venture, this two-criterion active nascent entrepreneur data was available for all samples from 1998 to 2006.

2 Estimates for 1998, 1999, 2005, and 2006 were produced from a linear model developed from a regression analysis of 33 sample replications where TEA was available that included adjustments for item wording. Estimate TEA index values were then produced with this linear model for all years.

3 For 1998, 1999, 2005 and 2006 those involved in the start-up phase as active nascent entrepreneurs or as new firm owner-managers are estimated from a linear model based on regression analysis of sample replications where all items were present including adjustments

for item wording effects. When added these estimates of prevalence rate exceed the TEA index prevalence rate, the overlap is assumed to equal those involved in both start-ups and new firms.

4 Establishments are single sites where economic activity takes place, some of which may be branches or subsidiaries of multi-establishment firms. A single firm includes one or more establishments that make up a single legal entity.

5 As typical for cold-call telephone household surveys, no information was available on household income for 17% of 134,360 respondents. Based on the responses of the 83% of the cases where household income was available, individuals were placed into one of three household income groups using data on educational attainment, gender, and age. This provided estimates of household income for an additional 12% of the cases, allowing the analysis to proceed with 95% of all respondents.

6 Kim, Aldrich, and Keister, 2003.

4
Comparisons across Space

Does location matter in terms of entrepreneurship? Yes, there is a great deal of geographic variation. The importance of such variation is reflected in the significant positive association between new firm births and subsequent economic growth as discussed in the first chapter (see Figures 1.7 and 1.8). This association with economic growth justifies attention to two issues: the extent of geographic variation in firm birth rates and those factors that seem to precede variation in firm births.

Survey-based information from individuals reporting participation in the entrepreneurial process can be considered in terms of geographic context. When nascent start-ups reach the point of sustained operations and become new firms, they are usually incorporated into established business registries. Such registries are a source of annual national counts of new businesses.

Both survey-based reports of participation and counts of new registrations are useful in exploring the geographic variation in new firm creation. As the most complete data for all regions of the United States are provided by the counts of new registry listings, such data will be the initial focus of this review. Information based on the survey interview reports of individuals in different regions will be discussed later in the chapter. The results are broadly consistent.

FIRM BIRTHS: SPATIAL DIVERSITY

Comparisons based on new firm registrations can be considered in terms of prevalence rates using the human population as the base, with the result being the annual rates of new firm births per 10,000 individuals residing in the area. Geographic diversity in levels of new firm births for the United States in 1976–78 is presented in Figure 4.1 and for 1996–97 in Figure 4.2; both use the 1990 labor market area designations.

Again, these U.S. maps are unfamiliar because they are based on labor market areas [LMAs], which are collections of adjacent counties with a high internal density of journey-to-work patterns; people live and work in the same set of counties.[1] One-third of the LMAs involve counties in two states, which is why

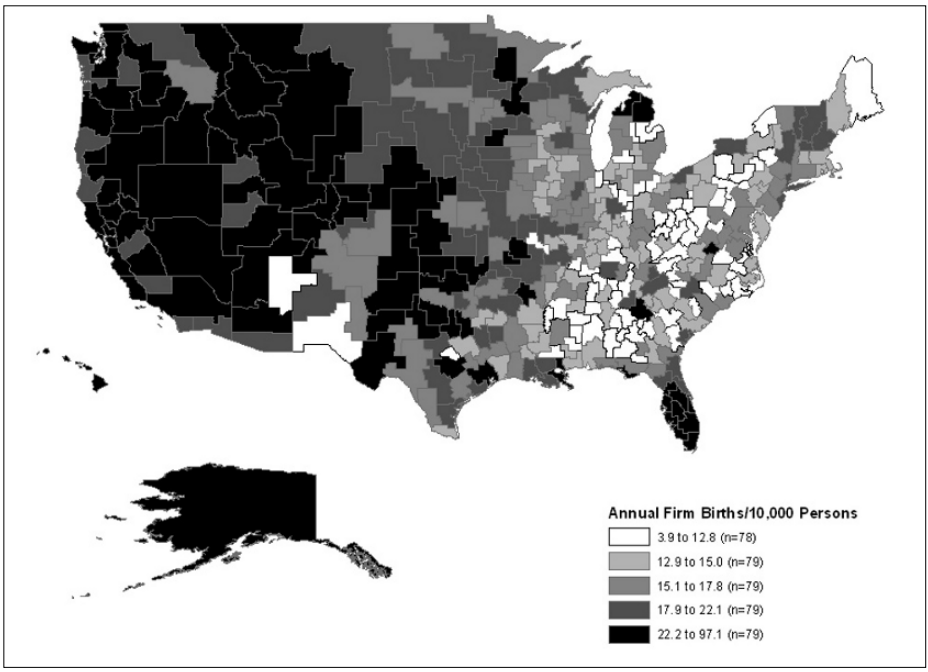


Figure 4.1. Firm Birth Prevalence by U.S. LMA: 1976–1978

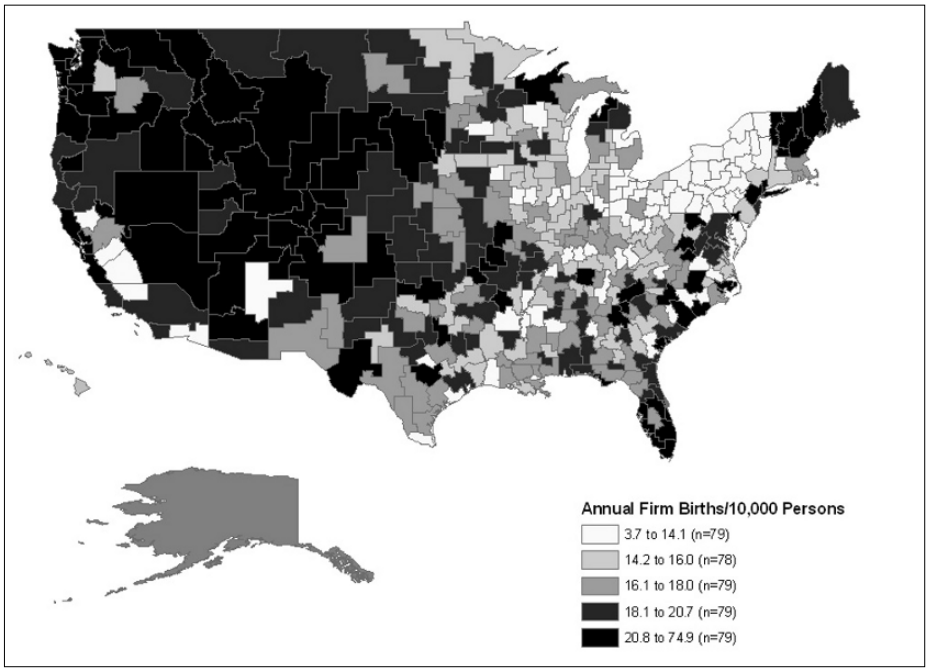


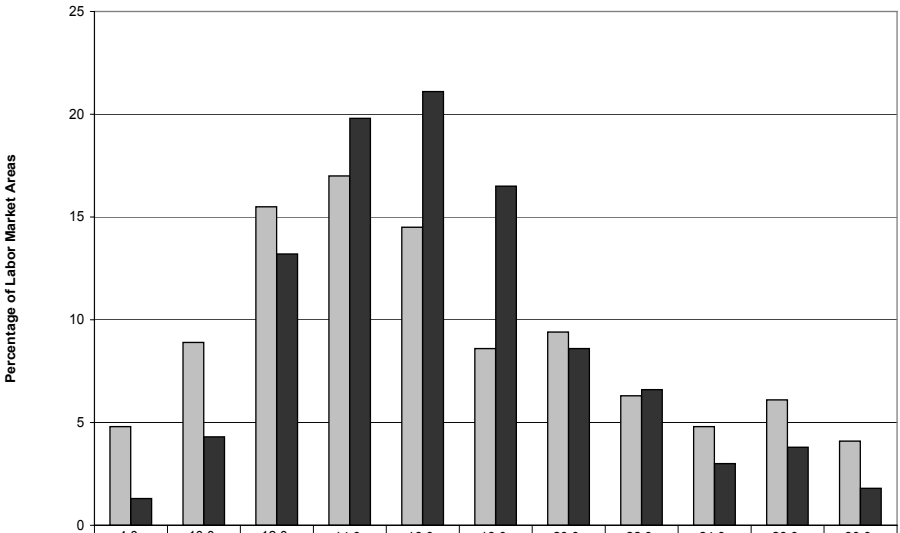
Figure 4.2. Firm Birth Prevalence by U.S. LMA: 1996–1997

it is hard to find the familiar state boundaries. Each LMA can be considered a miniature socioeconomic system, more or less independent of the other 393 LMAs.

These measures reflect similar conceptual definitions of the emergence of operating new firms but their registration criterion is slightly different. The data for the 1976–78 period are based on counts of new entries into a commercial credit rating file: the Dun and Bradstreet census of U.S. firms. These new firms may or may not have employees.[2] The data for the 1996–97 period are based on new firms making federal social security payments for the first time. Only firms with employees are included in these counts; new entries into self-employment are excluded.[3] The overall counts of firm births and major patterns tend to be very similar for these two registries.

Although they are 20 years apart, these two spatial patterns are quite similar. Examination of Figures 4.1 and 4.2 makes it clear that LMAs with the lowest firm birth rates (white areas) are concentrated in the region from western New York, through the upper Midwest, to southeast Wisconsin—often referred to as the Rust Belt. Low firm birth LMAs are also spread across the South, although less so for the 1996–97 period (Figure 4.2). The highest levels of activity (blackest areas) are more dispersed, but there are some concentrations on the coasts, particularly Florida; the rural regions of the West, where the LMAs have a large proportion of smaller firms; and in some growing urban centers. A complete listing of all LMAs, new firm birth rates, and other features is provided in Appendix C.

Has the amount of diversity across the United States changed in twenty years? Even though slightly different criteria are used to identify a new firm in these two data sets, the average values across the 394 LMAs are almost identical: 18.0 new firms per 10,000 in the population for 1976–78 and 17.8 new firms per 10,000 in 1996–97. The two frequency distributions presented in Figure 4.3 are similar. There is, however, a slightly greater dispersion for the earlier period (1976–78) compared to the later period (1996–97). This is reflected in larger standard deviations: 7.41 for the 1976–78 distribution, compared to 5.43 for 1996–97. This subtle shift over the 20-year period may reflect either a reduction in regional diversity or slightly different measurement procedures. The different measurement procedures would have more impact in the smaller LMAs. As the extreme cases—those with very low or very high firm birth rates—are usually the smaller LMAs, this would have more impact on measures of diversity.



	4.0-9.9/10K Persons	10.0-11.9/10K Persons	12.0-13.9/10K Persons	14.0-15.9/10K Persons	16.0-17.9/10K Persons	18.0-19.9/10K Persons	20.0-21.9/10K Persons	22.0-23.9/10K Persons	24.0-25.9/10K Persons	26.0-29.9/10K Persons	30.0-97.9/10K Persons
1976-78	4.8	8.9	15.5	17.0	14.5	8.6	9.4	6.3	4.8	6.1	4.1
1996-97	1.3	4.3	13.2	19.8	21.1	16.5	8.6	6.6	3.0	3.8	1.8

Figure 4.3. Frequency Distribution of Annual Regional Firm Birth Rates: 1976–78 and 1996–97

FIRM BIRTHS: REGIONAL FACTORS ASSOCIATED WITH VARIATIONS

There is clearly substantial diversity in firm birth rates; the highest values are 8–10 times greater than the lowest values. Given this variation, it is possible to consider a variety of regional factors that may be expected to affect firm birth rates. Confidence in the results as related to causal mechanisms is greater if two elements are present: first, the measures precede the years in which birth rates are measured; second, the measures across regions are standardized. Fortunately, a wide range of harmonized federal sources—County Business Patterns [CBP], Regional Economic Information System [REIS], the decennial U.S. Census—provide substantial county-level information that can be aggregated to characterize the LMAs.[4] These can be used to describe these regions in periods prior to and concurrent with the periods in which the firm birth rates are determined.

Three analyses of regional factors affecting firm birth rates have been completed using the LMAs as the unit of analysis. The most extensive developed models for 11 different time lags, from concurrent periods to a 16 years lag. In this assessment the goal was to predict new firm births for six two-year periods from 1976–78 to 1986–88. The firm birth measures were based on new entries in a commercial credit rating file for 382 LMAs using the 1980 designation.[5]

The second focused on the 1994–96 period and used measures for the previous 5 years for independent variables; firm births were counts of employer firms making federal social security payments for the first time.[6]

The third analysis, completed for this chapter, used measures of average annual firm births from 1990 to 2001 and indicators of the independent variables assembled from the previous 5–10 years.[7] The latter two analyses used the 394 LMAs based on the 1990 designations as the geographic unit of analysis.

In all cases versions of linear additive models were produced using stepwise, hierarchical modeling to determine the most important regional factors associated with increased levels of new firm births, measured in terms of the human population. This procedure takes into account and makes adjustments for co-variation (or the mutual presence) among the independent variables; factors are selected that appear to have independent impact on the outcome—in this case new firm birth rates.

The significant independent variables are summarized in Table 4.1. Several general points are of interest. First, all the characteristics are measured prior to the periods in which new firms and growth firms are identified. As a result, some confidence in causal inferences may be justified.

Second, as the results represent the entire United States, no sampling variation will complicate interpretations. These patterns reflect, for these periods, differences across the entire country for all economic sectors, aside from agriculture production.

Third, the overall success of the models is substantial. As shown in the second row of Table 4.1, from 57% to 70% of the variation in new firm births rates are accounted for by the basic linear additive regression models. Not only are the overall models highly statistically significant, but all of the individual factors included in the models also provide an independent and statistically significant contribution to the explained variance.

The initial models (for the 1976–88 period) utilized 15 multi-item indices reflecting over one hundred individual measures to predict firm births; the seven most significant indices are included in Table 4.1. The number of models for which each index has a significant impact, out of 11 different time lags, is indicated in the appropriate cell.[8] The center column of results (for the 1994–96 period) reflects the standardized Beta values for a reduced list of variables in the regression model for all sector birth rates. The last column (for the 1990–2001 period) reflects the significant impact of 10 factors from the 41 initially included in the analysis by presenting the standardized Beta values. In many cases candidate variables provide alternative measures of the same regional characteristic. For example, several indicators of specific economic sectors or occupations were included in the final set of predictive variables, indicating that the overall economic sector or occupational structures were important

Table 4.1. Regional Factors Affecting Firm Birth Rates

	Time lag (yrs)	Reynolds, Miller & Maki	Acs & Armington	Special assessment
Period of Firm Birth Predictions		1976–1988	1994–1996	1990–2001
Explained variance (R squared)		57–70%	67%	63%
Column entries		# sign't*	Beta	Beta
Increases in Demand				
Population growth index (pop growth, in-migration, residential tenure)	0–16	6/11		
Population growth	2		0.37	
Population growth	10			0.38
Personal wealth index (per capita inc, inc per household, non-labor income per capita)	0–16	9/11		
Income growth	2		0.16	
Proportion HH incomes below $20,000/yr	6			0.22
Career Capacity				
Career opportunity index (young adults, college degrees, white collar occupations)	0–16	10/11		
Proportion without HS degrees	5		0.23	
Proportion college graduates	5		0.29	
Proportion adults HS/Post HS, not college	5			-0.19
% farmers in the labor force	5			-0.26
Smaller Firm Presence				
Firm density (#/human pop)	1		0.46	
Establishment density (#/human pop)	6			0.54
Smaller establishments	0		0.36	
Share of proprietors in labor force	0		NS	
% Establishments: 50–99 employees	6			-0.17
% Establishments: 100–499 employees	6			-0.20
Economic Sector Volatility and Diversity				
Industry mix index (prop high churn sectors)	0–16	8/11		
Economic diversity index (estab/employees; occupational diversity)	0–16	9/11		
Proportion manufacturing estabs	6			0.18
Proportion fin, insur, real estate estabs	6			0.18
Proportion wholesale estabs	6			-0.10
Flexible Government Employment Policies				
Lack of flexible employment index (% unionized; % without right-to-work laws)	0-16	9/11		
Unemployment				
Unemployment, desperation index (-)	0,12	2/11		
Unemployment, desperation index (+)	14,16	2/11		
Unemployment rate	0		NS	NS
*Number of models where indicators were statistically significant/total models in analysis.				

as general categories affecting firm birth rates. The major influences can be considered in five categories.

Increases in demand are reflected in measures of LMA population growth as well as higher levels of household and personal income. Such increased demand can be expected to provide new opportunities for new firms; new firms are then created to meet the needs of these new customers. The impact in the last assessment (1990–2001 period) of higher proportions of low-income households

may reflect an increase of necessity entrepreneurship in economically declining LMAs.

Career capacity is reflected in measures associated with higher levels of educational attainment, as well as a larger proportion of higher-level occupations and a larger proportion of young adults (25–44 years of age) in the population. These would be individuals with the capacity and experience to implement new firms. Areas where farmers are a larger proportion of the labor force would be less likely to have residents with a high-career capacity (young adults with substantial education). The influence of young, well educated adults has recently received considerable attention, important attributes of the "creative class;" cities now compete for these young adults to facilitate future economic growth.[9]

Smaller firm prevalence in the business population clearly has a substantial impact. These would be present in regions with a strong creative arts or media sector—such as New York City, Los Angeles or, for an Hispanic focus, Miami—as well as non-metro regions that emphasize tourism. In contrast, regions dominated by a small proportion of large organizations—in manufacturing or perhaps government agencies or installations—may have less new firm creation. Many non-urban LMAs may have a few large employers, particularly in the Midwest, where many manufacturing operations are outside metropolitan areas. Regions dominated by small firms tend to produce more new, small firms.

Economic sector volatility and diversity seem to have a substantial influence, apparent in the earliest study (1976–1988 period). Those regions with more volatile sectors, such as retail, construction, consumer services, social and health service, while highly associated with the presence of smaller firms, seem to have an independent impact on greater levels of new firm births. More variety in economic sectors and a greater diversity of occupations seems to be associated with greater new firm creation. No measures related to these characteristics were included in the intermediate period assessment (1994-1996) and it was partially reflected in the impact of some sectors in the most recent period assessment (1990–2001).

Flexible government policies on employment had a major impact on firm births during the 1976–1988 period; those LMAs where the regulatory complications in hiring and firing employees were minimized have higher levels of new firm creation.

Unemployment is often seen as a motivation for entering into new firm creation. Indeed, some economists consider this the primary motivation for self-employment.[10] For this reason, the measure was included in all three studies. While there was a slight positive impact with a 14–16 year time lag in the earliest study, it had a negative impact in two other lags and no impact in eight. No impact was found in the analyses for the later two time periods. Regions with higher levels of unemployment are likely to have a reduced demand for goods

and services and, in turn, provide fewer market opportunities to encourage new firm creation.

Several LMA features related to the level of urbanization, such as the sheer size of the LMA or the human population density do not appear to have an influence. They were both included as candidates for inclusion in the 1976–88 and 1990–2001 analyses. Major urban areas are often referred to as providing an "agglomeration effect," an all-purpose explanation for higher firm birth rates in urban areas. The lack of an independent agglomeration effect probably reflects the inclusion of the major features associated with the concept of agglomeration as distinct factors in the analysis. For example, measures reflecting larger proportions of more highly educated adults, measures of increases in demand, greater percentage of volatile industry sectors, more diversity in economic activities are included as separate variables. The impact of these regional characteristics seem to have more direct influence on new firm births than a generalized measure of agglomeration (population density or population size); hence indicators reflecting only urbanization have no independent effect on new firm birth rates. As a result, the step-wise procedure does not select them for inclusion in the models.

Also not reflected in these measures are factors related to differences in government programs, regulations, or support for new firms. This reflects the difficulty in locating reliable indicators of the level and nature of government influence in individual counties, which may come from federal, state, regional, as well as city and county agencies. Developing a measure for a given LMA composed of counties from two states is a complicated challenge; such measures were not included in the analysis. On the other hand, the general context that is the responsibility of government—provision of a legal framework, laws governing commercial transactions, physical infrastructure, provision of utilities, property and income tax structures, etc.—do not vary substantially across the United States.

The initial comprehensive effort to explore regional factors in 1976–88 found little impact from variations in the costs of factors of production or public infrastructure expenditures. Most start-up efforts appear to focus on the local opportunity—the potential for sales to customers in the region—rather than attend to input costs or regulatory complications.[11] Once the firm is an operating reality, some adjustments in the location of productive activities may occur. Relocation of an ongoing business may reflect a reaction to differences in government costs and regulatory structures.

In summary, three different analyses of features of U.S. LMAs that affect subsequent new firm births indicate that the following have an impact:

- Increases in demand, reflected in human population growth and greater levels of income

- More highly educated population of young adults
- Larger proportion of small firms in the business population
- More volatile economic sectors; greater sector diversity
- Flexible policies regarding the hiring and firing of employees

These results are broadly consistent with the results of a six-nation study (France, Germany, Ireland, Italy, the UK, and the United States) of regional factors affecting firm birth rates. The major difference was the positive impact of regional levels of unemployment on new firm births found in most European countries, an influence not present in the United States analysis.[12]

FIRM BIRTHS: STABILITY AND CHANGE IN FIRM BIRTH RATES

There is substantial year-to-year stability in the regional firm birth rates in the short term. The level of churning or turbulence in the business community is a predictable feature of a regional economy. This seems to reflect the slow rate of change in the economic structure. It may take years for the mix of business activities and the size distribution of the indigenous firms to experience adjustments.

Such stability is reflected in the correlations among the birth rates of the 394 LMAs, shown for different time lags in Table 4.2.[13] With 394 cases, all correlations are highly statistically significant.

It is clear that the relative level of new firm births across 394 U.S. LMAs is very stable—correlations of 0.87 or higher—for the sequential as well as the 2- and 4-year time lags. For periods of 4 years or less, there is little year-to-year change in the relative amount of business dynamics, births, and deaths among the business firms. Measures of firm births and death rates tend to be highly

Table 4.2. Correlations in Firm Births by U.S. LMA: Sequential to 18-Year Time Lags

Time lag	Number of correlations	Average correlation
0 years (sequential)	9	0.94
2 years	8	0.91
4 years	6	0.87
6 years	5	0.84
8 years	5	0.86
10 years	3	0.83
12 years	4	0.82
14 years	3	0.82
16 years	2	0.82
18 years	1	0.82

correlated, usually in excess of 0.80.[14] On the other hand, there is clear evidence of adjustments over longer periods, as the correlations are lower for longer time lags. For time lags beyond 10 years, the correlation drops to 0.82.

These longer-term changes reflect a shift in the relative level of new firm births among LMAs, not changes in the overall national level. It is possible to consider the relative shifts between 1976–78 and 1995–96, an 18-year period. This can be done by classifying all LMAs for each period into five quintiles (each reflecting 20% of the total) and examining a cross tabulation of the quintiles for the two periods—a five-by-five table. The extent of the shift during that period can be considered in terms of quintile changes. This pattern of change is presented for the shifts in quintiles from 1976–78 and 1996–97 in Table 4.3.[15]

Table 4.3. LMA Changes in Firm Birth Rates: 1976–78 to 1996–97

Quintile Shift	Average absolute change in firm birth rate	Average percentage change in firm birth rate	Number of LMAs	Percent LMAs
Increase of three	7.6	60.0 %	10	2.5 %
Increase of two	5.9	48.2 %	31	7.9 %
Increase of one	2.8	20.8 %	73	18.5 %
None	-0.6	2.3 %	160	40.6 %
Decline of one	-2.4	-11.4 %	85	21.6 %
Decline of two	-5.1	-24.3 %	25	6.3 %
Decline of three	-6.4	-32.4 %	8	2.0 %
Decline of four	-12.6	-49.7 %	2	0.5 %

It is clear that the majority of the LMAs have little relative change; 41% have no relative change in this 18-year period and another 32% change only one quintile, up or down. About 14% reflect modest change, up or down two quintiles, and 5% reflect changes of three or four quintiles. Only two of 394—Chico and Fresno, California—reflect the maximum change, a reduction of four quintiles, from top to bottom. This would suggest a major adjustment in the economic structure of the California Central Valley, Chico to the north and Fresno to the south of Sacramento.

Based on the percentage change in new firm birth rates in the 1967–78 and 1996–97 periods, with 1976-78 as the base year, the 15 LMAs with the highest levels of change are listed in Table 4.4; those 15 with the greatest decline are listed in Table 4.5. In addition to the percentage of change, the levels of the firm birth rates in 1976 and 1996, the populations in 1976 and 1996 are provided in right two columns. There is little apparent pattern. Most but not all of these extreme cases are small and moderate in size. While most have gained population over this 20-year period, some at both extremes have lost population. Summersville, West Virginia, has a 59% increase in the firm birth rate, while the population declined by 12,000 persons; among the 15 extreme cases of birth rate decline, only Marshalltown, Louisiana, and Buffalo, New York, appear to have population declines; the remaining 13 have population

Table 4.4. LMAs with Major Increases in Firm Birth Rates: 1976–78 to 1996–97

Percentage Increase	New Firm Birth Rate: 1976–78	New Firm Birth Rate: 1996–97	Major City in LMA	Population: 1976	Population: 1996
172.6 %	6.1	16.6	Meridian, MS	146,094	155,268
155.7 %	6.1	15.7	Auburn, AL	107,823	137,960
100.5 %	6.6	13.1	Talladega, AL	132,564	144,558
89.2 %	9.2	17.4	Tuscaloosa, AL	303,195	320,568
72.8 %	15.4	26.6	Wilmington, NC	235,048	332,555
72.7 %	11.2	19.2	Presque Isle, ME	382,389	398,886
70.8 %	13.4	22.8	Raleigh, NC	818,303	1,321,874
65.9 %	6.5	10.8	Steubenville, OH	164,666	138,275
64.3 %	11.6	19.0	Macon, GA	310,771	371,746
61.6 %	8.4	13.6	South Boston, VA	146,666	154,041
60.7 %	13.8	22.2	Washington, NC	99,559	119,885
60.1 %	11.3	18.0	Eufaula, AL	251,646	279,627
59.7 %	13.2	21.1	Wilmington, DE	460,716	559,436
58.8 %	11.1	17.6	Summersville, WV	247,320	235,532
57.6 %	14.8	23.3	Portland, ME	579,425	675,471

Table 4.5. LMAs with Major Decreases in Firm Birth Rates: 1976–78 to 1996–97

Percentage Decrease	New Firm Birth Rate: 1976–78	New Firm Birth Rate: 1996–97	Major City in LMA	Population: 1976	Population: 1996
-50.3 %	26.6	13.2	Chico, CA	253,876	376,566
-49.1 %	24.3	12.4	Fresno, CA	817,692	1,340,695
-44.7 %	22.2	12.2	Bakersfield, CA	366,932	626,719
-41.9 %	27.7	16.1	Kennewick, WA	218,940	315,468
-41.9 %	31.5	18.3	Redding, CA	128,266	214,680
-40.6 %	21.2	12.6	Modesto, CA	397,854	679,236
-36.9 %	17.6	11.1	Marshalltown, IA	118,546	111,707
-35.2 %	39.1	25.4	Traverse City, MI	157,618	220,542
-34.5 %	19.1	12.5	Buffalo, NY	2,435,589	2,392,589
-34.5 %	20.5	13.4	Mankato, MN	232,228	252,690
-33.8 %	24.9	16.5	New Orleans, LA	1,282,799	1,374,601
-33.7 %	14.1	9.32	Elmira, NY	346,578	348,878
-33.1 %	39.8	26.6	Gillette, WY	114,216	140,834
-33.0 %	21.8	14.6	Houma, LA	246,913	267,405
-32.3 %	26.4	17.9	Hilo, HI	80,481	141,935

increases and some are quite substantial. This would suggest that these shifts in firm birth rates reflect regional changes in the economic structure and the business populations.

There is interest in two aspects of change in the level of firm birth rates: the change in firm birth rates over this 20-year period, 1976–78 to 1996–97, and the volatility in firm birth rate changes during this period. The percentage change in firm birth rates over this period is provided in the map in Figure 4.4. The white regions have a reduction in the firm birth rates, the medium gray regions have little change, and the darkest regions represent the greatest increase in firm birth rates. The greatest increases in firm birth rates are found in the South and some selected areas in the West. The greatest declines appear in the California, Nevada, and Utah regions, as well as the Great Plains—Oklahoma, Kansas, Nebraska, and the Dakotas. The major urban areas seem to be intermediate in terms of these changes.

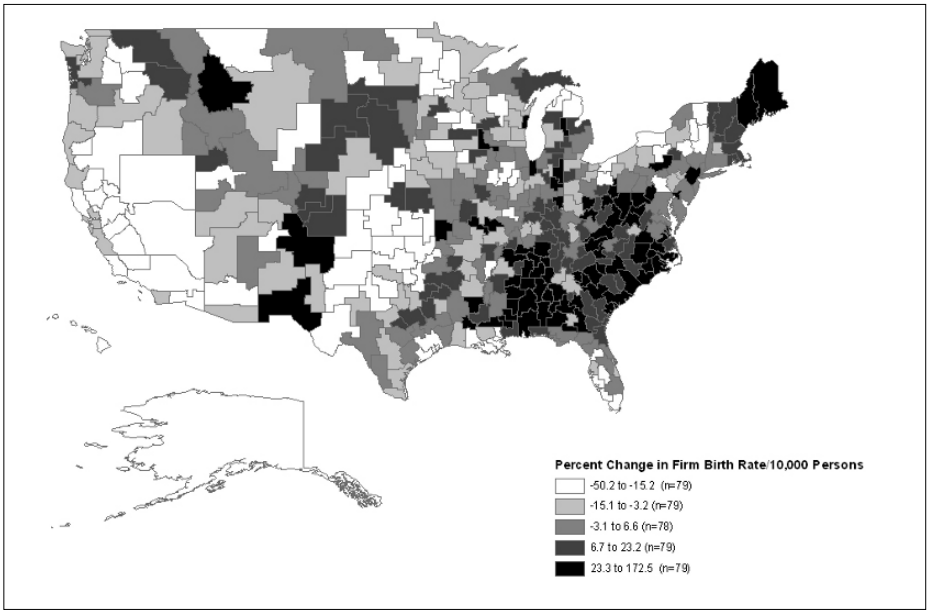


Figure 4.4. Change in Firm Birth Rates by U.S. LMA: 1976–78 to 1996–97

There is some temporal instability in firm birth rates; a period of increase in firm birth rates may be followed by a period of decreases in firm birth rates. The year-to-year diversity over the 20-year period was measured by computing the standard deviation of the change over 10 consecutive two-year periods for each region. A low value may reflect an LMA that has a constant increase or a constant decline in firm births rates, or, perhaps, no change in firm birth rates. A high value would reflect an LMA that has different rates of change from one period to the next, a decline in firm birth rates followed by an increase in firm birth rates; the 20 year term trend may be positive, negative, or neutral.

A map reflecting the stability of birth rate changes over the 1976–78 to 1996–97 periods is provided in Figure 4.5. The 394 LMAs were sorted into five categories of equal size. In this case white represents the greatest stability and the darkest colors the most volatility over this period. The pattern of volatility in firm birth rates is clearly different from the patterns related to changes over these two decades. Stability seems to be greatest in the Rust Belt region, from New York across Pennsylvania, Ohio, Indiana, and into Illinois and Wisconsin. With few exceptions, such as LMAs in southern Florida, major urban areas—New York City, Chicago, Los Angeles—appear to be have year-to-year stability in the rate of new firm creation.

The correlation between these two regional characteristics is about 0.12. While this is statistically significant at the 0.01 level, it indicates relatively independent attributes of the regional patterns of new firm creation. This would suggest that an effort to determine those factors affecting change and

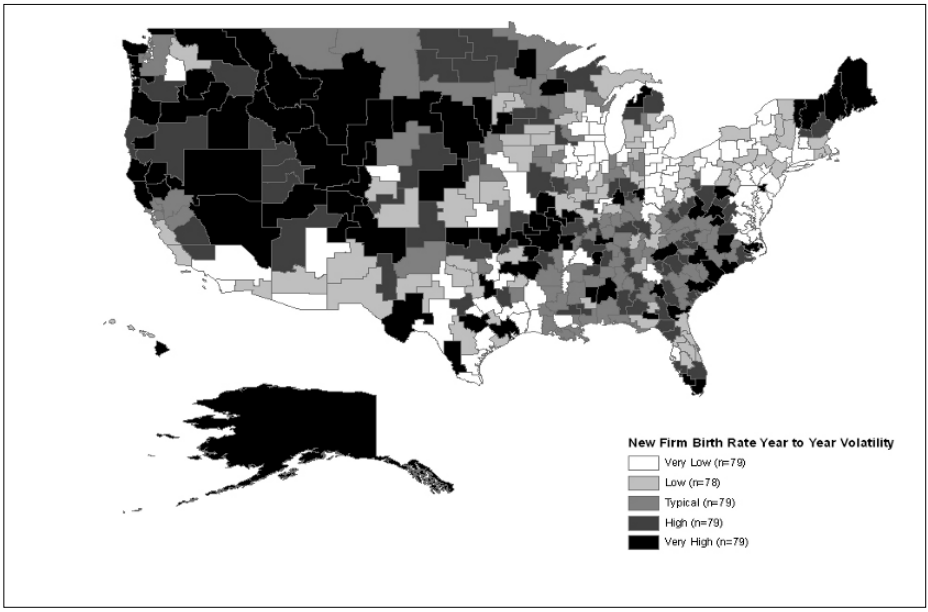


Figure 4.5. Volatility in Firm Birth Rate Changes: 1976–78 to 1996–97

volatility among regional firm birth rates could be pursued as two independent issues.

FIRM BIRTHS: FACTORS ASSOCIATED WITH CHANGE

There is considerable interest in determining those factors that may lead to changes in the level of new firm births, both substantial increases and substantial decreases. Further, many would consider stability in business demographics desirable; they would prefer to avoid a situation where the level of new firm creation dramatically changes from year to year. A stepwise regression, following the model used for assessment of factors affecting new firm birth rates, was completed using the same 41 independent variables pursued in the 1990–2001 analysis discussed above. The results are presented in Table 4.6.

The results are moderately successful. The resulting models account for 34% of the variation in new firm birth growth rate and 39% of the variation in the measure of stability in the new firm growth rate. While both models are statistically significant and all independent variables make a statistically significant contribution to reducing the unexplained variance, interpretation of the underlying causal mechanisms is, to some extent, speculative. It is important to realize that a higher value for firm birth rates (middle column of Table 4.6) would be seen as positive, but a higher value for measures of instability (right column of Table 4.6) may be seen as negative.

Table 4.6. Regional Factors Affecting Change and Stability of Firm Birth Rates

Regional [LMA] Characteristic		% Change in New Firm Birth Rates	New Firm Birth In-stability
Time period		1976–1996	1976–1996
Average Value for all LMAs		5.23	0.453
Minimum		-50.27	0.135
Maximum		172.59	1.057
		Standardized Beta	Standardized Beta
Population growth:1980–1990		-0.12	0.27
Percent change in HH income: 1980–1990		0.11	-.12
Proportion HH incomes below $20,000/year	1989	0.28	0.22
Income disparity	1989		-.26
Presence of mid-career adults [30-45 yrs old]			0.22
Proportion of men in population	1990	-0.12	
Establishments/1,000 human population	1989		0.42
% Establishments: 50–99 employees	1989		-.31
% Establishments: 500 and more employees	1989	0.14	0.19
Economic sector diversity (measured by jobs allocation)	1990	-.17	
Occupational diversity	1990	-.24	
Increase in economic sector diversity: 1980–1990		0.24	-.12
Explained variance, adjusted		34.5 %	39.1 %
Standard Error		21.48	0.12
Model F value		26.88	28.98
Model statistical significance		[0.0000]	[0.0000]
Minimum statistical significance/variable		[0.02]	[0.02]

For example, measures of increases in demand—population growth and increases in household income—have opposite impacts. Population growth seems to be associated with a reduction in firm birth rate change but an increase in year-to-year volatility. Growth in household income seems to be associated with increases in the firm birth rate changes but decreases in year-to-year volatility. A greater proportion of households with low incomes seem to lead to greater new firm birth rate change as well as greater instability in the change of firm birth rates. On the other hand, greater income disparity is associated with a reduction in the volatility in firm birth rates.

Presence of mid-career adults, those 30–45 years of age, seems to lead to more instability in the changes of firm birth rates. Perhaps they are more likely to switch from wage work to firm creation—and back again—as opportunities change. On the other hand, a larger proportion of men in the population is associated with a reduced rate of change in the birth rate; perhaps this reflects

migration of women to the urban areas, leaving a larger proportion of men in the more stable rural regions.

Measures of more establishments in the population and very large establishments seem to be associated with more instability. The presence of intermediate-sized establishments seems to be associated with more birth rate stability. More large establishments appears to be associated with a greater growth in new firm birth rates; perhaps they provide demand for goods and services, encouraging new start-ups.

Two measures of diversity—in both economic sectors and occupations—appear to be associated with a reduction in new firm birth rates. But increases in economic sector diversity seem to increase new firm births but reduce volatility in the firm birth rates.

A more complete understanding of these adjustments will require a more detailed assessment.

SURVEY REPORTS OF ENTREPRENEURIAL ACTIVITY: CENSUS DIVISION COMPARISONS

Direct indicators of participation in business creation have been obtained using household surveys to locate representative samples of the adult population; this has been discussed at some length in previous chapters. While the number of screening interviews may seem large, in the tens of thousands, sample sizes can be small for low population labor market areas. Small survey sample sizes do not provide precise estimates. Some confidence, however, is possible for rather large regions, such as the nine U.S. Census divisions.

The TEA prevalence rates—reflecting participation in both start-up activities and new firm management—are provided for the nine census divisions in Figure 4.6.[16] The population base is those 18–74 years of age, and samples have been consolidated across five years: from 2000 to 2004.[17] Three measures of the entrepreneurial activity index are presented: overall TEA (ALL), opportunity TEA (OPP), and necessity TEA (NEC). The relatively large confidence intervals—compared to national estimates—reflects the reduction in precision associated with reducing the sample size in smaller geographic regions.

Most obvious in Figure 4.6 is the low variation across regions—differences from 9 per 100 to 11 per 100 adults—a difference of less than 25%. This is substantially less than the 8 to 10 fold differences found in firm birth rates across U.S. labor market areas. There are, however, statistically significant differences found among census divisions only at the extremes of the distribution concerning the TEA overall and the TEA opportunity prevalence rates. There

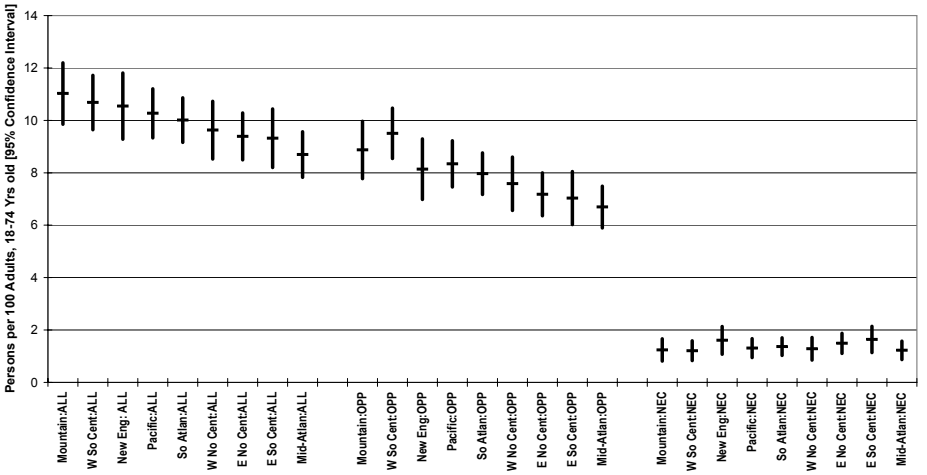


Figure 4.6. TEA Prevalence Rates for Nine U.S. Census Regions: Overall and by Motivation

are no statistically significant differences related to the TEA necessity index, which—at 1 to 2 per 100 adults—is relatively constant across all nine census divisions.

The TEA overall measure is significantly higher in the Mountain (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, and Wyoming) and West South Central (Arkansas, Louisiana, Oklahoma, and Texas) divisions compared to the Mid-Atlantic division (New Jersey, New York, and Pennsylvania). The TEA opportunity measure, however, is significantly higher in the West South Central region than in the three regions with the lowest level of activity (East North Central, East South Central, and Mid-Atlantic). But the divisions are so large and diverse that it is difficult to interpret these patterns. Moreover, the amount of differences is small, 20-30%.

More than anything else, this review makes clear that census divisions are too broad and heterogeneous to provide a precise characterization of the context for individual entrepreneurial efforts. The disparity among the LMAs within each census division is almost as great and the disparity across the entire United States.

SURVEY REPORTS OF ENTREPRENEURIAL ACTIVITY: COMPARED TO FIRM BIRTH RATES

The correlation between the measures of new employer firm birth rates for 1990–2001 with measures of participation in the entrepreneurial process for 2000 to 2004 for 182 LMAs is shown in Figure 4.7. For 212 LMAs the

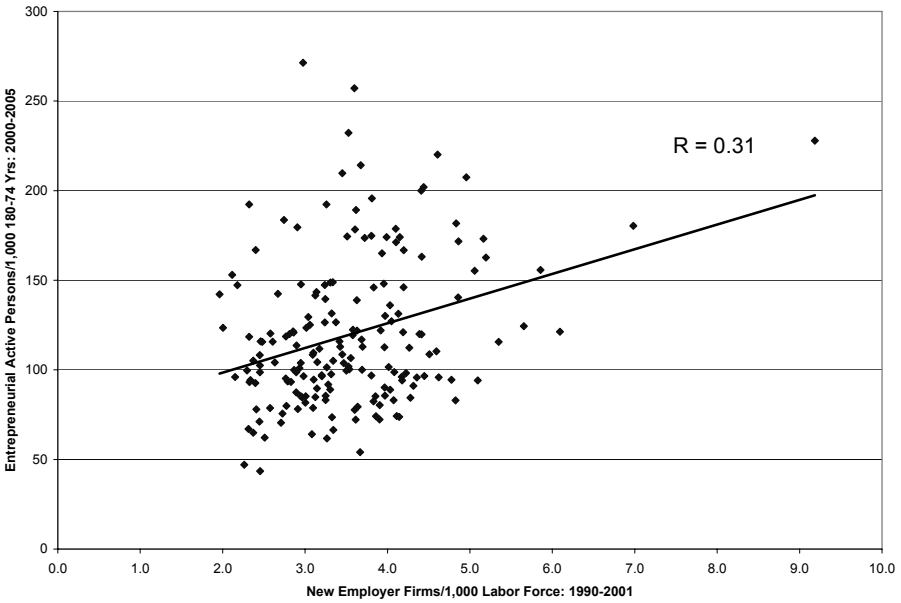


Figure 4.7. New Employer Firms and TEA Active Adults: U.S. LMAs

sample sizes were too small for reliable estimates of entrepreneurial activity based on the TEA index; they were not included.[18] The correlation of 0.31 is low, but clearly statistically significant [$p < 0.0000$]. This suggests that there is some similarity in the impact of regional factors on two different stages of the business creation process.

The average prevalence rate of participation in the start-up process, at 120 per 1,000, is 34 times greater than the values of new employer firms at 3.5 per 1,000 participants in the labor market.[19] This difference between adult participation and new employer firms was discussed in Chapter 2 (see Figure 2.6). When the attrition in the process—the proportion of nascent entrepreneurs that do not start firms, the multiple owners of employer firms, and the inclusion of new firms up to 42 months old in the TEA rates is taken into account, the overall prevalence rates are comparable.

In short, there is evidence that the regions with higher levels of individual participation rates are the same regions with higher levels of new employer firm birth rates. It is also clear that there is substantial geographical variation. Some of this may reflect regional differences in the proportion of start-ups that complete the transition to an operating new firm. Precise measures of these differences will require identifying and tracking nascent firms as they complete the start-up process in a diverse set of regions. Such research will require larger samples tracked over a number of years.

SURVEY REPORTS OF ENTREPRENEURIAL ACTIVITY: REGIONAL FACTORS AND VARIATION

As regional factors are related to new employer firm birth rates, it is reasonable that they would be associated with variation in individual participation in business creation. The same variables used in the analysis of employer firm birth rates for the 1990–2001 period, reported in Table 4.4, were used in developing regression-based models of factor affecting individual participation in new firm creation, the TEA index The result presented in Table 4.6 is moderately successful, accounting for 32% of the explained variance. While this is a statistically significant result, this is much less successful than the outcome of analyses predicting rates of new employer firms. This modest level of success probably reflects the exclusion of 212 LMAs with sample sizes that were too small to provide precise estimates of the individual prevalence rates; these excluded LMAs—all with human populations of less than 350,000—probably reflected substantial variation in both independent and dependent variables. The exclusion of these distinctive regions reduces the potential for higher levels of explained variance.

Those variables included in the models, as show in Table 4.7, indicate that a higher proportion of smaller firms or more firms per human inhabitants, impact from different features of the sector emphasis in the economic structure,

Table 4.7. Regional Factors Affecting Total Entrepreneurial Activity Index

Regional [LMA] Characteristic		**TEA Prevalence Rates**
Time period		2000–2005
		Standardized Beta
% Establishments: 0–9 Employees	2000	0.324
% Establishments in Utilities	1999	0.158
% Establishments in Health, Social Services	1999	-0.162
% Establishments in Lodging, Restaurants	1999	-0.167
Greater economic sector diversity based on jobs	1999	-0.184
Proportion of men in population	2000	0.185
Explained Variance, adjusted		31.7%
Standard Error		3.4468
Model F value		18.8556
Model statistical significance		[0.0000]
Minimum statistical significance/variable		[0.02]

and a higher proportion of men living in the LMA are associated with more entrepreneurial activity. For example, LMAs with a greater proportion of emphasis on utilities and retail seem to have more individuals involved in firm creation—and the firm creation measure is based on all economic sectors. Those with a greater emphasis on health and social services, lodging and restaurants, or arts and entertainment appear to have a reduced level of individuals involved in start-ups. Other factors included in the models related to higher employer firm birth rates—population growth, more highly educated adults, as well as a greater emphasis on agriculture—are not incorporated in this model.

In general, then, the two assessments are complementary—given the limitations of survey-based data on participation in business creation. They include some of the same factors, and the assessment based on a complete census of all new firms provides a more complete and successful model. A more successful regional model based on individual reports of participation in entrepreneurial activity will not be possible until large survey samples are completed for all LMAs.

OVERVIEW

When individual U.S. labor market areas are compared in terms of the rate of new employee firm births, there is substantial regional variation in terms of (1) diversity in firm births at any given time, (2) changes in firm birth rates over a 20-year period, and (3) stability in the change of firm birth rates. The extremes in firm birth rates based vary from 4 to over 40 per 10,000 residents per year, a factor of 10.

Assessment of the regional factors that seem to precede and, perhaps, have a causal impact on the emergence of new firms is reasonably successful. And emergence is a crucial issue, for seldom do people move into an area to start a new firm. Major regional factors that seem to be associated with higher levels of new firm births include:

- Increases in demand, reflected in human population growth and greater levels of income
- More highly educated population of young adults
- Larger proportion of small firms in the business population
- More volatile economic sectors; greater sector diversity
- Flexible policies regarding the hiring and firing employees

There is little systematic impact of higher levels of regional unemployment. It was not possible to provide a direct assessment of the impact of variation in government programs and policies.

A review of regional variation of survey-based reports of participating in new firm creation was handicapped, as only 182 of 394 LMAs had samples large enough to be included in the analysis. The omission of small population LMAs tended to reduce variation in both measures of participation and the independent variables, reducing the capacity to explain variation in prevalence rates. Nonetheless, the results were broadly consistent with the assessment based on new employer firm births.

While there is substantial year-to-year stability in the relative level of new firm births among regions, it was possible to document substantial differences in the change in firm birth rates over a 20-year period: 1976–78 to 1996–97. The range in firm birth rate change varied from a decline of 50% to increases exceeding 100%. Developing an understanding of the major factors leading to an increase in firm birth rates was not fully satisfactory, but increases in household income, the presence of large establishments, and increases in economic sector diversity seemed to have an impact. This issue awaits a more complete analysis.

Perhaps the most significant research issue is the development of a more complete understanding of the impact of regional factors on the entrepreneurial process. They may have a major impact on two major stages of the process; first is the decision to become involved in new firm creation and second is completion of the gestation with an operating new firm. While there is substantial and detailed evidence on the emergence of new firms in different regions, there is less regional detail about those entering the firm creation process or the proportion that complete the start-up with an ongoing firm, one that will be incorporated in the national business registries.

The most significant policy implication is that most regional characteristics are enduring features that will be difficult to adjust, particularly on short notice or before the next election. The rate of population growth may be hard to affect. The major characteristics of the current economic structure—the size distribution of firms in the region and the industry structure—adjusts slowly, and the more populated and complex the region, the slower the rate of adaptation. It may be possible to increase the proportion of college-educated young adults, but this will probably require a long-term commitment. It is difficult to predict which new sectors will emerge as significant to any region; this precludes long term planning for specific industry sectors. A more effective regional strategy may be to track economic adjustments carefully—as reflected in the creation of new firms—and try to ensure that the local context is optimal for the new sectors that emerge through normal economic mechanisms.

NOTES

1 Regions in the United States may be defined in a number of ways, including collections of states, various combinations of counties, metropolitan regions, and even census blocks or ZIP code boundaries. A set of adjacent counties with a high internal journey-to-work pattern is considered a good measure of a single labor market area (LMA). There were 741 commuting zones among the 3,142 U.S. counties in the 1990 assessment; they were consolidated into 394 labor market areas. A similar assessment based on the 1980 census defined 382 LMAs. Tolbert and Killian (1987); Tolbert and Sizer (1996).

2 Available as Reynolds, Paul D. and Wilbur Maki. U.S. Business and Jobs: Structure and Changes by Sector and County: 1976–1988. Ann Arbor, MI: Interuniversity Consortium for Political and Social Research [ICPSR file 4471].

3 Data was developed for a national assessments of LMAs that was discontinued, but annual data on employer firm births was available. One version of aggregated data from this source is provided in Camp (2005).

4 This includes, for example, the Regional Economic Information System county level data files for 1969–2004, available from the U.S. Department of Commerce, Bureau of Economic Analysis [http://bea.gov/bea/regional/reis], County Business Pattern data [www.census.gov/epcd/cbp], and the U.S. Department of Commerce, Bureau of the Census. COUNTY STATISTICS FILE 3 (CO-STAT 3): [UNITED STATES] [Computer file]. Washington, D.C.: U.S. Department of Commerce, Bureau of the Census [producer], 1988. Ann Arbor, MI: Interuniversity Consortium for Political and Social Research [distributor], 1989.

5 Reynolds, Miller, and Maki (1995).

6 Armington and Acs (2002).

7 Data on firm birth rates taken from Camp (2005).

8 This assessment involved the use of LISREL procedure to develop linear additive models with the best possible fit for up to four data sets; the results were Gamma coefficients similar to standardized Beta coefficients that would be produced by a stepwise regression analysis. These assessments were completed on models with 11 different time lags, from sequential (no time lag) to 16 years.

9 Florida (2005), "Cities Compete in Hipness Battle to Attract Young" (Dewan, 2006).

10 Based on analysis of those entering into self-employment, one assessment concluded that those pursing entrepreneurship are "misfits cast off from wage work." Evans and Leighton (1989).

11 Reynolds, Miller, and Maki (1995).

12 Reynolds, Storey, and Westhead (1994).

13 Data is available for ten of eleven periods from 1976–78 through 1996–97, omitting 1988–1990.

14 Page 399, Reynolds, Miller, and Maki (1995).

15 This procedure has the advantage of avoiding complications associated with different measures of new firm births in the 1976–78 and 1996–97 periods.

16 Because of the additional costs, interview data were not collected in Alaska and Hawaii; these states are not included in the Pacific division in this assessment.

17 Assessing participation in entrepreneurship based on surveys of the adult population requires a different strategy. In order to have a precise estimates of individual prevalence rates for a geographic region, samples of at least 1,000 are desirable. For this assessment all interviews for the 2000 to 2005 period were stratified by the nine census divisions and weights were adjusted to maximize precision for each division.

18 The reports of human participation in the firm start-up process are based on personal interviews of a representative sample of adults. Larger samples lead to more precise estimates. As

the samples were drawn in proportion to the size of the population across the United States, those LMAs with smaller populations have less precise estimates. Even after consolidating interviews across five years, in 27 LMAs the number of interviews was so low—from 8 to 33—that not one person active in firm creation was interviewed. At the other extreme, there were 1,328 interviews completed among the 15 million people living in the Los Angeles LMA. The ratio of the standard error to the mean of the TEA index was compute for all LMAs; for 182 LMAs this value was 0.45 or less; this ratio was 0.08 for the very large sample in the Los Angeles LMA. This suggests that some confidence can be placed in the precision of the analysis based on these 182 LMAs.

Those LMAs left out of the analysis have low populations, all below 350,000, are mostly rural with economies dependent on agriculture, tourism, or mining. While 80% of the U.S. population resides in the 182 LMAs included in the analysis, most of the unique and distinctive LMAs will be found in the excluded group. It is possible that variation in both the independent and dependent variables will be reduced, leading to lower correlations and less explained variance.

19 The base for this prevalence measure, those active in the labor force, is slightly different from the use of the total human population, including children, retirees, and those not seeking work, such as students and homemakers. The result is slightly higher prevalence rates but the relative differences among LMAs are not affected; the two firm birth rate measures are highly correlated.

5
Individuals: Participation in the Business Life Course

The business life course can be considered to have three stages, as illustrated in Figure 5.1. The first is the start-up or gestation phase, when one or more individuals are attempting to assemble the resources and develop the procedures to deliver goods or services. When such an initiative has developed to the point where salaries and wages have been paid for more than three months, it can be considered to have passed the transition to becoming a new firm. Many, but not all, new firms will continue to the point where salaries and wages have been paid for more than 42 months, or 3.5 years. At this point the initiative can be considered an established firm.

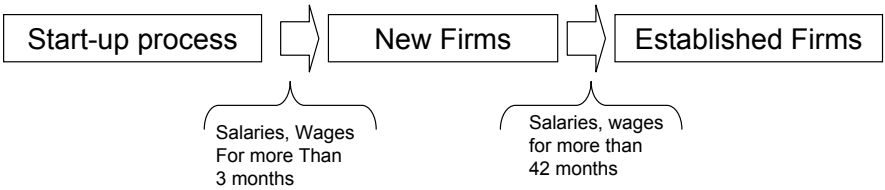


Figure 5.1. Three Business Life Course Stages

Much can be learned from comparing both the nature of the individuals and the nature of the business initiative at different stages of the firm life course. By taking advantage of the information on the prevalence rates—or number per one hundred persons in the United States—it is possible to consider how owners differ from typical adults (those not involved as current or potential business owners) at different stages of the firm life course. These differences, reflected in prevalence rates, are the focus of the first section.

Prevalence rates, however, do not provide descriptions of those actually engaged in the business activity; the second section focuses on the types of persons owning and managing businesses. Descriptions of nascent entrepreneurs, new firm owners, and established firm owners are provided. These descriptions are complicated by the one-in-six that are involved in both a start-up and a new or established firm.

The mechanism by which individuals move into a business start-up is a major issue; the third section attends to this "process of involvement," giving

attention to a distinction between socio-demographic and geographical context and their perception of social support for entrepreneurship.

WHO BECOMES A BUSINESS OWNER?

Age and gender have a major impact on the participation in all stages of the business life course. The prevalence rates for U.S. adults are provided in Figure 5.2. Men are about 40-50% more involved than women are—perhaps twice as active in new start-up firms. The majority of the activity for start-up and new firms occurs among those 18–54 years of age; among owners of established businesses, those 55–74 years old are well represented.

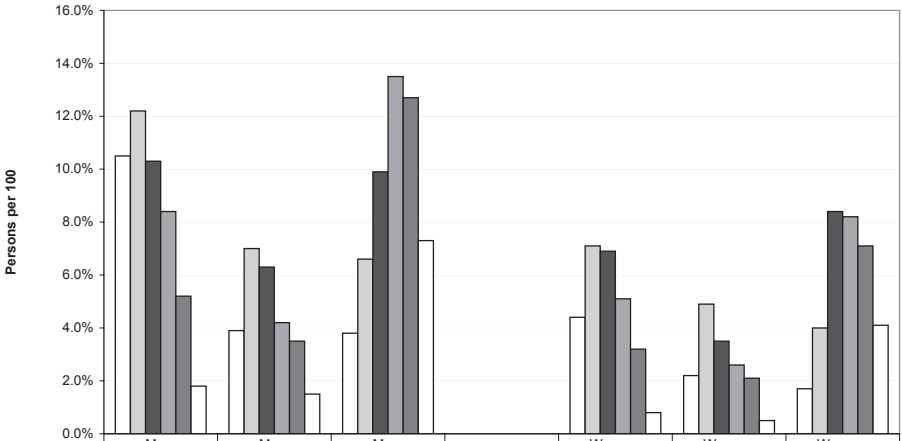
The most dramatic differences are associated with the age patterns for different stages of the business life course. About 10% of men and 6% of women under the age of 45 are involved in a business start-up; after 54 years of age it drops off dramatically, to less than 2% for those over 64 years old. Ownership of new firms appears to peak at 25–44 year of age for both men and women, consistent with new firms as an intermediate stage in the business life course. Conversely, over 12% of men and 6% of women 45–64 years of age report they are owner-managers of established businesses.

For both men and women, then, there is a shift in the typical age of those associated with each stage of the business life course: 18–44 years for those in the start-up process, 25–54 years old for those with new firms, and 45–64 years of age for those with established firms.

Ethnic background has as much impact on participation in the business life course as age and gender do. As shown in Figure 5.3, Blacks, Hispanics, and other ethnic categories are more involved in start-ups than either White men or White women. Black men and women, in particular, are more involved than White men (50% higher) and White women (100 % higher). In contrast, the participation in new firm ownership is about the same for men and women from different ethnic backgrounds. A major reverse occurs among established firms, where White men and women report participation that is somewhat higher than for minorities.

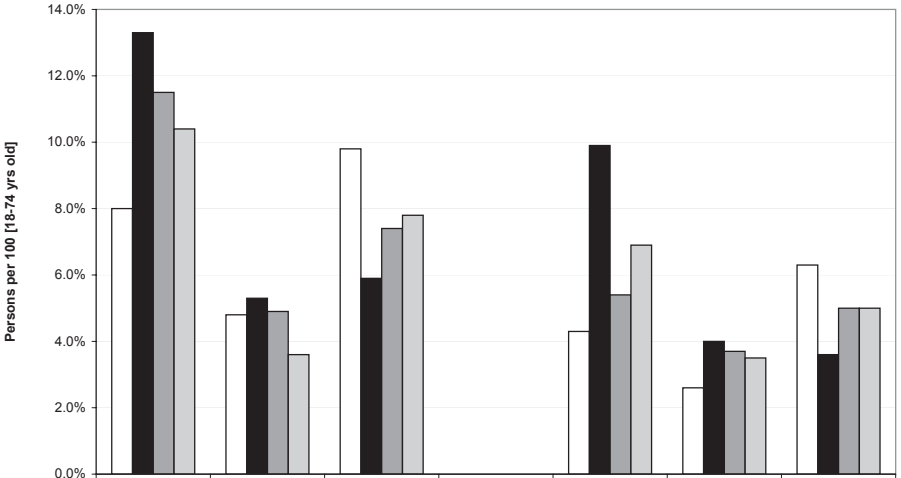
The differential impact of educational attainment on participation in start-ups by those with different ethnic backgrounds is striking. This is presented in Figure 5.4 for men and Figure 5.5 for women. For this analysis, the 9% that have not finished high school are combined with the 31% that report earning a high school degree.

Whites are the majority of the U.S. population, and whether men or women, their participation in start-ups is not affected much by the level of educational attainment. In fact, among white men, high school graduates are more involved



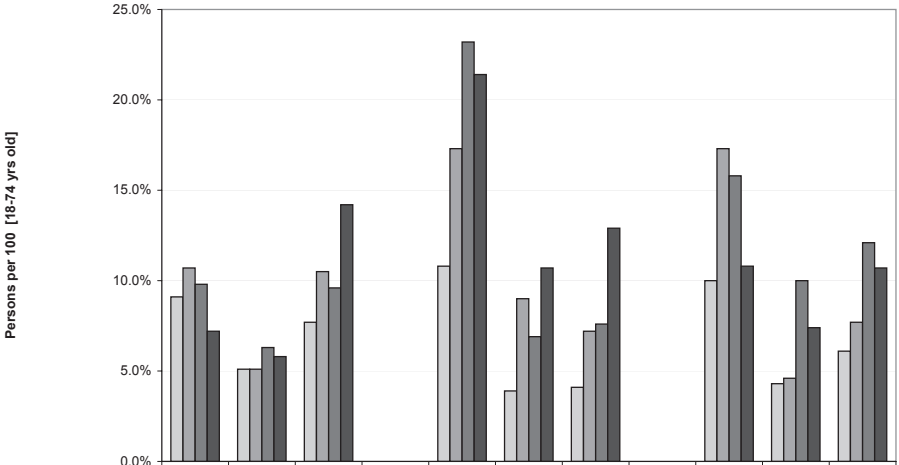
	Men: Start-ups	Men: New Firms	Men: Estab Firms	Women: Start-ups	Women: New Firms	Women: Estab Firms
18-24 Yrs	10.5%	3.9%	3.8%	4.4%	2.2%	1.7%
25-34 Yrs	12.2%	7.0%	6.6%	7.1%	4.9%	4.0%
35-44 Yrs	10.3%	6.3%	9.9%	6.9%	3.5%	8.4%
45-54 Yrs	8.4%	4.2%	13.5%	5.1%	2.6%	8.2%
55-64 Yrs	5.2%	3.5%	12.7%	3.2%	2.1%	7.1%
65-74 Yrs	1.8%	1.5%	7.3%	0.8%	0.5%	4.1%

Figure 5.2. Participation in the Business Life Course: Prevalence by Age and Gender



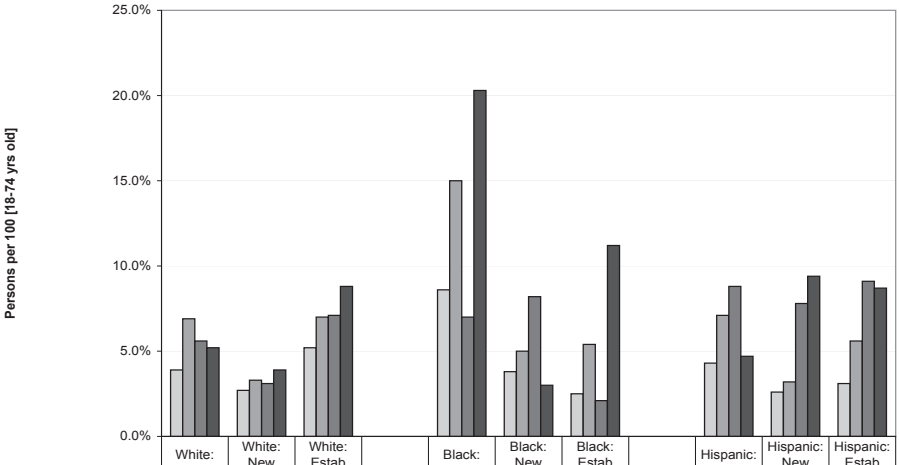
	Men: Start-ups	Men: New Firms	Men: Estab Firms	Women: Start-ups	Women: New Firms	Women: Estab Firms
White	8.0%	4.8%	9.8%	4.3%	2.6%	6.3%
Black	13.3%	5.3%	5.9%	9.9%	4.0%	3.6%
Hispanic	11.5%	4.9%	7.4%	5.4%	3.7%	5.0%
Other	10.4%	3.6%	7.8%	6.9%	3.5%	5.0%

Figure 5.3. Participation in the Business Life Course: Prevalence by Ethnicity and Gender



	White: Start-ups	White: New Firms	White: Estab Firms	Black: Start-ups	Black: New Firms	Black: Estab Firms	Hispanic: Start-ups	Hispanic: New Firms	Hispanic: Estab Firms
Up to HS Deg	9.1%	5.1%	7.7%	10.8%	3.9%	4.1%	10.0%	4.3%	6.1%
Post HS < Coll Deg	10.7%	5.1%	10.5%	17.3%	9.0%	7.2%	17.3%	4.6%	7.7%
College Deg	9.8%	6.3%	9.6%	23.2%	6.9%	7.6%	15.8%	10.0%	12.1%
Graduate Exp	7.2%	5.8%	14.2%	21.4%	10.7%	12.9%	10.8%	7.4%	10.7%

Figure 5.4. Participation in the Business Life Course:
Prevalence of Men by Ethnicity and Educational Attainment



	White: Start-ups	White: New Firms	White: Estab Firms	Black: Start-ups	Black: New Firms	Black: Estab Firms	Hispanic: Start-ups	Hispanic: New Firms	Hispanic: Estab Firms
Up to HS Deg	3.9%	2.7%	5.2%	8.6%	3.8%	2.5%	4.3%	2.6%	3.1%
Post HS < Coll Deg	6.9%	3.3%	7.0%	15.0%	5.0%	5.4%	7.1%	3.2%	5.6%
College Deg	5.6%	3.1%	7.1%	7.0%	8.2%	2.1%	8.8%	7.8%	9.1%
Graduate Exp	5.2%	3.9%	8.8%	20.3%	3.0%	11.2%	4.7%	9.4%	8.7%

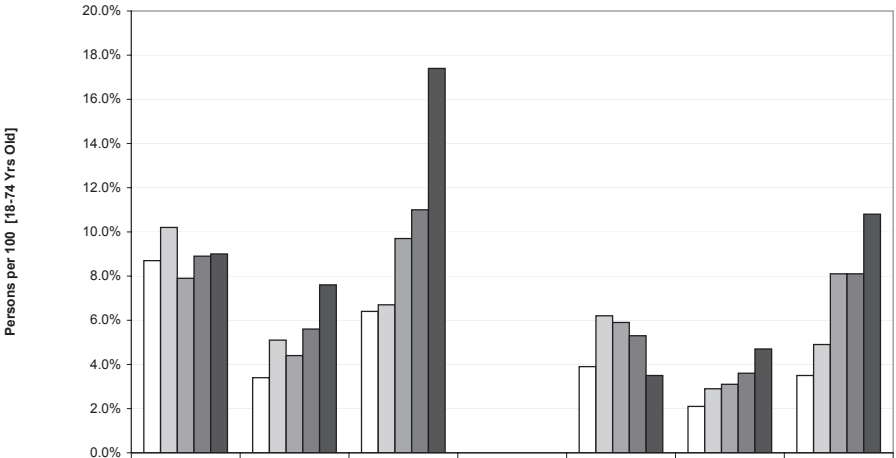
Figure 5.5. Participation in the Business Life Course:
Prevalence of Women by Ethnicity and Educational Attainment

in start-ups than are those with graduate experience; although it is likely that the high school graduates' new ventures may be less sophisticated.

Among minorities, however, there is a major impact of educational attainment. Men and women, whether Black or Hispanic, are substantially more active in start-ups if they have received more education. Black men with graduate experience are three times more likely to report participation in a start-up activity than are White men with the same educational background; Hispanic men are 50% more involved than comparable White men are. This result is fully consistent with a similar assessment of the U.S. population completed in 1998–1999, with a sample twice this size, over 60,000.[1]

The patterns associated with ownership of established firms are, given the small sample sizes in some cells, relatively consistent. In most cases those with more education are more likely to report ownership of an established firm; this appears to be true for men and women as well as white, Blacks, and Hispanics. Patterns associated with new firms tend to be intermediate between those of start-ups and established firms.

The relationship of annual household income and participation in the business life course is provided for men and women in Figure 5.6.[2] There is virtually no relationship associated with participation in the start-up process for men; for women the pattern is an inverted U, with more activity among those in the middle of the household income distribution.



	Men: Start-ups	Men: New Firms	Men: Estab Firms	Women: Start-ups	Women: New Firms	Women: Estab Firms
$ < 30K/Yr	8.7%	3.4%	6.4%	3.9%	2.1%	3.5%
$30-50K/Yr	10.2%	5.1%	6.7%	6.2%	2.9%	4.9%
$50-75K/Yr	7.9%	4.4%	9.7%	5.9%	3.1%	8.1%
$75-100K/Yr	8.9%	5.6%	11.0%	5.3%	3.6%	8.1%
$100- UP K/Yr	9.0%	7.6%	17.4%	3.5%	4.7%	10.8%

Figure 5.6. Participation in the Business Life Course:
Prevalence by Household Income and Gender

Business ownership, however, shows a clear increase as household income increases for both men and women. While the association is clear, the causal relationship might be in either direction. Either (1) those with higher household incomes become owners of established businesses, or (2) those with successful business achieve higher incomes and continue to own and manage the establishment. As a result, those with high household incomes and managing established firms are more likely to be interviewed in a representative sample of adults.

In summary, these patterns confirm those from an earlier assessment of participation in entrepreneurship based on screening sixty thousand individuals in 1998–2000.[3] In general:

- **Start-ups**: Minorities and men under 40 years of age are most frequently involved in start-up firms. While educational attainment and household income are not associated with more participation in start-ups for Whites, educational attainment is associated with much higher levels of participation for Blacks and Hispanics.
- **New Firms**: Those who are men, 25–44 years old, and have higher household incomes are more likely to report ownership of a new operating business less than 3.5 years old.
- **Established Firms**: Those over 44 years of age, with more education, and in the majority—or White—are more likely to report owning established businesses, those firms over 3.5 years old. Higher household income has a strong relationship to established firm ownership.

While the data are cross sectional, it would appear that there are clear, significant differences among those involved as owners—or potential owners—at different stages of the firm life course. These differences are consistent with those implementing successful firms and staying with the businesses as they develop and become established in business communities.

WHAT ARE BUSINESS OWNERS LIKE?

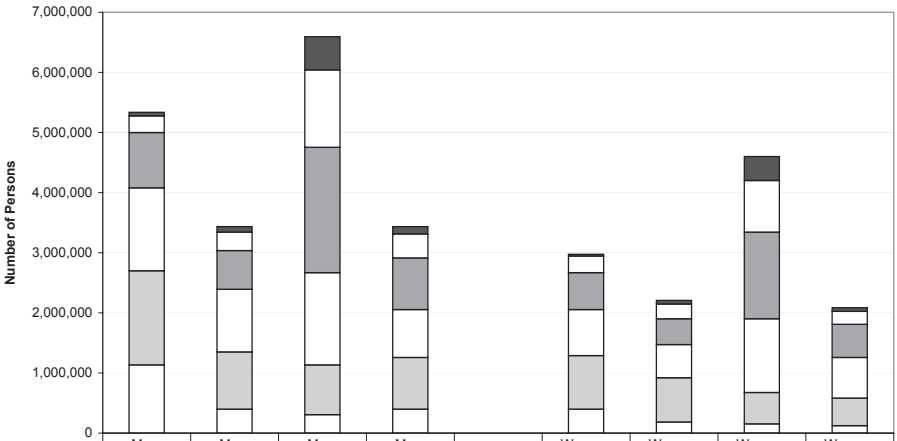
While it may appear similar, describing the nature and number of individuals involved in businesses is a different type of assessment. Instead of focusing on the prevalence rate, the number per one hundred involved, the attention shifts to the proportion of all owners with different characteristics. The tendency of individuals with a new firm or established business to also be involved with a start-up complicates the descriptions. About 18% of men and 17% of women—about one in six—are involved in start-ups while managing a new or established business. It is not possible, therefore, to assume that business

owners are involved in only one stage of the business life course at any given time.

Among the 30.6 million individuals involved in the business life course at any time in the 2000 to 2004 period, the number involved in these different business stages is provided in Figure 5.7. The estimates are provided by the gender and age of the respondent. That 18% active in two different business stages at the same time are in the "multiple activity" category; all have reported either a new or established firm as one activity, along with participation in a start-up.

Several familiar patterns are present in Figure 5.7. The total number of men involved, 18.8 million, is about 50% higher than the number of women, 11.9 million. Young people, those 18–34 years of age, are heavily represented among those involved in start-ups. Older adults, those 35–64, are more likely to be associated with established businesses. The oldest groups in the sample—those 65–74 years of age—are concentrated with established firms. Every age group is associated with at least one activity; for example, about 30 thousand women 65–74 years old appear to be starting new businesses.

The assessment makes it clear that most people creating new firms are young adults. About 6 million men and women 18–44 years of age are associated with start-ups, making up 71% of the 8.5 million involved in this stage. Almost half, 45%, are 18–34 years of age.



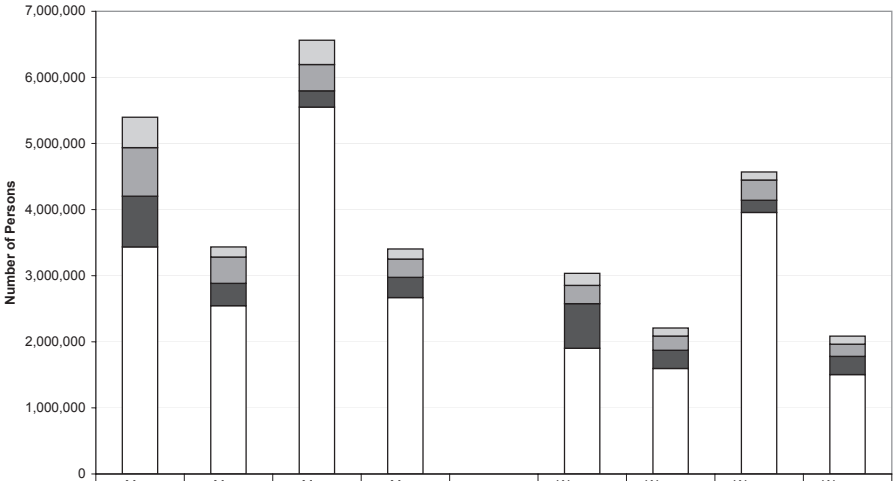
	Men: Start-ups	Men: New Firms	Men: Estab Firms	Men: Multiple		Women: Start-ups	Women: New Firms	Women: Estab Firms	Women: Multiple
65-74 Yrs	61,331	91,996	551,978	122,662		30,665	61,331	398,651	61,331
55-64 Yrs	275,989	306,654	1,287,949	398,651		275,989	245,324	858,632	214,658
45-54 Yrs	919,963	643,974	2,085,250	858,632		613,309	429,316	1,441,276	551,978
35-44 Yrs	1,379,945	1,042,625	1,533,272	797,302		766,636	551,978	1,226,618	674,640
25-34 Yrs	1,563,938	950,629	827,967	858,632		889,298	735,971	521,313	459,982
18-24 Yrs	1,134,621	398,651	306,654	398,651		398,651	183,993	153,327	122,662

Figure 5.7. Participation in the Business Life Course: Total Counts by Age and Gender

Using the same procedures, the gender and ethnic backgrounds of those involved in the different business life course stages are presented in Figure 5.8. The "Other" ethnic category is to be viewed with caution, as it is an eclectic mixture of Asians, American Indians, and a variety of individuals reporting a mixed ethnic background, such as Asian Hispanics.

Aside from the higher level of activity reported by men, there is one clear pattern reflected in this comparison. For White men and women, the counts of individuals associated with established firms [9.6 million] are substantially higher than are those associated with start-ups [5.3 million] or new firms [3.1 million]. For Black, Hispanic, and Other men and women the reverse is true; the numbers associated with start-ups [3.1 million] are much greater than the numbers associated with new [1.5 million] or established [1.6 million] firms. For Hispanic women, the estimates are about the same, three hundred thousand in each category.

A number of factors may provide an explanation of this difference. Perhaps most fundamental is the large proportion of established firm owners that are older—over half are over 45 years old. It is possible, then, that in a couple of decades those minorities currently active in start-ups will account for a larger proportion of established business owners. However, research on the outcomes of the start-up process, summarized in the next chapter, suggests that



	Men: Start-ups	Men: New Firms	Men: Estab Firms	Men: Multiple		Women: Start-ups	Women: New Firms	Women: Estab Firms	Women: Multiple
Other	459,982	153,327	367,985	153,327		183,993	122,662	122,662	122,662
Hispanic	735,971	398,651	398,651	275,989		275,989	214,658	306,654	183,993
Black	766,636	337,320	245,324	306,654		674,640	275,989	183,993	275,989
White	3,434,530	2,545,232	5,550,446	2,667,894		1,901,258	1,594,603	3,955,842	1,502,607

Figure 5.8. Participation in the Business Life Course:
Total Counts by Ethnic Background and Gender

minorities are slightly less likely than Whites to complete the start-up process and become owners of new firms.[4] This pattern would suggest that programs to assist minority start-ups could have a major role to play in increasing minority participation as owner-managers of existing businesses.

The relationship between level of education and participation in the business life course is presented in Figure 5.9. Men and women with all levels of education and household income are actively engaged in all phases of the business life course. It is clear that the majority of those active as business owners have not completed college; a very small proportion have not completed high school.

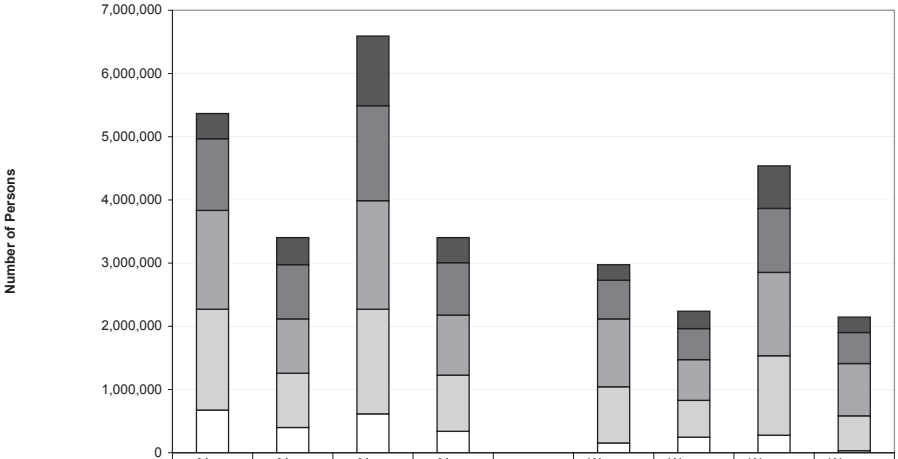
It would appear that a large proportion of men who own established businesses are reporting higher levels of educational attainment; this pattern is less prevalent among women.

The household income associated with different stages in the business life course is presented in Figure 5.10. Here it is clear that higher levels of household income are associated with both men and women with established firms, and there are more individuals from modest levels of household income among the start-ups. It may well be that the established businesses lead to higher levels of household income and, in turn, encourage individuals to continue as owner-managers of the established firms.

Among the 31 million involved as potential or current business owners, there are some clear differences related to the firm life course.

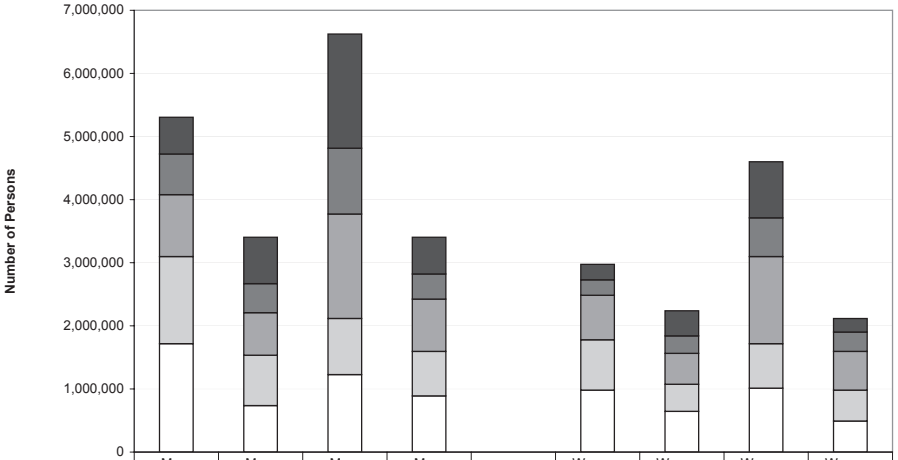
- Start-ups involve about 8 million, with another 5.5 million involved with start-ups and a new or established firm. They tend to be younger and are more likely to be ethnic minorities. While all levels of educational attainment are represented, household incomes tend to be more modest among start-ups, consistent with their younger ages.
- About 6 million are involved in new firms as their only business effort; compared to the numbers involved in start-ups the minority presence is slightly reduced, educational attainment is about the same, and household income is slightly higher.
- About 11 million are involved with established firms as their only business activity; compared to start-ups, the minority presence is considerably reduced—both in absolute and proportional terms—and there are higher levels of both educational attainment and household income.

The gender balance, ratio of men to women, is largely constant across all business life course stages, with men representing slightly less than two-thirds (64%) and women slightly more than one-third (36%) of the total.



	Men: Start-ups	Men: New Firms	Men: Estab Firms	Men: Multiple	Women: Start-ups	Women: New Firms	Women: Estab Firms	Women: Multiple
Graduate Experience	398,651	429,316	1,103,956	398,651	245,324	275,989	674,640	245,324
Coll Degree	1,134,621	858,632	1,502,607	827,967	613,309	490,647	1,011,960	490,647
Post HS	1,563,938	858,632	1,717,265	950,629	1,073,291	643,974	1,318,614	827,967
HS Degree	1,594,603	858,632	1,655,934	889,298	889,298	582,643	1,257,283	551,978
No HS Degree	674,640	398,651	613,309	337,320	153,327	245,324	275,989	30,665

Figure 5.9. Participation in Business Life Course: Total Counts by Education and Gender



	Men: Start-ups	Men: New Firms	Men: Estab Firms	Men: Multiple	Women: Start-ups	Women: New Firms	Women: Estab Firms	Women: Multiple
$100-UP K/YR	582,643	735,971	1,809,261	582,643	245,324	398,651	889,298	214,658
$75-100K/YR	643,974	459,982	1,042,625	398,651	245,324	275,989	613,309	306,654
$50-75K/YR	981,294	674,640	1,655,934	827,967	705,305	490,647	1,379,945	613,309
$30-50K/YR	1,379,945	797,302	889,298	705,305	797,302	429,316	705,305	490,647
Up to $30K/YR	1,717,265	735,971	1,226,618	889,298	981,294	643,974	1,011,960	490,647

Figure 5.10. Participation in Business Life Course: Total Counts by HH Income and Gender

HOW DO PEOPLE GET INVOLVED?

While the striking patterns associated with age, gender, ethnic background, and educational attainment make clear that these personal and social factors have an important role to play, they are not directly related to the actual process. Individuals do not start businesses because they are well-educated men in their early adult years. Clearly there are other mechanisms involved that generate active participation in new business creation. In addition, there is considerable value in determining the relative impact of various factors; multivariate analyses are designed to help with these issues.

Perhaps the major intervening variable is the perception and belief of the individuals regarding the potential benefits of adopting entrepreneurial careers. Such perceptions and beliefs may reflect a variety of factors in their personal, social, and regional contexts. The model in Figure 5.11 outlines a version of this relationship.

The box in the middle represents individual judgments about their immediate situations. The boxes to the left reflect those features of their lives or the immediate situations that may affect these perceptions and beliefs. As represented by the box on the right, all variables are considered to affect participation in the business life course. Contextual factors may have a direct influence, as represented by the dashed lines, or an effect mediated by this personal perception of the situation, as indicated by the solid lines.

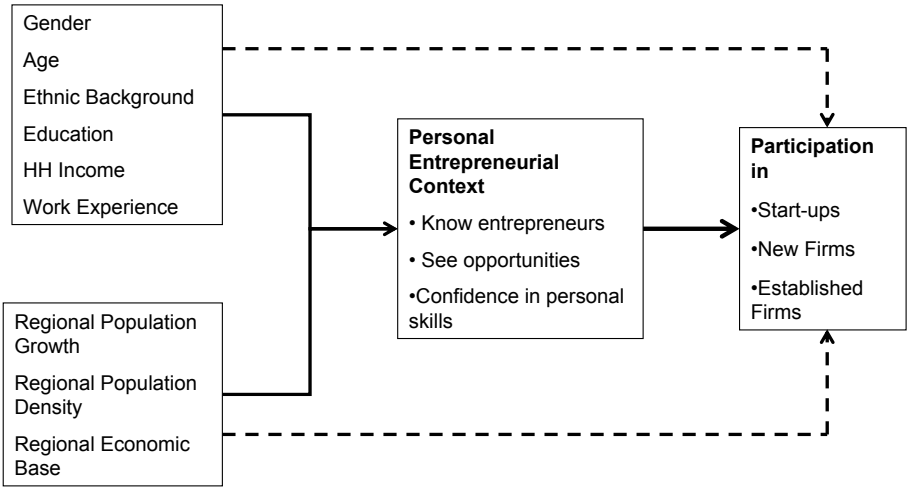
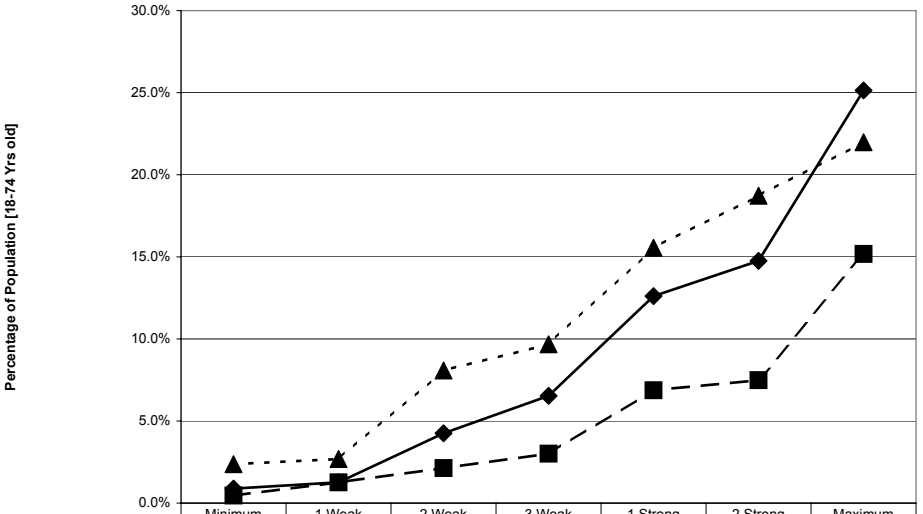


Figure 5.11. Entry into Entrepreneurship: Two-Stage Model

Part of the data collected from all respondents in many population surveys were four questions regarding their personal context in relation to entrepreneurship:

1. Do you personally know someone who started a business in the past two years?
2. In the next six months do you think there will be good opportunities for starting a new business where you live?
3. Do you have the knowledge, skill, and experience required to start a new business?
4. Would fear of failure prevent you from starting a business?

"Yes" and "no" were the only response options allowed for each item.[5] Detailed analysis suggested that the first three could be combined into a Personal Entrepreneurial Context [PEC] Index, which could be used to characterize the extent to which individuals considered their capacity and situation positive for creating a new firm.[6] Responses to the fear of failure were unrelated to the responses to the other three items and were not included in the index. The final index has a seven-point scale, and the distribution of the index among the sample is shown in the bottom row of Figure 5.12.



	Minimum	1 Weak	2 Weak	3 Weak	1 Strong	2 Strong	Maximum
Start-Ups	0.9%	1.3%	4.3%	6.5%	12.6%	14.8%	25.1%
New Firms	0.5%	1.3%	2.1%	3.0%	6.9%	7.5%	15.2%
Estab Firms	2.4%	2.7%	8.1%	9.7%	15.6%	18.7%	22.0%
% of Population	26.9%	3.2%	28.0%	3.0%	21.8%	2.0%	14.4%

Figure 5.12. Personal Entrepreneurial Context Index and Participation in the Business Life Course

The patterns associated with this index are reflected in Figure 5.12. The three lines indicate the proportion of individuals—at each level of the index—involved in the different stages of the business life course.

The relationship between the perception of the social context and participation in business activity is quite strong. For example, less than 1% of those scoring at the lowest level of the index are involved in business start-ups, compared to 25% of those at the maximum level that are "start-up active." This is a twenty-five fold difference. The same distinction is found among those classified as new business owners. Among those with minimum PEC scores, a half of a percent (0.5%) report the are new firm owners, compared to 15% among those with maximum PEC scores. This is a thirty-fold difference.

Further, among those involved in start-ups and new businesses there is substantial increase in participation from the "two strong answers" to "maximum" level of the index. For example, among those with a 2-Strong PEC index, 15% are involved in start-ups, compared to 25% among those at the maximum end of the scale, a 66% increase in participation. For reports of new firm ownership, the difference is even more dramatic, from 8% to 15%; involvement almost doubles. This suggests a "tipping effect" on their entrepreneurial activity; those in a situation with three elements in place—rather than two, are much more likely to respond with participation in the entrepreneurial process. This is much more dramatic than comparing those with one positive element versus none or two versus one positive element.

Knowing that the PEC index has a major impact on start-up behavior leads to a new issue: What affects the PEC index? Determining the relative impact of different factors on the Personal Entrepreneurial Context Index was completed with a specialized program that identifies groups of individuals based on categorical variables: age group, gender, ethnic background, and the like.[7] Even though 10 personal and regional factors were entered into the analysis, it consistently found that only five characteristics have a significant impact on the PEC index: gender, household income, educational attainment, age, and ethnic background—in that order of importance. The 13 groups that emerged from the analysis, as well as their features, are presented in Table 5.1. The groups are rank ordered by the average level of the Personal Entrepreneurial Context Index, shown in the far right (seventh) column. The prevalence of participation in the different business life course stages for each group, as well as the proportion of different business life course stages from each group, are shown in Table 5.2.

The assessment provided in Table 5.1 makes clear the critical nature of gender having more impact on the PEC Index value than any other variable; no other variable is associated with the definition of all groups. Age is involved in defining 12 of the 13 groups. Age has, however, less impact than household income or education. The age breaks generally involve a difference in

Table 5.1. Socioeconomic Groups and Participation in the Business Life Course

Group Number	Gender	HH Income	Educational Attainment	Age Categories	Ethnic Background	PEC Index Value
1	Men	$75K/yr and up	All	18–54 yrs old	All	0.50
2	Men	$30 to 75K/yr	All	18–54 yrs old	Black, Hispanic	0.42
3	Men	$30 to 75K/yr	All	18–54 yrs old	White, other	0.26
4	Women	All	More than HS degree	25–64 yrs old	Black, Hispanic	0.23
5	Men	Under $30K/yr	More than HS degree	18–54 yrs old	All	0.02
6	Men	Over $30K/yr	All	55–74 yrs old	All	0.07
7	Women	All	More than HS degree	25–64 yrs	White, other	-0.02
8	Men	Under $30K/yr	Up to HS degree	18–54 yrs old	All	-0.06
9	Women	Over $30K/yr	Up to HS Degree	All	All	-0.23
10	Women	All	More than HS degree	18–24, 65–74 yrs old	All	-0.33
11	Men	Under $30K/yr	All	55–74 yrs old	All	-0.35
12	Women	Under $30K/yr	Up to HS Degree	18–44 yrs old	All	-0.40
13	Women	Under $30K/yr	Up to HS Degree	45–74 yrs old	All	-0.67

Table 5.2. Socioeconomic Groups, Prevalence in Business Life Course, and Proportion of Business Life Course Participants

Group Number	PEC Index Value	Percent of Sample	Start-up Prevalence	New Firm Prevalence	Established Firm Prevalence	Percent of Population	Percentage of Start-up Owners	Percentage of New Firm Owners	Percentage of Established Firm Owners
1	0.50	10.5%	9.9%	7.0%	13.4%	10.5%	13.8%	17.8%	17.4%
2	0.42	3.2%	14.4%	6.0%	5.7%	3.2%	6.3%	4.8%	2.3%
3	0.26	14.5%	9.8%	5.2%	8.3%	14.5%	19.8%	18.9%	15.4%
4	0.23	3.5%	10.4%	5.7%	6.5%	3.5%	5.1%	5.1%	3.0%
5	0.02	3.8%	14.1%	5.4%	8.6%	3.8%	7.3%	5.1%	4.1%
6	0.07	7.2%	4.4%	3.7%	12.6%	7.2%	4.5%	6.9%	12.0%
7	-0.02	19.8%	6.0%	3.4%	8.1%	19.8%	17.3%	17.9%	21.4%
8	-0.06	7.9%	9.0%	3.7%	5.6%	7.9%	10.1%	7.6%	5.8%
9	-0.23	9.5%	4.8%	3.0%	6.2%	9.5%	6.7%	7.7%	8.1%
10	-0.33	4.6%	3.7%	1.7%	3.8%	4.6%	2.6%	2.1%	2.5%
11	-0.35	3.4%	2.6%	0.7%	5.9%	3.4%	1.4%	0.6%	2.8%
12	-0.40	5.9%	4.3%	2.5%	2.7%	5.9%	3.8%	4.0%	2.2%
13	-0.67	6.3%	1.4%	0.8%	3.3%	6.3%	1.4%	1.4%	3.0%
						100.0%	100.0%	100.0%	100.0%

participation at 55 years, with those 18–54 years and those 55–74 years of age classified in different groups.

The two major measures of socioeconomic status—educational attainment and household income—reflect differences only at the lowest levels of the measures. The impact of income is often a distinction between those with the lowest annual income, under $30,000 year, and all other individuals. In a similar fashion, the impact of education generally involves those who have gone beyond high school compared to those who have no training beyond high school. For example, there is no evidence that those completing more education

after completing high school, such as a college degree or graduate training, are more likely to be involved in the entrepreneurial process.

Ethnic background has an impact in only 4 of 13 groups after all other factors are taken into account. This suggests that the dramatic effects present in Figure 5.3—ethnic differences in the business life course—are related to factors associated with ethnicity, rather than ethnicity itself.

None of the characteristics of the regional context—population growth in the 1993–2002 period, current population density, the primary economic sector, or the extent to which the county is part of or adjacent to a metropolitan region—have any residual impact. This suggests both that economic opportunities are evenly distributed across the United States and that participation in start-ups, new, and established businesses is very much a reflection of an individual's immediate personal, social, and work context.

The impact of the PEC index is illustrated by the correlations between the index and the percentage of individuals involved in the business life course. Although only 13 groups are represented in Table 5.1, the association with the prevalence rate of start-ups is 0.80, with new firms it is 0.94, and with established businesses it is 0.69.

The various groups in Table 5.1 facilitate speculation on the process itself. For example, Group 2 is composed of Black and Hispanic men who are 18–54 years old with household incomes of $30 thousand to $75 thousand a year. As a group, they appear to see local opportunities to start a business, know other people who have started businesses, and believe they have the skill and knowledge to start one of their own—elements present when there is a high level of the PEC index. As a result, 14.4% (about 1 in 7) are involved in business start-ups; 6% (1 in 17) are owners and managers of new firms; moreover, 1 in 5 are involved in new firm creation. In contrast, all men over 54 years of age in households with less than $30 thousand a year in income, regardless of education or ethnicity, were very low on the PEC index. Only 3.3% (1 in 33) were involved in the entrepreneurial process.

It is possible to go further and consider the socioeconomic groups providing the majority of the owners at different stages of the life course, as shown in Table 5.2. For example, the top three groups (1, 2, 3) are all identified as men who are 18–54 years in age, with either high incomes or incomes of $30 thousand to $75 thousand per year, and includes all ethnic groups. Their PEC index values are the highest. These three groups are 28% of the population but 40% of those in start-ups, 42% of the new firm owners, and 35% of the established firm owners.

At the opposite extreme, the last three groups (11, 12, and 13) include those with low household incomes (under $30 thousand per year), men over 55 years of age, and those women whose education didn't advance beyond obtaining a high school degree. All ages and ethnic categories are included. Their PEC

index values are the lowest. These three groups are 16% of the population but comprise 7% of the start-up owners, 6% of the new firm owners, and 8% of the established business owners. This makes clear how age and income can be related to the personal context, in turn having a major effect on personal decisions to participate in the entrepreneurial process.

Other individual groups are distinctive, such that they are more or less involved than may be expected. For example, group 4 is identified as Black and Hispanic women under 65 years of age that have more than high school education. They are 3.5% of the population but 5% of those in start-ups and new firm owners and 3% of established firm owners. In contrast, White and Other women in group 7 are of similar ages, under 65 years, with more than a high school degree and account for 20% of the population, but 17% of those in start-ups, 18% of the new firm owners, and 21% of the established firm owners. Policies designed to facilitate women and minority participation in new and small businesses might be adjusted to accommodate these patterns and become more efficient.

OVERVIEW

Attention has been given to those involved in firm ownership across the life course. The initial attention has been to whom in the adult population is likely to be involved in a start-up or the owner of a new or established business. This was followed by consideration of the characteristics of those currently involve in the business life course, followed by attention to the process whereby individuals become involved in start-ups.

Attention to prevalence rates based on different characteristics leads to replication of findings that have been frequently reported regarding start-ups: men are more involved than women; those who are aged 25–44 are the most involved; and Blacks and Hispanics are more involved than Whites. Educational attainment has little association with White participation but is a major factor associated with minority involvement. Household income has modest association with participation in start-ups.

Involvement as owners of established firms is largely the mirror image of start-ups, except for gender. Men are still more involved than women. Older, more educated Whites with higher household incomes are more likely to be involved with established firms than are ethnic minorities or those with lower household incomes.

Assessment of the character of firm owners is complicated by that 18% who are involved in start-ups and other business ownership. Not only are young people and men more likely to be involved with start-ups—the number per 100 in the population is higher; but they are also the majority of those involved in start-ups, they are a large percentage of all nascent entrepreneurs. In contrast,

Blacks and Hispanics, despite being more likely to be involved in start-ups, are a minority of nascent entrepreneurs. Regardless of difference in prevalence rates—indicators of the tendency to be involved—there is no age, gender, ethnic, educational, or household income group that is not represented among those involved in start-ups, new, or established firms.

The process whereby individuals become involved in start-ups emphasized a two-stage causal mechanism:

- Life experiences, personal contest, and the immediate economic environment affect an individual's beliefs and judgments regarding the presence of entrepreneurial opportunities and the ability to succeed with a new business venture.
- This predisposition toward new ventures in a given context leads to action related to the creation of a new firm.

In short, the impact of personal context is mediated by personal interpretations, which is true for many important life transitions: marriage, choice of residence, educational planning, and major career decisions.

Additionally, there are clear policy implications regarding the major features of the Personal Entrepreneurial Context Index:

- Self-perception that one has the skills and ability to start a business may be provided through training.
- Perception of opportunities in the local community may be enhanced with appropriate regional assessments.
- Knowing those with personal experience with business start-ups may be enhanced with mentoring and networking programs.

It is equally clear that while differences among U.S. regions have some impact, these regional differences probably affect general perceptions of opportunity. These perceptions, along with the nature of the personal context, influence decisions to pursue a business start-up.

NOTES

1 Reynolds, Carter, Gartner, Greene, and (2002); Reynolds, Carter, Gartner, and Greene (2004).

2 Consistent with most marketing research of this type, household income was reported by about 80% of the respondents; data is missing on one in five individuals. In order to provide a more complete analysis, the relationship between gender and educational attainment was examined for this part of the sample and gender and education used to predict the household income that would have been reported by the 20% that did not provide annual household income.

3 Reynolds, Carter, Gartner, Greene, and (2002); Reynolds, Carter, Gartner, and Greene (2004).

4 Reynolds (2007).

5 A small proportion, from 1-8 % depending on the item, did not provide an answer in the interview.

6 The first three items were modified in such a way that "no" was coded -1, "yes" as +1, and "don't know/refused" as 0. Once adjusted, the reliability for the three items was 0.50. This was lower than desirable but no other options for measuring this construct were available. The resulting index was a seven-point scale with a uniform distribution; that is to say, a large percentage of respondents were at the extremes—reporting either a maximum (15%) or minimum (25%) personal entrepreneurial context index.

7 The program used was DTREG [Sherrod, 2005].

6
What Happens in the Start-up Process?

Businesses start when a person, on his or her own or working with a team, decides to put a new firm in place. What do people do as they attempt to start a new firm? What are the outcomes of such efforts? How long does it take for a resolution? What kinds of people or situations facilitate a successful outcome? What affects completion of the process with a new firm in place? These and other questions have substantial intellectual and practical relevance, but the complexity of the start-up process makes them very difficult to answer.

A great deal of detail about the nature of this process—as it occurs in the United States—is provided by the U.S. Panel Study of Entrepreneurial Dynamics.[1] Between 1998 and 2000, screening of a representative sample of over sixty thousand adults identified 830 U.S. who (1) considered themselves as starting a business, (2) had engaged in start-up activities in the previous year, (3) expected to own part of the new business, and (4) had not developed more than three months of positive monthly cash flow. They were contacted for follow-up assessments three times, a total of four interviews over five years. The data from this representative sample of U.S. start-ups can be used to explore the issues raised above.

WHAT IS THE OUTCOME ONCE THE START-UP PROCESS IS INITIATED?

Once one or more individuals have begun to work on the creation of a new firm, there are several outcomes. Two are obvious: the birth of a new firm or termination of their efforts—to quit, as it were. A third is more subtle: an ongoing, indefinite involvement in the start-up effort. These three outcomes are presented for the representative U.S. sample in Figure 6.1.

This exhibit presents the status of these start-up efforts over the first ten years following conception. The initial bar indicates that 100% are active in the start-up at the beginning of the process; one month later 1% have quit and 2% report a going business. The next 6 years are shown in three month intervals, the seventh, eighth and nine years as 12 month intervals. After 9 years and 12 months, 37% report having left the process, 34% report a new business in

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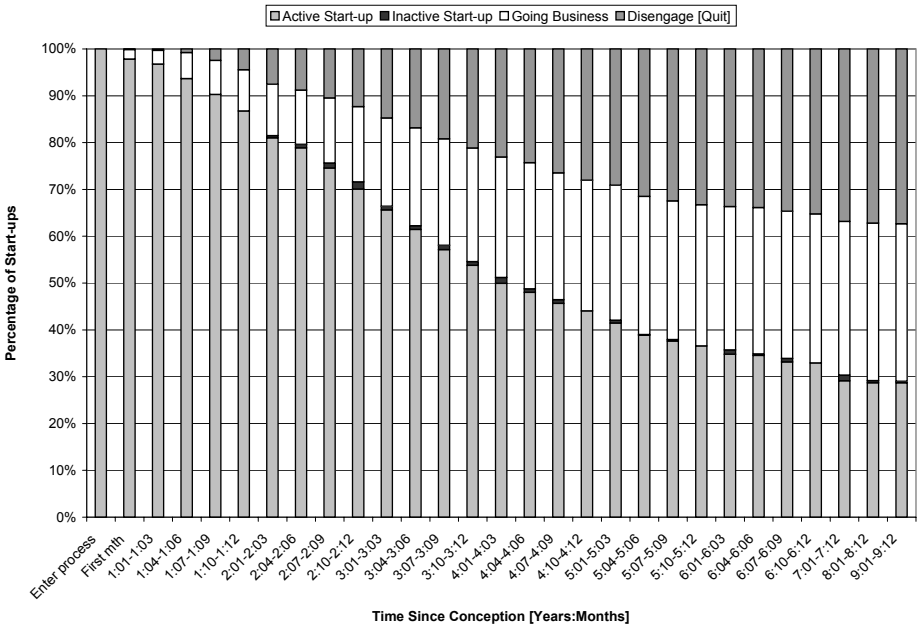


Figure 6.1. Changes in Start-up Status over Time: 1 Month to 10 Years

place, 28% are still active in the start-up effort, and 1% are neither active in the start-up but will not admit that they have completely given up—the undead, as it were.[2] As the actual data collection took place over a 5-year period, the status reported at the end of 6 years—or the beginning of the 7th year—will be used for subsequent analysis; by this time 32% have reported a new firm, 35% have disengaged, and 33% are continuing to work on the start-up.

The major finding, then, is that after 6 years from entering the firm creation process, about one-third have quit, one-third report a going business, and about one-third are still working on the start-up. Some of the latter report they have been trying for 15 or more years. It would appear that for these nascent entrepreneurs the start-up effort is an interesting hobby, not a serious option for a career.

HOW LONG DOES IT TAKE?

How long does the start-up process last? It is clear that for some it can take decades, as one-third of these nascent entrepreneurs seem to be involved for very long periods. It is possible, however, to track the time involved in the process by those who disengage from the process.

The time from the first start-up activity (conception) to the date when a person reported that he has started a business or disengaged from the effort is presented in Figure 6.2. Time is presented in 6-month intervals and the total proportion of cases in each category is presented at each time period. As the status at the end of the 6th year is used to classify the start-up efforts, 100% of the new firms and quits are accounted for at the end of the 6-year period. That small proportion that took longer than 6 years is not included in this analysis.

There is a clear difference in the two patterns. In the first 6 months, for example, 18% of the new firms are created but only 2% of those that disengage have quit. The median time for a new firm birth is 19–24 months, but 25–30 months for a disengagement—about 6 months longer. By 36 months 75% of the new firms are created, but it takes 42 months for 75% of those that quit to actually disengage. By 60 months, 5 years after conception, the proportions are comparable, with 10% of the start-ups and 10% of the disengagements taking over 60 months.

This difference between times required to leave the process is not a surprise, as it may take a while to determine that a given initiative is not economically viable. It appears that for the large majority of start-up efforts, it takes about half a year longer to disengage from the initiative than to create an operating new firm.

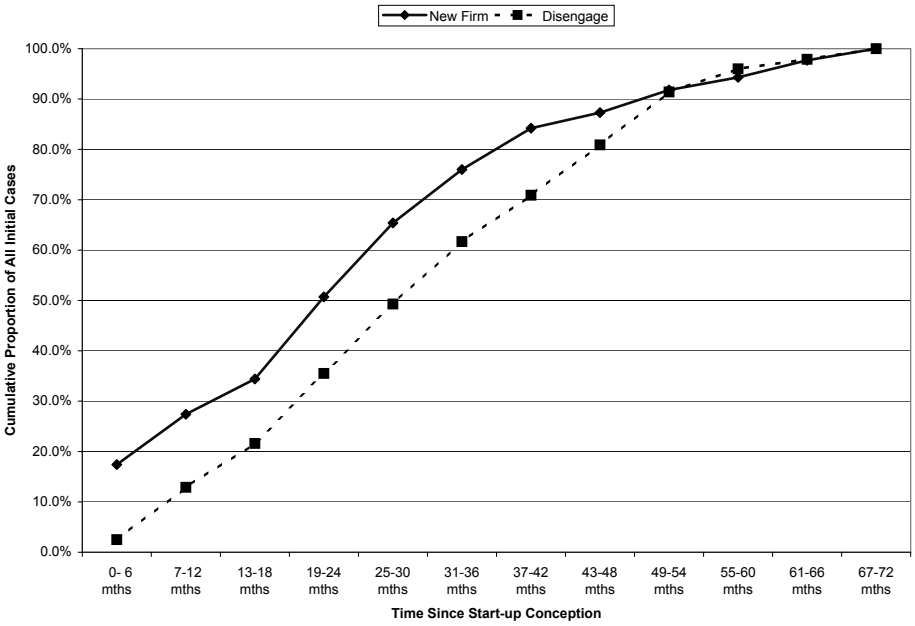


Figure 6.2. Gestation Time to New Firm Birth or Disengagement

WHAT KINDS OF INDIVIDUALS OR SITUATIONS AFFECT THE PRESENCE OF A NEW FIRM?

Given the recurring finding of the significance of age and gender on entry into the start-up process—men are twice as active as women and the majority of nascent entrepreneurs are 25–44 years in age—it might be expected that these factors effect the outcome of the process. The proportion that report a new firm after 6 years, based on gender and age when they entered the start-up process, is presented in Figure 6.3. While there is a slightly higher proportion of new firms reported by women 18–24 years old and men 55 years and older; because the number of cases in these two groups is small, there is no statistically significant difference for age or gender. So the primary impact of age and gender is on who enters the process, not the ability to complete the process with a new firm in place.

The association of ethnic background on entering the start-up process is dramatic, with Blacks and Hispanics reporting a participation rate substantially higher than Whites—particularly among men. These differences in participation are summarized for the sample in the left set of columns in Figure 6.4. While the outcome after 6 years indicates a statistically significant difference associated with ethnic background, the substantive effects are rather modest. As shown in Figure 6.4, compared to Whites or Hispanics, Blacks are slightly less likely to report that they have launched a new firm but are slightly more likely to report that they are still working on the start-up effect. The proportion that quit is about the same.

The significance of basic socio-demographic characteristics as they affect completion of the start-up process with a new firm is summarized in Table 6.1.

Remarkably, almost none have a statistically significant effect on completion of the process with a new firm. In fact, the two most powerful attributes related to participation in the start-up process—age and gender—have NO statistically significant relationship of reports by nascent entrepreneurs that a new firm is in place. In this case, age has been computed in terms of that time when entry into the start-up process—or conception—was computed. This may be up to 10 years before the initial interview.

Perhaps equally significant is the range of background characteristics that do not seem to have any statistically significant impact on which start-ups become new firms: educational attainment, parental ownership of a small business, work experience in the parents' business, friends and neighbors with businesses, encouragement by friends and family members, a positive impression from observing friends and relatives businesses, years lived in the county or state, and whether or not the person was born in the United States.

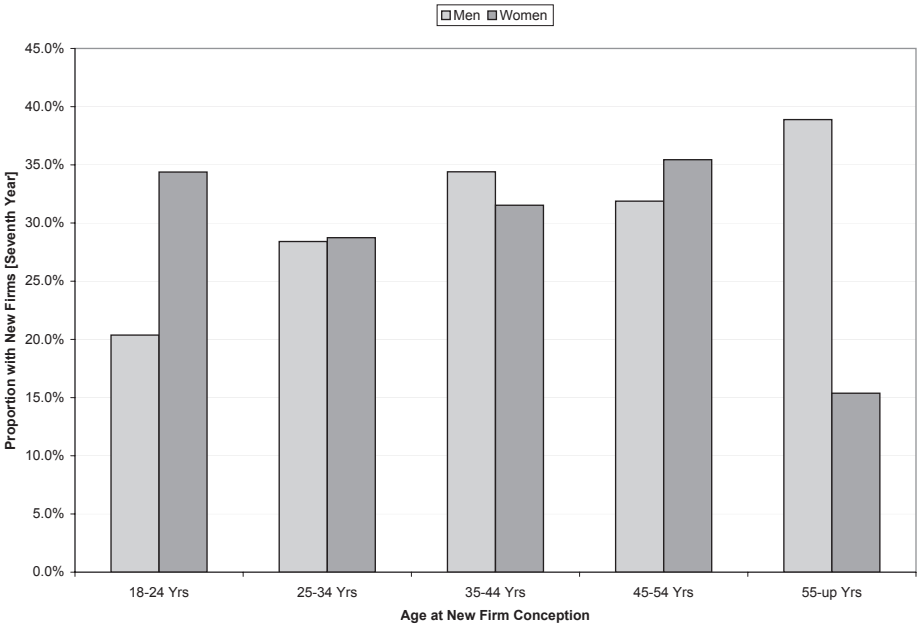


Figure 6.3. New Firm Prevalence by Gender and Age at Start-up Conception

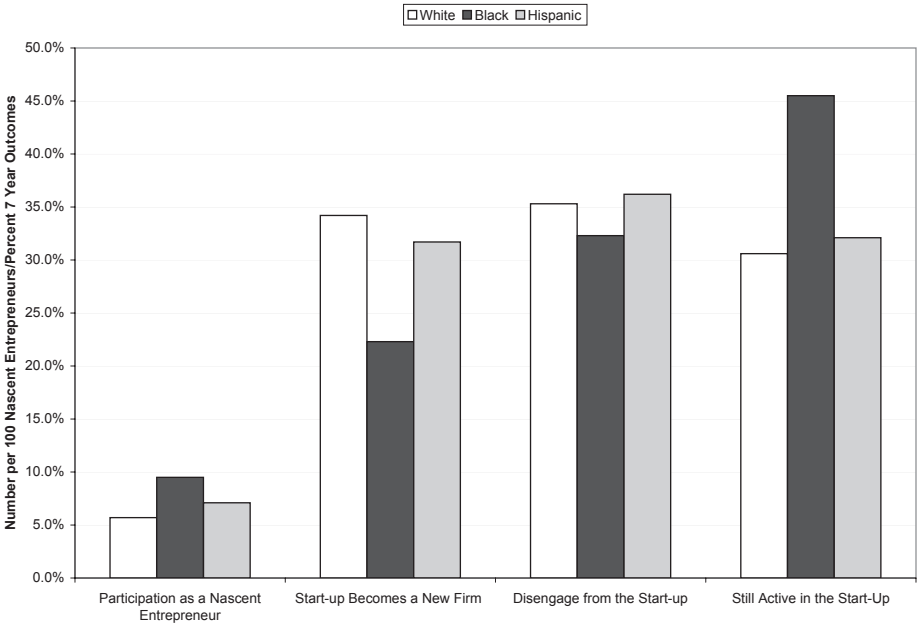


Figure 6.4. New Firm Prevalence by Ethnic Background

Table 6.1. Firm Creation and Socio-Demographic Factors

Statistically Significant Differences	Not Statistically Significant
Ethnicity	Gender
	Age at entry into the start-up
	Age, gender categories (interaction)
	Educational attainment
	Parents owned a business
	Worked for parents' business
	Friends, neighbors owned businesses
	Encouraged by friends, family members
	Impression of business ownership from friends, relatives
	Years lived in county
	Years lived in state
	Born outside the United States
Unless otherwise indicated, the statistical significance is at 0.05, using chi-square or mean comparisons tests.	

A review of 13 factors reflecting the current social, work context is provided in Table 6.2. Those that report a new firm birth are more satisfied with life overall and report LESS time devoted to the start-up on their days off, but none of the others are statistically significant. These include satisfaction with the most recent job, household income, household net worth, martial status, household structure, size of the household (measured three ways), time at work on the last workday, time at work on the last day off and time working on the start-up on the last day off.

Table 6.2. Firm Creation and Current Social, Work Life Context

Statistically Significant Differences	Not Statistically Significant
Satisfied with life overall	Satisfied with recent job
	Household income
	Household net worth
	Martial status
	Household structure
	Household size • All persons • Adults only • Persons with income
	Time use reports, total hours working: • Last workday • Last day off
Time use reports, hours on start-up: • Last day off (fewer hours)	Time use reports, hours on start-up: • Last workday
Unless otherwise indicated, the statistical significance is at 0.05, using chi-square or mean comparisons tests.	

The relationship of personal traits, orientations, and attitudes to reports of a new firm are summarized in Table 6.3. Five reflect a statistically significant association with reporting a new firm birth: those with internalized locus of control, more confidence in social settings, a cognitive style that emphasizes

Table 6.3. Firm Creation and Personal Traits, Orientations and Attitudes

Statistically Significant Differences	Not Statistically Significant
Locus of control	
Confidence in social settings	Emotional control
	Shyness
Cognitive style • Doing better, not different things	Business problem solving
	Defining problem complexity
Economic sophistication • Focus on current value in decisions, not cost to acquire	Economic sophistication • Ignore sunk costs in current decisions
Prefers individual work activities	Prefers challenge/task focus versus social focus
	Emphasis on high payoff/high-risk choices
	Emphasis on high personal impact choices
	In choosing between firms, emphasizes: • Financial issues • Operational issues
	Career motivations • Six dimensions
	Entrepreneurial expectations
	Entrepreneurial intensity
Expects firm to be operating in five years	Sales in first or fifth year of operation Jobs in first or fifth year of operation
	Prefers firm to grow as much as possible
	Expects firm to be major source of household income
	Expected equity ownership in five years
	Perception of work demands • Three measures
	Motivation/business idea sequence
	Belief in systematic search for good ideas
	Belief that good ideas just occur
Unless otherwise indicated, the statistical significance is at 0.05, using chi-square or mean comparisons tests.	

doing things better rather than undertaking a new approach, some level of economic sophistication about the current value of assets, a preference to avoid working in collaboration with a group, and expectations about firm survival for five years.

But more than 25 other factors show no relationship, including emotional control, shyness, business problem solving strategies, defining problem complexity, economic sophistication about sunk costs, a preference for challenging task-focused problems compared to a social focus, emphasis on high payoff/high-risk choices or high personal impact choices, criteria used to assess choices between firms, six aspects of career motivations (self-realization, financial security, recognition, meeting role expectations, innovation, and independence), entrepreneurial expectations and intensity, expectations about firm size in the first and fifth years, preference for firm growth, expectations that firm proceeds will be a major source of household income, perception of work demand pressures, the sequence in which the business idea and motivation were activated, and beliefs about the sources of good business ideas.

The impact of business background and experience is summarized in Table 6.4. There is strong evidence of the benefit of work experience (reflecting in more years of full-time paid work experience); work in administrative, supervisory, or managerial positions; more experience in the same industry as the start-up; less experience in unpaid volunteer work or unemployed seeking a job; more general management and operational management work experience; and more human relations and finance classes.

Table 6.4. Firm Creation and Business Background, Experience

Statistically Significant Differences	Not Statistically Significant
Years of full-time paid work experience	
Years of administrative, supervisory, or managerial experience	
Labor force activity in prior 12 years, less activity as one who is: • Unemployed seeking work • Unpaid volunteer work	Labor force activity in prior 12 years • Overall activity counts • Nine specific activities
Same-industry experience	Prior start-up experience
General management work experience	General management classes
Operations management work experience	Operational management classes
Human relations, finance classes [0.07]	
Unless otherwise indicated, the statistical significance is at 0.05, using Chi Square or mean comparisons tests.	

There is no evidence that the number of labor force events over 12 years in nine other areas, prior start-up experience, or general and operational management classroom experience is associated with reports of a new firm.

Two aspects of the business, economic context, as reviewed in Table 6.5, seem to have an association with completing the start-up process: the presence of social challenges among start-up problems and a perception that operational aspects are more challenging in the immediate community. A number of others have no relationship, including a general start-up problem index, start-up problems associated with personal challenges, three aspects of the perceived entrepreneurial climate, and three aspects of the economic, contextual uncertainty in the immediate community.

Table 6.5. Firm Creation and Perceived Business, Economic Context

Statistically Significant Differences	Not Statistically Significant
	Start-up problem index
Start-up problems: Social challenges	Start-up problems: Personal challenges
	Entrepreneurial climate • Three dimensions
Economic, community contextual uncertainty: • Operational aspects more challenging	Economic, community contextual uncertainty: • Overall • Financial • Competition
Unless otherwise indicated, the statistical significance is at 0.05, using Chi Square or mean comparisons tests.	

A number of items related to the actual activities or immediate context associated with the start-up, presented in Table 6.6, seem to have a statistically significant relationship with a new firm birth.

Several measures associated with amount and intensity of activity are related to reports of new firms.[3] All are measured from conception to the first detailed interview and include total hours devoted to the start-up by all team members, average hours per team member, average total hours per month, and average hours per month per team member. Similar measures are developed regarding funding provided by the team members, as reported in the first interview. These include total funds provided by all team members, the average per team

Table 6.6. Firm Creation and Business Activity, Context, Start-up Investments

Statistically Significant Differences	Not Statistically Significant
Total start up team hours, conception to first interview Average hours per start-up team member, conception to first interview Average total hours per month, conception to first interview Average hours per month per team member, conception to first interview	
Total funds invested at first interview Average funds per month per team member, conception to first interview Average funds per member at first interview Average funds per month, conception to first interview	
Legal form • Partnership less successful	Economic sector • Five types
Proportion legal new firm ownership • If over 50% institutional ownership	Type of Location
Size of start-up team [0.09] • Four-person team less successful	
Any contact with helping programs	Number of programs known about Number of programs contacted Nature of helping programs Hours spent receiving program assistance Value of help provided (estimated)
Business plan sophistication	Accounting sophistication
Competitive strategy • High tech	Competitive strategy • New, quality products • Lower prices • Superior location, convenience • Niche markets • Superior quality
Low-tech emphasis [0.08]	
	Social Network • Presence reported • Average number of persons
Unless otherwise indicated, the statistical significance is at 0.05, using chi-square or mean comparisons tests.	

member, the total per month prior to the first interview, and the total per month per team member. Both the amount and intensity are related to reports of new firm births.

Partnerships, as one type of legal form, seem to be less likely to lead to a firm birth; if an existing business or institution owns over 50% of the start-up, a new firm is more likely to emerge. Four-person start-up teams seem to be less successful than the others are.[4] Contact with helping programs—no matter who is providing the help—seems to facilitate new firm creation. More sophisticated business plans and a competitive strategy based on high technology seem to be helpful, although another measure seems to indicate that low technology start-ups are more likely to report new firms.

A number of other factors would seem to have little relationship to a new firm birth: the actual industry or market sector, type of location where the firm is "housed," a number of measures about the sponsorship and intensity of help provided by a helping program, the level of accounting sophistication, five aspect of competitive strategy, and the presence and size of helping social networks.

A number of factors related to the county in which the start-up process took place were examined to determine the potential impact of the ambient community, using measures based on harmonized data from federal sources; these are presented in Table 6.7.

Two measures capture an urban-rural dimension: population density and a four-item urbanization index, based on per capita income, percent of high-income households, percent of population 25–44 years of age, and percent of adult population with college degrees. Both have a statistically significant relationship to the proportion of new firms that emerge from start-ups, but only when the sample is sorted into quartiles. The result, surprisingly enough, is that those in the least urbanized context with the lowest population densities are more likely to report that new firms had emerged from the start-up initiatives. This may reflect a lack of competition from other firms or start-ups in these

Table 6.7. Firm Creation and Ambient Community

Statistically Significant Differences	Not Statistically Significant
Population density, persons/square mile • Low density, more new firms	Per capita total personal income
Urbanization index, 4 items • Least urbanized, more new firms	Percent households with annual income of $75,000 or more
	Percent population 25–44 years old
	Percent population 25 years and older with college degrees
	Average annual population growth
Unless otherwise indicated, the statistical significance is at 0.05, using chi-square or mean comparisons tests.	

rural areas or a determination among necessity entrepreneurs—who may not want to move out of the area—to put a new firm in place.

Five other measures, found to have a positive to regional comparisons of new firm birth rates, had no statistically significant relationship to the proportion of start-ups that became new firms. These contextual factors included per capita total personal income; percent of households with high annual incomes, in excess of $75,000 per year; percent of young adults (25–44 years of age) in the population; percent of the population 25 years and older with college degrees; and population growth.

The result of this effort to consider the characteristics of the individuals staring new firms, their situations, and the basic features of the anticipated new business are rather dramatic. About 100 features, depending on how they are counted, have little or no relationship to the reports that a new firm was established. About 30 seem to have some statistically significant relationship to the reports of an operating business. But many of these 30 are reflecting the same features—intensity of involvement measured by time and money as well as past work experience—as related to the implementation of a new firm. The large mass of indicators reflecting perceptions, attitudes, socio-demographic backgrounds, strategic focus, and the like seem to have very little impact on which nascent entrepreneurs are reporting that a new firm has been created.

This suggests that more attention should be given to what these start-up teams are doing, rather than who they are—or think they are. Fortunately, the PSED I data set provides a rather detailed description of what has been done to implement a new firm.

WHAT HAPPENS IN THE START-UP PROCESS?

What do nascent entrepreneurs do as they work to establish new businesses? While the basic task requires the assembly and coordination of human and financial resources to achieve business objectives, a large number of discrete activities are involved. It is possible to ask those active in the firm creation process which types of events they have pursued; 27 are used in this assessment and dozens more could have been included. Table 6.8 provides the PSED list of activities, indicating those reported in each of the first six years of the start-up effort. The entries represent the proportion of the start-up efforts that report the initiation of each activity. Some activities—such as opening a bank account or arranging for a listing in the Yellow Pages—are only done once. Other activities—such as a revision in a business plan, financial projections, or

Table 6.8. Business Creation Activities

Activity/Event	1at Month	1st Year	2nd Year	3rd Year	4th Year	5th Year	6th Year
Time was spent thinking about the new business	66.2%	89.9%	96.2%	97.3%	98.0%	98.9%	99.2%
Defined market opportunities	20.2%	61.7%	18.3%	84.3%	87.9%	89.7%	90.6%
Invested own money	23.8%	67.1%	81.1%	86.4%	87.6%	89.1%	90.4%
Purchased raw materials, inventory, supplies, components	13.5%	52.1%	69.5%	77.7%	80.1%	81.3%	81.7%
Developed product or service model or prototype	22.3%	59.9%	70.7%	76.5%	78.4%	79.2%	79.6%
Promotion of product or service has started	5.0%	37.8%	57.6%	66.1%	71.7%	73.2%	74.5%
Began to save money to invest	22.8%	49.5%	61.0%	64.1%	67.2%	68.9%	69.8%
Purchased/leased plant, equipment, property	8.3%	36.7%	53.7%	62.3%	66.4%	68.3%	69.3%
Organized a start-up team	11.2%	43.6%	56.8%	62.4%	65.8%	67.3%	68.1%
Received any money, income, or fees	4.4%	30.3%	50.2%	59.7%	63.8%	66.4%	67.5%
Prepared a business plan	15.5%	45.0%	56.4%	60.4%	62.6%	64.8%	66.2%
Developed financial projections	6.1%	31.6%	46.2%	53.7%	58.0%	59.2%	61.0%
Established an exclusive bank account	3.3%	29.4%	43.1%	51.2%	55.0%	56.8%	58.4%
Established supplier credit	2.9%	23.7%	39.3%	45.7%	49.6%	51.6%	52.8%
Devoted full time to start-up effort: 35+ hrs/week	3.9%	19.4%	33.4%	40.1%	44.1%	46.6%	47.8%
Arranged childcare, household help	2.2%	19.6%	29.8%	34.6%	37.4%	38.9%	39.7%
Asked financial institutions or other people for funds	3.8%	21.4%	28.6%	33.6%	35.5%	37.0%	38.3%
Installed dedicated phone line	2.6%	14.8%	25.0%	30.5%	34.3%	36.2%	37.7%
Took any classes or workshops	11.7%	24.2%	30.9%	33.3%	34.5%	35.5%	36.2%
Had an initial positive monthly cash flow	0.6%	8.4%	16.7%	23.5%	29.2%	31.3%	32.9%
Initiated a phone book or Internet listing	1.9%	10.9%	20.2%	25.9%	28.3%	30.6%	31.2%
Hired employee(s) for pay	1.3%	8.1%	17.9%	23.7%	27.2%	29.1%	30.3%
Patent, trademark, copyright application(s) submitted	1.4%	10.1%	17.1%	20.5%	23.0%	24.5%	24.9%
Initial Registration Activities							
Filed first federal income tax return	7.3%	24.5%	35.5%	43.1%	46.4%	48.4%	48.9%
Paid first federal social security tax payment	2.0%	11.5%	22.1%	27.6%	31.1%	33.3%	34.0%
Paid first state unemployment insurance tax	1.3%	6.7%	14.3%	18.1%	20.7%	21.3%	22.1%
Know that firm is listed with Dun and Bradstreet	0.1%	1.9%	3.9%	6.0%	6.9%	8.3%	8.6%

hiring individuals as the business is established and expanded—may continue for some time.

The start-up activities in Table 6.8 are rank ordered by the proportion of start-up efforts that reported initiating the activity by the sixth year after they began the start-up process—six years after conception. Of these, 4 are related to filing taxes or listing with credit rating bureaus and are presented at the bottom; 22 reflect actions taken to implement the new business; and 1, giving serious thought to the new start-up, is related to a personal focus on the initiative.

As the proportion initiating each activity in the first month and in each successive year is indicated, the cumulative proportions will either stabilize or increase over time. It should be no surprise that giving a lot of thought to the new business is not only the most widely reported activity, but two-thirds (66.2%) report serious thought about the start-up by the end of the first month. On the other hand, one-third have not reported serious thought at the beginning of the process; it is not reported by over 95% of the nascent entrepreneurs—19 in 20—until the third year.

Aside from serious thought, no other activity is reported by more than 1 in 4 of the nascent entrepreneurs as having occurred in the first month. More than

1 in 5 report having defined market opportunities, invested their own money in the start-up, developed a product or service model, or begun to save money to invest. More than 1 in 10 report that they have purchased raw materials, inventory, or supplies; begun to organize a start-up team; developed a business plan; took a workshop or class on creating a business. Some activities are reported by less than 1 in 50 in the first month, including hiring any employee, initial positive monthly cash flow, or the first listing of the firm's phone or Internet address.

It is awkward to try to summarize the processes that involve 23 different activities, setting aside the 4 that involve meeting tax requirements or registration with a commercial credit rating service. Factor analysis is a procedure for determining which activities might be pursued together and considered an interrelated domain of focus. This analysis indicated that these 23 start-up activities could be reorganized into six domains:

1. Business Presence: The emphasis is on formal registration of the firm, including establishing a bank account; full-time attention by the nascent entrepreneur; acquiring a dedicated phone line; initiating a phone book or internet listing; or hiring employees. [5 items]
2. Production Implementation: Establishing procedures to produce the good or service, including purchases of any raw materials, inventory, supplies, or components; purchase or lease of plan, equipment, or property; initiation of promotion of the good or service to customers; receipt of any income or fees; establishing supplier credit; or initial positive monthly cash flow. [6 items]
3. Organizational, Financial Structure: Putting a organization and financial structure in place, including the organization of the start-up team; preparation of a business plan; development of financial projections; and asking institutions or potential investors for financial support. [4 items]
4. Personal Planning: The nascent entrepreneur's efforts to prepare for the business and his or her personal involvement, including serious thought about the new business; defining market opportunities, or investing there own funds in the start-up. [3 items]
5. Personal Preparation: The nascent entrepreneur's organization of his or her personal life, including saving money to invest in the new firm, arranging child care or household help; and taking relevant classes or workshops. [3 items]
6. Focus on Task or the Product: Attention to developing the product or service to be sold or filing for a patent, trademark or copyright. [2 items]

For each domain and for each time period, an index was created by computing the average number of activities that had been initiated by the beginning of the period. For each index the range in values could be 0–100%.

The relationships of this index to the three outcomes six years after conception are presented for six periods in Table 6.9. The earliest is based on reports of activities initiated in the first month, followed by those initiated in the first six months, the first year, and three following years. The statistical significance is presented in brackets below the index values for each outcome.

Of the six indices, only personal preparation—saving money, arranging childcare, taking classes or workshops—appears to have no relationship to the outcome in the sixth year. All other indices have, for some time periods, statistically significant relationships to the six-year outcomes.

This seems to occur earliest and be the strongest for indicators of business presence—establishing a bank account, creating a phone book listing and a dedicated phone line, hiring employees, and full-time devotion to the start-up;

Table 6.9. Start-up Indices and Outcomes in the Sixth Year, by Time since Conception

	Start-up Activity Index	1st Month	6th Month	1st Year	2nd Year	3rd Year	4th Year
BUSINESS PRESENCE							
	New Firm	3.4%	12.9%	24.6%	42.5%	53.7%	59.7%
	Disengagement	2.2%	7.0%	15.1%	23.9%	28.3%	30.5%
	Active Start-up	1.8%	9.1%	10.4%	18.3%	22.0%	25.2%
	Stat Sign	[0.04]	[0.003]	[.0000]	[0.0000]	[0.0000]	[0.0000]
PRODUCTION IMPLEMENTATION							
	New Firm	6.4%	23.6%	41.0%	60.7%	74.1%	79.7%
	Disengagement	5.6%	18.6%	27.9%	44.0%	49.0%	51.8%
	Active Start-up	5.3%	16.2%	26.2%	39.1%	45.7%	50.3%
	Stat Sign	[0.61]	[0.006]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
ORGANIZATIONAL, FINANCIAL STRUCTURE							
	New Firm	9.8%	27.4%	41.8%	53.8%	59.6%	63.0%
	Disengagement	8.5%	23.7%	36.7%	49.1%	53.7%	55.6%
	Active Start-up	9.2%	19.0%	28.2%	38.3%	44.6%	48.1%
	Stat Sign	[0.72]	[0.008]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
PERSONAL PLANNING							
	New Firm	36.5%	57.1%	75.1%	86.5%	91.1%	92.4%
	Disengagement	36.8%	61.3%	74.8%	87.6%	91.4%	93.1%
	Active Start-up	36.9%	53.6%	68.7%	81.3%	85.4%	88.0%
	Stat Sign	[0.99]	[0.05]	[0.05]	[0.02]	[0.004]	[0.01]
PERSONAL PREPARATION							
	New Firm	12.3%	21.2%	29.7%	39.6%	45.0%	47.7%
	Disengagement	13.6%	25.1%	33.6%	41.5%	42.9%	44.9%
	Active Start-up	13.7%	21.8%	29.7%	40.5%	44.2%	46.6%
	Stat Sign	[0.69]	[0.21]	[0.26]	[0.81]	[0.79]	[0.66]
TASK, PRODUCT DEVELOPMENT							
	New Firm	12.1%	28.0%	38.8%	46.2%	50.3%	58.3%
	Disengagement	12.3%	26.5%	36.4%	45.9%	49.5%	51.2%
	Active Start-up	11.2%	21.8%	29.8%	39.6%	45.7%	48.2%
	Stat Sign	[0.86]	[0.06]	[0.007]	[0.05]	[0.26]	[0.31]

those reporting these activities in the first month seem to be more likely to have a new firm six years later. Active engagement in developing a productive mechanism and creating an organizational and financial structure also seems to have a strong association with the emergence of a new firm.

Two other indices—related to personal planning and task or product development—also seem to have a significant relationship to the six-year outcome, although it is not as strong as the other three and, in the case of product development, the association with the outcome after the second year is no longer statistically significant.

Is the level of intensity related to the time required to reach a resolution? Resolution can only be determined for those who that report starting a business or quitting the initiative during the study. The relationship of the activity indices to the time between conception and the two outcomes is presented in Table 6.10.

The results are quite striking, as it is clear that up through the first year or two more activity in all domains seems to result in a faster resolution—the new firms are implemented sooner or the nascent entrepreneur is quicker to disengage from the start-up. Up through the second year all correlations are negative (more activity reduces the time lag) and most are highly statistically significant. This pattern continues through the third and fourth year for the time lag to an operating business. The results are less clear for the time lag to disengage from the start-up; most of the correlations associated with the time to disengage in the third and four year are not statistically significant. Only the level of personal planning has the same pattern—more planning leads to an earlier disengagement from the start-up—is statistically significant across all years.

Table 6.10. Start-up Domains and Time to Completion and Disengagement

		1st Month	6th Month	1st Year	2nd Year	3rd Year	4th Year
TIME TO OPERATING BUSINESS							
	Business presence	-0.16*	-0.29***	-0.37***	-0.40***	-0.39***	-0.36***
	Production implementation	-.08	-.34***	-.45***	-.46***	-.49***	-.44***
	Organizational, financial structure	-.17**	-.32***	-.38***	-.37***	-.38***	-.30***
	Personal planning	-.29***	-.37***	-.41***	-.42***	-.38***	-.30***
	Personal preparation	-.07	-.15*	-.13*	-.15*	-.11	-.07
	Task, product development	0.02	-.18**	-.25***	-.21**	-.14*	-.07
TIME TO DISENGAGEMENT [QUIT]							
	Business presence	-0.07	-0.11	-0.15**	-0.04	0.03	0.08
	Production implementation	-.00	-.22***	-.24***	-.12*	0.02	0.11
	Organizational, financial structure	-.04	-.23***	-.27***	-.17**	-.11	-.04
	Personal planning	-.27***	-.44***	-.47***	-.39***	-.29***	-.21**
	Personal preparation	-.11	-.18**	-.18**	-.07	-.02	0.05
	Task, product development	-.13*	-.23***	-.24***	-.16***	-.06	-.03
	Statistical significance: * 0.05; **0.01, ***0.001.						

This may reflect a change in the nature of the individuals who are slow to quit. There may be a substantial proportion that put intense effort into the start-up and disengaged when it appeared that it might not work out. Another group is less involved and takes much longer to make a decision to quit, a decision made after having spent a number of years on the effort and not making much progress. Hence, after the initial "early decision" group has made its choice, the "late decision group" is still making an effort to get the business organized.

Complementing this information is a presentation of the number of activities reported over time, presented in Figure 6.5. Again the start-up efforts are presented on the basis of their status at the end of the sixth year. The average number of activities initiated during the first month is about 2, regardless of the outcome six years later. The average initiated six years later is 14 to 16 for those reporting going businesses or having withdrawn from the effort. Those who continue to be involved in a start-up report initiation of 11 different activities. At no time is there a statistically significant difference between the activities initiated by those with a going business or those who quit after six years. But after six months and for every following period into the sixth year, those in these two groups report a statistically significantly higher level of activity than those still in the start-up process. In summary, then, a higher level of activity in all domains is associated with an earlier exit from the start-up process, either through the creation of a new firm or disengagement from the start-up. Those engaging in more activity spend the least time in the start-up process.

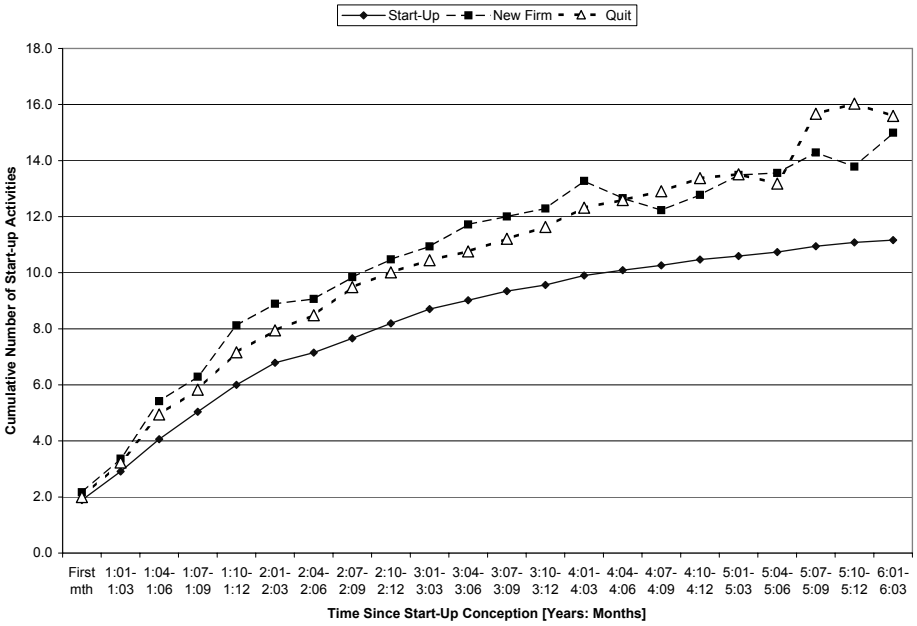


Figure 6.5. Cumulative Start-up Activities by Six-Year Outcome

The following patterns seem to be present:

- Some domains of activities appear to be associated with higher proportions of new firm births, such as establishing a business presence, focusing on production of a good or service, or attending to the organizational and financial structure.
- Other activities have less association with reports of a new firm, such as personal planning or task and product development.
- The same domains associated with success at creating a new firm are associated with a reduced time to either a new firm or disengagement from the start-up process.
- Those that implement more activities sooner in the process appear to reach a resolution more quickly than those that take longer to complete the critical activities.

It is, of course, quite appropriate to try to determine the relative importance of the various factors known to have a significant effect on the emergence of a new firm from the start-up process.

INTERACTIONS: WHO THEY ARE AND WHAT THEY ARE DOING

The preceding assessments have emphasized the relative impact of individual variables, considered one at a time, and then turned the attention to groups of related start-up activities. This leads to two obvious questions:

- What is the relative importance of different factors or activities?
- Is it possible that the interaction between different factors or activities can have a unique impact on the outcome: implementing a new firm?

Both issues can be addressed with the same type of analysis [DTREG] utilized to explore the different factors affecting participation in a start-up in Chapter 5.

The procedure followed in this assessment is as follows. A set of factors considered to be related to an outcome—in this case reports of a new firm seven years after conception—is explored to identify the single most important factor. The sample is partitioned on this factor and for each group the procedure is repeated using the remaining variables. As the sorting and analysis at each stage is completed independently, as the decision tree is developed—or grown—different sets of factors are often identified to describe each unique subgroup.

The analysis was implemented using 33 independent variables chosen to maximize the size of the sample in the analysis.[5] The 10 variables selected as important in making predictions, as well as the 23 that were not, are presented in Table 6.11. The variables with predictive value are rank ordered in terms of predictive usefulness. For those factors that have a predictive value, the emphasis is on major activity domains (production implementation, business presence), industry experience, funds invested by the start-up team, a focus on the productive activity, personal preparation, industry sector, nascent entrepreneur age when beginning the start-up and length of residence in the state.

The long list of factors that have little predictive value include gender, ethnic background, household income and wealth, time devoted to the start-up and characteristics of the ambient or host county.

The potential interaction and the ability to make distinctions among groups are presented for the first four levels of analysis in Tables 6.12 and 6.13.

The result is ten groups, four characterized by four factors and six others characterized by three.[6] To minimize idiosyncratic variation, groups with less than 20 cases were not further subdivided. The groups are rank ordered in terms

Table 6.11. Factors Selected as Important in Predicting New Firm Presence

Overall Importance [Ranked]	Not Important
Production implementation activity	Start-up team size
Business presence activity	Proportion of legal entity ownership
Nascent entrepreneur same-industry experience	Gender
Total start-up team funds invested	Labor force participation
Focus on task or product activity	Household annual income
Nascent entrepreneur personal preparation activity	Household net worth
Start-up team funds invested per month	Ethnic background
Industry sector [5 categories]	Organizational, financial structure activity
Nascent entrepreneur age at entry into start-up	Nascent entrepreneur personal planning activity
Nascent entrepreneur length of residence in the state	Nascent entrepreneur born in/out of United States
	Length of residence in the county
	Educational attainment
	Nascent entrepreneur experience with other start-ups
	Cognitive style [different vs. better]
	Total hours devoted to start-up
	Average hours/team member on start-up
	Average hours/month on start-up
	Average hours month/team member on start-up
	Funds provided/team member
	Funds provided/team member/month
	Average annual population growth
	Population density, persons/square mile
	Urbanization index [4 items]

Table 6.12. Start-ups Grouped by Second-Year Activity and Seven-Year Outcome Status

Group	1st Level	2nd Level	3rd Level	4th Level	Prop New Firms
A	Production Implement: High	Business Presence: High	State Tenure: 10 or more yrs	Industry Exper: 6 or more yrs	81.3%
B	Production Implement: High	Business Presence: High	State Tenure: 10 or more yrs	Industry Exper: 0–5 yrs	53.9%
C	Production Implement: High	Business Presence: High	State Tenure: Up to 10 yrs		49.0%
D	Production Implement: High	Business Presence: Low	Industry Exper: 6+ years		47.0%
E	Production Implement: Low	Invested: $3,000 and up	Personal Preparation: Low		35.6%
F	Production Implement: Low	Invested: Under $3,000	Industry Exper: 1+ Yrs	Invested: Over $30/month	23.5%
G	Production Implement: High	Business Presence: Low	Industry Exper: 0–5 years		22.4%
H	Production Implement: Low	Invested: $3,000 and up	Personal Preparation: High		11.8%
I	Production Implement: Low	Invested: Under $3,000	Industry Exper: 1+ Yrs	Invested: Under $30/month	9.9%
J	Production Implement: Low	Invested: Under $3,000	Industry Exper: None		5.2%
Average					30.8%

Table 6.13. Start-ups Grouped by Socio-Demographic Emphasis

Group	Prop New Firms	Prop all New Firms	Cumul Prop of New Firms	Prop of Start-Ups	Cumul Prop of Start-Ups	Prop Men in Start-Ups	Prop Women in Start-Ups	Prop Whites in Start-Ups	Prop Blacks in Start-Ups	Prop Hispanics in Start-ups	Prop 18–34 Yrs Old	Prop 35–54 Yrs Old	Prop 55 Yrs and Older
						(1)	(1)	(1,2)	(1,2)	(1,2)	(1)	(1)	(1)
A	81.3%	22.8%	22.8%	8.9%	8.9%	6.7%	-6.7%	7.5%	-1.4%	-1.9%	-1.8%	3.9%	-2.0%
B	53.9%	6.6%	29.4%	3.9%	12.7%	-28.4%	28.4%	24.8%	-12.8%	-7.7%	8.3%	-14.8%	6.6%
C	49.0%	9.7%	39.1%	6.3%	19.0%	16.6%	-16.6%	10.1%	-9.9%	-0.1%	-3.0%	-2.7%	5.8%
D	47.0%	16.0%	55.1%	10.8%	29.8%	3.1%	-3.1%	2.6%	-0.8%	-1.5%	-19.4%	18.8%	0.7%
E	35.6%	19.5%	74.6%	17.3%	47.1%	9.9%	-9.9%	6.0%	-6.9%	1.5%	-10.9%	11.0%	0.0%
F	23.5%	8.9%	83.5%	12.0%	59.1%	-2.5%	2.2%	-11.7%	6.9%	3.8%	3.0%	-1.3%	-1.6%
G	22.4%	8.6%	92.2%	12.2%	71.3%	-10.7%	10.7%	8.0%	-4.3%	-4.7%	-0.6%	-1.8%	2.5%
H	11.8%	2.7%	94.9%	7.2%	78.5%	-4.0%	4.0%	-19.1%	18.6%	-4.0%	7.9%	-7.9%	0.0%
I	9.9%	3.4%	98.2%	10.7%	89.2%	-5.4%	5.4%	-11.5%	0.5%	5.3%	18.9%	-17.5%	-1.2%
J	5.2%	1.8%	100.0%	10.8%	100.0%	-0.8%	0.8%	-5.3%	7.7%	1.9%	10.9%	-6.4%	-4.4%
Average	30.8%					61.1%	38.9%	72.4%	15.6%	7.7%	46.6%	48.9%	4.4%
Note: (1) Deviation from overall average. (2) Other ethnic omitted.													
Chi-square statistical significance.							[0.01]			[0.003]			[0.005]

of the percentage reporting a new firm start-up in the seventh year in Table 6.12, which ranges from 81% of those in Group A to 5.2% of those in Group J. This considerable range—a factor of 16—suggests that these features are quite successful in separating start-ups that lead to new firms from those that do not. The resulting model explains 21% of the variance in the outcome: firm births.

In order to capture possible differences associated with gender, ethnic background, and age, the differences across these groups is provided in Table 6.13; the cell entries indicate the difference between the actual value and that expected if the overall prevalence was uniform across all groups. The result, for example, indicates that the number of women in Group C (row C) was 28% more than would be expected if there were no variation across groups.

The difference across groups is statically significant for all three factors. This suggests that differences associated with the primary features of these 10 groups are reflected in comparisons based on age, gender, and ethnicity. But age, gender, and ethnicity are not in themselves the critical source of differences in start-up success. Age, gender, and ethnicity are related to how individuals chose to pursue a firm start-up in terms of activity domains, intensity of focus, and accumulation of the funds needed to implement a new firm.

The analysis also leads to groups of start-up initiatives with different characteristics and different outcomes, identified in Tables 6.12 and 6.13 by letters from A to J. The groups can be described as follows:

Group A is characterized by a major emphasis on implementing a production process—purchasing raw materials, arranging assets, supplier credit, initial receipt of income—and establishing a business presence: bank accounts, dedicated phone lines and listings, full time effort of the respondent, and hiring of an employee. These nascent entrepreneurs have lived in the state for more than 10 years and have 6 or more years of industry experience. While the group represents 9% of all start-ups, it represents 23% of the new firms in this sample, a reflection of the high level of conversions, 81% report new firms are created. Men, Whites, and those 35–54 years of age are slightly overrepresented in this group.

Group B is almost identical to Group A except there is less than 6 years of experience in the same industry as the start-up. There is an overrepresentation of Whites, women, and those under 34 or over 55 years of age. The group is 4% of the start-up efforts and, as 54% report a new firm, it is the source of 6% of all start-ups. This group is distinctive in that more women are present, which seems to be associated with less same-industry work experience.

Group C reflects a strong emphasis on both the production process and establishing a business presence and less than 10 years residence in the state. There is a slight overrepresentation of Whites, men, and those over 54 years of age. This group is 6% of the start-ups and, because 49% report success, it provides 10% of the new firms. The major difference in Group C, as compared to Group A, is the reduction in residential tenure; only half of those with a shorter residence tenure report new firms, compared to four of five that have lived in the state for more than 10 years.

Group D also reflects a strong emphasis on production implementation, but a low emphasis on business presence, and the nascent entrepreneurs in this group report 6 or more years of same-industry experience. The group has a slight overrepresentation of those 35–54 years of age.

While this group includes 11% of the start-ups, the conversion rate of 47% leads to providing 16% of the new firms.

Group E reflects a lack of emphasis on product implementation, a start-up team investment of $3,000 or more, and a low level of personal preparation. There is a slight overrepresentation of men, Whites, and those 35–54 years of age. As 36% of the group reports a new firm, this 17% of the start-ups provides 20% of the new firms.

Group F reflects a low emphasis on product implementation, a total investment of less than $3,000, one or more years of industry experience, and a rate of investments in excess of $30 per month. There is a slight overrepresentation of Blacks and Hispanics in this group. This 12% of all start-ups; however, it has a success rate of 24% and accounts for 9% of all new firms.

Group G is composed of those with strong attention to the production process but not much effort on the business presence and less than 5 years of same-industry experience. Women and Whites are slightly overrepresented. This group is about 12% of all start-ups but 9% of new firms, reflecting the 22% success rate.

Group H includes those with little effort on production implementation, a start-up team investment in excess of $3,000, and a high level of personal preparation. There is a substantial overrepresentation of Blacks in this group. While the group is 7% of all start-ups, only 12% report an operational new firm, so this comprises 3% of all new firms.

Group I reflects low attention to production implementation, a total investment of less than $3,000, some same-industry experience, and a rate of investment of less than $30 per month. There is a slight overrepresentation of women and Hispanics, and a major overrepresentation of those under 35 years of age. This group is 11% of the start-ups but the 10% success rate leads it to be 3% of all new firms.

Group J also reports little attention to production implementation, investments of less than $3,000, and no same-industry experience. There is an overrepresentation of Blacks as well as those under 35 years of age. While the group is 11% of start-ups, it is only 2% of all new firms, reflecting 5% of those reporting that a new firm is in place.

In summary, then, it would appear that the unique combination of start-up activities, personal experiences, and contextual factors is associated with different outcomes. There is little question that taking action to implement a productive process and a business presence has a major impact, often associated with more same-industry experience.

Primary personal characteristics are associated with these other features and may lead to differences in taking action to implement new firms. Of particular

note is the greater representation of Whites among those in the groups with higher rates of new firm creation, particularly A, B, and C; these groups tend to be more successful in new firm creation. In contrast, Blacks tend to be overrepresented in groups F, H, and J; those groups less likely to be associated with creating a new firm. Hispanics, it is to be noted, seem to be rather evenly distributed among all the groups, which may be the reason their outcome patterns, as shown in Figure 6.4, are almost identical to those of Whites.

Younger adults, those 18–34 years of age, also seem to be overrepresented among groups with relatively low successful conversion rates: H, I, and J. Older adults, those 55 years and above, seem to be overrepresented in Groups B and C, which are relatively successful. Mid-career adults, those 35–54 years of age, are clearly underrepresented in the less successful groups: F, G, H, I, and J.

Women, as a group, seem to be overrepresented in Group B, which has a high success rate, but also in Groups G, H, and I, which have rather low success rates. This results in an overall success rate that is the same for men and women.

One caution in terms of causal interpretations is important. It is convenient to assume that productive implementation and business presence activities lead to the successful transition from start-up to new firm, but it could be that as the start-up team begins to focus on the 11 discrete things associated with these two domains, the team may be encouraged by others in its commercial and personal networks. This acceptance could provide an incentive to devote more time and resources to efforts to create a viable new firm. These measures may reflect acceptance of the new firm in the marketplace and positive reactions across a range of dimensions that lead to a successful firm launch.

One thing, however, is quite clear, compared to what is actually done in the start-up process: socio-demographic and contextual factors do not have a major impact on which start-ups become firms.

OVERVIEW

Tracking the success of a representative sample of those involved in business creation indicates that after seven years about one-third report a new firm, one-third have disengaged, and about one-third are still involved in attempting to create a new firm. Exploration of the impact of over 130 factors, many reflecting reliable multi-item indices and 23 organized into six activity domains—find that many have very little association with reports of new firm creation. Those that have the most impact appear to be the following:

- Actions devoted to implementing a process for producing the good or service

- Actions devoted to developing a presence for the new business
- Start-up team investment of funds into the process
- Measures of business experience and particularly a background in the same industry

In addition, it would appear that concentration of effort might lead to a speedy resolution, leading nascent entrepreneurs to either implement a new firm or disengage from the start-up process at an earlier point in time.

A number of other factors may have some impact, often in unexpected ways:

- Start-ups in more rural—less urbanized—areas are more likely to report creation of a new firm.
- Those with an internal locus of control, that prefer to do things better and on their own, are more sophisticated about economic decision making, and perhaps with more social confidence may be more likely to report new firms.

But these influences are more subtle.

There is no question that many socio-demographic factors found to have an important impact on who enters the start-up process—such as age, gender, educational attainment, household income, household net worth, and the like—have little or no influence on who completes the process. The effects of ethnic background may reflect the strategies adopted for creating a business, rather than being associated with an ethnic group.

This reflects both the egalitarian contributions of entrepreneurial opportunities and the threat of the entrepreneurial process to the established social order. As success is related almost entirely to the business idea and how it is implemented—and not to the nascent entrepreneur's status or role in the preexisting social order—*anybody* can expect to have an unbiased opportunity to succeed, given equal access to the experience and resources that improve the capacity for new business creation. As such, each new cohort of nascent entrepreneurs may well contain individuals that are different from the established political, economic, and social elites—leading to changes in the individuals and groups that occupy positions of influence. Tolerance for replacement of the elites is, fortunately, a fundamental value in the United States and most do not support public or private efforts to prevent social mobility—either up or down.

NOTES

1 This material is a summary of the major results from the PSED I project (Reynolds, 2007), which provides substantial details of the analysis.

2 There is little change in the pattern out to 20 years.

3 Because of highly skewed distribution of hours and financial commitments, the patterns were classified into four groups and a cross tabulation assessed; the results are highly statistically significant. Comparison of average values, reflecting the impact of extreme cases, is less significant.

4 Ironically, substantial research with decision making in discussion groups indicates that four-person groups have the most egalitarian influence structures, suggesting they may have more problems reaching consensuses and arriving at decisions. This may have prevented these groups from developing an effective procedure for making the decisions required in moving forward with the start-up (Reynolds, 1971).

5 As 25% of the respondents did not complete the self-administered mail questionnaire, a number of variables were excluded. This reduction, along with missing data for some variables reduced the sample of 648 to 566 for this assessment; weights were, of course, re-centered so the sample would continue to represent all U.S. nascent entrepreneurs in the start-up process.

6 The analysis was completed with the DTREG procedure version 3.5 (Sherrod, 2005). This model used a single "tree" with five splitting levels, classification analysis, Gini splitting algorithm, equal priors settings, equal misclassification costs, and equal weights on all variables, with a V-fold true pruning and validation method with 10 folds. All cases with missing values on any independent variables were removed and the results were weighted with re-centered WTW1 (wave 1 weights).

7
Comparisons across the Firm Life Course

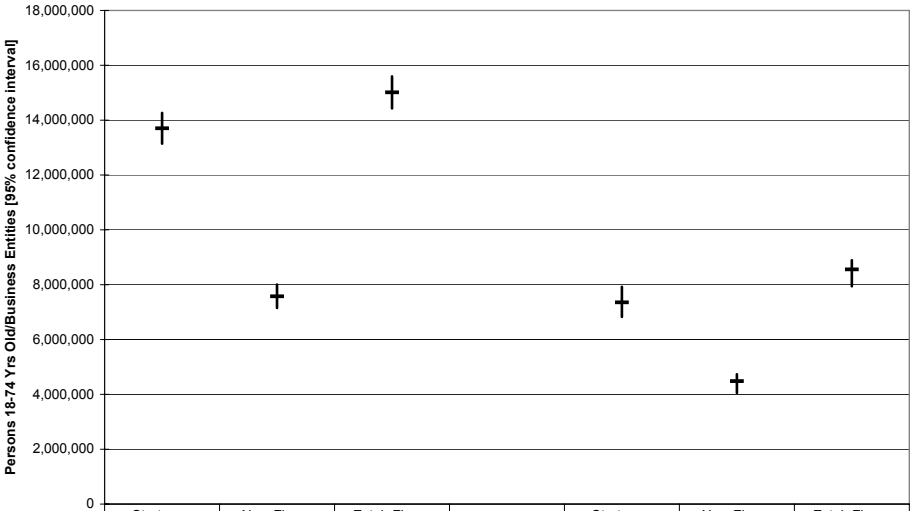
Firm creation is the first stage of the business life course. Comparing start-ups with new and established businesses helps to clarify the distinctive features of those in the start-up phase. For example, are the start-ups emphasizing new sectors, expecting to have more impact on the market, emphasizing high technology, or having different organizational structures? However, these comparisons are based on firms at different stages observed at the same time. Inferences about the process of moving from one stage to the next must be done with care; longitudinal data collection on the same firms over time is the preferred source of development descriptions.

As shown in Figure 7.1, at any given time in the past five years, about 14 million individuals were in the gestation or start-up process, trying to implement a little more than 7 million new firms in the United States. The precision of these estimates, along with estimates of the new number of new and established firms, is reflected in the vertical lines that represent the 95% confidence intervals—or margin of error.[1]

At the same time about 7.6 million persons are currently managing about 4.5 million new firms and another 15 million are managing 8.6 million established firms. While about 30.6 million individuals from 18–74 years are engaged in these activities, the total business activity count is 36 million because 5.5 million persons are involved in two different activities at the same time.[2] Most are managing established businesses and working on start-ups at the same time. These 30.6 million are about 16% of all those 18–74 years of age in the United States. To say that business creation and management is a popular U.S. pastime would seem to be an understatement.

Are the estimates based on these population surveys accurate? It's difficult to say, but if they correspond with official government statistics, they may justify confidence. Recall that a correspondence between start-ups and new employer firm counts was provided in Chapter 2 (see Figure 2.6), suggesting that the survey-based estimates were reflecting the same phenomena as annual counts of new employer firms.

The total number of U.S. businesses estimated from these surveys is about 13.1 million. Federal businesses censuses, based on submissions of various tax



	Start-ups: People	New Firms: People	Estab Firms: People		Start-ups: Entities	New Firms: Entities	Estab Firms: Entities
Low	13,140,242	7,150,786	14,426,687		6,823,548	4,052,631	7,941,063
High	14,264,774	8,003,879	15,597,751		7,923,642	4,736,023	8,892,675
Mean	13,702,508	7,577,333	15,012,219		7,355,077	4,483,629	8,558,848

Figure 7.1. Business Life Course Stages in the United States

documents, lead to a total count of 5.7 million employee firms and another 10 million self-employed in 2001. This 15.7 million covers business owners in the entire U.S. human population, including those over 74 years of age. The two estimates of operating businesses, 13.1 from the population surveys and 15.7 from federal registers, are in the same order of magnitude. This suggests that both data collection mechanisms are reflections of the same phenomena; it improves confidence in the survey estimates of the number of nascent entrepreneurs involved in the start-up process. As yet, there are no "official" government counts of start-up activities.

It is possible to consider the differences among these business and the individuals involved in different stages of the firm life course in several ways. This section will emphasize these business firms, with attention to differences over the business life course. This will emphasize the numbers of firms and different features, such as the economic sector, potential for having an impact on the market, emphasis on high technology, family ownership, legal form, and other features of a business entity.

BUSINESS FIRMS IN THE LIFE COURSE

By adjusting the survey responses to take into account the number of owners—actual or expected—it is possible to consider the number of

businesses involved in the project. Each respondent is, of course, reporting on a potential or actual business. The economic sector in which the firm will or is competing is presented in Table 7.1.[3] The sectors for U.S. self-employed in 2002 and employer firms in 2001 are presented for comparison in the right two columns.

The household survey-based samples are much too small to provide a precise estimate of distributions across sectors below the major categories in Table 7.1. The major purpose of the comparison, however, is to determine if there is evidence that major sectors in the U.S. economy are not represented in the sample of start-ups and new firms. It is clear that all sectors are present. The match between established firms and the SBA employer firm data appears to be the most similar. Start-ups seem to be more concentrated in sectors where there are fewer barriers to entry (retail, accommodations, and restaurants) or in emerging sectors (such as information).

There are no dominating patterns across the sample data associated with the business life course. This reflects one of the most consistent findings when start-ups or new firms are compared to established businesses; the distribution across economic sectors is usually very similar. Most people who enter the start-up process do so in industries or market sectors where they have substantial

Table 7.1. Business Economic Sectors by Life Course Stage

SIC		Start-Ups	New Firms	Established Buss	U.S. Non-Employer Firms (1)	U.S. Employer Firms (2)
	Number of cases	1,225	660	1,377	17,645,062	5,657,774
11	Agriculture, forestry, fishing, hunting	2.7%	2.0%	7.1%	1.2%	0.5%
21	Mining	0.2%	0.4%	0.3%	0.5%	0.3%
22	Utilities	0.1%	0.5%	0.0%	0.1%	0.1%
23	Construction	6.6%	10.0%	13.8%	11.7%	12.1%
31	Manufacturing	4.1%	3.5%	5.3%	1.6%	5.3%
42	Wholesale	2.2%	1.5%	2.1%	2.1%	6.0%
44	Retail	19.2%	18.6%	14.2%	10.4%	12.8%
48	Transportation, warehousing	1.7%	2.4%	3.0%	4.6%	2.7%
51	Information	5.1%	4.2%	2.7%	1.3%	1.4%
52	Financial, insurance	1.3%	3.1%	2.4%	3.7%	4.0%
53	Real estate, rental, leasing	6.7%	5.3%	5.1%	10.7%	4.3%
54	Professional, scientific & technical services	9.3%	12.0%	10.3%	14.5%	11.9%
55	Management of companies/enterprises	3.9%	6.7%	0.1%	7.2%	0.5%
56	Administrative, support, waste management, remediation	0.9%	2.1%	5.3%		5.4%
61	Educational services	2.6%	4.8%	0.8%	2.0%	1.1%
62	Health, social services	4.3%	2.9%	3.4%	8.3%	9.5%
71	Arts, entertainment, recreation	6.9%	3.2%	3.2%	4.9%	1.7%
72	Accommodations, food, bars	14.1%	10.9%	3.1%	1.4%	7.3%
81	Other services	0.4%	0.3%	12.1%	13.9%	11.5%
92	Public administration	0.1%	0.1%	0.4%		0.0%
99	Unclassified	7.6%	5.6%	5.5%		1.4%
		100.0%	100.1%	100.2%	100.0%	99.9%

(1) 2002 Economic Census: www.census.gov/epcd/noneemployer/2002adv/us/US000.HTM [10 Feb 2005].

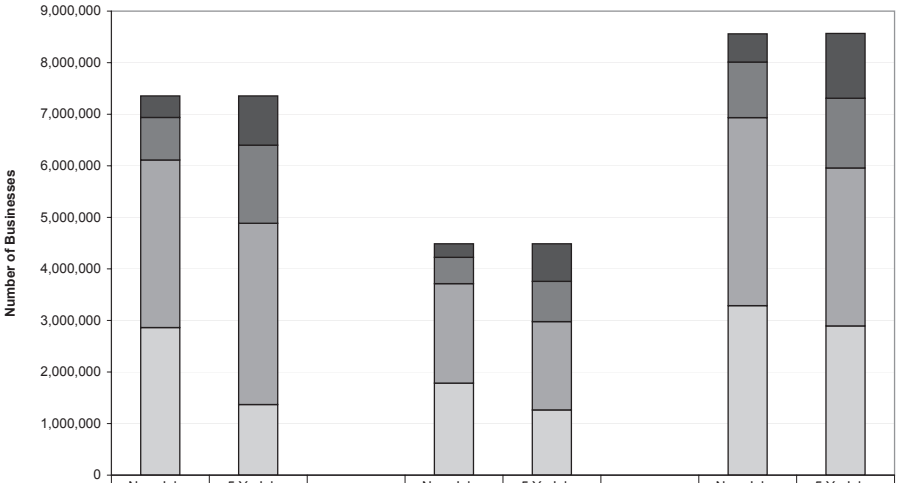
(2) 2001 Counts: www.sba.gov/advo/research/data.html#us [20 Feb 2005].

personal experience. The result is that start-up sectors are usually a mirror image of existing sectors.

The size of the businesses, in terms of jobs, both at the time of the interview and projected into the future, is presented at each stage of the business life cycle in Figure 7.2. For this presentation job size is sorted into four categories: 0 (none), 1 to 5, 6 to 19, and 20 and more. Less than 2% in each stage report more than 50 employees at the time of the interview. The data are adjusted to provide firm counts, by dividing the number of nascent entrepreneurs or owner-managers for each firm by the average size of the ownership team—expected or current—to provide estimates of the number of businesses.

The number of jobs expected in five years is a measure of growth expectations for start-ups, new, and established firms. The projected job growth is higher among the start-up firms than among new and existing firms. This may reflect the optimism of those nascent entrepreneurs new to the start-up process. This complicates job creation projections based on such survey results, which would also require adjustment for the two-thirds of start-ups that fail to become operational new firms.

It has long been considered that entrepreneurship is associated with major changes in the goods or services available in the marketplace. Indeed, this is considered one of the major contributions of new firms, providing innovations and adaptations in the market. In 2002, 2003, and 2004 both nascent entrepreneurs and the owner-managers of existing firms were asked



	Now Jobs: Start-ups	5 Yr Jobs: Start-ups	Now Jobs: New Firms	5 Yr Jobs: New Firm	Now Jobs: Estab Firm	5 Yr Jobs: Estab Firm
20-up Jobs	419,239	956,160	264,534	730,831	547,766	1,258,151
6-19 Jobs	823,769	1,515,146	511,134	780,151	1,078,415	1,352,298
1-5 Jobs	3,250,944	3,515,727	1,927,960	1,712,746	3,646,069	3,064,068
No Jobs	2,861,125	1,368,044	1,784,484	1,264,383	3,286,598	2,892,891

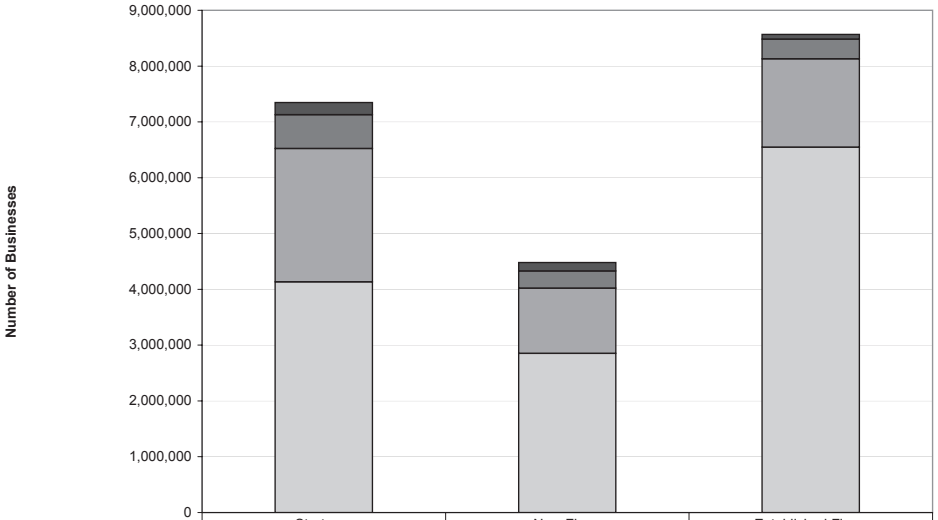
Figure 7.2. Businesses by Life Course Stage: Jobs Now and Five-Year Projections

several questions to determine if they were having a major impact on existing markets:[4]

1. Did all, some, or none of the (potential) customers consider the good or service new and unfamiliar?
2. Were many, few, or no other businesses offering the same good or service?
3. Was the technology or procedure required by this good or service available more than a year ago?

Presumably, those producing goods or services completely new to all customers, without any competition and with new technology, would be changing the market. Conversely, if all the customers were very familiar with the good or service, there was a lot of competition, and the firm used old technology, it is unlikely that there would be any major changes in the structure of the marketplace, although greater competitive pressures may affect prices or customer service.

The combinations of the three items lead to 18 possible outcomes (3x3x2); they were combined into a four-point scale for convenience. Approximately 66% of all 20 million businesses are in the "no market impact" category, 25% in the "little," 6% in the "some," and 2% in the "maximum market impact" category. The extent to which the start-ups and operating businesses reported potential market impact is presented in Figure 7.3.



	Start-ups	New Firms	Established Firms
Maximum Market Impact	220,652	152,443	85,588
Some Market Impact	603,116	304,887	350,913
Little Market Impact	2,390,400	1,170,227	1,583,387
No Market Impact	4,133,553	2,851,588	6,547,519

Figure 7.3. Businesses by Life Course Stage and Expected Market Impact

As can be seen, only a very small proportion of all business entities are at the maximum end of the market impact scale; it is about 3% of start-ups and new firms and 1% of established firms. Consistent with this is the proportion that appears to have no potential for market impact: replication businesses. These are 56% of start-ups, 64% of new firms, and 76% of established firms. An increased prevalence in routine activity is seen across the business life course of firms engaged in routine activity; as firms age, their major work activities become routine.

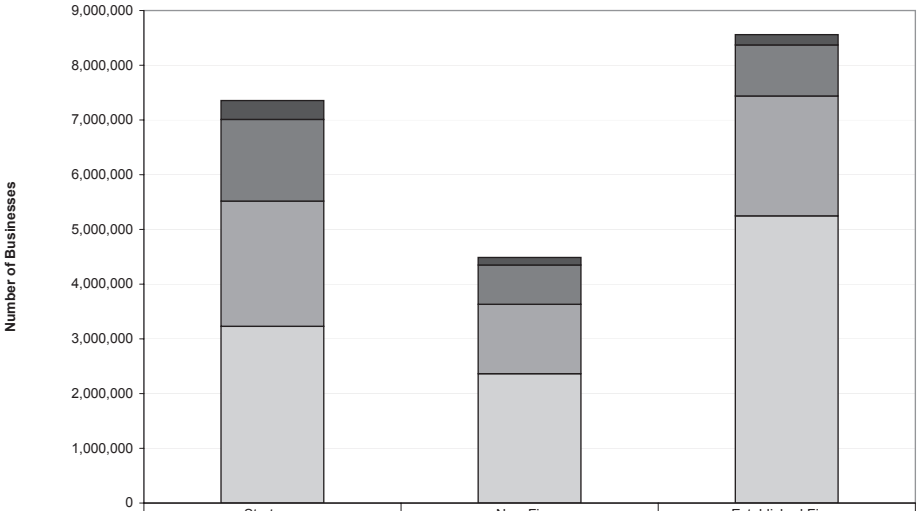
If the focus shifts to the major source of maximum market impact firms, 48% are start-ups, 33% are new firms, and 19% are existing firms. It is clear that the major source of market changing business entities are the start-ups; the total number of market changing business entities among the start-ups is about equal to the total number of the new and established firms combined.

Complementing this emphasis is a measure designed to provide a self-report of the extent to which the business activity could be considered high tech. The effort to provide strong empirical evidence related to high technology is seriously complicated by the lack of agreement on the definition. Indeed, it is just as amorphous and multifaceted as the concept of entrepreneurship. Nonetheless, an initial effort was made by asking each nascent entrepreneur and owner-manager in the 2004 survey three "yes" or "no" questions (alternative wording for existing businesses provided in parentheses):[5]

1. Were the technologies or procedures required for this product or service generally available more than five years ago?
2. Will (Is) spending on research and development be ( ) a major priority for this new business?
3. Would you consider (this) new business to be high tech?

A firm with old technology, little spending on research and development, and not considered high tech by the owner is definitely in the "no-tech" category. Conversely, one with newer technology, major spending on research and development, and one in which the owner(s) consider it high tech would be in the maximum category. Intermediate cases can be scaled to create a four-point scale. Of the estimated 20 million firms represented by the sample, 53% are in the no-tech category, 28% are in the low-tech category, 15% have some tech, and 3%—about six hundred thousand—are in the maximum tech category.

The results, extrapolated to the estimates of all businesses in the five-year sample, are presented in Figure 7.4; the estimated total counts of each level of technological emphasis is provided for the three stages of the business life course. Only a small proportion of each sample—4.7% of start-ups, 3.1% of new firms, and 2.2% of established firms—are in the maximum technology



	Start-ups	New Firms	Established Firms
Maximum Tech	345,689	138,992	188,295
Some Tech	1,493,081	717,381	932,914
Low Tech	2,287,429	1,268,867	2,191,065
No Tech	3,228,879	2,362,872	5,246,574

Figure 7.4. Businesses by Life Course Stage and Technological Emphasis

category. The estimates in Figure 7.4 should be considered illustrative and not precise counts.

Nonetheless, the patterns are of some interest. Slightly more than half (51%) of all "maximum technology" businesses are associated with start-ups, with 21% classified as new business and 28% with established businesses. This reinforces the notion that a major source of "new and different" features of the economy are provided by start-ups that become new firms. Presumably, after they have been in operation for some time, their products or procedures are no longer considered technologically sophisticated and their cachet disappears.

The type of business activity associated with the "maximum technological emphasis" is presented in Table 7.2. While some businesses are in categories often associated with high technology—such as electrical equipment manufacturing, software publication, and Internet service providers—the majority of these sectors are *not* immediately associated with high technology. This probably reflects the nascent entrepreneur or business owner's personal worldview regarding what was available five years ago, what it means to emphasize research and development, and a definition of high tech that reflects current standards in the industry. It is possible that some business owner-managers with less experience will have a provincial worldview and an out-of-date image of "new technology." On the other hand, many firms may be using very new and sophisticated production processes to provide well-established products or services, such as automobile parts, private security, or child day care. If

Table 7.2. Types of High-Technology Businesses by Life Course Stage

Description	Start-Ups	New Firms	Established Firms	NAISC
Heavy and civil engineering construction: other	1		1	2379
Building finishing contractors		1		2383
Specialty trade contractors: other	1			2389
Electrical equipment and component manufacturing: other			1	3359
Manufacturing: other miscellaneous	1		1	3399
Wholesale: motor vehicles, vehicle parts and supplies			1	4231
Automobile dealers		1		4411
Electronics and appliance stores	1			4431
Food stores: specialty			1	4452
Health and personal care stores	1			4461
Sporting goods, hobby, and musical instrument stores	2	1		4511
Store retailers: other miscellaneous	1			4539
Electronic shopping and mail order houses	1		1	4541
Transportation, other support activities for			1	4889
Newspaper, periodical, book, and directory publishers	1			5111
Software publishers	1		1	5112
Motion pictures and video industries	1		1	5121
Sound recording industries	3		1	5122
Cable and other subscription programming			1	5152
Internet service providers and web search portals	1			5181
Information services: other	2	2	2	5191
Real estate, activities related to	3		1	5313
Legal services		1		5411
Specialized design services	1			5414
Management, scientific, and technical consulting services	3	1	1	5416
Advertising and related services	3	1		5418
Professional, scientific, and technical services: other		1		5419
Investigation and security services	1			5616
Schools and instruction: other	1			6116
Other health practitioners, offices of			1	6213
Community care services for the elderly	1			6233
Child day care services	1			6244
Independent artists, writers, and performers	2			7115
Automobile repair and maintenance	1	1	1	8111
Personal care services	2			8121
Social advocacy organizations	1			8133
Business, professional, labor, political, & similar organizations	1		1	8139
Housing programs: administration of		1		9251
Could not classify	3		3	9999
Total count	42	11	21	

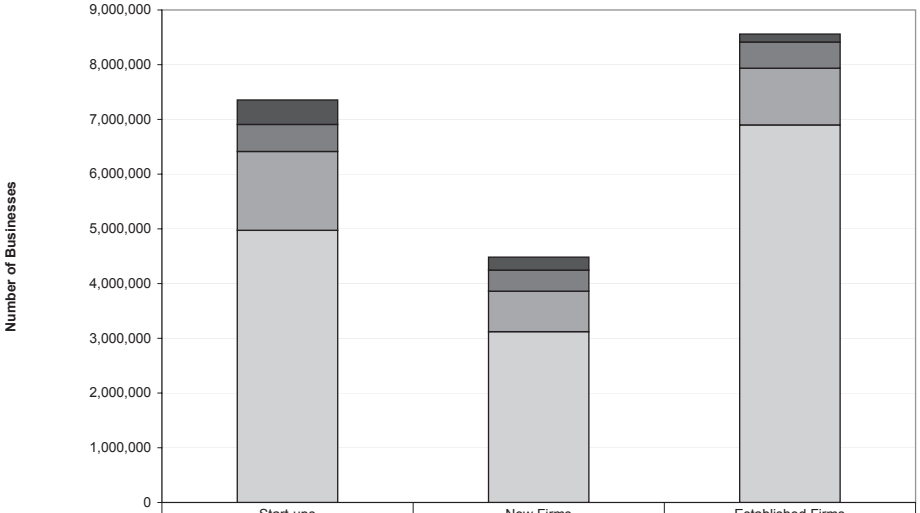
resources were available, it would be desirable to contact these individuals to determine their rationale for defining their businesses as high tech.

The presence of business activity that is both technologically sophisticated and considered, by the owners, to have a major market impact is considered by creating an index that incorporates both measures. The four-interval market impact and technology indices are each sorted such that the lower two categories are separated from the higher two categories for each index; this creates four combined categories. Once this is done, only 6.1% of the start-ups, 5.3% of the new firms, and 1.7% of the established firms are reported to have both technological sophistication as well as potential for a market impact. Again, the proportion is greater among businesses earlier in the life course.

The estimated counts of high tech, high market impact firms in the United States are provided in Figure 7.5. Once again, the majority of the 831,000 considered to have both technological sophistication and market impact are found among the start-ups. They account for 54%, compared to 29% among the new firms, and the remaining 17% among the established firms. Of the 15 million considered low technology with little market impact, 46% are found among the established firms, 21% are among the new firms, and 33% among the start-ups.

The description of the high-technology, high market impact business types are provided in Table 7.3. As with the types of high-technology businesses, most of the activities are rather ordinary. A number of those that ranked high on technological sophistication do not appear on this list; presumably the owners did not anticipate much impact on the market.

In summary, it is clear that the percentage of start-ups, new firms, and established firms that have implemented advanced or new technology as a central focus is rather small. The percentage that expects to have a major impact on the economic system is also rather small. Nonetheless, the total number of start-ups, new, and established firms is so large that the absolute numbers of



	Start-ups	New Firms	Established Firms
Hi Tech/Hi Impact	448,660	237,632	145,500
Lo Tech/Hi Impact	492,790	385,592	479,295
Hi Tech/Lo Impact	1,441,595	739,799	1,035,621
Lo Tech/Lo Impact	4,972,032	3,120,606	6,898,431

Figure 7.5. Businesses by Life Course Stage:
Technological Emphasis and Expected Market Impact

Table 7.3. Types of High-Tech, High Market Impact Businesses by Life Course Stage

Description	Start-Ups	New Firms	Established Firms	NAISC
Cattle ranching and farming			1	1121
Animal production, support activities for	1			1152
Heavy and civil engineering construction: other	1		1	2379
Manufacturing: other miscellaneous	1			3399
Wholesale: motor vehicles, vehicle parts and supplies			1	4231
Electronics and appliance stores	3			4431
Building materials and supplies dealers	1			4441
Health and personal care stores	1		1	4461
Sporting goods, hobby, and musical instrument stores	2	1		4511
Store retailers: other miscellaneous	2		1	4539
Electronic shopping and mail order houses	1		1	4541
Freight trucking: general	1			4841
Transportation, other support activities for			1	4889
Software publishers	1	1		5112
Wired telecommunications carriers	1			5171
Information services: other	2	1	1	5191
Real estate lessors	1			5311
Real estate agents and brokers	1			5312
Real estate, activities related to	3			5313
Architectural, engineering and related services	1			5413
Specialized design services	1	1		5414
Management, scientific, and technical consulting services	2		1	5416
Scientific research and development services	1			5417
Advertising and related services	1			5418
Investigation and security services	1			5616
Services to buildings and dwellings	1			5617
Schools and instruction: other		2		6116
Child day care services	2			6244
Independent artists, writers, and performers	1		1	7115
Amusement and recreation industries: other		1		7139
Full service restaurants	2	2		7221
Limited-service eating places	1			7222
Special food services	2			7223
Automobile repair and maintenance	2			8111
Personal care services	1			8121
Personal services: other	1			8129
Housing programs: administration of	1			9251
Could not classify	8	4	3	9999
Total count	52	13	12	

such businesses is considerable, in the hundreds of thousands. A more complete assessment of these innovative, high-tech firms to determine how they differ from the typical market replication business is a worthy challenge for future research.

FIRM CHARACTERISTICS AND FIRM LIFE COURSE STAGE

A number of features of firms may vary across the firm life course. For example, the legal form, number of physical locations, and the nature of the

coordination or headquarters location may change. A comparison is provided in Table 7.4.

This indicates that the legal form adjusts in predictable ways. While over 5% of start-ups have not adopted a legal form, 99% of new and established firms have established a legal form. Sole proprietorships are anticipated by about 47% of new firms, but about 60% of new and established firms are reported to have this form. Partnerships of all types are reported by 26% of start-up efforts, but 21% of new firms and 15% of established firms. Clearly there is a shift away from partnerships over the life course. Corporations, as a legal form, are rather stable across the life course, accounting for 20% of start-ups but reported by 18% of new firms and 21% of established firms. What is not clear from this assessment is whether these shifts are because (1) some legal forms are more effective than others are and business with this form survive over time, or (2) there are shifts in legal form across the firm life course, individual firms change legal structure away from partnership and toward corporations or sole proprietorships.

As shown in Table 7.4, about one in six businesses report not having a special-purpose physical location assigned to the business; the proportion reporting more than one location appears to decline across the business life course. Very few, 2-3%, report more than 10 locations; these are mostly retail

Table 7.4. Legal Form, Location, and Nature of Business Units by Firm Life Course Stage

	Start-up Businesses (1)	New Firms (2)	Established Firms (2)
LEGAL FORM			
Not yet determined	5.6 %	1.0 %	1.3 %
Sole proprietorship	47.4 %	59.8%	62.7 %
General Partnership	18.5 %	14.9 %	11.1 %
Limited Partnership	7.9 %	6.4 %	3.5 %
Limited Liability Corporation	11.2 %	10.2 %	7.0 %
Subchapter S Corporation	4.4 %	3.8 %	7.7 %
General Corporation	4.9 %	3.8 %	6.7 %
NUMBER OF LOCATIONS			
No physical location or site	16.4 %	20.5 %	13.6 %
One location	60.3 %	61.7 %	69.3 %
2-3 Locations	15.1 %	12.5 %	9.1 %
4-10 Locations	5.9 %	2.4 %	4.2 %
11-100 Locations	1.7 %	2.9 %	2.8 %
100 and more locations	0.6 %	0.0 %	0.9 %
PRIMARY ACTIVTY AT OWNER'S LOCATION			
Coordination and production	89.2 %	93.2 %	94.4 %
Production only	3.1 %	1.9 %	1.6 %
Coordination only	7.7 %	4.9 %	4.0 %
NOTES: 1) For start-ups, items refer to future expectations. 2) For new and established firms, refers to current state of affairs.			

outlets for consumer products. About 90% of the respondents report that the business entity is engaged in both coordination of business activities and the basic production. Only 8% of start-ups and less than 5% of new or established firms report from an activity specializing in coordination—a stand-alone headquarters unit devoted only to administration and management.

Families and business are often interrelated. A large proportion of businesses are closely related to the families of the principals. Table 7.5 makes clear that 3 in 10 start-ups are considered to have been initiated by an existing family business; however, this drops to less than 1 in 5 among new and established firms.

The extent of current family ownership of firms is complicated by the large proportion that are technically sole proprietorships; most firms at all stages are sole proprietorships, including 53% of start-ups and 65% of new and established firms.[6] Even if they have substantial support from family members or spouses, they are technically one-owner operations. Family ownership can be inferred if there are reports of multiple owners. Those with multiple owners with the same family having majority ownership are 26% among start-ups, 18% among new firms, and 23% among established firms. Team ownership by those without family relationships declines from 21% to 17% to 12% across the firm life course. Finally, an increase in family ownership in the next five years is expected for 30% of the start-ups and 16% of the new and established firms.

The increase of the proportion of business owned by a family team over the life course suggests this may be a more successful form of business ownership, or that family resources help support firms that might otherwise disappear.

Confidence in the survey-based estimates of entrepreneurial activity and the size of the business population would be increased if it were possible to compare the results with official registries. Several of these registries are designed

Table 7.5. Relationship to Family by Firm Life Course Stage

	Start-up Businesses (1)	New Firms (2)	Established Firms (2)
RELATIONSHIP TO FAMILY			
Business was initiated by existing family firm	29.5%	16.9%	17.8%
Current Ownership			
Sole proprietorship	53.2%	65.3%	64.7%
Team ownership: one family majority	25.8%	18.0%	23.0%
Team ownership: no family majority	21.0%	16.7%	12.3%
No current family majority ownership			
Expect family majority ownership in five years	29.5%	16.9%	15.6%
NOTES: 1) For start-ups, items refer to future expectations. 2) For new and established firms, refers to current state of affairs.			

to provide a complete census of all existing businesses. Developing such a correspondence requires obtaining information from the survey respondents on known inclusion of their business entities in these other files. In the 2004 survey respondents were asked when their start-up, new firm, or established firm first became listed in five different national registries. One response, of course, was that it had not yet occurred. The results are presented in Table 7.6.

For each of the five types of business registries, two items of information are provided: the proportion reporting that—to their knowledge—they were listed in the registry, as well as the time lag between first efforts to be listed in the registry and date of the interview. This distribution of time lags, however, is not well represented by the average value, due to a small proportion of respondents that report extremely long time lags; some have been working on new firm creation for over 20 years. However, the 25, 50, and 75 percentiles of the time-

Table 7.6. Known Incorporation into Business Registries by Firm Life Course Stage

		Start-up Firms	New Firms	Established Firms
	N (year 2004 only)	728	370	832
Employer Identification Number (EIN)				
	Reporting (Percent)	33.7%	58.9%	53.6%
	25% (months)	3.4	7.4	65.8
	50% (months)	13.4	23.9	137.7
	75% (months)	46.6	41.1	247.6
Federal Income Tax				
	Reporting (Percent)	21.4%	55.9%	60.2%
	25% (months)	15.5	10.4	72.3
	50% (months)	30.7	28.4	151.2
	75% (months)	83.6	41.6	262.2
Unemployment Insurance Filing				
	Reporting (Percent)	18.5%	43.0%	36.2%
	25% (months)	3.7	4.6	76.0
	50% (months)	17.1	19.6	146.7
	75% (months)	131.8	36.5	256.4
FICA Filing				
	Reporting (Percent)	19.2%	49.2%	49.6%
	25% (months)	5.3	6.6	76.0
	50% (months)	19.7	21.3	161.7
	75% (months)	137.4	41.8	273.1
Dun & Bradstreet Listing				
	Reporting (Percent)	9.1%	20.5%	17.4%
	25% (months)	4.6	5.3	58.0
	50% (months)	20.2	19.5	142.2
	75% (months)	209.9	40.0	272.2

lag distributions, reported in months, are not affected by extreme cases and provide a useful basis for comparison. For example, 34% of the start-ups, 59% of the new firms, and 54% of the established firms report obtaining an Employer Identification Number from the federal government. And half (the 50 percentile or median) of those reporting this behavior indicate this happened, respectively, in the last 13 months, 24 months, or 138 months (11.6 years).

The same patterns are found when the initial federal income tax is filed, the initial state unemployment insurance or federal FICA payment is provided, or they are listed in the Dun and Bradstreet credit rating database. A larger percentage of established firm report they are listed, and for longer periods of time, than new firms or those in the start-up phase. As established firms have had longer to establish a presence, this is to be expected.

It is of interest that the percentages reporting the five activities are consistent across the different stages of the life course, with the largest proportion reporting obtaining EIN numbers, followed by filing of federal tax returns, about the same proportions reporting state unemployment insurance and federal FICA payments—required only if they have employees—and the smallest proportion reporting they are listed with Dun and Bradstreet. Only one in five new and established firms report being aware they have a Dun and Bradstreet listing; most do not report they have a Dun and Bradstreet identification number. The actual proportion on the Dun and Bradstreet lists is probably much higher, as Dun and Bradstreet has procedures in place to identify and add operating businesses to their lists without the awareness of the business owners.

It is clear that a substantial proportion of the survey respondents, even among those reporting well-established firms, are not reporting a known listing in an established registry. This reflects the large proportion that are sole-proprietorships, over half of all those in each phase of the business life course. A firm without employees is not required to file unemployment insurance payments or social security payments; they may not consider the Schedule C of a personal federal income tax return as an income tax filing for the business itself. The lack of a reports regarding inclusion in a business registry could also reflect an oversight on the part of the business owner/respondent. The person may not remember the details of a regulatory or tax procedure during a brief phone interview. Either way, it would be desirable to have more precise comparisons between the reports of the survey respondents and the business registry listings. This would require, however, access to confidential state and federal tax files and may not be feasible. On the other hand, a more detailed and precise measure of the firm's registration activity may be possible with improvements in the interview procedure.

OVERVIEW

Based largely on the 2004 entrepreneurial assessment survey, there are about 7.4 million start-ups, 4.5 million new firms, and 8.6 million established firms in the United States. Estimated counts of new and established firms are comparable to the counts from federal data sources. All major economic sectors are represented in all stages of this sample. Several unique features reported for the new firms:

- Start-ups have the highest aspirations for job creation over the next five years.
- Only a small proportion—1 in 50—expect to create major changes in the marketplace by introducing goods and services not currently available; such market innovation firms are concentrated among the start-ups.
- A small proportion—1 in 33—consider themselves having major technological focus; again, these are concentrated among the start-ups.
- Firms that expect to have both an impact on the marketplace and a technological emphasis are also rare—less than 1 in 33—and are concentrated among the start-ups.

In short, start-ups report more expected job growth, more changes in the market, more high technology, and more market-changing high technology. New and established firms appear more stable and conventional.

The most prevalent legal form is proprietorships, followed by corporations and, finally, partnerships; there is no strong pattern across the firm life course stage. About 6 in 10 of all firms have a single site from which business is conducted; about 1 in 6 has no fixed location. Headquarters units emphasizing only coordination are rare; most sites have an emphasis on production. Two-thirds of the businesses at all stages are sole proprietorships; teams of family members are the second most prevalent form.

Reports of known incorporation in established business registries are provided by a majority of established firms, with federal income tax filings the most commonly reported activity. Obtaining a federal EIN number is the most frequent registry listing reported by start-ups and new firms.

Overall it would appear that the descriptions of the U.S. business population, based on a single brief interview with one of the firm owners, are broadly consistent with descriptions of U.S. business activity from exhaustive business registries. This would suggest that descriptions of start-up firms and nascent entrepreneurs in the entrepreneurial process—which are not available from any

other source—can be considered accurate reflections of activities within the population of U.S. businesses.

NOTES

1 The prevalence rates and standard errors of the mean are based on 33,000 interviews completed from 2000 to 2004. The individual counts are based on the most recent estimates of the U.S. population aged 18–74 for the year 2002, the midpoint of the five survey years.

2 There are, without a doubt, some individuals involved in different firms at all three stages of the business life course at the same time. However, the interview procedure did not allow identification of "triples."

3 As coding for 2003 and 2004 used the new coding NAISC coding scheme, 2002 version, only cases from these two years are included. Coding for prior years used the International Standard Industry Coding to be compatible with cross-national comparisons. Numerous problems in coding the U.S. Entrepreneurial Assessment sample firms—the oral description is very brief, usually only a few words—and the lack of coverage of agricultural as well as self-employment data among the SBA employer firm data suggest that only the most general comparisons are justified.

4 Adapted from Samuelsson (2001).

5 Based on assessment and validation of this scale by Allen and Stearns (2005).

6 Because questions about legal form were only asked in 2004, the proportions of start-up, new and established firms differ slightly for this table. Family ownership questions were asked for 2003 and 2004, providing a larger and slightly different sample for family related analyses.

8
Start-up Funding: Expectations, Informal Support, and Accredited Investors

Money does not start a business, but businesses do not start without money. How much money is required? Where does it come from? The following presents a review of financial requirements estimated by those in the start-up process, discussing potential funding sources as well. The primary source is, of course, the start-up team. Following a discussion of these estimates, there is consideration of other sources, including informal investors and formal channels. A special category of informal investors received additional attention, high-net-worth individuals or "accredited investors."

MONEY EXPECTATIONS: INVESTMENTS AND RETURNS

Those involved in start-ups, the nascent entrepreneurs, were asked about several financial issues, including their best guess about the following question: "How much money, in total, would be required to start the new business?" They were also asked how much of their own money they expected to provide, including both loans and equity (ownership) investments. The results—from surveys in 2002, 2003, and 2004—are presented in Table 8.1.

Both the average requirement to start a business ($1.4 million), and that expected to be provided by the nascent entrepreneur ($800 thousand) are dramatically skewed by extremely high values. The median value for a total required to start a business of $15,000 is more representative of the overall distribution. Of this sum, a median of $6,000 is to be provided by the start-up team member completing the interview. In fact, as shown in Table 8.1, about three in four (75%) expect the start-up to require less than $50,000, and five in six (86%) expect to invest less than $50,000 themselves.

An assessment of the factors affecting these financial requirements is provided in Table 8.2 for the total funding and Table 8.3 for that expected from the entrepreneur/respondent. The patterns in the two assessments are similar, with a few critical differences.

Gender has a major impact on both total and nascent funding; men are much more likely to report larger funding needs and expect to provide more funding themselves. Men represent over four of the five start-ups that will require over

Table 8.1. Start-up Funding Requirements and Nascent Entrepreneurs' Contributions

	Total required for start-up	Nascent Entrepreneur Financial Commitment
Number of cases (weighted)	1,287	1,282
Mean (average) value	$1,367,662	$816,240
Median Value (50 percentile)	$15,000	$6,000
Up to $2,000	25.1 %	34.1 %
$2,000 to $10,000	22.3 %	26.8 %
$10,000 to $50,000	27.5 %	24.9 %
$50,000 to $250,000	16.1 %	10.8 %
$250,000 to max	9.0 %	3.4 %
	100.0 %	100.0 %

Table 8.2. Total Funding Required by Start-up Characteristics

Financial requirement to start business	Up to $2,000	$2,000 to $10,000	$10,000 to $50,000	$50,000 to $250,000	$250,000 and up	All invest-ments
Number of cases (approximate; weighted)	323	287	353	208	116	1,287
GENDER						
Men	54 %	63 %	74 %	72 %	82 %	67 %
Women	46 %	37 %	26 %	28 %	18 %	33 %
						****
AGE						
18–24 Years	14 %	16 %	14 %	15 %	22 %	16 %
25–34 Years	26 %	33 %	29 %	29 %	22 %	28 %
35–44 Years	26 %	24 %	26 %	28 %	28 %	26 %
45–54 Years	21 %	19 %	21 %	21 %	20 %	20 %
55–64 Years	11 %	7 %	8 %	6 %	5 %	8 %
65–74 Years	2 %	1 %	1 %	1 %	2 %	2 %
						(NS)
ETHNIC BACKGROUND						
White	72 %	65 %	62 %	70 %	76 %	68 %
Black	13 %	14 %	18 %	8 %	6 %	13 %
Hispanic	8 %	11 %	12 %	17 %	14 %	12 %
Other	7 %	9 %	7 %	5 %	5 %	7 %
						***
START-UP TEAM SIZE						
One	66 %	60 %	61 %	46 %	37 %	57 %
Two or three	29 %	34 %	31 %	42 %	40 %	34 %
Four or more	6 %	6 %	8 %	12 %	23 %	9 %
						****
ECONOMIC SECTOR						
Extractive	1 %	3 %	3 %	5 %	6 %	3 %
Transformation	15 %	18 %	22 %	23 %	16 %	19 %
Business service	30 %	29 %	26 %	27 %	26 %	28 %
Consumer oriented	55 %	49 %	49 %	45 %	52 %	50 %
						(NS)
MARKET EXPANSION POTENTIAL						
None	57 %	54 %	57 %	47 %	50 %	54 %
Little	36 %	38 %	30 %	39 %	40 %	36 %
Some	5 %	6 %	10 %	7 %	8 %	7 %
Maximum	2 %	2 %	3 %	7 %	2 %	3 %
						**
HIGH-TECHNOLOGY EMPHASIS						
None	41 %	46 %	46 %	46 %	30 %	43 %
Low	44 %	32 %	28 %	22 %	29 %	32 %
Medium	12 %	17 %	20 %	21 %	35 %	19 %
High	3 %	4 %	6 %	11 %	6 %	6 %
						**
Chi-square statistical significance: NS=not significant; *=0.05; **=.01; ***=.001; ****=.0001; *****=.00001						

Table 8.3. Nascent Entrepreneurs: Expected Financial Investment by Start-up Characteristics

Financial requirement to start business	Up to $2,000	$2,000 to $10,000	$10,000 to $50,000	$50,000 to $250,000	$250,000 and up	All invest-ments
Number of cases (approximate; weighted)	437	343	319	138	44	1,282
GENDER						
Men	57 %	66 %	74 %	78 %	67 %	67 %
Women	43 %	34 %	26 %	22 %	33 %	33 %
						*****
AGE						
18–24 Years	15 %	18 %	15 %	18 %	20 %	16 %
25–34 Years	25 %	31 %	30 %	26 %	22 %	28 %
35–44 Years	25 %	25 %	27 %	25 %	31 %	26 %
45–54 Years	23 %	17 %	21 %	22 %	20 %	20 %
55–64 Years	10 %	8 %	7 %	8 %	6 %	8 %
65–74 Years	2 %	2 %	1 %	2 %	2 %	2 %
						NS
ETHNIC BACKGROUND						
White	70 %	65 %	67 %	74 %	63 %	68 %
Black	13 %	15 %	15 %	4 %	11 %	13 %
Hispanic	9 %	13 %	12 %	15 %	23 %	12 %
Other	7 %	7 %	6 %	7 %	4 %	7 %
						*
START-UP TEAM SIZE						
One	59 %	53 %	62 %	50 %	62 %	58 %
Two or three	31 %	38 %	32 %	38 %	24 %	34 %
Four or more	9 %	8 %	5 %	11 %	14 %	8 %
						*
ECONOMIC SECTOR						
Extractive	1 %	4 %	4 %	9 %	3 %	4 %
Transformation	14 %	17 %	23 %	22 %	7 %	18 %
Business service	29 %	28 %	26 %	30 %	28 %	28 %
Consumer oriented	56 %	51 %	47 %	39 %	62 %	51 %
						***
MARKET EXPANSION POTENTIAL						
None	56 %	54 %	52 %	55 %	62 %	55 %
Little	34 %	36 %	37 %	31 %	35 %	35 %
Some	6 %	6 %	8 %	10 %	2 %	7 %
Maximum	4 %	3 %	3 %	4 %	1 %	3 %
						(NS)
HIGH-TECHNOLOGY EMPHASIS						
None	43 %	46 %	46 %	35 %	45 %	43 %
Low	38 %	30 %	32 %	19 %	36 %	32 %
Medium	16 %	18 %	20 %	35 %	11 %	19 %
High	3 %	6 %	2 %	12 %	8 %	5 %
						**
Chi-square statistical significance: NS=not significant; *=0.05; **=.01; ***=.001; ****=.0001; *****=.00001						

$250,000 in total funding; two-thirds of those expecting to provide more than $250,000 of their own funds are also men. Women are concentrated in the start-ups requiring less than $2,000, in which they would be expected to contribute up to $2,000.

There is no association of expected money requirements related to age. Many young people are ambitious about the funding that will be required; many older people are involved in small-scale start-ups.

Ethnic background shows some clear patterns. Whites and Hispanics are associated with start-ups with larger requirements and larger personal commitments; Blacks are associated with smaller-scale efforts.

Those requiring more funds and greater nascent financial commitments have larger teams. This is clearly evident for the largest financial requirements, over $250,000; in this category 37% are solo initiatives, compared to 66% of those requiring less than $2,000.

While the economic sector does not appear to have a relationship to the total funding requirements, it is strongly related to the commitments expected from the nascent entrepreneur. Higher personal commitments are associated with consumer services and less associated with the transformational sectors, such as construction, manufacturing, and transportation.

Start-ups that expect to have a major effect in transforming the markets by providing new goods and services require more total funding, but the nascent entrepreneurs do not expect to provide substantially more funds. Start-ups with a greater technology component not only require more total funding, but the nascent entrepreneurs themselves expect to provide more funding as well.

The expected return for the personal commitment of the nascent entrepreneur is obtained by asking how long it will take to pay back the full initial investment and the total expected return on the investment—equal to the investment, twice the investment, etc. The results are presented in Table 8.4.

There is no question that the larger the commitment, the longer the time required for payback of the investment. About 7 in 10 of those investing less than $2,000 expect full payback within a year; three in four investing more than $250,000 expect payback to take over two years. In addition, those investing smaller amounts seem to expect greater total returns on their

Table 8.4. Nascent Entrepreneur: Expected Start-up Payback and Return on Investment

Size of investment	Up to $2,000	$2,000 to $10,000	$10,000 to $50,000	$50,000 to $250,000	$250,000 and up	All invest-ments
PAYBACK TIME (EXPECTED)						
Number of cases (weighted)	111	120	128	85	52	496
1 year or less	70 %	55 %	32 %	24 %	23 %	44 %
2 to 5 years	24 %	38 %	56 %	59 %	63 %	46 %
6 to over 20 years	4 %	4 %	10 %	8 %	12 %	7 %
None expected or never	3 %	4 %	3 %	9 %	2 %	4 %
						*****
EXPECTED RETURN ON INVESTMENT						
No of cases	120	120	127	77	51	494
Less than 1, including none	3 %	3 %	3 %	5 %	1 %	3 %
1 to 5 times investment	11 %	11 %	18 %	26 %	32 %	18 %
5 to over 20 times investment	86 %	86 %	79 %	68 %	66 %	80 %
						**
Chi-square statistical significance: NS=not significant; *=0.05; **=.01; ***=.001; ****=.0001; *****=.00001						

financial commitment. Six out of seven (86%) investing less than $2,000 in the new start-up expect returns in excess of five times their commitment; two of three (66%) investing over $250,000 expect equivalent returns. Those with more modest financial investments may be expecting a return on their "sweat equity."

ANNUAL FUNDING FOR ALL START-UPS

There are millions of new start-ups in place and they require both time and money to become viable businesses. How much, in total, is required each year in the U.S? An estimate can be developed from the responses of those 1,265 reporting start-up efforts in 2002, 2003, and 2004 regarding their estimate of the total amount of money required to start the new business. The answer can be presented for different groups of respondents:

- If we include the 91% that expect less than $250,000 to be required, and assuming that 32% actually finish the process with a new business, the total is about $ 35 billion per year for 1,060,000 new firms.
- If we include the 9% that estimate more than $250,000 to be required—some in excess of $10 million—the total is $244 billion per year for 1,160,000 new firms.[1]

As this excludes the funds raised for start-ups that do not become operating businesses, this annual estimate of a quarter of a trillion dollars per year may be conservative.

Where does this money come from? The primary source of start-up financing, of course, are those nascent entrepreneurs starting the new businesses. The same surveys can be used to estimate the contributions of the respondents themselves, which is $24 billion for the 91% that will require less than $250,000 to start and $95 billion when all new firms are considered. This leaves over $139 billion to be provided by other sources to cover the higher range estimate of $244 billion.

Two sources are widely promoted as sources of new firm financing: business angels and venture capitalists. Questionnaires assembled from venture angel clubs (and there are close to two hundred across the United States) suggest that they invest about $13 billion per year in start-ups and seed capital.[2] Examination of the annual investments of venture capitalists into start-ups and new ventures—much of venture capital funding is provided to established firms—indicates that since the year 2000, the annual amounts have been about $20 billion per year.[3] Even with this total of $33 billion per year, there is another $106 billion needed to reach $244 billion.

Banks are, of course, an option. But most bank financing is provided to existing firms, including most loans guaranteed by the Small Business Administration. Most bank loans to start-ups are be in the form of asset-backed loans—those secured by a vehicle, equipment, inventory, land, or a building. Very few banks will provide working capital loans, which are based on confidence that the business will continue to operate and make the profits to repay the loan. One major source of funds provided by entrepreneurs is, of course, asset-backed personal loans—such as a second mortgage—which would be included in the personal contributions of nascent entrepreneurs.

This leaves the financial support from friends and family members, those individuals in the personal social networks of the nascent entrepreneurs. As they are outside the formal financial institutional structures, they are referred to as "informal investors." The representative samples of U.S. adults have been used to locate informal investors since the year 2000. The average amount of funding provided annually by informal investors over the 2000 to 2004 period is about $162 billion in 2004 dollars. This is obviously a major source of start-up financial support.

The estimated annual amounts are summarized in Table 8.5. The total estimated annual support is $290 billion, somewhat more than the $244 billion estimated for the start-ups that become new firms. The difference, $46 billion, would reflect investments in start-ups that never become operating businesses as well as the lack of precision in these estimates. However, this does make clear the significant role of informal investors. They are the single largest source of financial support for new firms.

The following will review the situation and nature of informal investors, as well as the deals they sponsor, based on this unique data resource. These descriptions are based on the responses of informal investors themselves, which can be considered a representative sample of all informal investors. The survey procedures were enhanced in 2004 to identify accredited investors within the sample; this is a special category of potential investors with very high levels of income or net worth and considered a potential source of funding for "risky" investments.

Table 8.5. Annual Estimates of Aggregate Start-up Requirements and Sources

	Annual Requirements (Billions)	Annual Sources (Billions)
Total required for start-ups	$ 244	
Nascent entrepreneurs contributions		$ 95
Business angels		$ 13
Venture capitalists		$ 20
Informal investors		$ 162
Total annual financial support		$ 290

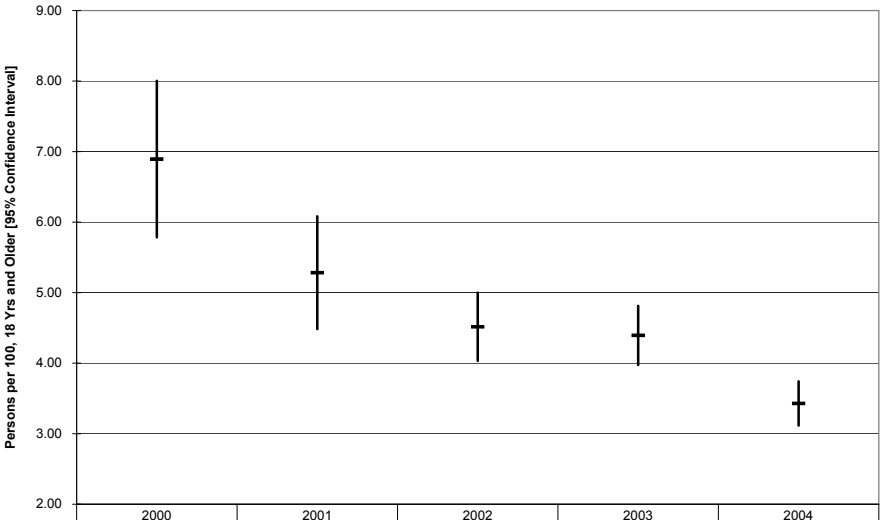
INFORMAL INVESTORS

In a representative sample of U.S. adults, informal investors are located by asking the following: "Have you, in the past three years, personally provided funds for a new business started by someone else, not including any purchases of publicly traded stocks or mutual funds?"

Those that answer "yes" are asked additional questions to confirm their contributions and get more details about the specific deals.

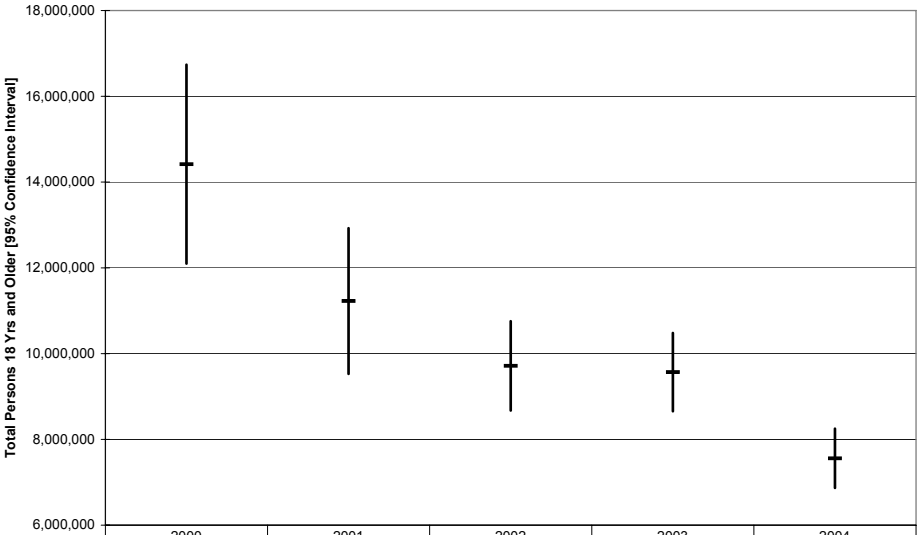
The prevalence rates for 2000 to 2004 are presented in Figure 8.1. As older individuals are very much involved as informal investors, these prevalence rates are based on all individuals 18 years of age and older, including those in their 80s and 90s. The pattern of decline from 2000 to 2004, with prevalence rates dropping from 7.0 per hundred to 3.5 per hundred in the adult population is quite different from the invariant pattern of participation in the entrepreneurial process reviewed in Chapter 3. The informal investor rate for the year 2000 may be an outlier; there is no statistically significant difference for years 2001 to 2003, which average about 4.5 per 100. There may have been a slight drop in 2004.

The total numbers of individuals involved is provided in Figure 8.2. The base is all U.S. residents 18 years and older for each year, which has increased slightly during this period. The mean estimate has dropped from 14 million in 2000 to slightly less than 8 million in 2004.



	2000	2001	2002	2003	2004
Low	5.78	4.48	4.03	3.97	3.12
High	8.00	6.08	5.00	4.81	3.74
Mean	6.89	5.28	4.52	4.39	3.43

Figure 8.1. Informal Investor Prevalence Rates: United States 2000–2004



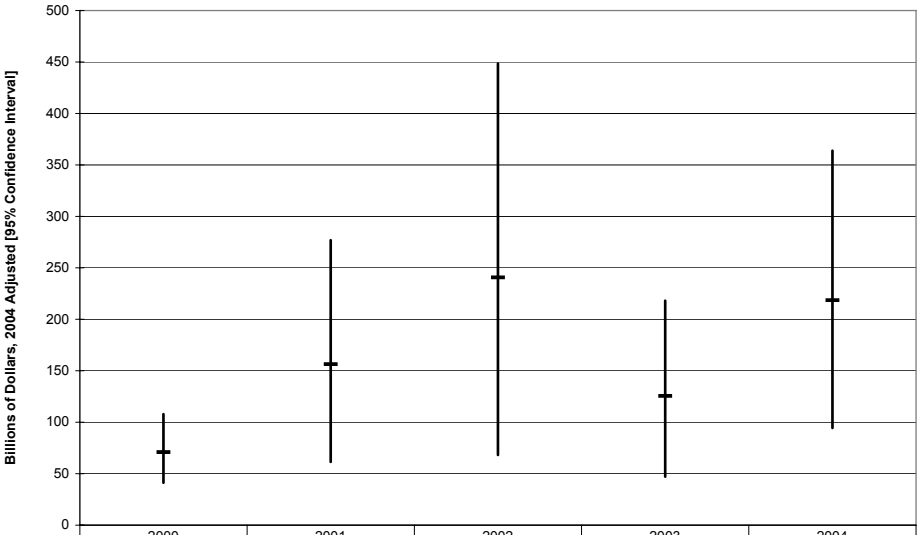
	2000	2001	2002	2003	2004
Low	12,097,302	9,526,607	8,673,662	8,655,240	6,867,506
High	16,737,267	12,925,087	10,756,608	10,482,036	8,250,089
Median	14,417,284	11,225,847	9,715,135	9,568,638	7,558,798

Figure 8.2. Informal Investor Total Counts: United States 2000–2004

Those who claim to have made an informal investment in the past three years are asked about the total commitment of funds; most have made only one such investment. It is possible to develop an estimate of the aggregate amount of funds provided by informal investors for each year;[4] these are provided in Figure 8.3.

The aggregate value is substantial, about $71 billion in the year 2000, $156 billion in 2001, $240 billion in 2002, $125 billion in 2003, and $218 billion in 2004. A major source of this year-to-year variation is the average value computed from the survey respondents' answers; the relatively small sample sizes leads to some variation in these estimates, particularly prior to 2003.

There are a lot of individuals providing informal investments and a lot of nascent entrepreneurs receiving assistance. While it is suggested that the availability of financial support is critical for new firm creation, the causal relationship is, once again, ambiguous. While it often takes additional funds to implement a new firm, most people—and certainly informal investors—provide funds only after they are asked. The request may be an informal suggestion at a family gathering or a formally, fully documented business plan. But generally the request for funds precedes provision of the financing. Seldom do individuals with funds to invest actively seek and encourage others to enter the business start-up process. While the availability of funds is an asset in the start-up process, it is hard to imagine that availability is the critical factor that leads to firm creation.



	2000	2001	2002	2003	2004
Low	41	61	68	47	94
High	108	277	449	218	364
Mean	71	156	241	126	219

Figure 8.3. Total Informal Funding Provided to New Firms: United States 2000–2004

WHO ARE THE INFORMAL INVESTORS?

There are many informal investors and they put a lot of money into new firms. Who are these people? They may not be like typical persons, as they are no more than 5% of the population. To provide a more accurate description, they are sorted into four categories: all those making informal investments, those that invested more than $5,000 in the past three years, those that invested more than $15,000 in the past three years, and those that invested more than $50,000 in the past three years. An informal investor, it should be noted, that provides over $50,000 will be included in all informal investor groups. Each group is compared to the non-informal investors in Tables 8.6 and 8.7. The major differences are striking and statistically significant.

For example, men are more involved than women are, and this increases dramatically as the amount of funds increases. There are two men for each woman across all informal investors, but they outnumber women seven to one for investments over $50,000.

Informal investors are often the friends and coworkers of the invested so the age pattern is mixed. On one hand, peers of the nascent entrepreneurs are likely to be younger; on the other hand, older people have more money for informal investments. No clear pattern related to age seems to emerge.

Table 8.6. Informal Investors: Personal Background and Level of Investment

	All Informal Investors	Informal Investors > $5K	Informal Investors > $15K	Informal Investors > $50K	Not an Informal Investor
Number of cases (weighted)	1,462	475	278	112	32,708
Gender: Men	63.7 %	70.0 %	74.8 %	87.5 %	47.5 %
Gender: Women	36.3 %	30.0 %	25.2 %	12.5 %	52.5 %
	*****	*****	*****	*****	
Age: 18–24 Yrs	12.7 %	7.7 %	5.6 %	6.0 %	12.4 %
Age: 25–34 Yrs	20.8 %	18.4 %	15.0 %	17.0 %	18.3 %
Age: 35–44 Yrs	21.9 %	22.3 %	22.8 %	18.6 %	19.8 %
Age: 45–54 Yrs	21.4 %	23.2 %	23.3 %	20.4 %	20.3 %
Age: 55–64 Yrs	12.1 %	13.3 %	16.0 %	16.6 %	12.7 %
Age: 65–74 Yrs	6.5 %	9.9 %	12.1 %	14.9 %	9.4 %
Age: 75–99 Yrs	4.6 %	5.2 %	5.1 %	6.4 %	7.1 %
	*****	*	**	NS	
Ethnic background: White	71.2 %	76.2 %	78.0 %	81.1 %	79.1 %
Ethnic background: Black	10.8 %	7.1 %	5.3 %	3.3 %	8.1 %
Ethnic background: Hispanic	11.1 %	11.2 %	10.4 %	10.2 %	7.8 %
Ethnic background: Other	6.9 %	5.5 %	6.3 %	5.3 %	5.0 %
	*****	NS	NS	NS	
Married/Living as married	60.3 %	64.9 %	67.3 %	68.3 %	58.1 %
Not married	39.7 %	35.1 %	32.7 %	31.7 %	41.9 %
	NS	**	**	*	
Not finished high school	8.6 %	7.5 %	9.0 %	8.3 %	13.9 %
High school degree	24.7 %	21.0 %	15.4 %	13.4 %	32.1 %
Post high school experience	27.1 %	26.1 %	24.6 %	19.5 %	25.8 %
College degree	23.8 %	27.3 %	28.2 %	34.8 %	18.6 %
Graduate experience	13.9 %	18.0 %	22.8 %	24.0 %	9.5 %
	*****	*****	*****	*****	
HH Inc: $ 0–15K/Yr	4.8 %	2.1 %	2.5 %	1.3 %	10.2 %
HH Inc: $ 15–29K/Yr	16.8 %	9.3 %	6.4 %	3.0 %	26.8 %
HH Inc: $ 30–39K/Yr	10.4 %	10.2 %	8.5 %	8.1 %	11.0 %
HH Inc: $ 40–49K/Yr	9.1 %	6.5 %	3.8 %	5.0 %	9.6 %
HH Inc: $ 50–74K/Yr	20.5 %	19.0 %	17.2 %	11.1 %	22.3 %
HH Inc: $ 75–99K/Yr	15.1 %	19.9 %	19.0 %	16.2 %	10.0 %
HH Inc: $100–up K/Yr	23.4 %	33.0 %	42.6 %	55.3 %	10.2 %
	*****	*****	*****	*****	
Full-time job	64.1 %	65.0 %	67.0 %	64.3 %	51.2 %
Part-time job	9.9 %	8.0 %	7.4 %	12.0 %	11.8 %
Retired	15.4 %	19.1 %	20.0 %	19.9 %	20.4 %
Un employed or retired	10.6 %	7.9 %	5.6 %	3.8 %	16.6 %
	*****	*****	*****	**	
Statistical significance of a comparison of each column with the non-informal investor column shown below the column: NS=not significant; *= 0.05; **=0.01; ***=.001; ****=.0001; *****= .00001 or better					

Patterns related to ethnic background are also mixed. Among those providing smaller amounts, minorities are more active than Whites are, presumably helping their ethnic peers get started. But among those providing larger amounts, Whites become a higher proportion of informal investors. Informal investors appear to be more likely to be married; perhaps this reflects both stable jobs and higher

Table 8.7. Informal Investors: Contextual Factors and Level of Investment

	All Informal Investors	Informal Investors over $5K	Informal Investors over $15K	Informal Investors over $50K	Not an Informal Investor
Number of cases (weighted)	1,462	475	278	112	32,708
Personal Entrepreneurial Context: High	40.1 %	43.5 %	45.3 %	45.9 %	15.4 %
Personal Entrepreneurial Context: Medium	51.1 %	48.5 %	47.7 %	46.5 %	54.2 %
Personal Entrepreneurial Context: Low	8.9 %	8.1 %	6.9 %	7.5 %	30.4 %
	*****	*****	*****	*****	
Metropolitan Region: 1,000,000 or more	48.9 %	45.1 %	44.7 %	35.5 %	43.3 %
Metropolitan Region: 250,000 to 1,000,000	21.7 %	24.6 %	23.8 %	27.9 %	20.5 %
Metropolitan Region: Up to 250,000	9.1 %	10.3 %	11.0 %	18.3 %	12.1 %
Next to a Metropolitan Region	13.0 %	13.2 %	12.4 %	12.3 %	15.2 %
Not next to any metropolitan region	7.3 %	6.8 %	8.2 %	5.9 %	9.0 %
	*****	NS	NS	*	
Diverse Economic Structure Region	24.2 %	26.3 %	25.6 %	29.6 %	24.9 %
Service Sector Dependent Region	36.9 %	37.6 %	35.7 %	30.3 %	37.1 %
Federal, State Government Dependent Region	11.9 %	11.4 %	11.9 %	16.0 %	12.4 %
Manufacturing Sector Dependent Region	21.1 %	21.1 %	23.3 %	21.0 %	22.2 %
Mining Sector Dependent Region	1.1 %	1.2 %	1.2 %	1.9 %	1.4 %
Agriculture Sector Dependent Region	2.2 %	2.5 %	2.2 %	1.2 %	1.9 %
	NS	NS	NS	NS	
Population change 1993-2002: Top 25%-tile	28.8 %	31.8 %	33.2 %	33.5 %	27.5 %
Population change 1993-2002: Second 25%-tile	27.3 %	27.2 %	26.2 %	26.1 %	24.7 %
Population change 1993-2002: Third 25%-tile	22.1 %	21.6 %	21.8 %	21.1 %	24.3 %
Population change 1993-2002: Lowest 25%-tile	21.8 %	19.4 %	18.8 %	19.3 %	23.6 %
	*	*	NS	NS	
Population density 2002: Top 25%-tile	25.7 %	25.8 %	25.9 %	23.1 %	24.6 %
Population density 2002: Second 25%-tile	28.1 %	24.5 %	25.2 %	19.0 %	24.6 %
Population density 2002: Third 25%-tile	24.2 %	26.8 %	25.1 %	32.4 %	26.1 %
Population density 2002: Lowest 25%-tile	22.0 %	23.0 %	23.8 %	25.5 %	24.7 %
	**	NS	NS	NS	
Statistical significance of a comparison of each column with the non-informal investor column shown below the column: NS=not significant; *=.05; **=.01; ***=.001; ****=.0001; *****= .00001 or better					

incomes. Those with more education are more likely to be informal investors; perhaps this reflects a greater earning potential and a greater capacity to invest. Informal investors are more likely to have a job, full or part time, or be retired; they are less likely to be unemployed.

Perhaps the most dramatic feature is the personal entrepreneurial context. As shown in Table 8.7, informal investors are higher on the Personal Entrepreneurial Context index, discussed in Chapter 5. This suggests that informal investors are much more likely to know entrepreneurs, see opportunities, or know how to start a business than are typical adults. Those that invest more are higher on this index.

Patterns associated with other features of their context, also shown in Table 8.7, are weak or nonexistent. There is some evidence that they are more likely to be in larger metropolitan areas, with more population change and higher

densities, but the effects are not very strong. There is no relationship to the type of economic activity emphasized in the county where they live.[5]

In summary, informal investors seem to be better established in the world of work with more education, higher incomes, and more contact with the entrepreneurial activities in their immediate social context. This would suggest that they have the knowledge, financial resources, and contacts to identify and pursue new start-ups as an investment.

INVESTOR AND THE "INFORMAL DEAL"

The previous discussion focused on the nature of those engaged in informal investments. Each of these individuals has reported one or more informal "deals" in the past three years. By asking the details for up to three deals per informal investor, it is possible to explore many of the characteristics of these informal start-up investments. Assuming that 8 million individuals reported being active in the past three years, as shown in Figure 8.2, the average number of deals reported in the past three years was 2.2 per informal investor, for a total of 17.6 million deals—about 5.5 million informal deals per year. This is, by the way, about three thousand times more than the annual two thousand formal deals by venture capitalists with start-up firms, or two hundred times the 27,500 annual investments reported by angels.

More information on these informal investor deals is available from the 2004 interview. A number of additional questions about the most recent deal were included and each informal investor could respond for up to three of their most recent informal deals. Once adjustments are made for the 2004 national sample, missing data, and proper weighting, the result is about 283 cases, of which 71% are the only informal deals reported, 19% are a second, and 9% a third informal deal. Given the strong interest in the size of the informal investment, all analyses use five classifications of informal investments: up to $5,000, from $5,001 to $15,000, from $15,001 to $ 20,000, from $20,001 to $100,000, and $100,001 and over. These were chosen to sort the sample into equal-sized groups, based on informal deal size for up to three recent deals.

Keeping in mind that some individuals who reported two or three deals are being counted several times, the background of the informal investor is provided in Table 8.8.

The association between age and gender changes dramatically with the size of the informal investment. Women are over half of the investors for deals under $15,000 but men dominate for those over $20,000, rising to 80% of those reporting deals in excess of $100,000. As one might expect, older individuals are more likely to report larger deals: 86% of the deals over $100,000 are reported by individuals 45 years of age or older.

Table 8.8. Informal Deals: Investor Personal Characteristics (1/2)

Size of investment	Up to $5,000	$5,001 to $15,000	$15,001 to $20,000	$20,001 to $100,000	$100,001 and up	All invest-ments
Number of cases (approximate; weighted)	82	69	68	40	25	283
GENDER						
Men	35 %	46 %	53 %	74 %	80 %	51 %
Women	65 %	54 %	47 %	26 %	20 %	49 %
						****
AGE						
18–24 Years	10 %	8 %	6 %	10 %	– %	8 %
25–34 Years	14 %	20 %	13 %	2 %	6 %	13 %
35–44 Years	29 %	13 %	21 %	14 %	8 %	19 %
45–54 Years	19 %	19 %	23 %	44 %	21 %	24 %
55–64 Years	9 %	18 %	27 %	14 %	29 %	18 %
65–74 Years	10 %	8 %	7 %	10 %	22 %	10 %
75 and up Years	8 %	14 %	3 %	6 %	14 %	9 %
						**
ETHNIC BACKGROUND						
White	66 %	76 %	74 %	84 %	91 %	75 %
Black	20 %	6 %	14 %	12 %	– %	12 %
Hispanic	12 %	6 %	3 %	– %	3 %	6 %
Other	2 %	11 %	9 %	5 %	6 %	6 %
						*
LABOR FORCE ACTIVITY						
Full-time job	38 %	46 %	62 %	48 %	34 %	47 %
Part-time job	19 %	8 %	5 %	1 %	21 %	11 %
Retired	20 %	32 %	25 %	39 %	33 %	28 %
Not employed (working)	23 %	14 %	7 %	12 %	11 %	14 %
						**
EDUCATIONAL ATTAINMENT						
High School not completed	8 %	1 %	13 %	19 %	6 %	9 %
High School degree	22 %	30 %	30 %	24 %	20 %	26 %
Post High School, no college degree	28 %	34 %	23 %	19 %	15 %	26 %
College degree	27 %	23 %	22 %	23 %	46 %	26 %
Some graduate experience, degree	14 %	12 %	13 %	15 %	12 %	13 %
						NS
Chi-square statistical significance: NS=not significant; *=0.05; **=.01; ***=.001; ****=.0001; *****=.00001						

There is a striking shift related to ethnic background as well, with Blacks and Hispanics more prevalent among smaller deals, under $5,000, and Whites more prevalent in the $100,000-and-up category.

Different sized deals are associated with difference in labor force activity. Those reporting the smallest deals, under $5,000, are more likely not to be working, while those reporting the largest deals, $100,000 and more, are more likely to report part-time work or retirement. The larger the deal, the more likely the individual has reported more educational attainment. While the pattern for not completing high school is mixed, there is no question about completion of college. The percentage completing college or some graduate education goes from 31% for the smallest investments to 58% for those over $100,000.

As might be expected, one can see from Table 8.9 that higher household income and higher household net worth are associated with larger informal investments. There are, however, a substantial number from households with annual incomes of less than $30,000 reporting deals of all sizes—small and large.

Table 8.9. Informal Deals: Investor Personal Characteristics (2/2)

Size of investment	Up to $5,000	$5,001 to $15,000	$15,001 to $20,000	$20,001 to $100,000	$100,001 and up	All invest-ments
Number of cases (approximate; weighted)	82	69	68	40	25	283
HOUSEHOLD ANNUAL INCOME						
Up to $15,000	10 %	8 %	6 %	6 %	9 %	8 %
$15,000 to $30,000	15 %	23 %	19 %	23 %	23 %	19 %
$30,000 to $40,000	11 %	8 %	8 %	7 %	13 %	9 %
$40,000 to $50,000	10 %	5 %	14 %	6 %	10 %	9 %
$50,000 to $75,000	35 %	36 %	20 %	16 %	9 %	27 %
$75,000 to $100,000	5 %	11 %	16 %	10 %	2 %	10 %
$100,000 and up	14 %	9 %	18 %	33 %	34 %	18 %
						**
HOUSEHOLD NET WORTH						
Negative or close to 0	37 %	16 %	34 %	10 %	26 %	25 %
Up to $250,000	26 %	44 %	24 %	41 %	26 %	33 %
$250,000 to $750,000	33 %	34 %	34 %	31 %	23 %	32 %
$750,000 and higher ($10 million max)	4 %	6 %	8 %	18 %	25 %	10 %
						*
LIFETIME INFORMAL INVESTMENTS						
1	30 %	57 %	46 %	25 %	27 %	39 %
2–3	41 %	24 %	23 %	29 %	11 %	29 %
4–10	10 %	10 %	31 %	42 %	62 %	24 %
11–maximum (900)	19 %	9 %	– %	4 %	– %	9 %
						***
START-UP TEAMS EXPERIENCE						
0	31 %	24 %	18 %	3 %	21 %	
1–2	50 %	55 %	53 %	44 %	– %	
3–5	2 %	22 %	12 %	11 %	73 %	
6–maximum (20)	17 %	– %	17 %	42 %	6 %	
						****
EXPERIENCE IN INVESTEE FIRM SECTOR						
0	27 %	29 %	27 %	21 %	16 %	26 %
1-5 Years	39 %	42 %	31 %	19 %	16 %	33 %
6-10 Years	13 %	13 %	16 %	11 %	31 %	15 %
11-20 Years	17 %	10 %	10 %	24 %	26 %	15 %
21 and more years	5 %	6 %	16 %	24 %	11 %	11 %
						**
BUSINESS LIFE COURSE ACTIVITY						
Total Entrepreneurial Activity Index [*]	13.5 %	15.2 %	21.2 %	35.3 %	11.1 %	18.7 %
Start-up business participant [NS]	12.7 %	7.9 %	9.4 %	8.4 %	8.4 %	9.7 %
New business owner/manager [**]	3.9 %	9.2 %	13.3 %	26.9 %	8.2 %	11.1 %
Established business owner/manager [NS]	5.0 %	5.0 %	4.9 %	5.1 %	15.9 %	5.9 %
Chi-square statistical significance: NS=not significant; *=0.05; **=.01; ***=.001; ****=.0001; *****=.00001						

The bottom four sections of Table 8.9 indicate prior experience and current participation in start-ups, new firms, and established firms. Those reporting higher investments also report more experiences with start-up investments and they report more personal experience on start-up teams. Among those reporting investments of $20,000 to $100,000, 53% have been on three or more start-up teams; among those with informal investments over $100,000, 79% have been on three or more start-up teams.

Those who are part of larger deals also report more experience in the same sector as the firm receiving the investment. Of those reporting the smallest

deals, under $5,000, about 35% report six or more years experience in the invested firm's sector, compared to 68% for those reporting a deal of $100,000 or more.

While most of the informal investors appear to have jobs, the proportion active in the business life course is somewhat larger than in the general population. But the nature of the participation changes with the size of the deal. Smaller deals are associated with more informal investors in start-ups; larger deals are associated with more informal investors reporting that they are owner-managers of established firms.

THE START-UP AND THE INFORMAL DEAL

Apart from the informal investor, the informal deals and the start-up firms may have many important attributes. Table 8.10 makes clear that most deals involve family members and relatives, with 56% of the smallest deals involving these close relations. As the amount of money grows, however, those with other relationships become more involved—64% of the deals over $100,000 involved a work colleague, friend, neighbor, or stranger with a good idea.

The start-up firms tend to be in the expected sectors. Smaller deals are associated with consumer-oriented activity, including retail stores, repair shops, restaurants, and the like. Larger deals seem to be associated with business services—such as financial, consulting, and professional services.

Further, being the only informal investor is rare, for 70% of the deals there were other informal investors. There is, in addition, little relationship between the size of the deal and the number of informal investors. Most of the time—85% in fact—these individuals are acting individually with unilateral relations to the business venture; only 15% of the time have the informal investors organized themselves to act as a coordinated group.

Most deals, no matter what the size, are associated with business ventures that are close by: 63% are within 10 miles and 86% are within 100 miles of the informal investor.

The status of the firm at the time of the informal investment is reported in Table 8.11. About 40% have no income at all as the first informal investment is provided, and this proportion is larger when smaller investments are reported. At the opposite extreme, about 20% have been profitably operating firms for several years; this proportion is higher as the size of the informal investment increases. The time since the first sales or revenue, which would reflect the state of development, is consistent with this stage assessment, for 85% of those new firms receiving $100,000 or more have had sales for over a year.

The average sizes of the informal investments increase across the categories, consistent with the classification system. The form of the investment, about 45%

Table 8.10. Informal Deals: Character of the Deal (1/3)

Size of investment	Up to $5,000	$5,001 to $15,000	$15,001 to $20,000	$20,001 to $100,000	$100,001 and up	All invest-ments
Number of cases (approximate; weighted)	63	60	65	35	22	235
RELATION TO INVESTEE						
Close family member	53 %	45 %	48 %	43 %	34 %	47 %
Other relative	3 %	6 %	10 %	2 %	4 %	6 %
Work colleague	8 %	8 %	11 %	8 %	14 %	9 %
Friend, neighbor	29 %	31 %	24 %	39 %	23 %	29 %
Stranger (with a good idea)	6 %	9 %	7 %	8 %	25 %	8 %
						NS
ECONOMIC SECTOR						
Extractive (agriculture, mining)	2 %	2 %				1 %
Transformation (construction, manufacturing, transportation, wholesale, utilities)	13 %	15 %	30 %	18 %	17 %	19 %
Business service (financial, real estate, professional services)	17 %	18 %	14 %	23 %	45 %	20 %
Consumer oriented (retail; consumer services; repair; restaurants; hotels; entertainment, health, education and social services)	68 %	66 %	56 %	60 %	38 %	60 %
						(0.08)
INVESTORS IN THE FIRM						
1 private investor	21 %	31 %	33 %	34 %	35 %	30 %
2 private investors	33 %	20 %	20 %	31 %	21 %	25 %
3–5 private investors	33 %	37 %	38 %	29 %	24 %	34 %
6–10 private investors	6 %	5 %	4 %	3 %	–	4 %
10 or more private investors	8 %	6 %	6 %	3 %	21 %	7 %
						(NS)
INVESTOR COORDINATION						
Investors acting independently	86 %	90 %	84 %	78 %	85 %	85 %
Investors acting as a coordinated group	14 %	10 %	16 %	22 %	15 %	15 %
						(NS)
MONITORING POTENTIAL: DISTANCE TO THE INVESTED FIRM						
No fixed location	4 %	3 %	2 %	–	2 %	2 %
Up to 1 mile	24 %	28 %	20 %	20 %	31 %	24 %
2–10 miles	31 %	39 %	40 %	42 %	27 %	37 %
11–100 miles	30 %	12 %	26 %	31 %	20 %	23 %
100–500	1 %	10 %	6 %	5 %	7 %	6 %
500 miles or more	10 %	8 %	8 %	2 %	13 %	8 %
						NS
Chi-square statistical significance: NS=not significant; *=0.05; **=.01; ***=.001; ****=.0001; *****=.00001						

equity and 55% debt, is remarkably constant across the deal size categories; whether $5,000 or $100,000 is involved, the ratio is about the same. Most investments are additional funding for a firm supported in earlier years; for half the first investment occurred more than three years before the interview.

The current size of the recipient firms varies substantially; about one-third have a net worth of less than $10,000 and about 10% have a current net worth in excess of half a million. Employment varies in the same fashion, with a quarter having no employees and one-fifth having six or more employees. Larger informal investments are associated with firms with greater net worth and more employees.

Table 8.11. Informal Deals: Character of the Deal (2/3)

Size of investment	Up to $5,000	$5,001 to $15,000	$15,001 to $20,000	$20,001 to $100,000	$100,001 and up	All invest-ments
Number of cases (weighted)	53	60	65	35	22	235
STATUS AT TIME OF INVESTMENT						
No revenue: no customer identified	32 %	15 %	15 %	19 %	25 %	21 %
No revenue: customers identified	35 %	19 %	15 %	14 %	14 %	21 %
Going concern: annual revenue under $100K	6 %	28 %	18 %	16 %	16 %	16 %
Positive monthly cash flow	5 %	13 %	19 %	11 %	– %	11 %
Positive annual cash flow	13 %	11 %	10 %	15 %	5 %	6 %
Operating firm with several profitable years	10 %	14 %	22 %	26 %	39 %	19 %
						**
INVESTMENT						
Total investment (average, $1,000)	$ 0.4	$ 3.4	$ 11.7	$ 44.3	$ 945.3	$ 91.9
Percent Equity (average)	44 %	39 %	49 %	55 %	39 %	45 %
Percent Loans (average)	56 %	61 %	51 %	45 %	61 %	55 %
TIME SINCE FIRST SALE						
No sales yet	14 %	15 %	9 %	12 %	10 %	12 %
1-6 Months	11 %	10 %	14 %	18 %	4 %	12 %
7-12 Months	7 %	3 %	15 %	9 %	2 %	8 %
13-36 Months	37 %	32 %	37 %	24 %	28 %	33 %
37-60 Months	13 %	27 %	11 %	17 %	17 %	17 %
61 or more months	18 %	14 %	14 %	20 %	38 %	18 %
						NS
TIME SINCE FIRST INVESTMENT						
1-6 Months	19 %	20 %	13 %	23 %	19 %	18 %
7-12 Months	14 %	9 %	16 %	13 %	– %	12 %
13-36 Months	22 %	36 %	46 %	33 %	30 %	30 %
37-60 Months	26 %	19 %	14 %	11 %	21 %	21 %
61or more months	19 %	17 %	11 %	20 %	30 %	30 %
						NS
INVESTEE FIRM: CURRENT NET WORTH						
Up to $10,000	65 %	40 %	20 %	21 %	9 %	36 %
From $10,000 to $50,000	22 %	25 %	42 %	16 %	– %	25 %
From $50,000 to $100,000	8 %	11 %	19 %	18 %	15 %	14 %
From $100,000 to $500,000	1 %	16 %	11 %	28 %	34 %	14 %
From $500,000 to max ($10 million)	4 %	8 %	9 %	17 %	41 %	11%
						****
INVESTEE FIRM: CURRENT EMPLOYMENT						
None	34 %	24 %	25 %	26 %	9 %	26 %
1-2 employees	31 %	45 %	31 %	28 %	27 %	34 %
3-5 employees	19 %	17 %	24 %	23 %	18 %	20 %
6-maximum employees (2,000)	17 %	14 %	19 %	23 %	46 %	20 %
						NS
Chi-square statistical significance: NS=not significant; *=0.05; **=.01; ***=.001; ****=.0001; *****=.00001						

Selected aspects of the financial status of the recipient firm are provided in Table 8.12. The status of the cash flow at the most recent informal investment indicates that three in five are positive in terms of monthly cash flow, about one in three are negative, and 5% are monthly cash flow neutral. Among firms receiving support, both monthly profits and monthly losses seem to increase as the size of the informal investment increases. This would suggest that both risks and gains increase with larger informal investments.

Table 8.12. Informal Deals: Character of the Deal (3/3)

Size of investment	Up to $5,000	$5,001 to $15,000	$15,001 to $20,000	$20,001 to $100,000	$100,00 1 and up	All invest-ments
Number of cases (weighted)	53	60	65	35	22	235
CASH FLOW STATUS AT INVESTMENT						
Positive monthly cash flow	50 %	61 %	64 %	62 %	57 %	59 %
Breaking even	10 %	4 %	3 %	10 %	5 %	6 %
Negative monthly cash flow	40 %	34 %	33 %	28 %	37 %	35 %
						NS
MONTHLY PROFIT (Positive monthly flow)						
Number of cases	24	24	24	14	10	97
Up to $100	29 %	42 %	31 %	30 %	– %	30 %
$101 to $1,000	18 %	23 %	16 %	10 %	17 %	17 %
$1,001 to $10,000	47 %	24 %	45 %	21 %	44 %	37 %
$10,001 and more	6 %	12 %	8 %	39 %	39 %	17 %
						NS
MONTHLY LOSS (Negative monthly flow)						
Number of cases	20	13	14	10	7	64
Up to $100	61 %	48 %	43 %	6 %	29 %	43 %
$101 to $1,000	34 %	34 %	32 %	18 %	13 %	29 %
$1,001 to $10,000	– %	– %	4 %	54 %	26 %	12 %
$10,001 and more	5 %	18 %	21 %	22 %	32 %	17 %
						**
Chi-square statistical significance: NS=not significant; *=0.05; **=.01; ***=.001; ****=.0001; *****=.00001						

Finally, what do the informal investors hope to gain? The expected payback time—the time required to get a return of the initial investment—as well as the total expected return, in multiples of the original financial investment, is provided in Table 8.13.

While for 3 in 10 (31%) deals the informal investor never expects to be paid back, for a substantial portion this is a viable investment. In fact, for 1 in 4 deals payback is expected within one year, and for one-third (36%) the expected return is over five times the initial investment. The expectations of a faster payback and a greater return on the investment (ROI) increase for larger investments; although the relationship to ROI is not statistically significant.

ACCREDITED INVESTORS

Major sources of funds for new and expanding firms are individual investors. The substantial contributions of informal investors were discussed above—many are from households of modest means. Some new ventures, however, may be both complex and high risk and, as a result, are not well suited as an investment for a typical household of modest means. Federal guidelines

Table 8.13. Informal Deals: Expected Payback

Size of investment	Up to $5,000	$5,001 to $15,000	$15,001 to $20,000	$20,001 to $100,000	$100,00 1 and up	All invest-ments
PAYBACK TIME (EXPECTED)						
Number of cases (weighted)	73	66	63	37	23	262
1 year or less	23 %	23 %	30 %	16 %	31 %	24 %
2–5 five years	24 %	30 %	30 %	48 %	59 %	34 %
6–over 20 years	8 %	15 %	7 %	21 %	2 %	11 %
None expected or never	44 %	31 %	33 %	16 %	8 %	31 %
						**
EXPECTED RETURN ON INVESTMENT						
Number of cases	69	65	62	36	22	253
Less than 1, including none	47 %	32 %	38 %	23 %	16 %	35 %
1–4 times investment	24 %	36 %	24 %	28 %	38 %	29 %
5–over 20 times investment	29 %	32 %	38 %	49 %	46 %	36 %
						NS
Chi-square statistical significance: NS=not significant; *=0.05; **=.01; ***=.001; ****=.0001; *****=.00001						

have been developed to define a special class of investors for which high-risk investments are considered appropriate.

There are eight types of "accredited investors" and two of the definitions refer to natural persons, not affiliated with an institution issuing securities, and having either or both of the following properties:[6]

- Any natural person whose individual net worth or joint net worth with that person's spouse at the time of his/her purchase [of an investment] exceeds $1,000,000.
- Any natural person who had an individual income in excess of $200,000 in each of the two most recent years, or joint income with that person's spouse in excess of $300,000 in each of those years, and has a reasonable expectation of reaching the same income level in the current year.

Accredited investors are not to be confused with "qualified investors," legally defined as "any natural person who owns and invests, on a discretionary basis, not less than $10,000,000 in investments."[7]

Federal guidelines require that an extensive amount of information—accurate and in ordinary language—must be provided in the sale of securities to natural persons that are not accredited investors. The provision of such information for small investments, such as associated with a new firm, can be quite expensive and time-consuming. Hence, those interested in raising small amounts of funds for new start-ups—less than $7.5 million—may find it more efficient to restrict the offerings to accredited investors, assumed to be sophisticated, financially well established, and able to bear some risk.

How many accredited investors are there in the United States? The U.S. interview schedule for 2004 was designed to develop such an estimate. Information was obtained in the interview to determine if any individuals meet either of the two accredited investor criteria—related to net worth and annual income. Annual income was assessed by asking additional questions of those reporting annual incomes in excess of $100,000 per year to determine if they either (1) exceeded the personal annual income criteria of $200,000 for the past year or (2) were part of a married couple filing a joint federal tax return for more than $300,000 for the past year. The income based accredited status could be determined for 81.3% of 12,907 respondents—131, or 1.2%, meet the income qualifications for accredited investors. It was not possible to extend the questions to the two previous years and expectations for the future year, so this does not meet all the formal criteria.

Estimates of household net worth were obtained with the following question: Approximately, what is the current net worth of your household? Household net worth is the total value of what you have, including houses, cars, any physical property, retirement funds, and all investments and checking accounts, minus any debts, such as all mortgages, home equity loans, car loans, student loans, credit card balances, and the like. This includes all things owned, as well as all debt, of both the husband and the wife, individually or together.

The response was obtained in one of 10 categories, from "negative" (value of debts greater than the value of all property) and "zero" (debts and property worth about the same), to eight positive values, the largest being $4 million or more. This question was answered by 63% of the respondents; about 17% could not give an estimate and 21% refused to provide an answer. Given the limited resources for the study, this is a satisfactory outcome.

Overall, from the 12,907 in the year 2004 sample, it was possible to determine which of 7,788 could be considered accredited investors; data on both income and household net worth were available for this 60.3% of the sample. Of the 457 that were accredited investors, 71% qualified only on the basis of household net worth, 14% qualified only on the basis of annual income, and 15% qualified on both counts. This part of the sample, with recalibration of the case weights, will be used for estimates of the total population counts.

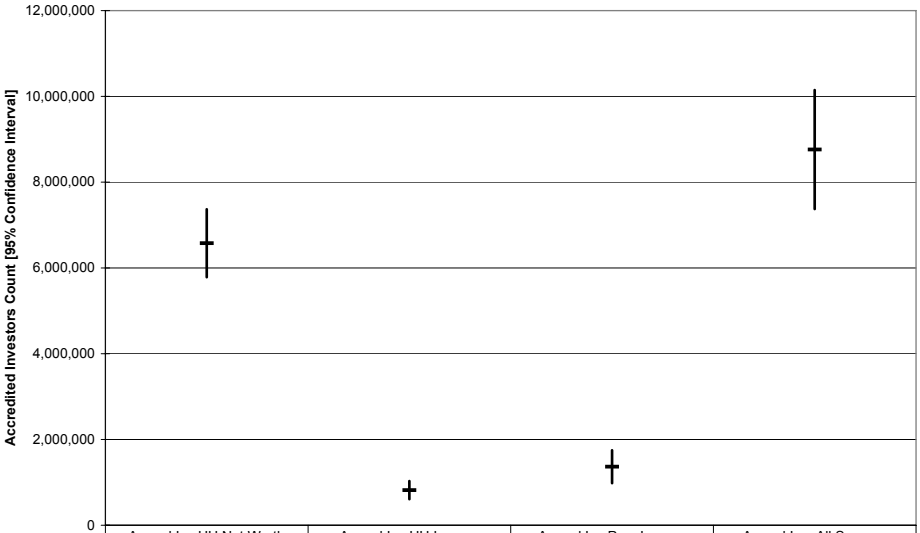
Estimating the total number of accredited investors was complicated by the multiple criteria; household net worth, household income, and personal income can all be used to identify an accredited investor. To create the estimates, the number of respondents that qualified under these criteria was determined, and the means and standard errors computed. For household net worth and household income, the basis for extrapolation to the population was the total number of households in 2003, about 111.3 million.[8] For qualification based on personal net worth, the basis for extrapolation was the total number in the population 18 years or older in 2003, about 217.8 million.[9] Household net worth, however, may

have been underestimated in the 2004 survey—as discussed in Appendix C. If the proportion of the sample with household net worth in excess of $1,000,000 is adjusted by multiplying the population values by 1.8, the result, with the 95% confidence intervals, is provided in Figure 8.4.

As shown in Figure 8.4. The mean value from the three sources is 8.8 million, with 6.6 million meeting the criteria on the basis of household net worth, 800,000 on the basis of household (married couple filing jointly) income, and 1.4 million on the basis of personal income.

The estimated range of accredited investors is from a low of 7.4 million to a high of 10.1 million—a mixture of households and individuals. Once caution is in order: the formal accredited investor criteria related to annual income specifies two-three years of sustained income over $200,000 per year for a single person and $300,000 per year if married. No data were obtained on the number of years for which this level of income was received. This would suggest that the counts based on income levels might be slightly higher than is justified. Just how much of an adjustment to make for this complication is not clear.

What kinds of individuals are accredited investors? Figure 8.4 indicates that about 71% qualify based on net worth alone, which is largely a combination of retirement funds and home equity, another 17% based on net worth and income, for a total 88%. The remaining 12% qualify based solely on high levels of annual income.



	Accred Inv:HH Net Worth	Accred Inv:HH Income	Accred Inv:Pers Income	Accred Inv: All Sources
Low	5,782,833	607,444	981,254	7,371,531
High	7,368,891	1,030,568	1,749,532	10,148,991
Mean	6,575,862	819,006	1,365,393	8,760,261

Figure 8.4. U.S. Accredited Investors by Basis for Qualification: 2004

The socio-demographic features of accredited investors and typical adults are presented in Table 8.14. They are much more active as informal investors than the typical person is, with 10% reporting an informal investment in the past three years, compared to 3% for typical adults. They are much more likely to make substantial informal investments, with 4%—or 1 in 25—reporting informal investments in excess of $50,000; about 0.2% (or 1 in 500) of typical adults provide this level of informal support.

Accredited investors are more likely to be men (68% versus 32%) and older; 42% are over 54 years of age, compared to 26% of the general population. Two-thirds are married, compared to 57% of typical adults. Accredited investors reflect a rather high level of educational attainment; 50% have a college degree or graduate experience, compared to 26% of typical adults. While almost half of accredited investors have full-time jobs and 11% are working part time, 29% are retired, compared to 17% of the typical adults. This no doubt reflects their longer work experience, associated with the development of high levels of net worth in retirement funds.

Features of the context of accredited investor are presented in Table 8.15; perhaps most relevant is their higher standing on the Personal Entrepreneurial Context Index; clearly they are in personal situations with a more positive context for entrepreneurship. In addition, they are more likely to live in large metropolitan regions, where there is economic dependence on the service sector, and less likely to live in regions economically dependent on a diversity of sectors, strong government presence, or an emphasis on manufacturing, mining, or agriculture.[10] They are more likely to be living in a region with more population density, which is consistent with large metropolitan regions, but not more likely to be living in the fastest growing counties. As older adults, they are probably past the migration years common to young adults, and much of their net worth would reflect high levels of home equity, reflecting long residential tenure.

In summary, it would appear that there are currently from 7.4 million to 10.1 million accredited investors in the United States. From 74% to 83% of these are households with high net worth; the remainder are individuals with high annual incomes.

The potential for these individuals to provide funding for new and growth ventures may be reduced by the large proportion that qualified in their later years after retiring; their qualifications may be based on accumulations in retirement funds and equity in their homes, both relatively resources are hard to convert to cash. Accredited investors—as individuals or representing a household—tend to be married older white men with high levels of education, living in large metropolitan regions dependent on the service economy but not exceptionally

Table 8.14. Accredited Investors Compared to all Others: Basic Background

	Accredited Investors	Others	Statistical Sign
Number of cases (weighted)	360	7,392	
Basis for accredited investor qualification			
Household Net Worth Only	70.7 %		
Household Annual Income Only	5.2 %		
Personal Annual Income Only	6.7 %		
Household Net Worth & Household Income	10.6 %		
Household Net Worth & Personal Income	6.8 %		
Informal Investor: Any amount	10.5 %	3.3 %	****
Informal Investor: $ 5,000 and up	6.9 %	1.0 %	****
Informal Investor: $ 15,000 and up	6.0 %	0.6 %	****
Informal Investor: $ 50,000 and up	3.6 %	0.2 %	****
Gender: Men	67.9 %	51.8 %	
Gender: Women	32.1 %	48.2 %	****
Age: 18–24 Yrs	10.4 %	11.4 %	
Age: 25–34 Yrs	8.7 %	21.4 %	
Age: 35–44 Yrs	13.5 %	20.2 %	
Age: 45–54 Yrs	25.9 %	22.2 %	
Age: 55–64 Yrs	22.3 %	12.3 %	
Age: 65–74 Yrs	13.3 %	7.4 %	
Age: 75–99 Yrs	5.9 %	5.1 %	****
Ethnic background: White	84.8 %	79.8 %	
Ethnic background: Black	2.5 %	7.6 %	
Ethnic background: Hispanic	5.0 %	7.6 %	
Ethnic background: Other	7.7 %	5.0 %	0.0001
Married/Living as Married	66.6 %	57.3 %	
Not married	33.4 %	42.7 %	0.0005
Not finished high school	9.7 %	14.8 %	
High school degree	17.4 %	32.0 %	
Post high school experience	22.3 %	28.8 %	
College degree	25.4 %	16.4 %	
Graduate experience	25.2 %	8.1 %	****
Full-time job	47.7 %	54.8 %	
Part-time job	11.4 %	11.2 %	
Retired	29.1 %	17.0 %	
Not employed or retired	11.8 %	17.0 %	****
Chi-square statistical significance: P value as indicated or ****=at least 0.00000			

high levels of population growth. Accredited investors tend be in a personal context with a high level of support for entrepreneurship and are three times more likely (10.5 % versus 3.3 %) to be an informal investor; among those making investments of $50,000 or more, they are 18 times more active (3.6 % versus 0.2 %) than typical adults.

Table 8.15. Accredited Investors Compared to all Others: Contextual Factors

	Accredited Investors	Others	Statistical Sign
Number of cases (weighted)	360	7,392	
Personal Entrepreneurial Context: High	30.6 %	18.1 %	
Personal Entrepreneurial Context: Medium	56.4 %	54.0 %	
Personal Entrepreneurial Context: Low	13.0 %	27.9 %	****
Metropolitan Region: 1,000,000 or more	50.5 %	39.0 %	
Metropolitan Region: 250,000 to 1,000,000	17.5 %	20.7 %	
Metropolitan Region: Up to 250,000	11.3 %	12.5 %	
Next to a Metropolitan Region	12.2 %	17.0 %	
Not next to any metropolitan region	8.5 %	10.8 %	****
Diverse Economic Structure Region	21.2 %	26.6 %	
Service Sector Dependent Region	49.4 %	33.9 %	
Federal, State Government Dependent Region	10.4 %	12.8 %	
Manufacturing Sector Dependent Region	17.2 %	22.7 %	
Mining Sector Dependent Region	1.3 %	1.8 %	
Agriculture Sector Dependent Region	0.4 %	2.2 %	****
Population change 1993-2002: Top 25 percentile	24.8 %	25.6 %	
Population change 1993-2002: Second 25 percentile	26.2 %	23.8 %	
Population change 1993-2002: Third 25 percentile	33.2 %	25.7 %	
Population change 1993-2002: Lowest 25 percentile	15.8 %	24.9 %	****
Population density 2002: Top 25 percentile	34.4 %	20.5 %	
Population density 2002: Second 25 percentile	23.3 %	24.1 %	
Population density 2002: Third 25 percentile	21.6 %	25.9 %	
Population density 2002: Lowest 25 percentile	20.7 %	29.5 %	****
Chi-square statistical significance: P value as indicated or ****=at least 0.00000			

OVERVIEW

Half of those pursuing start-ups expect new firms to require more than $15,000 and half less (the definition of the median value); half expected to personally provide more than $6,000—and half less. The range in values was considerable, leading to average start-up requirements of $1.4 million and average nascent investments of $800,000. Assuming the median values are appropriate measures of requirements for 7.2 million start-ups, the aggregate amount is about $244 billion, with $95 billion to be provided by the nascent entrepreneurs. This is to be compared to the $20 billion or so provided to several thousands new start-ups—albeit very special start-ups—by venture capitalists or the $13 billion provided by business angels.

Most nascent entrepreneurs expect to receive a substantial return on this financial investment; 44% anticipate payback within one year and 80% expect a return of over five times the investment. How to include sweat equity into this calculation—for many contribute considerable uncompensated time into start-ups—is not known at this time.

The prevalence of those 18 and older making informal investments in start-ups that are not their own varied from 7.0 to 3.5 per 100 over the years 2000 to 2004. The total amount of funds, however, is still substantial, perhaps over $200 billion for 2004. This is one of the two major sources of financing during the start-up phase, the other being funds provided by the entrepreneurs themselves.

Informal investors tend to be male, older, better educated, and have more household income than typical adults, and this increases as investments and deal sizes get larger. When small amounts of support are provided, women and minorities tend to be more active.

The patterns associated with the size of "informal deals" are very similar. Assessments of deals indicate that most informal investors are older white men who are retired or working full time, with college degrees, higher levels of household net worth—but not annual income—and substantial start-up and business experience, dominating deals involving $100,000 or more. Larger informal deals tend to go to non-family members, are usually to firms in business services that are less than one hundred miles away, report several years of profitable operation, and positive monthly cash flow. Informal investors in 6 of 10 deals expect full payback within five years; and one-third expect to receive five times the investment, a 400% return.

An important subset of this group are accredited investors, composed largely of older individuals with substantial net worth, who are three times as active as typical individuals, as well as a major source of larger amounts of informal financing.

One of the ongoing mysteries of new firm creation has been the sources of start-up funding. Even casual estimates of the amount of financial investments in start-ups has indicated that the highly publicized flows from venture capital, business angles, or government programs were not the major sources of funding.

This assessment makes clear that the largest single sources of support are from the members of the start-up team and informal investors linked to the nascent entrepreneur by their social networks. While the hundreds of billions of dollars that flow through these channels is a considerable amount, the assessment of accredited investors—defined as those with the household and personal resources to accept the risks associated with new start-ups—indicates that a substantial resource has yet to be fully developed. Nine in 10 of the eight million accredited investors have *not* made an informal investment in the past three years. If the participation of accredited investors were to increase from 10% to 20% of this group, not an unreasonable adjustment, it would substantially increase the availability of funds for new firm creation.

NOTES

1 Average values tend to be very high due to extreme outliers in these financial estimates. To avoid this, those that were in excess of $10 million were reset to $10 million. Estimates were then developed by placing the total requirements into five categories and using the mean value of each category to estimate the total requirement for all start-ups that become new firms, or 31.6% of 7,355,000 start-ups. Assuming that a successful start-up took two years from conception to new firm birth reduces this annual estimate by 50%, for an annual estimate of 1,162,091 new firms.

2 The procedure for assembling annual estimates from the business angel clubs is summarized in Sohl and Sommer (2002), and the level of 2005 activity estimates are from Sohl (2006).

3 Bygrave and Hunt (2005).

4 The average personal investment and the standard error of the mean can be used to estimate variation in average investments. To avoid extreme values, the eight values, out of 1,067, in excess of $3 million were reset to $3 million. The estimates of the actual money values were adjusted to 2004 values using the consumer price index. These values are then multiplied by the mean and standard error of the number of informal investors to get the final estimates in Figure 8.3.

5 All 3,124 counties in the U.S. are classified in terms of the major focus of economic activity, 'www.ers.usda.gov/briefing/rurality/typology/methods." These are related to an index of county urbanicity called "Beale Codes" based on the contributions of the originator, Calvin Beale 'www.ers.usda.gov/Briefing/Rurality/RuralUrbCon/."

6 See www.law.uc.edu/CCL/33ActRls/rule501.html, Rule 501(a) (5-6).

7 U.S. Securities Exchange Act of 1934, Section 3(a), (55) (B) (ii).

8 Table 56, Statistical Abstract of the United States: 2004–2005.

9 Table 11, Statistical Abstract of the United States: 2004–2005.

10 See chapter 8 endnote 5.

9
Comparisons across Space: United States and the World

The global range of start-up activity is much greater than found within the United States. The level of entrepreneurial activity for 44 countries, defined as the number per one hundred adults annually active in start-ups or new firms, the Total Entrepreneurial Activity index, is presented in Figure 9.1. In this presentation they are placed in five categories of activity, darker colors representing higher levels of entrepreneurial activity. White indicates that no data is available. North American countries cover the middle levels of activity, with the United States in the middle group. Because half of the countries are in Europe, they are is presented separately in Figure 9.2.

These maps make clear that the highest levels of activity occur in the developing countries; all European countries, except Iceland, are in the two least active categories. The actual estimates and confidence interviews for the TEA index are presented in Figure 9.3, based on data collected from the years 2000 through 2004. Because data from all countries is only available for those 18–64 years of age, the prevalence rates are standardized for this age range. U.S. prevalence rates in other chapters are based on those 18–74 years of age.[1]

The level of activity for the United States places it at the highest level for advanced economies, at about 12 per 100 individuals or 1 in eight adults. This is not statistically significantly different from China, Iceland, India, Australia, and Argentina. This group is somewhat higher than in most European countries, where the prevalence rates tend to be around 5 per 100 individuals 18–64 years of age. Developing countries have substantially higher rates of participation, as high as 40 per 100 for Peru—2 in 5 adults. Entrepreneurial activity in Peru is 3.5 times the level of the United States, but 10 times the level of Croatia, Hong Kong, and Japan—where 1 in 33 adults are entrepreneurially active.

As the global economy becomes more competitive and a larger proportion of national economic activity is international, the relative position of the United States as a source of entrepreneurship becomes more significant. The current U.S. assessment is fully compatible with a cross-national effort that involves harmonized procedures measuring entrepreneurial activity in a range of countries: 44 total through 2004.[2] The comparisons that follow are based on consolidating the results from five recent years of this research program, from 2000 to 2004. Aggregating results across years is justified by the stability of

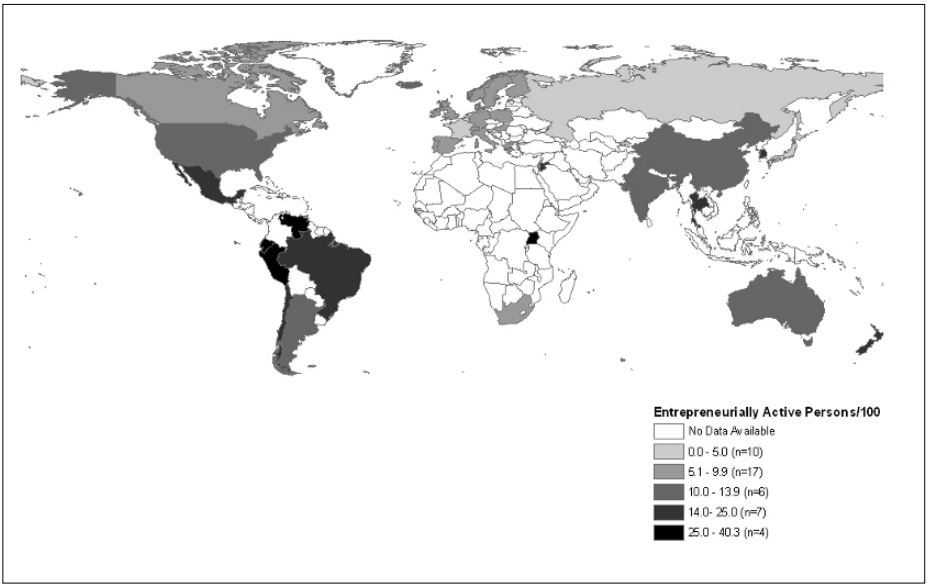


Figure 9.1. Global Comparisons in Level of Entrepreneurial Activity

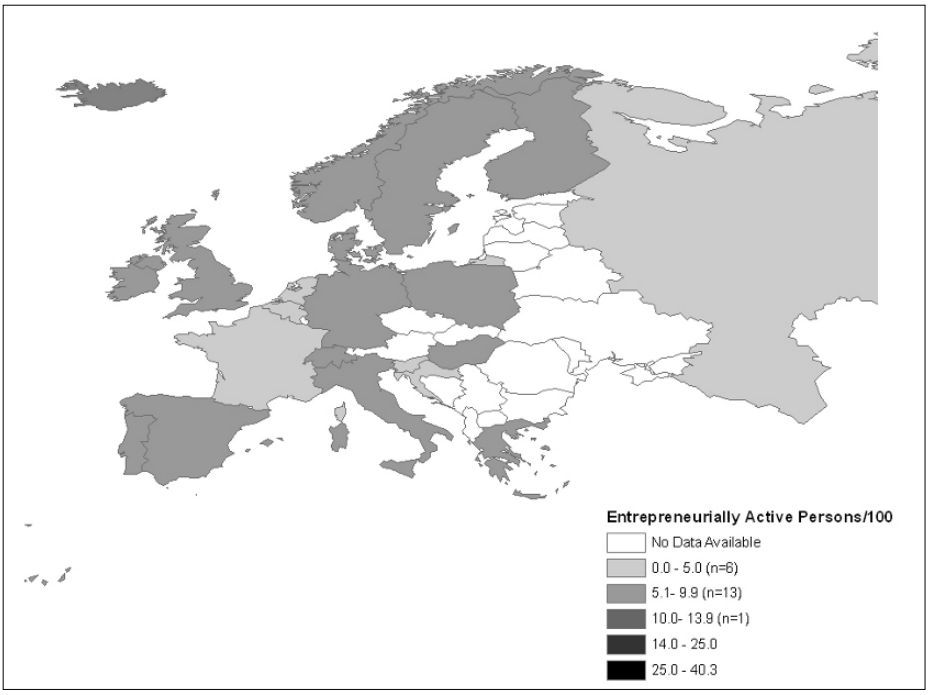


Figure 9.2. European Comparisons in Level of Entrepreneurial Activity

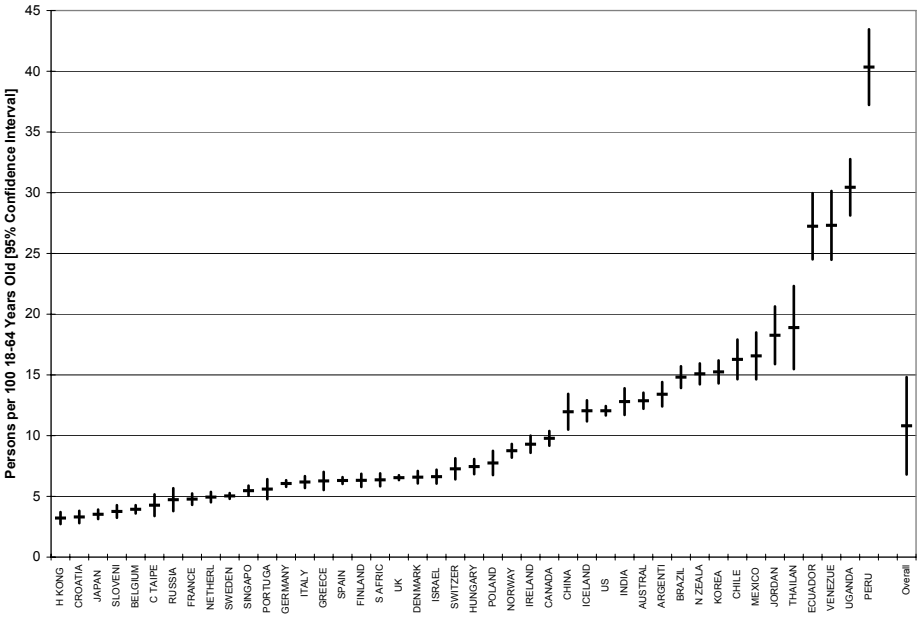


Figure 9.3. TEA Overall Prevalence: Global Comparisons, 2000-2004[3]

national results from year to year and the high year-to-year correlations among countries.[4] The 44 countries in this assessment represent over 60% of the world population and over 90% of the world GDP; it is truly a global assessment.

This introduction leads to two conclusions. First, there is substantial variation among these countries. There is a tenfold difference among the prevalence rates, from 3 per 100 to 40 per 100. Understanding the reason for such high variations is a major research challenge. Second, the United States is located in the upper middle of the group or in the lower end of the upper third of all the countries examined. Given the importance of entrepreneurship to future economic developments, it is worthwhile to consider specific features associated with difference in entrepreneurial activity.

GLOBAL COMPARISONS: SELECTED FEATURES OF ENTREPRENEURIAL ACTIVITY

This global project was the source of the distinction between opportunity and necessity entrepreneurship.[5] During the interview entrepreneurs were asked about their primary motivation for creating a new business: to take advantage of a business opportunity or, reflecting a lack of other work or career options, out of necessity. Globally, about one-third of entrepreneurs appear to be motivated by necessity. The TEA prevalence for opportunity and necessity entrepreneurs

is presented by country in Figures 9.4 and 9.5. The two patterns are somewhat different.

The opportunity TEA pattern, shown in Figure 9.4, is similar to the overall TEA pattern in Figure 9.3. Leaving aside the extreme case of Peru, there is about a nine fold difference in prevalence rate between the lowest and highest countries—2 per 100 to 18 per 100; the level is reduced somewhat but the overall rank order does not change very much. The United States continues to be among the top third overall, and among the highest of the developed countries.

Comparison of the United States with other countries in terms of necessity entrepreneurship is provided in Figure 9.5; the range of differences is much greater, between 5 per 1,000 (0.5 per 100) and 140 per 1,000 (14 per 100), a seventy-fold difference. The United States is similar to most other developed countries with a low level of necessity entrepreneurship of 1–2 persons per 100, slightly above European and Asian advanced countries (Japan, Hong Kong, Singapore, and Taiwan) but substantially below developing countries such as China, India, Ecuador, Venezuela, Peru, and Uganda. Nineteen of 43 countries have levels of necessity entrepreneurship statistically significantly higher than that of the United States.

It is clear, in this and other assessments, that a major factor increasing the level of business creation in developing—or poorer countries—is the lack of options for participating in the economy. Those countries with high levels of unemployment and few employment opportunities have much higher levels of necessity entrepreneurship—people involved in firm creation because they have few other choices.

Introducing new and innovative goods and services that will change the marketplace is a central theme in scholarly and practical discussions of entrepreneurship. An index was created to measure the potential impact of new and existing firms on the market for surveys completed in 2002, 2003, and 2004. This index is designed to identify firms that may have a major impact by introducing new goods and services into the marketplace.[6] A comparison of the United States with 39 other countries is presented in Figure 9.6. Note that market impact firms are so rare that the prevalence rate has been shifted to a base of 10,000. Those in the United States that expect their start-ups or new firms to have major impact on the goods and services offered in the market occur at the rate of about 120 per 10,000 survey respondents—or about 1.2 persons per 100 adults 18–64 years old.

The international comparison makes clear there are some considerable differences between countries. Perhaps unexpected is the high prevalence of market impact firms in some developing countries. This reflects diversity in the definition of the target market. For some firms, their market may be the entire world market with access provided by the Internet, but for others the

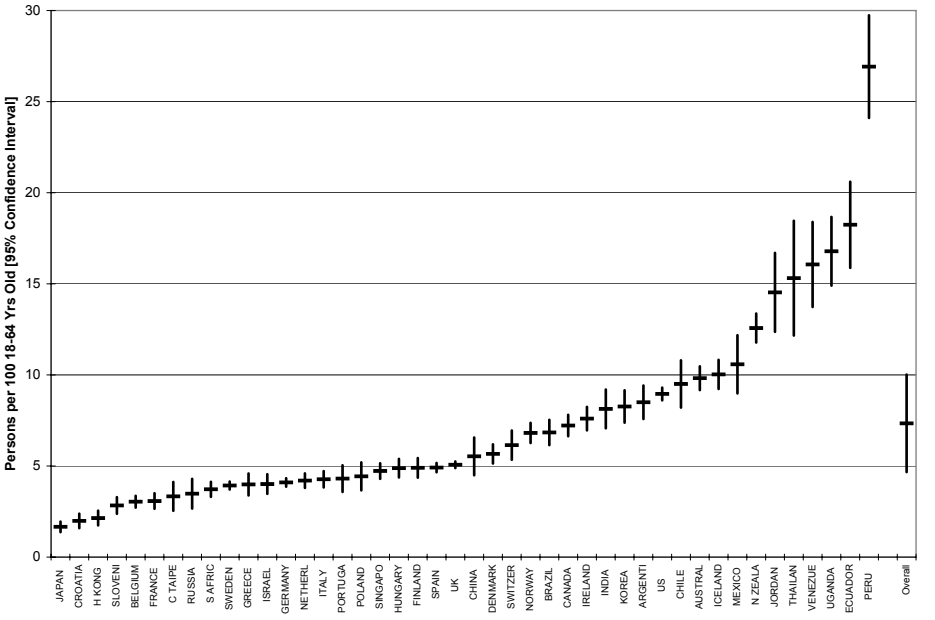


Figure 9.4. TEA Opportunity Prevalence: Global Comparisons, 2001–2004

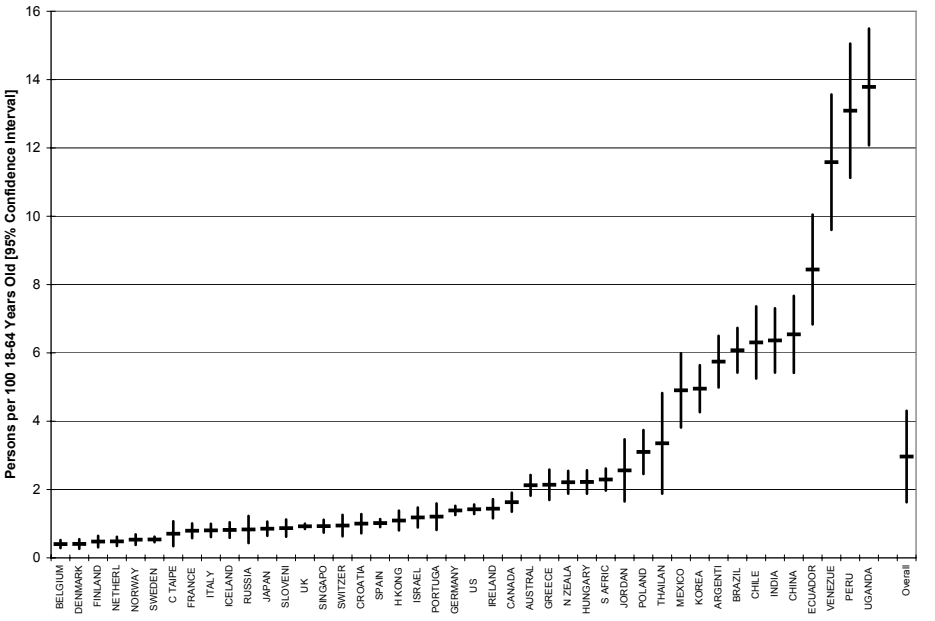


Figure 9.5. Necessity Prevalence: Global Comparisons, 2001–2004

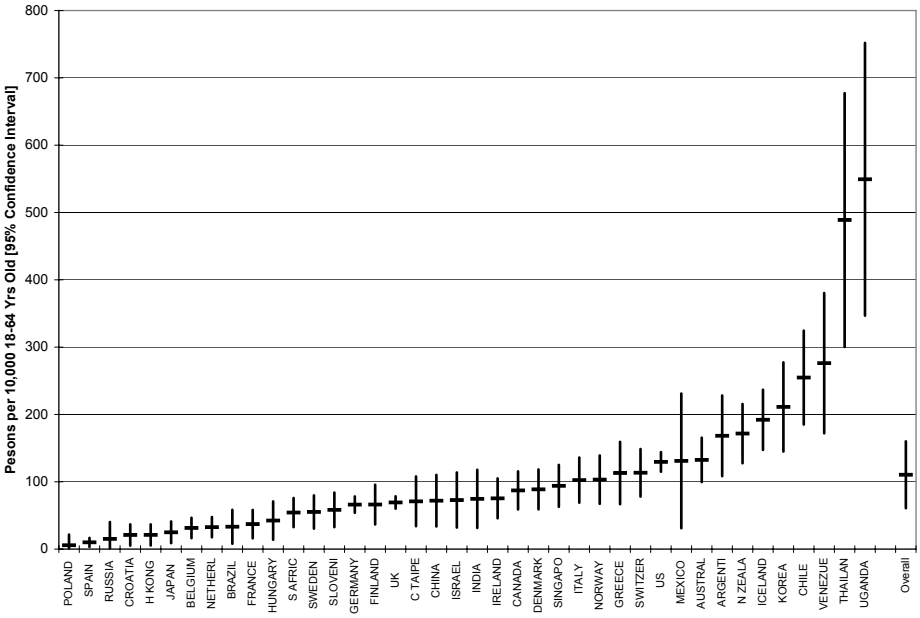


Figure 9.6. TEA Overall, High Market Impact Prevalence: Global Comparisons, 2002–2003

market may be all those living in remote rural areas with limited contact with the outside. As a result, some uncomplicated businesses in remote locations may have a major impact on a localized, isolated market.

The United States is relative high on this ranking. Twenty countries (from Poland to Ireland) have a level of activity that is statistically significantly lower than the United States; only six countries (Iceland to Uganda) have a level of activity that is statistically significantly higher.

In the same way, start-up and new firm growth aspirations are inferred from plans for future hiring. The prevalence of individuals per 10,000 that planned to have a firm of 19 or more employees in five years is provided in Figure 9.7. Here the confidence intervals are much greater than for the other comparisons of prevalence rates. Even so, the United States is in the upper third, and only one country, South Korea, has a statistically significant higher prevalence rate of growth oriented businesses. As before, European and developed Asian countries are clustered in the low end of this measure of growth-oriented entrepreneurship.

The United States, then, while not at the top of any of the comparisons regarding prevalence rates, is consistently in the top group on overall entrepreneurial activity, opportunity entrepreneurship, changing the economy through new products and services, and aspirations for firm growth. This diverse emphasis is consistent with the U.S. reputation for entrepreneurship.

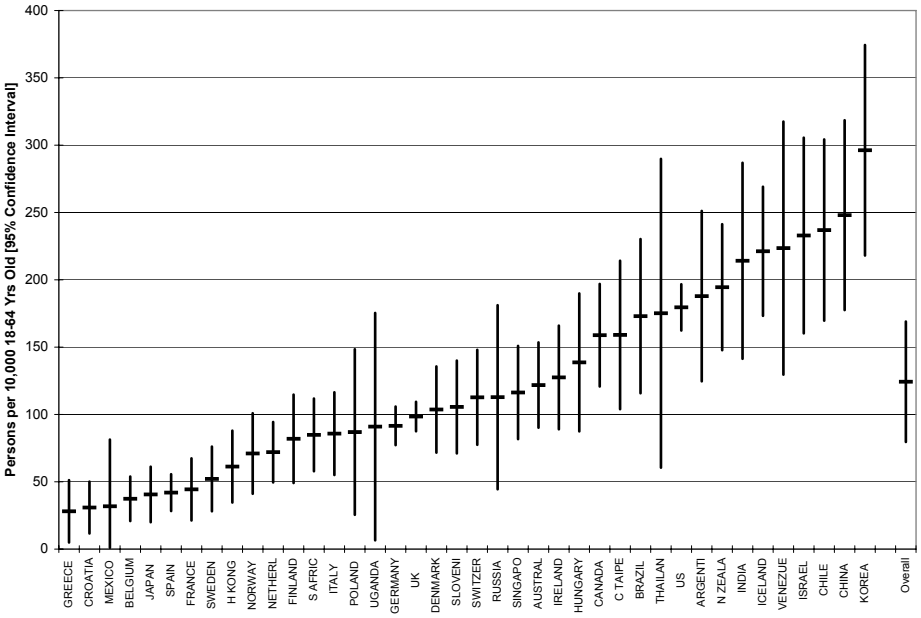


Figure 9.7. TEA Overall, High Job Growth Prevalence: Global Comparisons, 2002–2003

TOTAL AMOUNT OF ACTIVITY: GLOBAL ESTIMATES

But what about the total amount of activity? Attention to prevalence rates is useful for considering differences among countries but for some issues the total amount of activity is significant. High prevalence rates in a small country may be less of an issue than lower rates in a very large country. Both the most populous countries in the world—China and India—as well as some of the smallest—including Iceland—are part of these global comparisons. To provide some idea of the actual volume of activity, the estimated number of TEA active individuals is provided in Figure 9.8, classified by motivation: opportunity, necessity, or "other." In order to present total entrepreneurial activity counts for both Iceland (with about 12 thousand) and China (with about 100 million) on the same chart, a logarithmic scale is used. Each horizontal division represents a tenfold increase in the count of active individuals. This, however, has the disadvantage of making differences in the proportion of necessity entrepreneurs hard to determine. They are actually almost half of the 100 million in China. But as opportunity entrepreneurs are the first 50 million, necessity entrepreneurs appear to be a small fraction of the total if the scale is considered to be linear rather than logarithmic.

This assessment emphasizes the unique situation of the United States, which at 22 million has the third largest number of entrepreneurially active individuals

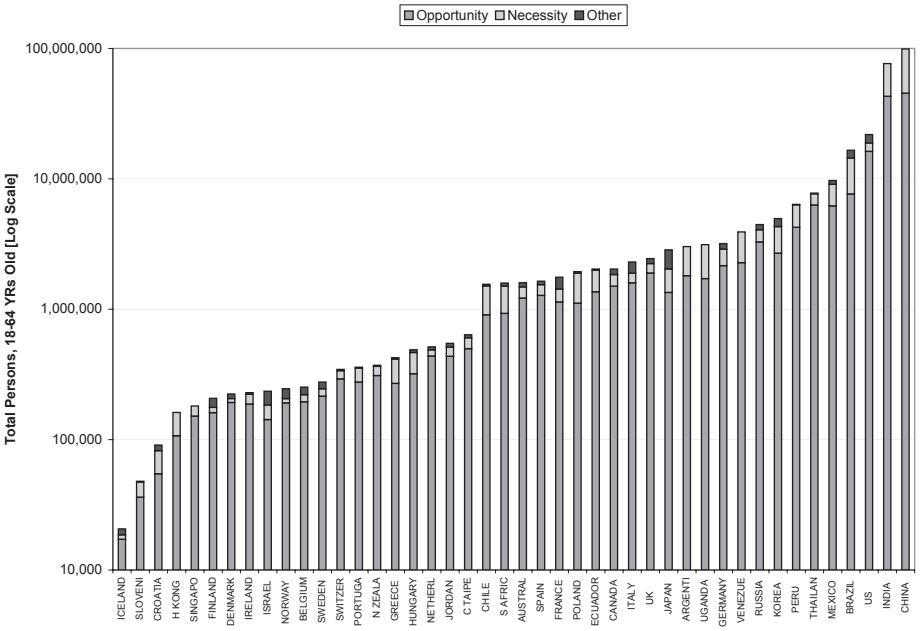


Figure 9.8. TEA Overall, Total Active Persons, by Motivation: Global Comparisons

in the world and a substantial proportion, 7.6%, of the 288 million in the 44 countries. On the other hand, this is somewhat less than the 99 million (or 34% of the total) in China or the 77 million (or 27% of the total) in India; this combined total of 178 million is over seven times the numbers active in the United States.

Much global economic activity is now based on multinational regions, the European Union being the prime example. It is easier to see the significance of these differences if these countries are placed in groups. One such classification is presented in Table 9.1.[7]

Most are located in the same region, except four Anglo, not EU, countries that are in two parts of the world: Australia and New Zealand in the southern Eastern Hemisphere and Canada and the United States in the Western Hemisphere. While they have comparable histories of development, along with similar legal and political traditions, over 80% of all the Anglo, not EU activity is associated with the United States. Those who are 18–64 years of age, the proportion eligible for entrepreneurship, are in the third column; the proportion of the total of all TEA active persons is indicated in the right column.

It is quite clear that some groups are overrepresented among the entrepreneurially active and others underrepresented. These differences are quite apparent when these groups are compared on the total number of entrepreneurially active persons, as shown in Figure 9.9. This makes clear that

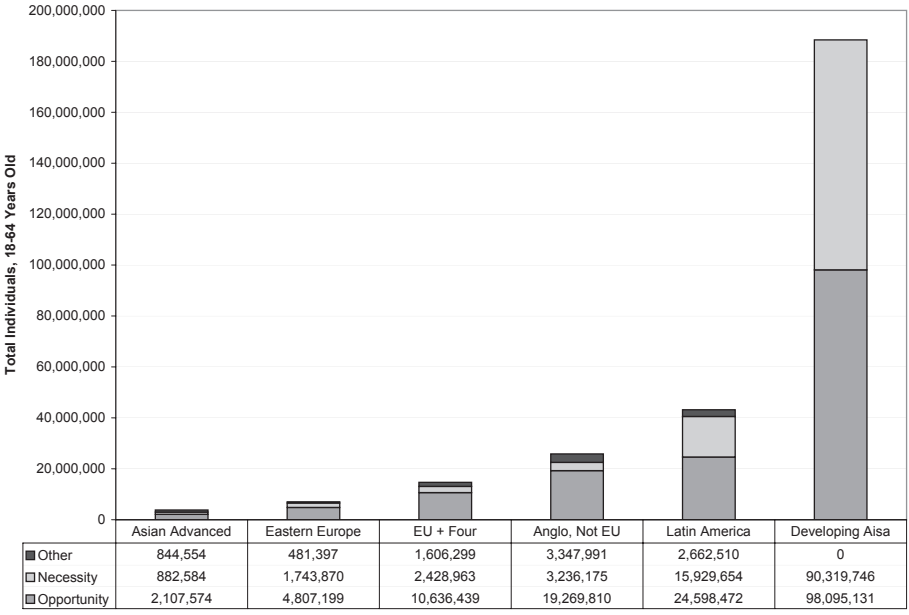
Table 9.1. Countries Classified by Region Type and Proportion of Entrepreneurs

Region Label	Countries Included	Percent of all those age 18–64	Percent TEA Active
	Total individuals	2,476,000,000	288,000,000
Asian Advanced	Hong Kong, Japan, Singapore, Taiwan	4.2 %	1.3 %
Eastern (and Central) Europe	Croatia, Hungary, Poland, Russia, Slovenia	5.3 %	2.4 %
EU plus Four	Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, and the United Kingdom—and the four: Iceland, Israel, Norway, Switzerland	9.9 %	5.1 %
Anglo, not EU	Australia, Canada, New Zealand, United States	8.8 %	9.0 %
Latin America	Argentina, Brazil, Chile, Ecuador, Mexico, Peru, Venezuela	9.7 %	15.0 %
Developing Asia	China, India, Korea (South), Thailand	60.6 %	65.4 %
Not classified	Jordan, South Africa, Uganda	1.8 %	1.8 %
		100.0 %	100.0 %

the vast majority of activity is occurring in developing Asian countries. And these estimates do not include some very large and dynamic Asian countries such as Indonesia, Malaysia, the Philippines, and Vietnam. Those in developing Asian countries represent twice as much overall activity and opportunity-based entrepreneurship as the combined total for all other 40 countries. The second highest group, in terms of overall activity, is Latin America. The majority of the Latin American population is included in the assessment. The "Anglo, Not EU" group—again, dominated by the United States—is the third largest source of activity. Given the level of precision of these estimates, the Anglo group can be considered similar to Latin America; both have about 20 million opportunity entrepreneurs.

But the regions that are underrepresented among active entrepreneurs are virtually the whole of Europe—Western, Central, and Eastern—as well as Asian advanced countries. Ironically, many of these Asian countries, such as Hong Kong, Singapore, and Taiwan, have a reputation as being entrepreneurial countries—the "Asian Tigers." While their dramatic national growth over the recent decades may reflect a successful national competitive strategy, it appears to have developed in the context of low levels of "personal entrepreneurship" measured by the surveys of representative samples of the adult population.

These differences in the overall level of activity are also found when the total counts of high market impact or high growth efforts are examined. Both are presented for the global region or types in Figure 9.10. The differences are similar to those provided for overall activity and that relate to motivation in Figure 9.9. Again, the major source of market impact or high-growth entrepreneurial ventures is developing Asia, with the Anglo and Latin America groups in a distant second place. Considerably further behind are the European (EU plus 4, Eastern Europe) and Asian advanced countries.



	Asian Advanced	Eastern Europe	EU + Four	Anglo, Not EU	Latin America	Developing Aisa
Other	844,554	481,397	1,606,299	3,347,991	2,662,510	0
Necessity	882,584	1,743,870	2,428,963	3,236,175	15,929,654	90,319,746
Opportunity	2,107,574	4,807,199	10,636,439	19,269,810	24,598,472	98,095,131

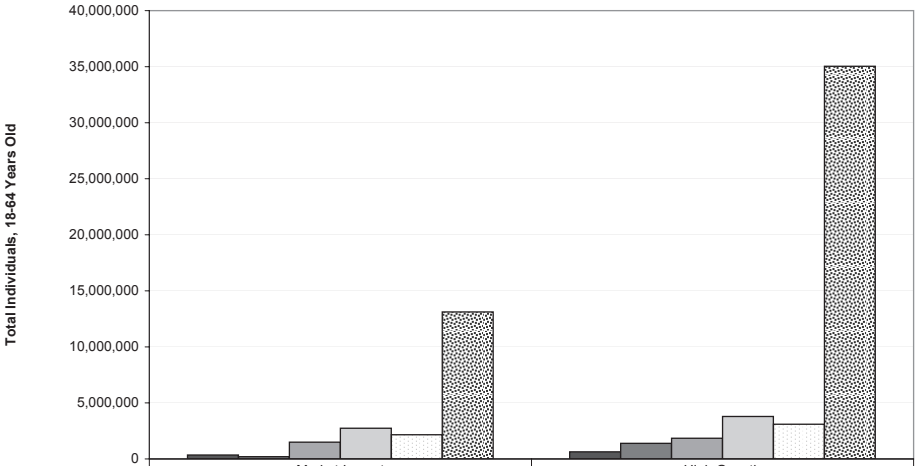
Figure 9.9. TEA Overall Active Persons, by Motivation: By Global Types

Overall, then, how is the United States doing in a global comparison? When prevalence rates of population activity are compared, the United States is generally in the upper third of all countries and among the top performers among highly developed (rich) countries. This is particularly true concerning opportunity-based entrepreneurship or those efforts associated with new businesses that may have a major market impact or growth aspirations.

On the other hand, when the total amount of global activity is considered, by far the largest counts of active persons are in the developing countries of Asia, with a strong showing in Latin America. The United States, as a non-European Anglo country, is a major source of global entrepreneurial activity but the enormous masses of entrepreneurial activity within developing Asian countries suggests that it is not a time to be complacent. If national economic well-being is dependent upon entrepreneurship, it is clear that both Europe and Asian advanced countries face the greatest challenge—their total entrepreneurial activity is so low as to be difficult to identify in a global assessment.

NATIONAL FACTORS ASSOCIATED WITH ENTREPRENEURIAL ACTIVITY

Why do some countries have more entrepreneurial activity than others do? There are a large number of processes or factors that affect the decision of



	Market Impact	High Growth
Aisan Advanced	349,793	635,794
Eastern Europe	197,645	1,395,285
EU + Four	1,495,765	1,842,950
Anglo, Not EU	2,736,842	3,785,456
Latin America	2,157,875	3,092,972
Developing Aisa	13,114,336	35,035,757

Figure 9.10. TEA Overall Active Persons by Market Impact and Growth Expectations: By Global Types

an individual to pursue the creation of a new firm and many reflect—or are affected by—national characteristics.

There is no question that new firm creation is a reflection of a complex set of social, cultural, economic, and political processes. With a small number of countries and a relatively short time period it is not possible to provide a definitive assessment of the major factors affecting national variation in entrepreneurial activity. It is useful, however, to consider some suggestive ideas that can be explored with this diverse set of countries. This will be done by comparing the six global types of countries on a number of features, considering the potential impact on firm creation.

The focus, then, is on examining the differences that could lead to the difference in entrepreneurial activity for the six types, summarized in Figure 9.11. Figure 9.11 illustrates the variation from 2 per 100 adults among Asian advanced to 14 per 100 among Asian developing countries. Four other measures of national competitiveness, widely promoted as useful indicators of competitiveness potential, are presented for these six groups of countries in Figure 9.12.[8] These measures are remarkable on two counts. First, all indicate similar levels for the six groups of countries; they are almost interchangeable. Second, they are clearly unrelated to the measures of business creation activity presented in Figure 9.11. Not one of these other indices has any predictive value regarding entrepreneurial activity, at least not measures based on

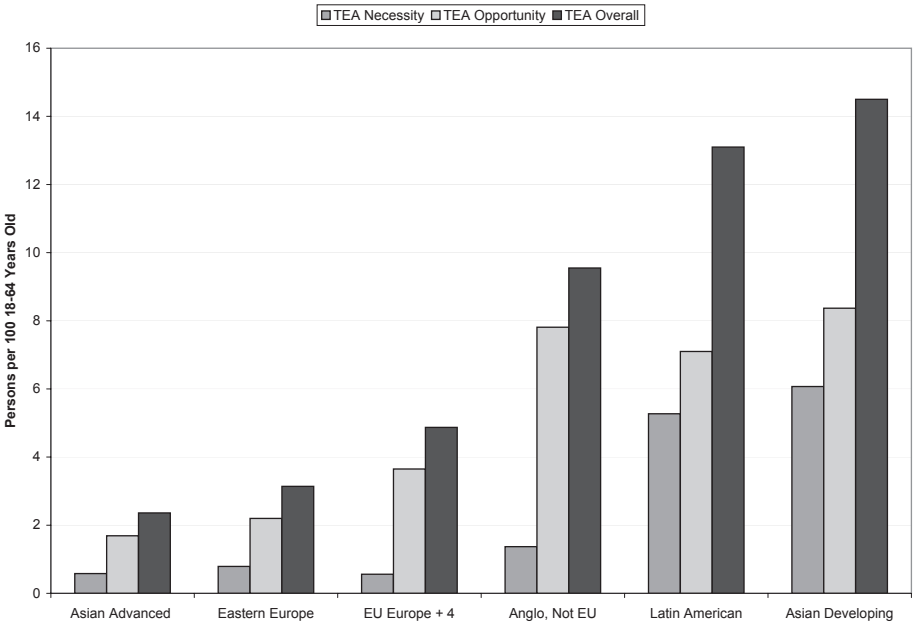


Figure 9.11. Entrepreneurial Activity and Motivations: By Global Type

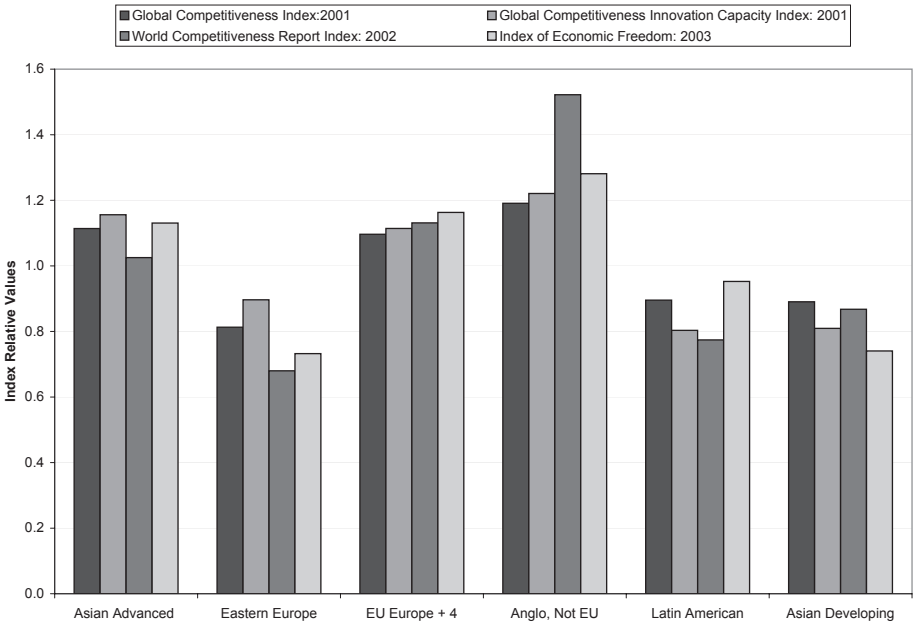


Figure 9.12. Selected Measures of National Economic Competitiveness: By Global Type

direct contact with the adult populations to estimate prevalence of new firm creation.

It is widely assumed that as more people have public roles in the conduct of the government, and the more honest and open the political processes, the greater the confidence that people could benefit from personal efforts to develop and implement new firms. This is illustrated by consideration of the converse. The less individuals have political and individual rights, the less the government provides protection of property rights, and the greater the corruption in government agencies the greater the uncertainty risk associated with creating something new and distinctive. Individuals in such situations will have less confidence they will benefit from the effort to create a new venture.

Indices to compare national political and government systems have been developed to reflect the presence of political rights for the citizens; the openness of political institutions to citizen participation; the protection of property rights; and the extent to which corruption is widespread among government agencies and institutions. Differences among the six types of countries on these four features are presented in Figure 9.13.[9] The measures are presented as standardized indices, a high value is assumed to encourage more entrepreneurial activity.

The pattern among the six global types, however, is quite mixed. Asian advanced countries and the EU Europe plus four have high levels of political rights and institutional openness, but low levels of entrepreneurship. Most dramatic, Latin American and developing Asian countries have relatively high levels of corruption, low levels of protection of property rights, and low levels of political rights, yet the highest levels of entrepreneurship, albeit a substantial proportion reflecting necessity entrepreneurship. Hence, this relationship between good governance and business creation is mitigated by the widespread prevalence of necessity entrepreneurship in poorer countries with undeveloped political and administrative systems.

It is also reasonable to assume that in countries where the government takes a major role in the economic life of the nation, there will be a reduced scope of activity for private initiatives. This reduced scope will reduce the business opportunities for new firms, and their may be less new firm creation. The scope of the government role in the national economy is reflected in the proportion of public sector jobs, tax revenues as a proportion of GDP, and measures of government effectiveness in Figure 9.14.[10] Here a reduced role of government, as reflected in tax revenues, is present for Latin American and Asian developing countries, suggesting greater scope for private initiatives. But they also appear to have less effective governments. EU Europe plus four is unique in the high level of government effectiveness but the highest level of tax revenues related to GDP. Eastern European countries, shifting away from a centrally controlled economic system, have the highest share of public sector jobs, at 35%, but appear to have the least effective governments. Both Asian Advanced and Anglo, not

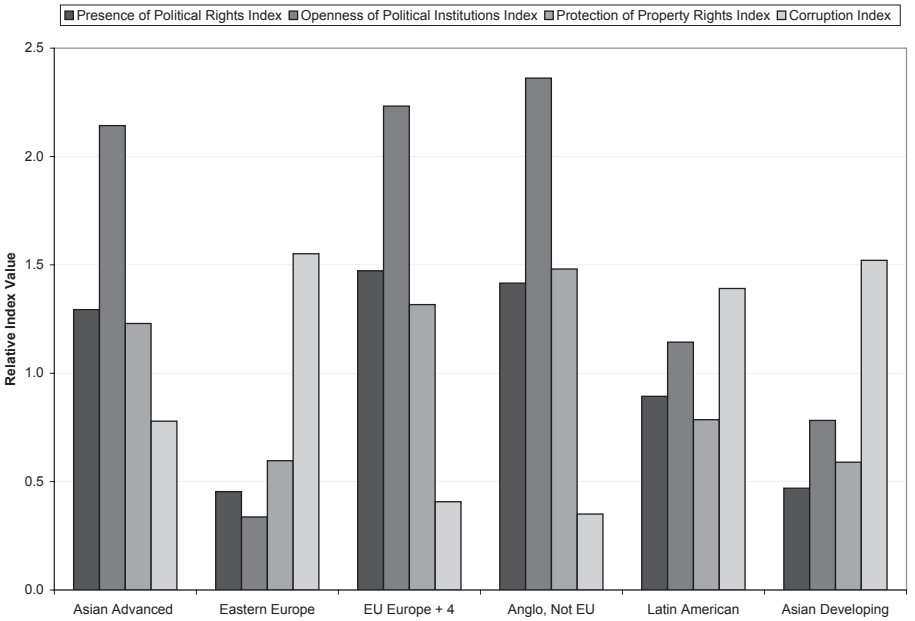


Figure 9.13. Political, Government System Characteristics: By Global Type

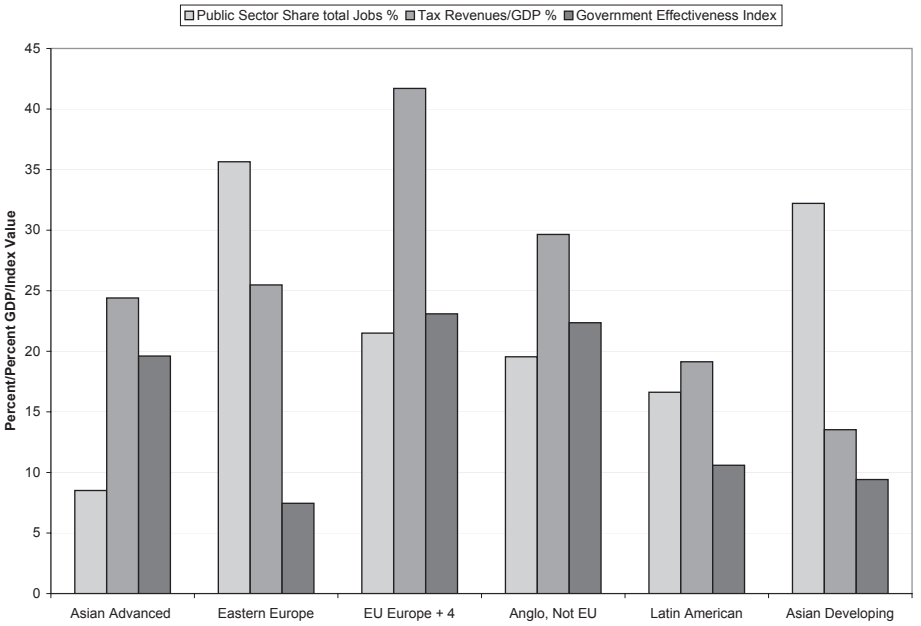


Figure 9.14. Government Role in National Economy: By Global Type

EU, countries appear to have effective governments and a moderate proportion of taxes in proportion to GDP, yet Anglo, not EU countries have much higher levels of business creation activity. Overall, then, the major attributes of these groups of counties are quite mixed. This suggests that other factors—not directly associated with the nature or administration of the national government—may have major impacts on the emergence of entrepreneurial activity.

Most legitimate businesses will, or should be, registered with and endorsed by government. This may involve a variety of different agencies or approvals. It seems reasonable to assume that the greater the cost—in time and money—to officially register a new firm, the fewer will take the time to complete the process, which should reduce the prevalence of new firms—firms that have registered with a government authority.

A harmonized international effort to compare these costs emphasized the number of registration procedures, the number of days to complete all the required applications, and the total cost—in time and fees—as a percent of annual GDP per person. The differences among the six global types are presented in Figure 9.15.[11] While all cost measures are the lowest for the four Anglo, Not EU, countries, they are quite low for Asian advanced countries, which have the lowest levels of new firm creation. They are highest for Latin American and Asian developing countries, which have, by far, the highest levels of new firm creation.

Two conclusions seem justified. First, in countries where many new firms do not attempt to obtain official approval and registration—Latin America and developing Asia—the costs of registration have little impact on the level of firm creation. In other countries—advanced, rich ones—reducing registration costs may be associated with higher levels of firm creation, but other factors would appear to have a much more significant impact.

One such factor may be the availability of financial support. A summary of two sources of financial support is provided for the six global types in Figure 9.16.[12] These include the amount of funds provided from venture capital sources to start-ups per GDP. It is not widely recognized that much venture capitol funding is to established firms, rather than to new firms. As a result, the absolute amount of venture capital support for start-ups is rather low for all groups of countries. The estimated amount of informal support—from friends, family, coworkers, neighbors, and the like—as a proportion of GDP is also provided. The third bars represent the total of venture capital and informal funds. Finally, the prevalence of informal investors, number per 100 persons 18 and older, is also indicated by the bars to the far right for each category of countries.

Most dramatic is the much higher levels of informal versus formal financing; informal funding is 20 to 40 times greater. The amounts, as a proportion of GDP, are highest for Asian advanced and Anglo, not EU, groups, perhaps reflecting large investments in a relatively small number of start-ups. In addition, the

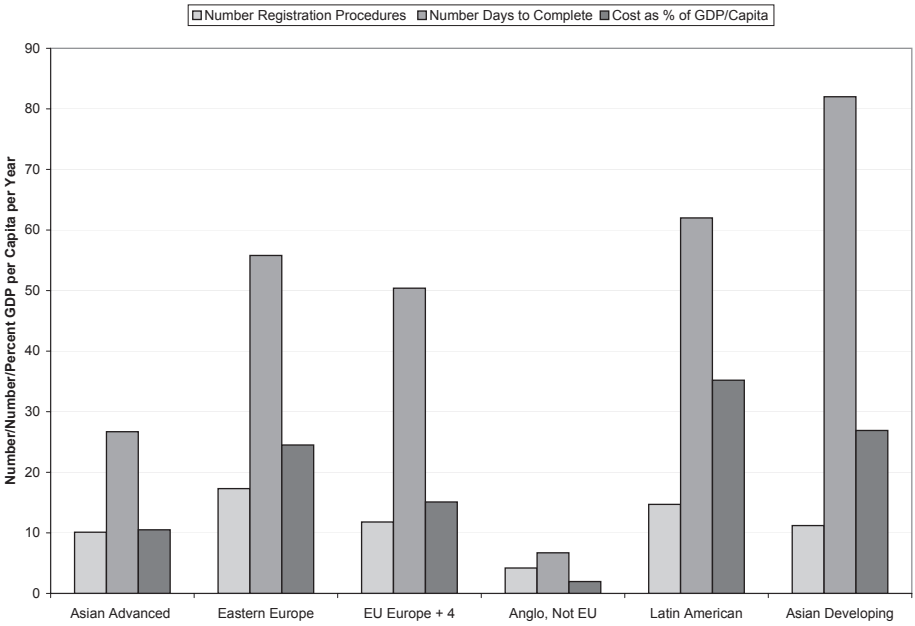


Figure 9.15. Business Registration Costs: By Global Type

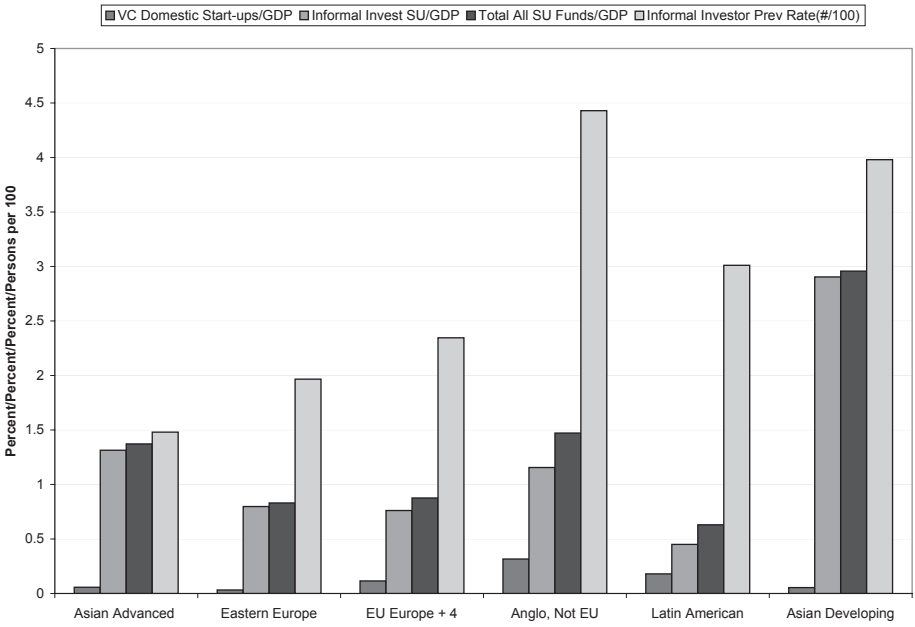


Figure 9.16. Start-up Financing: Informal and Venture Capital: By Global Type

prevalence of informal investors is highly related to the overall level of entrepreneurial activity, clearly highest among the three most active country groups, where business creation activity is the most prevalent.

This would suggest that for those creating new firms, financial support from those in their social networks is available in almost any country. While the typical contribution may be small, the aggregate amounts are—as seen in Figure 9.16—quite considerable.

The extent to which countries are able to invest in human capital, by educating their citizens, is reflected in Figure 9.17.[13] This presentation indicates the proportion of illiterates among those 15 and older. It also provides the proportion of "age appropriate" individuals enrolled in different levels of educational attainment: primary, secondary (or high school), and post-secondary education. When those older than the "age appropriate" category enroll in these programs, such as mature adults returning to high school to complete degree requirements, the proportion may exceed 100%. This is true for primary school participation in the Latin American and Asian developing groups.

There are few major differences in literacy and primary school participation rates; secondary school participation rates are somewhat lower among the Latin American and Asian Developing groups, perhaps related to higher levels of necessity entrepreneurship in these countries. There are major differences in post-secondary (vocational, technical, college or university) participation rates among the more advance countries, with a 60% rate among the Anglo, not EU, countries, and about 40% for Asian advanced, eastern Europe, and EU Europe plus four countries. In fact, for the United States and Canada these participation rates often exceed 100% as older adults enroll in post-secondary education programs. If there is any national feature that is unique in North America, it is the extremely high levels of participation in post-high school education and training in Canada and the United States.

Three types of measures of household economic status and orientation toward economic advancement are provided in Figure 9.18.[14] These include measures of economic well-being, as indicated by purchasing power per capita adjusted for purchasing power parity. As might be expected, Latin American and Asian developing countries are low on this measure of personal wealth, but the Eastern European countries are also below $10,000 per year.

Two measures of income disparity are provided: a direct indicator and the proportion of total income or consumption associated with the top 20% of all households. The highest levels of income disparity are associated with Latin America, with high levels for eastern Europe, Asian developing, and Anglo, not EU, countries. Income disparity seems lowest for Asian

Advanced and EU Europe plus four countries. Except for eastern Europe, there is more entrepreneurial activity in countries with more income disparity.

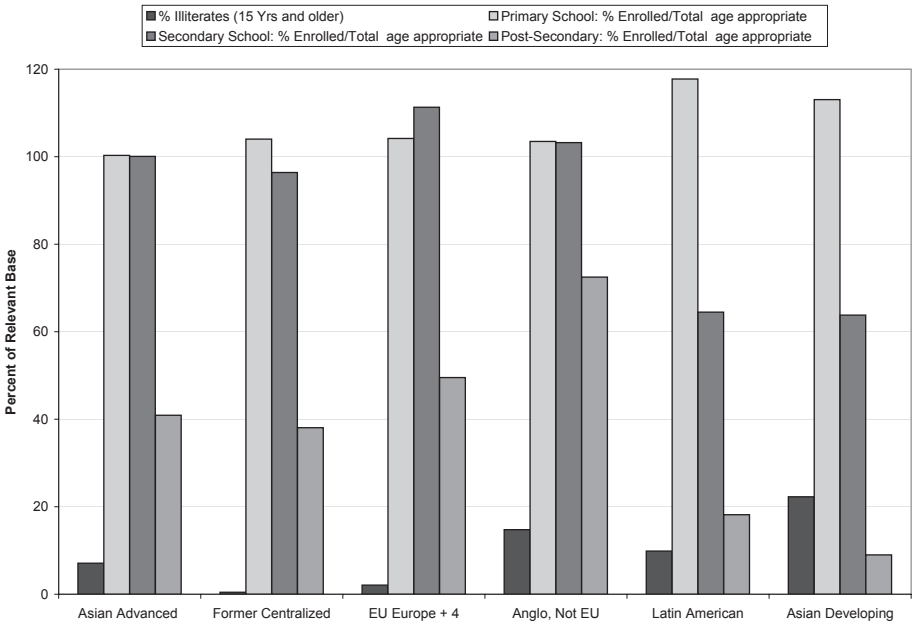


Figure 9.17. National Educational System Features: By Global Type

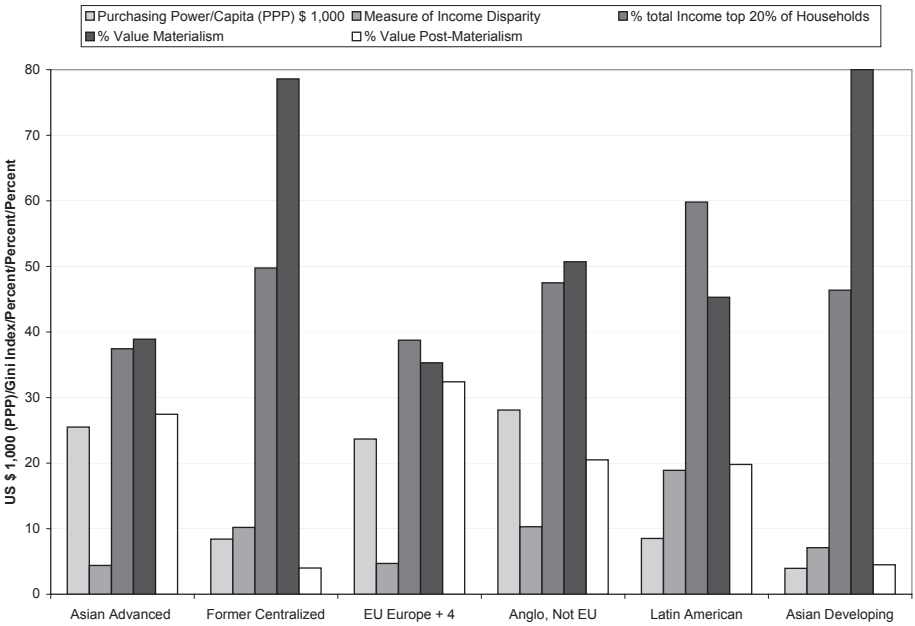


Figure 9.18. Household Economics and Values: By Global Type

The causal relationship is, however, ambiguous. More disparity may provide more of an incentive to participate in entrepreneurial ventures; it may also lead to more business opportunities—selling to the rich—and more funds to facilitate start-ups as the rich accumulate savings.

The final indicator presented in Figure 9.18 is related to harmonized measures of national value orientation. Developed and implemented by a consortium coordinated by sociologists and political scientists, representative samples of adults in various countries are asked to select between national values. "Materialistic" values are assumed to be reflected in an emphasis on maintaining order in the nation; high rates of economic growth; a stable economy while fighting rising prices and crime; and making sure the country has strong defense forces. "Post-materialism" values are assumed to be reflected in an emphasis on giving people more say in decision-making in government, at work, and in their community; protecting freedom of speech; making cities and countryside more beautiful; striving toward a friendlier, less impersonal society; and believing that ideas count more than money.

Compared to the other groups, post-materialism is emphasized more among those in the Asian developed and EU Europe plus four countries, and materialism is emphasized more in eastern Europe and Asian developing countries. Anglo, not EU, and Latin American countries are intermediate on this indication of national values. It would seem that the simultaneous presence of low-income disparity, along with a strong acceptance of post-materialism, among Asian advanced and EU Europe plus four countries may be related to the low levels of business creation.

GLOBAL REGIONS AND HIGH POTENTIAL ENTREPRENEURSHIP

It is possible to identify, from the samples of those involved in start-ups, individuals that aspire to create new firms that will provide market innovations as well as growth. The prevalence and estimated number of such individuals for the six global types of countries is presented in Figure 9.19. There are about 9 such persons per 1,000 in the EU Europe plus four and Anglo, not EU, countries. In both group of countries, this translated to about 2 million individuals. But in the Asian developing countries, with a slightly lower prevalence rate, there are about 11 million such persons, more than twice as many as all other countries combined. The evidence of a substantial competitive challenge from developing Asian countries is very strong.

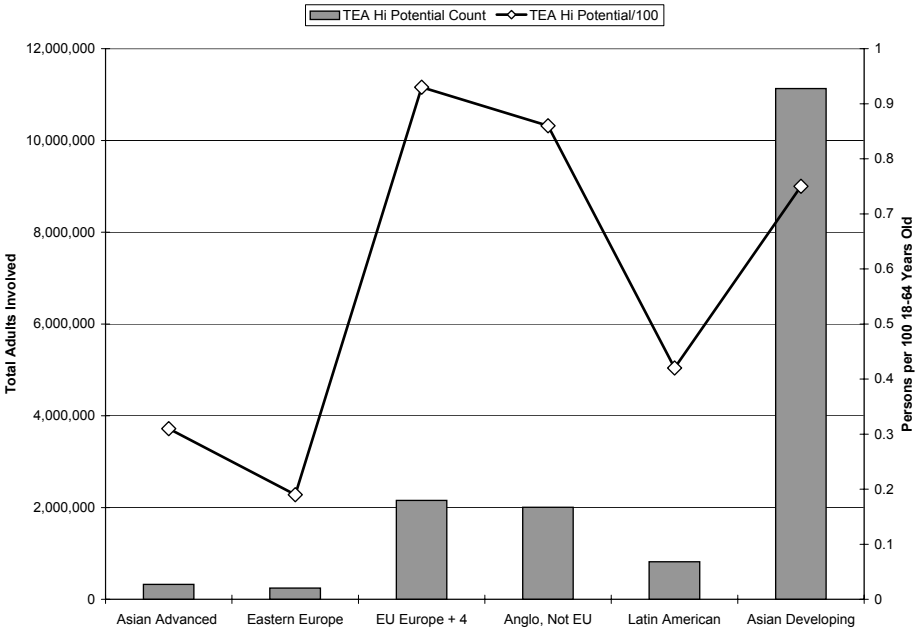


Figure 9.19. Presence of High Potential Entrepreneurship: By Global Type

OVERVIEW

In summary, then, the unique features of the United States that provides a supportive context for entrepreneurships would seem to include:

- Relatively high levels of political rights; openness of political institutions
- Relatively strong protection of intellectual property
- Relatively low levels of government corruption
- Moderate role of government in economic activity
- Relatively efficient governments; effective in relation to taxes per GDP
- Relatively low costs to register businesses
- Availability of both venture capital and informal investor financial support
- Highly education population, to serve as new firm employees
- Very high levels of post-secondary education, to provide new ideas and developments
- Moderate levels of income disparity, tolerated as acceptable
- Materialistic values widely accepted as appropriate

Many of these are considered enduring, central features of the North American way of life. Perhaps the most vulnerable to change may be the organizations and institutions that provide the post-secondary educational structure, for this provides both the skills and training needed to create innovative new products and procedures, as well as the mindset that it is the appropriate thing to do. The U.S. higher education system—a unique global competitive advantage—is constantly challenged to assemble the resources required to maintain and expand its operations.

COMMENTARY

Considerable effort to understand the unique situation of the United States compared to other parts of the world indicates several critical features.

First, there is a widespread acceptance of entrepreneurial options as appropriate and honorable career choices in the United States.

Second, there is a public and private infrastructure that assumes there will be a constant churning among business firms. Compared to other countries, the major systems, regulations, and policies do not impose major costs—time or money—for either implementing or terminating a business.

Third, there are considerable amounts of financial support—venture capital and informal funds—as well as an infrastructure of professionals—lawyers, accountants, consultants—to assist the establishment of new firms.

Fourth, compared to other advanced and developing countries, the overall level of financial and human investments in post-high school education and training is massive. This is reflected in the high proportion of persons that completed post-high school education and the inseparable, massive commitment to research and scholarly advances. This includes science, technology, humanities, and the arts. In this regard the United States is unique—in both relative and absolute terms. This educational, research system creates both a trained cadre of adults inclined to challenge the status quo and new knowledge that is the source of new commercial processes and products. This new knowledge and a mass of young and mid-career adults with the skill and motivation to take advantage of new business opportunities is the foundation of market creation entrepreneurship—the creative part of creative destruction.

This unique combination appears to be distinctive in the United States in terms of scope and intensity; it provides a global competitive advantage most other countries seek to emulate.

NOTES

1 As entrepreneurial participation rates are rather low for those 65–74 years of age, when this age group is excluded, the U.S. prevalence rates tend to increase about 10%; the 2004 TEA rates, as one example, increase from 8.8 to 9.6 persons per 100 when the age range is restricted to those 18–64 years of age.

2 Reynolds, Bygrave, Autio, and others (2004); Reynolds, Bygrave, Autio, Cox, and Hay (2002); Reynolds, Camp, Bygrave, Autio, and Hay (2001); Reynolds, Hay, Bygrave, Camp, and Autio (2000); and Reynolds, Hay, and Camp (1999). Research procedures are described in Reynolds, Bosma, Autio, Hunt, and others (2005).

3 Because national prevalence rates change slowly and there is a high year-to-year correlation in these index values, these charts involve compilation of data from over 180 national surveys and 420,000 interviews gathered from 2000 to 2004. The average values are based on the average values for all years in the GEM project, which varies from one to five. Standard errors are based on the total country sample across all years, which vary from 1,000 to over 50,000. In countries where area probability sampling is employed, the standard errors are increased by 1.4 to adjust for deviation from a standard probability sample. Data for 2000 to 2003 is taken from the individuals' national survey data. Data for all countries except the United States for 2004 is taken from figures in Acs et al. (2005). The 2004 data for the United States, however, is taken from an independent assessment and is based on a sample of 12,000 gathered August–December 2004. The results differ from that provided in the GEM 2004 Global Report (Acs et al; 2005), based on a sample of 2,000 obtained in the summer of 2004.

4 Table 16, page 40 of Reynolds, Bygrave, Autio, and others (2004), indicates year-to-year correlations averaging from 0.88 to 0.99 and are highly statistically significant.

5 First global assessment reported in 2001 (Reynolds, Camp, Bygrave, Autio, and Hay; 2001).

6 It is based on three items: related to presence of competition, length of time technology or product has been available, and the customer's familiarity with the good or service being offered. Those with new technology, no competition, and introducing new options for the customers are assumed to be affecting the marketplace.

7 This grouping is one of convenience, to provide a preliminary assessment and compensate, in part, for the small sample sizes in some countries which leads to less precise estimates of entrepreneurial activity. Were more countries involved a more precise assessment using clustering procedures would be justified.

8 Taken from World Economic Forum (2002); Institute for Management Development (2002); and The Heritage Foundation (2003).

9 Indices based on Djankov, De Silanes, and Shleifer (2001).

10 Indices based on Institute for Management Development (2002), and Djankov, De Silanes, and Shleifer (2001).

11 Indices based on Djankov, De Silanes, and Shleifer (2001).

12 Measures taken from Reynolds, Bygrave, Autio, and others (2004) and databases used to complete Bygrave, Hay, Ng, and Reynolds (2002).

13 Measures of illiterates taken from UNESCO (2002), Section Annexes: Table 2. Educational participation measures taken from World Bank (2003), Table 2.12.

14 Measure of purchasing power taken from International Monetary Fund (World Economic Outlook Database, September 2003). Measures of income disparity taken from World Bank (2003) Table 2.8. Measures of emphasis on materialism based on data developed in the world values project; see www.worldvaluessurvey.org for details.

10
Overview and Commentary

Few human activities have as much impact on economic growth and adaptation as entrepreneurship—the creation of new businesses. The implementation of new firms is associated with job creation, is a central feature of the development of new industries, is a major contribution to productivity gains, as well as an option pursued by up to half of the work force during their careers. New firm creation is a core aspect of entrepreneurial activity. The development of techniques to locate and track this process among the human population—potential and actual entrepreneurs—has led to an expanded understanding of the nature and scope of new firm development.

The use of representative samples of the adult population to estimate the scope of participation in the entrepreneurial process makes clear that millions—over 20 million in 2005—are making efforts to establish new businesses in the United States. These estimates of participation in the start-up process are substantially higher than measures based either on new registrations of firms with employees (reflecting initial state unemployment insurance payments or initial federal social security payments) or monthly reports of increased effort on a self-employment initiative (obtained in the current population survey household interviews). Clearly, much work remains to be done to develop a widely accepted, standardized measure of participation in the firm creation process.

There is some evidence that the popularity of working on new firm creation may have increased from 1993 to 1998, but there is little question that it has remained stable from 1998 thorough 2006. There has been growth in the total numbers of persons 18-74 years old involved in new firm creation, but this reflects the growth in the total human population. This pattern of relatively constant prevalence rates is constant with the prevalence rate of the creation of new employer firms, as measured by two federal data sets that provide a listing of all employee firms or establishments, has remained constant over the past several decades. Consideration of the higher rates of participation in business creation in relation to relatively constant rates of new employer firm registration would suggest that the proportion of start-ups that become employer firms has decreased. This suggests a decline in either the potential or

tenacity of individuals becoming involved in start-ups or that creating a new firm has become more challenging.

As more individuals have become involved in start-ups, the aggregate amount of time and money assembled to implement all new firms may have increased. But if the yield has declined, there may have been an increase in the social cost associated with each new firm birth. The costs borne by nascent entrepreneurs and their sponsors will have increased with a decline in the success rate and, in turn, the benefits they may expect. If it a reduced success rate in creating new firms becomes widely recognized, it may reduce the attractiveness of pursuing entrepreneurial options. It is likely, then, that fewer individuals will enter the entrepreneurial process.

A number of factors affect the tendency of individuals to become involved in new firm creation. This includes the character of the regions in which they live—virtually all individuals create start-ups at home—as well as each person's life course stage and the nature and extent of his or her work experience. Based on assessments of new employer firms, the most important regional factors affecting an increase in new firm creation are measures of greater demand for goods and services, reflected in human population growth; a higher proportion of young, well educated adults in the region; an economic structure that emphasizes smaller firms; more volatile economic sectors and greater economic diversity; as well as flexible government policies regarding the hiring and firing of employees. Regional comparisons based on survey reports of participation in business creation suggested that a higher level of participation in business creation was found in the same regions where more new employer firms were added to government registries.

Assessment of individual factors affecting involvement in business creation indicated that age, gender, and ethnic background all have major impacts. Those who are 25–44 years old are the most active in start-ups, and men are involved at twice the level of women. Blacks and Hispanics, particularly the men, are much more involved in start-ups than Whites are. Educational attainment does not seem to have much relationship to start-up participation by White men, but more education is associated with more start-up activity among White women and all Blacks and Hispanics. There is little difference associated with variation in household income or net worth.

The patterns are quite different among new and established firms. Owners of established firms have higher proportions of older persons with higher levels of education and household income; there is a larger prevalence and proportion reported by Whites. Blacks and Hispanics are less likely to be report established firm ownership and are a small proportion of this group compared to their participation in start-ups.

Those individuals in a context supportive of entrepreneurship—they know others starting new businesses, they see opportunities for new firms, and they

have confidence in their own skills and abilities to implement new firms—are much more likely to be involved in any phase of the process, whether implementing a start-up, being the owner-manager of a new or established firm, or making contributions as an informal investor. These are most likely to be younger and mid-career men from higher income households and all ethnic backgrounds. This group is closely followed by younger and mid-career Black and Hispanic men from households with mid-range annual incomes. These two groups account for 20% of those involved in start-up efforts. Young and mid-career white men from households with mid-range annual incomes account for another 20%. Women from all ethnic backgrounds and households, with diverse financial situations, more than high school educations, and who are 25–64 years of age are more than one-fifth (22%) of those involved, with Black and Hispanic women overrepresented. Much less active are older men and women, particularly those with limited education and from low-income households; they are a very small proportion, less than 8%, of those implementing new firms.

There is little question that participation in new firm creation is affected by regional characteristics, life course stage, and the immediate personal context and work experience of the individual. Those in a supporting social milieu are more likely to become involved in business creation.

Once individuals enter the start-up process and actively engage in firm creation activities, there are three outcomes. About one-third will report a new firm within six years of initiating the start-up; about half implement a new firm in less than 24 months, the other half take longer. Another third will have given up within six years; but half make this decision in less than 30 months, the other half take longer. Another third appear to be permanent nascent entrepreneurs, perpetually involved in the start-up process, some for over twenty years. The presence of a large minority of "hobby nascent entrepreneurs" tends to inflate the appearance of activity in the general population.

Assessments of those factors associated with completion of the start-up effort with an operational new firm indicates that most individual attributes—such as age, gender, ethnic background, educational attainment, household income or net worth—have very little impact on the outcome. The most significant influences appear to be measures of business and same-industry experience, the speed and intensity with which the start-up team invests time and financial resources, and what is actually done during the start-up process. Actions taken to create a presence for the new firm, the implementation of procedures to create the goods or services, as well as creating an organizational and financial structure for the new business are associated with the emergence of an operational new firm.

New firm creation is an unbiased career option available to all—success is a function of skill and intensity.

Comparisons of businesses at different stages of the firm life course involves assessing reports reflecting 13.7 million nascent entrepreneurs working to

implement 7.4 million start-ups, with those reflecting 7.6 million owning 4.5 million new firms, with those reflecting 15 million owning 8.6 million established firms. Those involved with business start-ups expect to have a much greater market impact and a stronger technological emphasis than those with new and established firms. In fact, the absolute number of high technology, high market impact start-ups is equal to the total number among new and established firms. This is consistent with the image of new firms providing change and innovation to established markets or economic sectors.

The median amount of funds required to implement a new firm is about $15,000, with about $6,000 to be provided by the nascent entrepreneur. The total annual financial requirements for new firms indicate that about $250 billion a year is required.[1] Of this, about $13 billion is provided by business angels and another $20 billion by venture capital investments in start-ups. The remaining funds are provided by nascent entrepreneurs, responsible for about $75 billion, and informal investors; the largest single source of start-up finds is the $132 billion provided by informal investors.

While informal investors are most likely to be helping a family member develop a new firm, they generally expect to be paid back with a return on their money. An important source of informal investments are those 8.8 million individuals or households with a net worth in excess of 1 million or over $200,000 a year in annual income—accredited investors. About 10% of this group, more than twice the level of typical adults, is already active as informal investors supporting new start-ups. They may be a major source of additional funding.

The level of business creation in the United States is somewhat higher than in most other advanced economies, placing the United States in the lower end of the upper third among 44 countries representing most of the world. Higher participation rates are concentrated among developing countries; lower participation rates among Western European and Asian advanced countries. This reflects a high level of opportunity entrepreneurship in the United States. In many developing countries up to one half of the start-ups reflect necessity entrepreneurship—the actions of those with few other work options. The United States is among the world leaders in prevalence of high potential new firm creation, although there are enormous numbers of nascent entrepreneurs in developing countries, perhaps 200 million in developing Asian countries—10 times the number in the U.S.

IMPLICATIONS FOR PUBLIC POLICY

There is no question that more entrepreneurship is better than less entrepreneurship for the United States. It is associated with greater economic

growth, more productivity, adaptation of the economy, and is a major career option for many. The numbers of individuals and resources involved in the start-up process are enormous: tens of millions of individuals and hundreds of billions of dollars. The success ratio, about three start-ups required to produce one operational new firm (perhaps one hundred start-ups to create one high potential new firm), suggests that this entrepreneurial pipeline needs to be maintained to ensure a constant supply of new firms.

There are two stages of the process that might be considered for policy attention. First is encouraging more people to pursue business start-ups, entry into the start-up process itself; second is to assist those actively involved in the start-up process. As about 1 in 10 U.S. adults are involved in start-ups at any time and up to one half make a foray into start-ups during their career, it is hard to justify major efforts to encourage more participation. On the other hand, there is some evidence that business experience and background, along with the proper emphasis in the start-up process, may improve the outcome, perhaps increasing the probability of success beyond one in three.

Given the absence of impact of societal characteristics—age, gender, educational attainment, wealth and income, ethnic background—on the successful completion of a start-up with a new firm, appropriate public policies and program might increase the yields from the entrepreneurial process. Keeping in mind that 50% of those that implement a new firm do so within 24 months, systematic efforts to facilitate the start-up process might be restricted to those that appear to be making a major effort to create a new firm—with high rates of activity and personal financial investments—and assistance could be restricted to the first two years. While there is evidence that those receiving assistance from helping programs are more likely to implement new firms, there is one complication to overcome: finding eligible nascent entrepreneurs. Despite their widespread presence, nascent entrepreneurs tend to be hidden and very busy. Most have "day jobs" and they are often unaware of the types of assistance that may be available from the government or other sources.

A longer-term issue is maintaining the entrepreneurial advantage of the United States, compared to the rest of the world. The United States seems to have a number of features that facilitate firm creation:

- Widespread acceptance of entrepreneurship as an acceptable career option
- Established work ethic and acceptance of materialistic [compared to post-materialistic] values
- Protection of physical and intellectual property rights
- Government administrative structures at all levels assumes high levels of firm creation and termination should occur with minimum costs
- A variety of well developed mechanisms for providing financial support

for different phases of the start-up process
- Considerable legal, accounting, and consulting infrastructure supporting firm creation
- Extensive and reasonably efficient transportation and communication infrastructure
- High levels of societal investment in R & D and post-high school training and education

This combination appears to be distinctive for the United States and provides advantages not found elsewhere in the world. On the other hand, developing countries in Asia—particularly China and India—are making major efforts to replicate the major features of this model, such as improved physical infrastructure and enhanced higher education systems. To be complacent would expose the United States to some risk in future global competition.

If entrepreneurial or business creation activity is considered critical to the competitive future of the United States, perhaps the business creation process should be tracked with more care. There is a strong rationale for adjusting current data collection to implement systematic measures of the level and nature of the firm creation process, including estimates of the prevalence of nascent entrepreneurs. In the simplest form this would involve periodic—annual or perhaps quarterly—cross-sectional estimates of participation in firm creation. More complete and valuable data would be provided if periodic cohorts of nascent entrepreneurs were identified and tracked for five to six years, to provide continuous assessment of the new firm yield from the start-up process. A major change in the yield, perhaps a substantial drop, would provide an early warning signal of complications in the firm creation process; this could provide for a timely policy response before the decline in business creation had major negative consequence for national economic growth.

IMPLICATIONS FOR NEW FIRM CREATION

Most adults in the United States know that entrepreneurial career options are widely accepted as socially appropriate. Most do not realize, however, until it is pointed out, how common pursuing a new firm may be, particularly among those in mid-career. After all, many work on start-ups for some time before their efforts have a public presence. Anyone involved in starting a new firm will be part of a very large group, even if they do not know many of the other members.

Perhaps the most important implication for those who wish to pursue firm creation is to remember that who you are has very little impact on the outcome; the critical features are the business experience brought to the initiative, what

is done in the start-up process, and the intensity of the effort. Practical business knowledge appears to be quite helpful; much of this is acquired through work in the specific industry where the new firm will compete. There is also evidence that a high level of intense commitment, in both time and money, during the early start-up period seems to lead to more new firm creation—or a timely disengagement.

Certain types of activity in the start-up phase seem to be helpful. Establishing a public presence for the business, developing the procedures for delivering the goods or services to the customer, and creating the organizational and financial structures for the firm all seem to contribute to the transition to an operating firm. Most initial funding will come from the start-up team, with substantial amounts from informal investors. These investors—even family members and relatives—will expect to be repaid with a return on their investment. About 8% of all U.S. households would be considered "accredited investors," with the capacity to provide substantial funds for start-ups, but they would have to first be located and approached.

On the personal side, it seems that those serious about new firm creation seem to like and enjoy the process. Perhaps equally important, if the start-up does not work out, it has little negative effect on one's social standing or career prospects.

IMPLICATIONS FOR RESEARCH

This overview has demonstrated the value of developing precise descriptions of the business creation process as it occurs within the adult population. This makes clear the scope and significance of the phenomena and provides descriptions of the critical features to be further explained in more detailed analysis. Two research programs, both based on representative samples, were emphasized. One focused on a series of cross-sectional surveys of the U.S. adult population completed from 1993 to 2005, utilizing data from a variety of complementary research programs. The other was a longitudinal study of a single cohort of nascent entrepreneurs identified in from 1998 to 2000 and given three follow-up interviews, the PSED I project.

Most attention was given to the cross-sectional analyses that allowed characterization of the shift in involvement over time. By having representative samples at different points in time, it was possible to track the changes over the past 14 years, reflecting a consistent level of participation in the 1998-2006 period, with increases in total counts reflecting human population growth. Given the importance of new firm creation for the economy and apparent volatility—as potential nascent entrepreneurs observe shifts in their career options—a systematic time series of new firm creation may be a useful addition to the current set of economic indicators.

An important contribution was provided by the results of a single representative panel of nascent entrepreneurs following over time as they attempted to implement new firms (PSED I). This is the only way to determine how the different features of the start-up process might affect a successful outcome: the creation of an operational new firm. Clearly there is much work to be done to understand the factors affecting the outcome of the firm creation process. The low level of impact of socio-demographic characteristics, which was quite unexpected, suggests that substantial effort needs to be devoted to exploring the actual start-up process itself, which can take up to five years to complete. A considerable investment of funds, time, and talent may be required to make progress on understanding critical features of the business creation process.

The wide range of processes that seem to have impact on business creation would suggest that larger samples, more than the 648 cases available in this analysis, might be required to enable an assessment of the relative contributions of different factors. There has been a substantial amount of research using the PSED I data set but the full potential has not been exploited due to the absence of a careful assessment of the final outcomes for those participating in the start-up process. Many of the complications of working with this data will be ameliorated by PSED II (the second U.S. panel study based on screening in late 2005) as well as follow-up interviews to be completed in 2006 and 2007.

Many in the entrepreneurial research community only consider efforts to develop innovative, growth-oriented businesses as worthy of serious attention. The assessments based on samples representative of the broader population of new firms makes clear how distinctive—or rare—such initiatives might be. This suggests that representative samples of such unique firms may be very expensive to develop, although large-scale screening over several years might provide adequate samples for analysis.

There is one important activity not given attention by this research paradigm: new ventures sponsored by existing firms. While those starting firms for their employers are included as nascent entrepreneurs if they expect to own part of the new firm, there is no distinct treatment of such business-sponsored nascent ventures. Screening of the adult population may not capture new ventures developed entirely within existing businesses. The extent and contribution of such firm creation efforts are probably significant but this remains uncharted territory.

Finally, the capacity to explore such a large-scale social phenomenon with complex, longitudinal data sets suggests that serious researchers will need to make considerable personal investments in the appropriate skills and techniques to complete useful analyses. On the other hand, the payoff for advancing understanding of a critical economic phenomenon is substantial.

NOTE

1 As these amounts reflect very general estimates, the total and sources have been adjusted to $250 billion to facilitate exposition.

Appendix A: Measuring Entrepreneurial Activity

There is a wide range of features or connotations identified with entrepreneurship; many are associated with the ideas of innovation or newness, aspirations for growth, and market impact. Recent efforts to develop measures of entrepreneurial behavior have emphasized individuals actively involved in the creation of a new business. The basic procedure is to add questions to surveys of representative samples of the human population to determine if individuals report participation in the creation of an autonomous business, creation of a new firm sponsored by an existing business, or active involvement in the management of an existing business. Those who claim involvement in any or several of these activities are then further questioned to determine that they have engaged in relevant behavior in the past 12 months, expect to own all or some of the new business, and that the business could still be considered in the gestation phase (not yet an active, profitable business firm).

The initial work on the procedure began with an initial study in Wisconsin in 1993 and it has since developed in two directions. The first studies were used to identify a cohort of those active in the start-up process that could be tracked over time. This has become know as the Panel Study of Entrepreneurial Dynamics [PSED] research program. The main data collection for the first study, PSED I, involved screening with two criteria by a commercial marketing firm, followed by the third criteria and detailed interviews obtained by an academic survey research unit. For the second major cohort, PSED II, all three criteria were utilized in the commercial marketing firm screening procedure.

The second application of this procedure was for cross-national comparisons regarding the prevalence of adult participation in the entrepreneurial process, known as the Global Entrepreneurship Monitor [GEM] research program. In this case respondents were sorted into two categories: those in the start-up or gestation phase and those owning and managing a new firm up to 3.5 years old. The major advantages of this procedure are the ability to capture both individuals in the start-up phase as well as new operating businesses. This process is independent of the mechanisms used by commercial or government organizations to identify candidates for additions to business registries.

The major registries in the United States are based on obtaining an Employer Identification Number [EIN], state unemployment insurance payments, federal

social security payments, obtaining a commercial credit rating (e.g., Dun and Bradstreet) or filing an initial federal tax return. These administrative procedures have several disadvantages as indicators of new firm creation: 1) many start-ups may be terminated before such filings take place, 2) they tend to occur late in the start-up process, 3) it takes several years after the event before a new entry record is created, and 4) data associated with tax payments cannot be used to locate and interview respondents by those outside the government. The use of representative samples of the adult population to locate efforts to implement new firms provides an alternative source of information regarding the business creation process.

An index that covers the two initial phases of the entrepreneurial process, the Total Entrepreneurial Activity [TEA] Index, was developed. This measure includes those individuals who are active in either a start-up or new firm management; the 5% that simultaneously qualify for both are only counted once. This provides an undercount of actual business activity but a more accurate measure of human participation in terms of prevalence rates—number of persons per one hundred.

One major advantage of this measure is the direct correspondence to human behavior; the index has an unambiguous interpretation in terms of human activity. It refers directly to active efforts to create or manage a business.

Background on the research program that preceded the current developments can be found in Reynolds (2000), Reynolds and Curtin (2004), and Curtin and Reynolds (2004); they provide a more detailed rationale for the current procedures. The Total Entrepreneurial Activity measure was developed as part of the Global Entrepreneurship Monitor research program; this measure and applications to 41 countries is discussed in detail in Reynolds, Bosma, Autio, and others (2005).

DATA COLLECTION

The data, survey organization, and sample sizes for each year associated with these two research programs are provided in Table A.1 In some years, data were collected for both projects, often by the same survey firm. The sample sizes refer to that associated with the population screening; as those active in the entrepreneurial process were from 5–12% of the respondents, samples of nascent entrepreneurs were somewhat smaller. Most of the screening data were collected by two well-established marketing research firms: Market Facts, Inc. of Arlington Hills, Illinois , (now part of Synovate) and Opinion Research Corporation of Princeton, New Jersey.[1] In both cases the project was one of many covered in weekly omnibus interviews for multiple clients; two to three independent samples of one thousand are completed each week.

All interviews were conducted by phone using computer-assisted telephone interview (CATI) procedures. All samples were drawn as RDD (Random Digit

Table A.1. Annual Surveys: Firm, Field Period, and Sample Sizes

Year	Survey Organization	Sample	Field Period	PSED Screen	GEM Screen	OTHER
1993	University of Wisconsin Survey Research Lab	Wisconsin Adults	Apr to Jun	928		
1993	University of Michigan Institute for Social Research Survey of Consumer Attitudes	U.S. National*	Oct, Nov	1,016		
1996	University of Wisconsin Survey Research Lab	U.S. National*	June, July	754		
1998	Market Facts (Synovate)	U.S. National*	Apr to Dec	31,251	1,003	
1999	Market Facts (Synovate)	U.S. National*	Jan		1,018	
1999	Market Facts (Synovate)	U.S. National*	Apr to Dec	29,339		
2000	Market Facts (Synovate)	U.S. National*	Jan to Mar	3,025		
2000	Market Facts (Synovate)	U.S. National*	July		2,006	
2001	Market Facts (Synovate)	U.S. National*	Mar, Jun, Jul		3,012	
2002	Market Facts (Synovate)	U.S. National*	Jan and May		7,059	
2003	Market Facts (Synovate)	U.S. National*	January		1,005	
2003	Opinion Research Corporation	U.S. National*	Aug, Sept		8,192	
2004	Opinion Research Corporation	9 U.S. Census Divisions*	Sept to Dec			12,907
2005	Opinion Research Corporation	US National*	Sept to Dec	24,748		
2006	Opinion Research Corporation	US National*	Jan to Feb	7,097		
	Total by program			98,158	23,295	12,907
	Total all samples					134,360
*All 48 contiguous states plus the District of Columbia.						

Dialed) phone numbers; in this case phone numbers are created at random and not selected from a list. Those considered as household phones are called up to three times to obtain an interview; the first adult that answers the phone that will complete the interview is chosen in each household. Sampling is completed in a series of replications or waves, each designed for 1,000 completed interviews.

Confidence that the sample represents the U.S. population is enhanced by weighting the sample characteristics to measure the most recent U.S. Current Population Surveys based on age, gender, household income, and region of the country. For the 2004 samples, stratified by census division, the weighting was done to represent each census division; additional weights were calculated to provide representation of the entire U.S. population.

IDENTIFYING NASCENT ENTREPRENEURS

Over the duration of two complementary research programs, PSED and GEM, attempts to expand the range of individuals and the scope of activities eligible

for inclusion as a candidate nascent entrepreneur has resulted in adjustments in both the wording and number of screening items. Analysis suggests that population prevalence estimates are affected by the wording of the screening items (Reynolds, 2007b).

To minimize costs, one screening item was initially used, focusing on personal efforts to pursue new firm creation; identified in data sets as BSTART. Shortly thereafter a second item was added, asking about efforts to start a new firm as part of a job assignment; labeled BJOBST. After it was discovered that many individuals who considered themselves as running a going business were really in the start-up phase, a third item was added to locate owner-managers; labeled OWNMGE.

Three versions of wording for the initial, BSTART, item have been used: A) Are you, alone or with others, now trying to start a new business? B) Are you, alone or with others, currently trying to start a new business, including any form of self-employment? C) Are you, alone or with others, currently trying to start a new business, including any form of self-employment or selling any goods or services to others? There were, in addition, two versions of the second, BJOBST, item: D) Are you, alone or with others, now trying to start a new business or new venture for your employer? An effort that is part of your job assignment? E) Are you, alone or with others, now trying to start a new business or a new venture for your employer, an effort that is part of your normal work? One version of the third screening item, OWNMGE, has been used in these projects: F) Are you, alone or with others, currently the owner of a business you help manage, including self-employment or selling any goods or services to others?

To develop adjustments for item wording, data files from different US research programs, all using a common paradigm, were assembled to provide 134 independent samples of the US adult population. The various screening items as used in these different samples are presented in Table A.2.

ADJUSTMENTS FOR ITEM WORDING

To create a standardized estimate of the final outcome of the item screening procedure—prevalence rates of candidate nascent entrepreneurs—adjusted for variations in item wording. The following procedure was implemented:

a. Regression analysis was used to determine the impact of the screening item wording on the proportion of "yes" responses with the use of dummy variables to represent the alternative forms, with the C and E versions the default options.
b. Based on the parameters developed in step 1, equations to adjust the proportion of "yes" responses for each screening item was developed,

Table A.2. US Nascent Screening Samples and Item Wordings

Project	Number of samples	Time period	BSTART Item	BJOBST Item	OWNMGE Item
PSED: Early development (1)	1	1993	A	--	--
PSED: Early development	1	1993	A	--	--
PSED: Early development (2)	1	1996	A	D	--
PSED I	30	1998	A	D	--
PSED I	29	1999	A	D	--
PSED I	3	2000	A	D	--
GEM: US	1	1998	A	E	--
GEM: US	1	1999	A	E	F
GEM: US	2	2000	B	E	F
GEM: US	3	2001	B	E	F
GEM: US	7	2002	C	E	F
GEM: US	9	2003	C	E	F
US Assessment	14	2004	C	E	F
PSED II	24	2005	C	E	F
PSED II	7	2006	C	E	F
(1) Wisconsin only sample, all others contiguous 48 states plus the District of Columbia.					
(2) Sample of 750, all other about 1,000.					

to predict the proportion of "yes" responses that would have occurred if wording C for BSTART and wording E for BJOBST had been employed for all earlier samples.

c. As the research program developed the number of screening items increased from one to three, as shown in Table A.2. As a result, two linear regression models were developed to predict the prevalence of candidate nascent entrepreneurs following the screening, one based on the two item screening using 132 samples and the other on the three item screening using 68 samples. The dependent variables are the proportion of respondents that answered "yes" to one or both of the two screening items or to any combination of three screening items.
d. The final step in the estimation procedure was to produce estimates of the candidate nascent entrepreneur prevalence rates using the estimates of the proportion of "yes" screening item responses developed in step b into the regression equations developed in step c. The estimated values for BSTART and BJOBST replaced the actual values in the estimates. This would, in effect, produce estimates of the candidate nascent entrepreneur prevalence rates that would have occurred if the all independent samples had employed screening items C, E, and F.
e. These estimates, however, are for a given sample, as they affect the proportion of individuals that qualify as candidate nascent entrepreneurs. In the PSED II screening, where all three criteria for active nascent

entrepreneurs were employed, it was found that 26.4% of the candidate nascent entrepreneurs qualified as active nascent entrepreneurs. For the analysis in this monograph, and specifically Chapter 3, this ratio was applied to all samples and subgroups to estimate the prevalence of active nascent entrepreneurs.

To confirm that the impact was related to item wording, and not related to changes over time, the impact of the passage of time on the residuals, reflecting the unexplained variation, from the models predicting the proportion of "yes" responses to BSTART and BJOBST was completed. There was no statistically significant correlation of time with the residuals from the linear regression models developed in step d. It was, therefore, appropriate to conclude that virtually all of the variation in responses to these items was related to differences in item wording, not the passage of time.

RECOMMENDATIONS FOR FUTURE RESEARCH

A great deal of research, all over the world, is now being conducted that involves the identification of nascent entrepreneurs, both panel or longitudinal studies of the firm creation process and efforts to compare the participation of adults in the process for regional or cross national comparisons. Comparisons among these different research efforts would be facilitated if all studies employed, at a minimum, the three items that have emerged as the common standard. These are the item wordings C, E, and F representing BSTART, BJOBST, and OWNMGE presented above. This would not preclude the addition of other screening items, that may increase the candidate nascent entrepreneur yield, but it would greatly facilitate cross project comparisons.

Follow-up questions are generally utilized to determine which respondents have been active nascent entrepreneurs, expect to own part of the business, and if the initiative has meet the criteria for an operating new firm. While the screening interview generally takes an average of less than 2 minutes, excluding any socio-demographic items, collecting details from active nascent entrepreneurs can be modest or extensive, depending on the funds available for the project. The average length of follow-up modules for active nascent entrepreneurs has varied from 10 to 60 minutes among different projects.

NOTE

1 Janet Ulrich of Opinion Research Corporation has been particularly helpful in implementing rather complicated requirements for 2004.

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996

Column Heading	Variable Label	Variable Description
1	ST_ALPHA	State
2	PLNAME	Name of largest place in LMA
3	LMA90	1990 LMA identification number
4	HPOP2000	Human population, all ages, 2000
5	FBHUM76	1976–77: Simple, tops firm births/10,000 human population
6	FBHUM80	1980–81: Simple, tops firm births/10,000 human population
7	FBHUM90	1990–91: Employee firm births/10,000 human population
8	FBHUM96	1996–97: Employee firm births/10,000 human population
9	FB_MEAN	Mean value of firm birth rate, 1976–1997
10	FB_7696P	Percent change in firm birth rate: 1976 to 1996
11	FB_SD	Standard deviation in firm birth rates, 1976–1996 period

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
AK	Sand Point, AK	341	627,504	28.12	35.48	23.01	20.89	25.45	-25.72	1.057
AL	Anniston, AL	96	458,609	11.31	9.03	16.22	17.71	12.75	56.53	0.561
AL	Auburn, AL	98	151,118	6.12	8.37	11.56	15.66	10.03	155.68	0.491
AL	Jasper, AL	106	161,146	11.56	11.36	16.76	17.26	13.17	49.21	0.465
AL	Birmingham, AL	107	1,040,335	14.61	12.32	18.54	18.41	15.68	26.07	0.400
AL	Eufaula, AL	103	285,174	11.26	9.76	16.87	18.02	13.59	60.08	0.538
AL	Florence, AL	62	231,030	12.66	10.26	18.01	17.62	14.15	39.18	0.501
AL	Gadsden, AL	61	304,326	12.52	9.18	15.40	16.78	13.25	34.05	0.491
AL	Huntsville, AL	60	521,280	12.91	10.68	18.40	19.03	15.23	47.43	0.467
AL	Mobile, AL	110	677,212	13.48	12.20	17.87	19.44	15.50	44.16	0.454
AL	Montgomery, AL	111	449,315	11.97	9.79	17.20	18.39	13.70	53.68	0.529
AL	Talladega, AL	95	148,231	6.55	7.98	12.80	13.14	9.43	100.52	0.452
AL	Tuscaloosa, AL	108	324,512	9.18	7.51	14.53	17.38	11.45	89.25	0.612
AR	Blytheville, AR	258	104,982	14.24	8.24	12.04	14.28	10.65	0.28	0.460
AR	Crossett, AR	41	281,331	14.44	9.98	14.69	13.75	12.38	-4.77	0.411
AR	Fayetteville, AR	303	386,633	21.00	14.90	20.88	21.84	18.58	3.98	0.614
AR	Fort Smith, AR	301	333,647	17.09	13.39	18.83	17.13	15.56	0.23	0.375
AR	Hot Springs, AR	340	308,070	18.06	12.00	17.71	19.83	15.43	9.75	0.633
AR	Jonesboro, AR	259	199,037	17.29	10.39	17.25	19.47	14.83	12.64	0.607
AR	Little Rock, AR	42	632,293	22.73	14.26	20.79	20.86	18.21	-8.21	0.509
AR	Russellville, AR	300	138,700	18.02	10.11	17.48	19.96	15.15	10.78	0.598
AR	Stuttgart, AR	43	134,816	16.35	11.41	17.27	16.02	14.51	-2.02	0.433
AR	West Memphis, AR	53	138,603	14.82	9.40	12.95	12.12	11.60	-18.24	0.317
AZ	Flagstaff, AZ	354	331,837	27.24	23.86	26.00	26.25	24.24	-3.65	0.566
AZ	Gallup, NM	355	242,023	10.75	7.02	8.45	10.91	8.81	1.53	0.225
AZ	Phoenix, AZ	350	3,371,368	26.72	23.05	22.61	21.15	22.24	-20.83	0.346
AZ	Tucson, AZ	351	1,005,153	20.34	17.62	19.25	18.68	17.91	-8.12	0.255
CA	Bakersfield, CA	371	663,780	22.16	17.33	16.57	12.25	15.81	-44.71	0.480
CA	Chico, CA	373	388,606	26.60	17.02	19.52	13.22	16.55	-50.27	0.630

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
CA	Eureka, CA	367	139,353	21.99	14.40	21.46	20.70	16.81	-5.91	0.583
CA	Fresno, CA	372	1,424,567	24.30	17.11	15.87	12.37	15.09	-49.07	0.547
CA	Los Angeles, CA	383	16,458,215	23.22	19.14	21.03	19.14	19.46	-17.58	0.260
CA	Modesto, CA	370	733,357	21.23	14.75	17.64	12.60	14.81	-40.65	0.407
CA	Redding, CA	366	220,000	31.50	20.84	24.03	18.31	20.90	-41.88	0.745
CA	Sacramento, CA	374	2,587,931	23.97	19.02	22.61	17.01	18.83	-29.01	0.423
CA	San Diego, CA	380	2,824,591	21.45	22.40	23.23	19.66	20.21	-8.34	0.290
CA	San Francisco, CA	378	4,658,637	23.60	19.18	23.48	21.85	19.95	-7.41	0.411
CA	San Jose, CA	375	2,399,066	24.03	17.42	21.49	20.98	19.44	-12.70	0.373
CA	Santa Barbara, CA	382	647,408	25.21	23.57	23.86	20.01	21.64	-20.63	0.352
CA	Santa Rosa, CA	377	605,471	28.29	20.14	29.22	23.02	22.08	-18.63	0.596
CA	Yuma, AZ	381	303,283	18.64	12.62	17.43	12.90	13.90	-30.82	0.363
CO	Colorado Springs, CO	284	595,908	21.74	22.21	20.18	23.19	22.73	6.68	0.564
CO	Denver, CO	289	2,464,811	26.06	27.12	27.36	27.89	26.45	7.00	0.338
CO	Fort Collins, CO	288	463,357	23.26	20.43	20.99	23.97	22.32	3.05	0.304
CO	Grand Junction, CO	352	204,183	35.36	30.43	29.42	31.11	29.20	-12.01	0.901
CO	Springfield town, CO	285	227,527	15.43	11.19	16.31	16.95	14.45	9.91	0.333
CT	Bridgeport, CT	209	3,712,995	15.51	13.13	17.49	15.92	15.36	2.63	0.200
DE	Dover, DE	199	976,356	12.85	9.41	14.80	12.81	12.03	-0.30	0.258
DE	Wilmington, DE	198	588,347	13.23	13.50	22.36	21.13	16.25	59.69	0.715
FL	Cape Coral, FL	72	697,962	39.28	34.04	35.77	29.99	32.65	-23.65	0.590
FL	Daytona Beach, FL	75	566,017	20.75	19.29	23.83	20.22	20.19	-2.53	0.379
FL	Gainesville, FL	79	320,702	18.10	14.96	20.43	17.68	15.66	-2.31	0.500
FL	Jacksonville, FL	76	1,180,196	18.93	16.22	22.43	20.56	18.84	8.60	0.388
FL	Lake City, FL	77	150,147	16.20	9.92	16.27	16.38	13.50	1.07	0.489
FL	Lakeland, FL	68	599,856	22.40	16.36	19.23	16.25	17.30	-27.45	0.342
FL	Miami, FL	70	3,972,418	37.34	29.24	31.52	31.70	30.61	-15.10	0.571
FL	Ocala, FL	78	378,981	24.31	21.26	23.19	19.56	20.56	-19.53	0.351
FL	Orlando, FL	74	1,709,936	24.31	24.39	29.03	25.18	25.88	3.56	0.322

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
FL	Palm Bay, FL	73	591,208	22.85	23.06	26.08	21.32	23.60	-6.66	0.367
FL	Panama City, FL	100	172,689	23.89	19.49	24.02	23.88	21.62	-0.03	0.432
FL	Pensacola, FL	109	624,512	16.61	14.42	20.59	19.16	17.11	15.35	0.408
FL	Sarasota, FL	69	767,337	33.45	25.50	26.46	23.66	25.54	-29.26	0.493
FL	Tallahassee, FL	99	427,286	17.47	14.48	19.60	17.62	15.83	0.89	0.396
FL	Tampa, FL	67	2,404,323	23.64	22.72	25.48	22.77	23.03	-3.70	0.255
FL	West Palm Beach, FL	71	1,539,269	28.03	29.15	32.81	29.47	30.46	5.13	0.556
GA	Albany, GA	102	181,749	15.68	11.20	14.13	14.98	13.16	-4.46	0.372
GA	Athens, GA	93	302,634	14.52	9.98	17.28	17.90	14.03	23.26	0.479
GA	Atlanta, GA	91	3,828,225	27.56	23.23	25.32	26.28	25.32	-4.64	0.286
GA	Bainbridge, GA	101	110,509	11.60	8.27	17.68	18.10	13.14	56.05	0.620
GA	Columbus, GA	97	369,909	11.53	8.68	14.02	14.44	11.03	25.31	0.426
GA	Fitzgerald, GA	85	311,397	13.83	9.30	16.26	17.76	13.92	28.37	0.492
GA	Gainesville, GA	94	274,789	13.45	11.32	18.45	21.07	16.29	56.61	0.539
GA	Griffin, GA	92	135,583	12.73	8.99	13.64	15.32	11.40	20.33	0.414
GA	Macon, GA	89	387,609	11.56	7.94	16.30	18.99	12.51	64.28	0.582
GA	Rome, GA	66	420,654	18.15	11.38	17.57	17.50	15.26	-3.63	0.368
GA	Savannah, GA	88	436,358	18.61	15.61	22.88	24.50	19.61	31.68	0.483
GA	South Augusta, GA	84	562,018	11.69	7.38	15.61	15.20	11.82	30.09	0.450
GA	Statesboro, GA	87	242,731	11.39	6.52	13.46	13.95	10.85	22.46	0.462
GA	Vidalia, GA	90	267,141	13.38	8.12	15.49	14.75	11.68	10.20	0.540
GA	Waycross, GA	86	206,620	16.49	10.17	20.41	20.02	15.41	21.43	0.690
HI	Hilo, HI	356	149,291	26.44	16.93	26.98	17.90	20.24	-32.32	0.650
HI	Honolulu, HI	347	933,887	22.89	16.63	22.49	18.73	19.11	-18.18	0.379
IA	Burlington, IA	236	136,237	12.95	10.33	15.42	13.60	11.77	4.98	0.352
IA	Cedar Rapids, IA	222	253,519	13.93	12.53	17.09	15.74	14.04	13.04	0.379
IA	Davenport, IA	238	452,576	14.03	11.07	14.21	14.91	12.33	6.25	0.317
IA	Des Moines, IA	275	716,412	20.00	14.79	17.55	18.36	16.48	-8.21	0.359
IA	Dubuque, IA	232	163,240	14.22	10.21	17.93	19.56	14.13	37.58	0.506

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
IA	Iowa City, IA	221	204,177	17.41	12.40	14.87	15.44	13.37	-11.34	0.417
IA	Marshalltown, IA	219	113,504	17.58	8.97	13.96	11.10	11.98	-36.86	0.419
IA	Mason City, IA	218	150,134	15.60	13.99	15.52	18.16	14.64	16.39	0.320
IA	Ottumwa, IA	223	142,396	17.24	11.28	16.65	16.17	14.26	-6.20	0.426
IA	Sioux Center, IA	272	118,699	20.00	13.37	18.62	19.54	16.10	-2.31	0.583
IA	Sioux City, IA	280	212,876	18.42	12.08	16.73	16.00	14.47	-13.16	0.406
IA	Storm Lake, IA	274	153,676	18.31	16.19	14.95	15.45	14.87	-15.62	0.319
IA	Waterloo, IA	220	251,488	16.79	11.50	16.07	14.60	13.21	-13.04	0.395
ID	Boise City, ID	358	571,154	29.46	16.80	23.95	25.06	21.83	-14.93	0.676
ID	Pocatello, ID	363	306,736	24.35	14.01	20.10	24.55	18.47	0.85	0.628
ID	Twin Falls, ID	357	162,665	25.51	20.06	25.48	25.97	22.03	1.82	0.549
IL	Alton, IL	249	383,177	15.10	9.89	14.50	15.16	12.71	0.40	0.353
IL	Bloomington, IL	234	207,305	18.36	12.24	14.60	13.89	13.89	-24.36	0.299
IL	Carbondale, IL	256	302,749	14.78	9.22	13.77	15.23	12.25	3.06	0.381
IL	Charleston, IL	233	202,054	15.62	9.38	16.05	16.03	13.65	2.59	0.389
IL	Chicago, IL	243	8,203,649	16.49	14.89	17.54	17.36	15.90	5.25	0.232
IL	Decatur, IL	235	381,978	16.33	9.59	13.59	15.15	12.77	-7.22	0.333
IL	Galesburg, IL	237	145,543	14.06	9.83	12.03	11.88	10.66	-15.57	0.311
IL	Jacksonville, IL	248	352,827	15.67	9.77	15.27	16.31	13.40	4.10	0.446
IL	Kankakee, IL	242	135,214	13.29	11.80	13.11	13.66	12.44	2.77	0.240
IL	Mount Vernon, IL	255	141,111	21.73	12.59	17.12	16.06	14.77	-26.09	0.496
IL	Peoria, IL	239	529,466	17.44	11.37	13.82	14.45	13.37	-17.15	0.305
IL	Quincy, IL	250	152,335	14.64	8.17	16.38	15.78	12.75	7.77	0.521
IL	Rockford, IL	244	623,801	14.39	10.67	15.50	14.41	13.36	0.13	0.269
IN	Bloomington, IN	146	281,201	14.92	7.34	16.58	17.22	12.83	15.46	0.612
IN	Columbus, IN	143	163,867	13.03	7.54	16.05	14.40	12.32	10.51	0.565
IN	Elkhart, IN	137	373,338	13.82	12.85	17.03	15.86	15.08	14.77	0.348
IN	Evansville, IN	147	388,777	14.43	9.86	16.23	16.62	13.69	15.16	0.361
IN	Fort Wayne, IN	141	558,358	13.63	9.57	16.29	16.88	13.25	23.90	0.450

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
IN	Gary, IN	149	676,680	11.03	6.98	14.37	14.54	11.08	31.84	0.438
IN	Greensburg, IN	128	134,541	11.95	5.78	14.96	16.11	11.29	34.82	0.653
IN	Indianapolis, IN	142	1,513,066	19.28	12.42	19.89	19.16	16.86	-0.64	0.491
IN	Kokomo, IN	139	192,442	10.56	7.94	13.22	11.43	10.26	8.29	0.355
IN	Lafayette, IN	145	348,116	15.00	8.75	14.33	14.34	11.99	-4.40	0.401
IN	Muncie, IN	140	415,124	9.32	6.17	12.35	12.01	9.48	28.89	0.377
IN	Olney, IL	148	110,148	15.67	11.97	15.66	16.47	13.87	5.06	0.279
IN	Richmond, IN	126	103,947	9.98	7.73	11.81	9.95	10.16	-0.33	0.320
IN	South Bend, IN	136	658,645	14.25	10.88	15.20	14.82	13.30	4.05	0.272
IN	Terre Haute, IN	144	261,780	14.53	7.84	14.54	14.99	11.88	3.13	0.548
IN	Wabash, IN	138	129,778	16.88	9.76	14.78	16.04	13.64	-4.97	0.406
KS	Concordia, KS	291	105,596	16.37	15.28	18.19	19.10	16.66	16.65	0.393
KS	Garden City, KS	310	189,242	28.83	22.28	20.68	21.81	21.57	-24.34	0.480
KS	Hiawatha, KS	292	506,891	16.13	12.71	16.28	17.86	14.60	10.75	0.355
KS	Pratt, KS	290	244,373	24.52	24.00	18.83	18.90	20.19	-22.91	0.391
KS	Wichita, KS	293	681,717	22.11	17.62	17.75	18.44	18.16	-16.60	0.248
KY	Bowling Green, KY	54	257,896	12.40	7.43	16.10	14.97	12.21	20.66	0.504
KY	Campbellsville, KY	46	207,749	12.96	8.37	16.00	15.32	11.68	18.17	0.537
KY	Corbin, KY	44	261,965	13.00	6.60	12.90	12.10	10.56	-6.92	0.389
KY	Fort Knox, KY	130	177,074	12.54	6.87	13.38	13.95	10.98	11.25	0.468
KY	Henderson, KY	252	151,578	13.80	8.03	14.22	13.26	11.64	-3.97	0.411
KY	Jackson, KY	45	167,511	11.09	6.96	13.35	12.42	9.94	11.98	0.446
KY	Lexington-Fayette, KY	129	654,726	16.89	13.55	18.31	17.06	16.07	0.98	0.251
KY	Louisville, KY	131	1,220,420	14.55	10.95	17.37	17.60	14.45	20.95	0.429
KY	Owensboro, KY	132	177,781	14.18	7.82	14.97	13.22	11.75	-6.76	0.426
KY	Paducah, KY	254	172,740	16.74	9.59	16.68	17.24	14.40	3.00	0.511
KY	Pikeville, KY	170	203,813	14.05	8.97	20.62	14.71	14.15	4.73	0.557
KY	Union City, TN	253	117,424	10.35	8.59	14.15	12.59	10.92	21.70	0.449
LA	Alexandria, LA	36	186,643	13.01	8.01	13.34	16.34	12.30	25.63	0.468

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
LA	Baton Rouge, LA	35	808,223	18.78	14.50	16.99	17.70	16.55	-5.74	0.275
LA	Houma, LA	34	271,209	21.77	15.44	15.03	14.58	15.11	-33.01	0.465
LA	Lafayette, LA	38	548,346	21.04	18.93	15.91	17.83	16.78	-15.26	0.410
LA	Lake Charles, LA	37	335,898	15.13	10.96	13.01	13.84	12.55	-8.52	0.268
LA	Magnolia, AR	40	631,404	15.05	11.31	14.79	15.62	13.97	3.73	0.288
LA	Monroe, LA	39	275,476	14.19	10.45	16.69	18.47	14.43	30.19	0.463
LA	New Orleans, LA	33	1,380,828	24.94	15.92	16.55	16.51	16.89	-33.78	0.452
MA	Boston, MA	205	4,986,046	15.01	12.83	16.03	17.94	15.36	19.49	0.338
MA	Springfield, MA	208	680,511	13.38	8.50	13.46	11.94	11.29	-10.76	0.251
MD	Cumberland, MD	175	188,701	15.98	11.51	22.80	22.56	16.73	41.21	0.749
MD	Hagerstown, MD	174	409,835	10.66	9.19	15.60	13.90	11.44	30.38	0.370
ME	Portland, ME	201	691,265	14.76	11.24	20.17	23.27	16.29	57.65	0.658
ME	Presque Isle, ME	200	398,009	11.15	9.16	18.91	19.25	14.03	72.66	0.638
MI	Alpena, MI	124	189,516	22.97	13.12	20.57	19.30	17.41	-15.96	0.483
MI	Big Rapids, MI	120	173,375	15.84	8.45	16.37	18.07	13.39	14.10	0.513
MI	Detroit, MI	116	5,335,903	16.05	11.20	16.00	16.21	14.34	0.99	0.284
MI	Grand Rapids, MI	122	1,290,562	17.22	11.09	16.54	16.59	14.72	-3.67	0.364
MI	Houghton, MI	210	194,710	20.64	13.03	20.61	21.38	17.18	3.60	0.566
MI	Jackson, MI	115	304,564	13.32	10.29	14.12	13.59	11.91	1.99	0.251
MI	Kalamazoo, MI	121	510,217	12.84	8.80	14.65	14.64	12.02	14.02	0.332
MI	Lansing, MI	117	448,339	13.80	10.38	14.72	15.05	12.96	9.07	0.277
MI	Marquette, MI	114	293,898	14.89	10.79	16.47	16.49	13.86	10.74	0.371
MI	Mount Pleasant, MI	118	137,056	12.69	8.95	13.77	15.72	11.98	23.81	0.401
MI	Saginaw, MI	119	540,867	12.04	7.45	12.81	14.14	11.24	17.42	0.367
MI	Traverse City, MI	123	239,527	39.09	19.72	27.69	25.35	25.32	-35.15	0.864
MN	Duluth, MN	260	326,947	17.73	10.79	14.87	16.08	13.24	-9.29	0.443
MN	Fergus Falls, MN	269	187,552	20.95	12.53	17.17	15.71	15.57	-24.99	0.468
MN	Hibbing, MN	216	142,002	27.98	18.83	21.34	19.20	19.10	-31.40	0.671
MN	Hutchinson, MN	212	106,810	16.33	12.41	16.34	17.66	14.87	8.16	0.365

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
MN	Mankato, MN	213	260,166	20.49	10.79	15.15	13.42	13.86	-34.52	0.487
MN	Minneapolis, MN	215	2,957,547	23.11	15.58	19.60	20.22	18.32	-12.51	0.405
MN	Rochester, MN	217	300,952	19.91	13.25	15.27	14.47	13.73	-27.34	0.473
MN	Spencer, IA	273	110,044	22.72	14.74	17.27	19.39	17.16	-14.66	0.470
MN	St. Cloud, MN	214	255,824	21.82	11.87	17.22	16.26	15.45	-25.45	0.465
MN	Willmar, MN	271	136,660	16.96	13.93	15.96	16.42	15.10	-3.13	0.367
MO	Cape Girardeau, MO	257	257,487	21.33	12.09	19.23	19.14	16.23	-10.28	0.527
MO	Centerville, IA	261	222,128	17.15	10.19	15.98	16.69	13.43	-2.65	0.558
MO	Columbia, MO	296	383,203	20.71	12.68	21.09	23.37	17.56	12.88	0.691
MO	Farmington, MO	246	137,706	13.52	6.53	14.86	18.04	12.19	33.48	0.631
MO	Fort Leonard Wood, MO	245	112,229	11.70	6.51	17.25	16.97	11.69	45.06	0.688
MO	Joplin, MO	299	321,761	15.48	12.13	17.56	19.24	15.19	24.31	0.498
MO	Kansas City, KS	295	2,155,310	18.73	14.85	19.44	19.25	17.57	2.75	0.301
MO	Monett, MO	298	138,041	26.12	18.83	24.58	26.66	23.59	2.07	0.972
MO	Mountain Home, AR	251	347,735	20.51	10.85	18.44	19.58	16.27	-4.53	0.635
MO	Springfield, MO	297	442,210	22.19	13.69	24.01	22.94	19.87	3.37	0.647
MO	St. Louis, MO	247	2,366,497	18.50	12.61	17.85	17.55	15.60	-5.13	0.374
MS	Biloxi, MS	27	459,814	14.51	10.25	15.44	17.07	13.71	17.70	0.405
MS	Columbus, MS	105	200,125	9.79	8.31	15.09	13.94	11.75	42.30	0.427
MS	Corinth, MS	51	129,672	15.81	11.42	20.42	19.09	14.49	20.74	0.682
MS	Greenville, MS	48	146,338	12.13	8.59	12.00	11.89	10.57	-1.99	0.237
MS	Greenwood, MS	47	225,768	11.78	7.98	15.33	14.03	11.49	19.04	0.442
MS	Hattiesburg, MS	29	157,633	13.67	11.42	15.84	20.74	14.25	51.77	0.524
MS	Jonesville, LA	32	179,574	13.23	8.97	15.05	14.76	12.10	11.58	0.443
MS	Kosciusko, MS	30	628,238	17.55	11.00	17.75	17.32	15.09	-1.33	0.428
MS	Laurel, MS	28	120,493	11.07	9.95	14.20	14.49	11.48	30.83	0.326
MS	McComb, MS	31	150,039	12.66	9.82	16.67	16.71	12.53	31.95	0.540
MS	Meridian, MS	104	157,067	6.10	7.10	16.45	16.62	11.40	172.59	0.711
MS	Tupelo, MS	50	198,056	14.98	11.22	19.36	18.77	15.19	25.31	0.546

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
MT	Bonners Ferry, ID	345	276,700	30.99	18.71	28.19	30.55	25.09	-1.41	0.974
MT	Butte-Silver Bow, MT	344	227,987	25.28	17.69	24.83	32.55	23.34	28.76	0.788
MT	Havre, MT	342	158,001	23.94	14.49	18.43	18.56	17.57	-22.48	0.432
MT	Sheridan, WY	343	315,873	28.57	20.38	23.33	26.73	22.86	-6.43	0.607
NC	Boone, NC	10	242,484	12.41	7.91	16.74	17.34	12.46	39.75	0.492
NC	Charlotte, NC	9	1,433,580	18.02	13.01	22.64	22.42	17.80	24.41	0.570
NC	Fayetteville, NC	14	644,805	11.12	7.96	13.71	13.26	10.67	19.25	0.408
NC	Franklin, NC	12	559,139	17.92	13.05	21.26	21.08	16.76	17.63	0.628
NC	Galax, VA	6	154,004	13.32	7.28	15.92	13.91	11.25	4.46	0.492
NC	Gastonia, NC	8	414,317	12.28	7.53	16.37	14.50	11.22	18.09	0.458
NC	Goldsboro, NC	18	222,862	11.30	6.88	13.53	13.95	10.88	23.46	0.460
NC	Greensboro, NC	5	1,058,126	16.05	11.76	18.60	17.32	14.97	7.89	0.434
NC	Greenville, NC	19	537,170	11.92	9.44	16.53	17.17	13.24	44.11	0.471
NC	Hickory, NC	11	377,384	16.22	9.82	18.74	18.91	14.43	16.60	0.549
NC	Raleigh, NC	17	1,482,899	13.36	12.10	21.89	22.82	17.00	70.83	0.672
NC	Roanoke Rapids, NC	26	222,541	4.97	3.59	8.62	6.81	5.69	37.03	0.269
NC	Rocky Mount, NC	16	216,976	12.39	8.47	16.13	15.44	12.35	24.63	0.409
NC	Washington, NC	21	124,347	13.80	13.00	22.40	22.19	16.92	60.74	0.584
NC	Wilmington, NC	15	362,725	15.40	10.97	23.49	26.61	18.35	72.81	0.855
NC	Winston-Salem, NC	4	587,326	14.93	10.34	18.61	16.97	14.46	13.65	0.464
ND	Bemidji, MN	267	268,759	21.67	10.47	16.46	15.08	14.27	-30.44	0.532
ND	Bismarck, ND	262	130,326	20.69	12.48	18.77	16.61	16.21	-19.73	0.535
ND	Buffalo, SD	264	134,142	20.57	20.25	18.43	20.24	18.39	-1.61	0.420
ND	Devils Lake, ND	263	131,471	17.61	9.96	15.75	18.17	14.17	3.19	0.512
ND	Fargo, ND	268	264,175	20.91	11.82	18.39	18.44	16.15	-11.81	0.513
NE	Hastings, NE	279	146,677	24.13	16.87	17.86	17.45	17.03	-27.67	0.553
NE	Lincoln, NE	281	352,939	19.69	13.69	16.53	16.76	15.47	-14.91	0.428
NE	Norfolk, NE	278	117,986	21.55	15.11	16.46	18.14	15.50	-15.78	0.569
NE	Red Oak, IA	282	853,491	19.34	15.00	17.26	16.95	15.89	-12.38	0.302

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
NE	St. Francis, KS	286	178,096	26.89	18.90	20.91	19.30	19.48	-28.23	0.575
NE	Sterling, CO	283	116,247	23.55	17.60	18.81	20.43	18.45	-13.24	0.524
NH	Berlin, NH	203	361,993	20.73	11.71	22.29	22.60	17.87	9.02	0.689
NH	Keene, NH	207	118,170	20.47	12.85	22.37	22.41	18.41	9.47	0.521
NH	Manchester, NH	206	1,199,137	19.23	13.09	21.30	23.08	18.52	20.05	0.492
NJ	Brick Township, NJ	195	1,130,986	20.24	16.98	19.39	20.29	19.01	0.28	0.273
NJ	Newark, NJ	196	5,835,228	15.84	15.46	19.68	21.43	18.04	35.27	0.343
NM	Alamosa, CO	348	330,322	17.88	16.01	26.32	26.30	20.43	47.06	0.725
NM	Albuquerque, NM	349	778,890	21.74	16.34	21.30	19.49	18.83	-10.35	0.325
NM	Farmington, NM	353	168,998	34.70	19.42	23.19	29.25	24.24	-15.70	0.830
NM	Roswell, NM	307	119,670	17.61	20.46	17.90	17.03	17.05	-3.28	0.505
NV	Las Vegas, NV	379	1,623,346	29.66	18.86	26.03	22.43	22.11	-24.37	0.620
NV	Quincy-East Quincy, CA	376	564,819	36.68	23.27	26.21	26.08	25.56	-28.90	0.750
NY	Albany, NY	186	1,062,365	18.81	12.02	15.85	14.13	13.95	-24.90	0.325
NY	Amsterdam, NY	185	110,079	14.15	9.16	14.87	11.60	10.88	-18.02	0.365
NY	Binghamton, NY	179	294,272	9.25	9.96	11.93	10.85	10.12	17.20	0.135
NY	Buffalo, NY	180	2,369,139	19.12	13.64	14.15	12.52	13.82	-34.53	0.322
NY	Elmira, NY	181	347,041	14.05	9.54	12.01	9.32	10.42	-33.69	0.256
NY	New York, NY	194	11,800,659	21.65	19.17	20.79	22.31	19.78	3.04	0.252
NY	Olean, NY	182	238,759	12.72	9.82	14.12	12.06	11.08	-5.16	0.236
NY	Oneonta, NY	178	161,049	12.32	9.01	15.18	10.42	10.69	-15.45	0.371
NY	Plattsburgh, NY	184	169,949	16.44	9.77	15.20	13.24	12.10	-19.47	0.386
NY	Poughkeepsie, NY	193	875,974	16.07	13.73	17.22	15.84	15.39	-1.45	0.181
NY	Syracuse, NY	177	1,080,582	12.98	12.06	13.84	11.32	12.24	-12.75	0.171
NY	Watertown, NY	183	250,305	9.25	7.39	12.49	9.30	9.28	0.57	0.234
OH	Athens, OH	158	142,404	9.81	8.11	11.00	11.37	9.32	15.83	0.296
OH	Canton, OH	150	701,386	16.53	9.62	14.16	13.86	12.74	-16.18	0.343
OH	Cincinnati, OH	127	2,012,385	17.34	13.05	15.03	14.86	14.24	-14.29	0.239
OH	Cleveland, OH	152	2,661,665	19.41	12.60	15.80	15.68	14.84	-19.20	0.342

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
OH	Columbus, OH	159	1,670,003	15.31	15.09	15.99	16.21	14.77	5.91	0.285
OH	Dayton, OH	125	1,289,100	14.21	10.02	12.96	12.14	11.53	-14.51	0.222
OH	Findlay, OH	133	246,613	12.50	9.43	13.27	12.79	10.99	2.32	0.257
OH	Lima, OH	134	260,503	11.69	10.27	11.90	13.44	10.98	14.93	0.242
OH	Lorain, OH	151	424,443	14.36	9.37	13.01	12.87	11.55	-10.37	0.286
OH	Mansfield, OH	160	326,230	13.76	8.56	11.53	11.97	10.78	-13.02	0.280
OH	Portsmouth, OH	157	225,737	8.76	6.44	10.70	11.30	8.57	28.93	0.345
OH	Steubenville, OH	155	131,687	6.54	5.02	11.91	10.85	8.18	65.85	0.433
OH	Toledo, OH	135	933,821	15.06	10.09	13.06	12.97	12.01	-13.91	0.237
OH	Wheeling, WV	156	195,319	9.00	5.62	12.78	13.29	9.24	47.76	0.509
OH	Youngstown, OH	164	809,000	14.16	9.06	13.38	13.45	11.39	-5.03	0.297
OH	Zanesville, OH	154	188,647	9.64	9.28	13.10	11.43	9.89	18.52	0.319
OK	Ardmore, OK	337	118,002	20.53	18.51	18.34	17.32	17.21	-15.63	0.396
OK	Elk City, OK	338	1,293,109	25.66	25.99	21.09	21.35	21.65	-16.82	0.550
OK	Enid, OK	305	128,201	25.36	26.43	17.88	18.68	19.73	-26.33	0.745
OK	Lawton, OK	336	228,163	15.91	13.25	14.19	14.70	13.05	-7.61	0.385
OK	Muskogee, OK	302	152,694	20.05	11.75	15.30	14.27	14.03	-28.82	0.469
OK	Ottawa, KS	294	244,774	21.14	13.29	16.77	17.14	15.42	-18.92	0.423
OK	Tulsa, OK	304	1,054,089	28.94	23.68	21.10	19.87	21.53	-31.33	0.590
OR	Altamont CDP, OR	365	166,405	25.83	15.33	21.07	18.94	18.20	-26.69	0.563
OR	Brookings, OR	369	211,777	22.01	13.84	20.38	19.92	17.56	-9.49	0.511
OR	Eugene, OR	389	1,006,763	25.94	14.43	21.80	22.56	19.41	-13.02	0.593
OR	La Grande, OR	392	214,916	37.90	20.45	30.64	32.53	27.32	-14.17	0.951
OR	Medford, OR	368	257,746	32.97	18.21	24.84	22.34	22.49	-32.24	0.663
OR	Portland, OR	388	1,916,199	26.47	17.04	24.63	25.84	22.17	-2.37	0.561
PA	Allentown, PA	190	639,004	14.65	10.23	15.39	13.50	12.84	-7.89	0.275
PA	Altoona, PA	162	411,386	11.85	6.98	12.84	12.05	10.37	1.68	0.326
PA	Erie, PA	165	658,656	14.30	10.66	12.84	12.35	11.43	-13.63	0.228
PA	Harrisburg, PA	192	1,053,129	15.56	9.75	14.49	12.49	12.21	-19.73	0.298

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
PA	Philadelphia, PA	197	5,607,071	15.33	14.08	16.53	15.71	14.66	2.47	0.199
PA	Pittsburgh, PA	163	2,559,473	13.53	10.45	14.33	13.42	12.24	-0.84	0.278
PA	Reading, PA	191	1,116,877	13.82	9.99	14.92	12.64	12.21	-8.53	0.243
PA	Scranton, PA	188	858,089	13.61	8.81	16.96	14.02	12.55	3.07	0.391
PA	State College, PA	161	310,753	11.74	8.22	14.69	11.73	10.90	-0.07	0.337
PA	Sunbury, PA	187	191,937	10.93	6.30	11.64	10.64	9.09	-2.69	0.292
PA	Williamsport, PA	189	227,235	9.38	8.37	14.28	13.64	10.61	45.34	0.362
RI	Providence, RI	204	1,611,498	14.66	11.57	17.26	17.28	14.40	17.93	0.354
SC	Barnwell, SC	82	661,519	13.91	10.21	20.00	19.62	14.82	41.02	0.579
SC	Bennettsville, SC	13	622,531	15.41	13.11	21.61	23.30	16.92	51.19	0.612
SC	Columbia, SC	81	723,816	14.71	11.54	18.84	17.88	15.33	21.55	0.411
SC	Greenville, SC	83	897,062	13.05	10.95	17.29	18.04	14.36	38.25	0.475
SC	Spartanburg, SC	7	355,402	11.00	8.55	15.75	16.87	12.34	53.36	0.483
SC	Sumter, SC	80	210,248	12.20	6.95	14.83	13.73	11.02	12.60	0.406
SD	Brookings, SD	265	296,624	22.06	13.27	21.99	21.70	17.91	-1.62	0.613
SD	Milbank, SD	266	107,256	15.73	13.47	18.72	18.25	15.04	16.01	0.438
SD	O'Neill, NE	270	197,865	18.91	12.88	20.17	21.45	16.62	13.40	0.582
SD	Rapid City, SD	276	184,529	21.57	14.73	22.60	23.66	18.48	9.67	0.712
TN	Blue Ridge, GA	65	247,504	14.21	9.42	16.58	15.64	13.08	10.07	0.413
TN	Chattanooga, TN	64	596,070	16.01	10.65	17.67	17.84	15.01	11.48	0.405
TN	Clarksville, TN	59	252,587	13.26	8.47	12.84	14.14	10.93	6.65	0.461
TN	Columbia, TN	55	159,895	12.39	13.17	15.78	15.86	12.83	28.04	0.404
TN	Jackson, TN	49	335,529	13.43	9.52	17.59	17.60	13.74	31.06	0.540
TN	Johnson City, TN	1	610,631	12.05	7.01	12.65	14.96	11.07	24.15	0.414
TN	McMinnville, TN	63	183,135	15.56	13.28	14.92	16.66	14.19	7.06	0.370
TN	Middlesborough, KY	3	795,867	16.68	11.37	17.74	17.62	15.15	5.63	0.366
TN	Morristown, TN	2	228,872	19.36	13.74	17.51	20.73	16.74	7.07	0.438
TN	Nashville-Davidson, TN	56	1,251,474	18.61	18.05	22.37	23.03	20.00	23.78	0.454
TN	New Albany, MS	52	1,211,812	17.38	12.46	16.49	15.12	14.61	-12.98	0.259

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
TN	Paris, TN	58	138,407	12.82	8.65	18.32	18.91	14.05	47.48	0.574
TN	Tullahoma, TN	57	131,121	11.57	10.04	15.75	15.41	12.26	33.22	0.477
TX	Abilene, TX	325	215,976	22.73	20.51	20.18	18.79	19.14	-17.34	0.318
TX	Ada, OK	339	248,187	17.78	16.16	15.89	14.77	15.66	-16.88	0.313
TX	Austin, TX	312	1,364,644	24.44	25.58	23.67	25.48	25.86	4.22	0.657
TX	Beaumont, TX	321	497,889	14.21	12.89	15.02	15.09	13.86	6.18	0.250
TX	Big Spring, TX	324	100,671	16.83	12.40	15.85	14.47	14.81	-14.01	0.388
TX	Brownsville, TX	316	984,769	13.96	14.41	15.70	13.44	13.09	-3.73	0.293
TX	Brownwood, TX	327	113,509	21.90	15.66	19.21	19.52	18.41	-10.88	0.506
TX	Bryan, TX	318	208,732	16.12	20.01	16.50	15.93	16.42	-1.15	0.346
TX	Clovis, NM	309	472,670	23.23	16.03	17.41	18.65	17.57	-19.73	0.399
TX	Corpus Christi, TX	317	503,408	17.89	17.89	17.36	16.69	16.72	-6.71	0.316
TX	Crystal City, TX	315	256,087	16.66	16.47	22.37	16.65	16.38	-0.05	0.670
TX	Dallas, TX	331	3,429,280	28.19	28.62	25.45	24.53	26.88	-12.99	0.646
TX	El Paso, TX	306	1,019,487	12.19	11.97	17.35	16.13	13.95	32.26	0.372
TX	Fort Worth, TX	330	1,815,775	24.05	21.92	20.49	20.55	21.37	-14.55	0.381
TX	Hobbs, NM	308	377,305	23.90	19.09	20.06	18.36	18.79	-23.18	0.390
TX	Houston, TX	320	4,528,504	30.50	30.07	22.11	20.65	24.38	-32.30	0.751
TX	Killeen, TX	329	331,822	11.18	8.39	11.04	12.68	11.27	13.45	0.287
TX	Lake Jackson, TX	319	322,447	18.28	12.88	14.30	13.83	14.11	-24.35	0.335
TX	Longview, TX	334	289,835	19.08	18.17	19.45	18.42	17.75	-3.50	0.433
TX	Lufkin, TX	322	295,850	16.32	14.59	16.58	16.07	14.81	-1.53	0.250
TX	Odessa, TX	314	331,489	27.83	31.32	21.45	21.26	22.47	-23.60	0.720
TX	Paris, TX	332	186,472	13.72	13.94	15.00	15.40	15.06	12.27	0.264
TX	San Angelo, TX	323	276,414	17.36	15.28	16.44	17.40	15.53	0.19	0.298
TX	San Antonio, TX	313	1,848,730	18.63	18.33	17.94	17.21	17.74	-7.65	0.345
TX	Tyler, TX	333	436,056	17.96	18.37	17.70	19.16	18.12	6.66	0.507
TX	Victoria, TX	311	226,107	16.03	17.73	15.95	16.51	15.99	2.95	0.309
TX	Waco, TX	328	383,157	14.94	15.06	16.41	16.89	15.27	13.06	0.316

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
TX	Wichita Falls, TX	326	204,977	22.63	18.89	18.83	18.00	18.64	-20.46	0.376
TX	Texarkana, TX	335	236,048	14.93	11.31	16.86	16.76	14.49	12.25	0.361
UT	Logan, UT	362	150,058	18.07	11.97	13.73	20.57	13.96	13.85	0.568
UT	Provo, UT	360	391,554	20.39	12.38	15.65	20.41	15.98	0.09	0.525
UT	Salt Lake City, UT	361	1,432,679	29.71	18.79	18.74	23.24	20.59	-21.77	0.567
UT	St. George, UT	359	221,370	29.90	18.57	22.20	26.55	22.21	-11.21	0.733
VA	Arlington CDP, VA	113	7,261,505	17.71	14.50	19.32	18.64	17.32	5.25	0.269
VA	Charlottesville, VA	176	274,692	16.00	10.42	20.42	19.54	16.03	22.13	0.559
VA	Harrisonburg, VA	172	174,764	9.93	9.65	17.58	14.93	12.48	50.26	0.485
VA	Lynchburg, VA	23	112,549	36.10	19.36	37.32	31.17	30.38	-13.64	0.871
VA	Newport News, VA	25	572,115	11.03	9.75	14.70	14.32	12.28	29.86	0.278
VA	Richmond, VA	24	1,043,194	17.46	14.15	19.47	18.52	17.09	6.08	0.299
VA	Roanoke, VA	166	466,862	14.77	10.19	16.33	17.75	13.56	20.21	0.433
VA	South Boston, VA	22	158,117	8.44	6.99	13.61	13.63	9.94	61.55	0.519
VA	Staunton, VA	173	131,295	17.34	12.66	24.46	22.50	18.54	29.78	0.762
VA	Virginia Beach, VA	20	1,121,607	14.14	13.64	16.41	15.33	14.33	8.42	0.181
VT	Burlington, VT	202	322,321	19.55	13.74	25.49	22.43	19.02	14.72	0.580
WA	Kennewick, WA	391	333,804	27.73	16.02	16.85	16.10	17.46	-41.93	0.591
WA	Lewiston, ID	384	163,977	17.31	11.21	17.63	19.74	15.40	14.03	0.526
WA	Longview, WA	387	220,618	20.24	10.74	21.89	24.45	18.55	20.80	0.683
WA	Moses Lake, WA	385	190,901	25.88	21.17	22.63	20.93	21.96	-19.15	0.376
WA	Port Angeles, WA	393	272,553	31.83	21.78	34.72	29.53	26.45	-7.22	0.841
WA	Seattle, WA	394	3,786,343	25.70	20.13	25.71	24.48	22.71	-4.74	0.413
WA	Spokane, WA	386	697,259	22.12	15.93	22.50	24.13	19.97	9.09	0.667
WA	Yakima, WA	390	256,242	19.34	13.00	17.54	15.30	15.78	-20.91	0.313
WI	Appleton, WI	225	551,158	16.53	12.31	15.22	15.18	14.05	-8.20	0.263
WI	Eau Claire, WI	228	305,822	16.07	10.68	15.01	15.50	12.85	-3.54	0.416
WI	Green Bay, WI	226	377,424	18.73	12.14	17.22	15.92	15.21	-14.98	0.398
WI	La Crosse, WI	229	220,467	14.46	13.19	17.23	16.24	13.63	12.33	0.369

Appendix B: Firm Birth Rates by U.S. Labor Market Areas: 1976–1996 (cont.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
WI	Madison, WI	231	591,749	19.79	15.21	17.49	18.13	16.93	-8.39	0.310
WI	Milwaukee, WI	241	1,664,255	16.77	12.87	15.94	15.49	14.66	-7.60	0.236
WI	Monroe, WI	230	116,643	16.10	10.64	14.41	15.73	12.93	-2.32	0.412
WI	Racine, WI	240	584,053	15.08	11.20	16.25	14.15	13.10	-6.21	0.297
WI	Rice Lake, WI	211	149,945	21.49	12.07	19.51	19.42	16.35	-9.61	0.595
WI	Sheboygan, WI	224	195,715	10.22	9.80	12.40	14.03	11.00	37.23	0.254
WI	Wausau, WI	227	371,831	17.36	11.36	14.32	13.12	12.63	-24.45	0.377
WV	Bluefield, WV	112	360,216	12.03	7.72	14.81	14.84	11.41	23.36	0.458
WV	Charleston, WV	169	370,061	12.43	7.80	16.10	15.24	11.90	22.57	0.510
WV	Elkins, WV	167	360,261	10.31	6.95	14.80	14.94	11.47	44.92	0.521
WV	Huntington, WV	171	344,093	10.79	7.47	15.14	14.14	11.11	31.04	0.413
WV	Parkersburg, WV	153	202,863	12.33	9.62	14.76	15.35	12.43	24.46	0.391
WV	Summersville, WV	168	233,491	11.09	7.40	17.36	17.62	12.02	58.81	0.686
WY	Craig, CO	364	173,077	26.81	27.12	23.85	27.39	23.38	2.19	0.631
WY	Gillette, WY	346	143,185	39.81	27.49	24.12	26.63	25.29	-33.11	1.045
WY	Salida, CO	287	194,605	50.57	48.67	49.52	50.88	46.33	0.62	0.830
WY	Scottsbluff, NE	277	205,105	18.78	13.77	17.29	21.30	16.29	13.39	0.466

Appendix C
Sample Compared to Population on Household Income, Wealth

A comparison of household annual income for 1999 from the 2000 U.S. Census with the Entrepreneurial Assessment sample obtained in 2004 is provided in Table C.1. While the 2004 U.S. Entrepreneurial Assessment sample appears to under-represent low income households, the proportion of those reporting $200,000 or more per year is quite close, 2.4% for the 1999 census estimate and 2.3% for the 2004 project sample. This may reflect the weighting of the project sample, which is based on recent household income estimates from the Current Population Surveys.

The sample estimates of household net worth in 2004 are compared to those obtained in the Survey of Consumer Finances for 2001 in Table C.2. In this case the estimates of the proportion with net worth of $1,000,000 or more are substantially higher, at 7.0%, for the Survey of Consumer Finances data, compared to 3.9% for the project sample. This probably reflects the greater detail obtained in computing household net worth in the Survey of Consumer Finances; many respondents are not fully aware of all their assets unless they complete a detailed inventory. The 2004 U.S. Entrepreneurial Assessment survey population estimates were adjusted by 1.8 (equal to 7.0/3.9) for those with household net worth of $1,000,000 and more.

Table C.1. Distribution of Household Annual Income: Sample and U.S. Census

	U.S. Census: 1999 (1)	**Project Sample: 2004**
Number of Cases	105,539,000	7,732
$ 0– 15 K/Yr	15.8%	11.6%
$ 15– 30 K/Yr	19.3%	21.1%
$ 30– 40 K/Yr	12.3%	13.2%
$ 40– 50 K/yr	10.6%	12.1%
$ 50– 75 K/Yr	19.5%	21.1%
$ 75–100 K/Yr	10.2%	10.9%
$100–200 K/Yr	9.9%	7.7%
$200–Up K/Yr	2.4%	2.3%
	100.0%	100.0%
(1) Table 663, Statistical Abstract of the United States: 2004–2005		

Table C.2. Distribution of Household Net Worth: Sample and Survey of Consumer Finances

	United States: Survey of Consumer Finances 2001 (1)	**Project Sample: 2004**
Number of Cases	4,449	7,740
Negative	6.9%	12.1%
Zero to $ 49K	33.3%	26.4%
$ 50–$ 99K	12.8%	20.1%
$ 100-$249K	19.2%	17.6%
$ 250–$499K	13.0%	11.6%
$ 500–$999K	7.8%	8.2%
$1,000–up	7.0%	3.9%
	100.0%	99.9%
(1) Table 4 and 10, Kennickell, Arthur B. (2003). A Rolling Tide: Changes in the Distribution of Wealth in the U.S., 1989-2001. Washington, D.C.: Federal Reserve Board.		

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