

Business Creation in the United States: Panel Study of Entrepreneurial Dynamics II Initial Assessment*

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Abstract

PSED II began in 2005 with the selection of a cohort of 1,214 nascent entrepreneurs chosen from a representative sample of 31,845 adults. The first 12 month follow-up interviews were completed with 80% of the original cohort. The project is designed to replicate, with appropriate methodological improvements, PSED I. The PSED provides a unique, unprecedented description of the initial stages of the entrepreneurial process. The results suggest that prior experience and an appropriate strategy are critical for completing a new firm birth; personal attributes, motivations, and contexts seem to have minimal effect. The PSED findings have substantial implications for policy makers who wish to improve the capacity of the US entrepreneurial sector to confront global competitive threats with a steady flow of new and innovative firms.

* Sponsors for this survey are listed on page 308

1

Understanding Entrepreneurship and the Missing Link

As a nation, we should seek to have ... a million new business start-ups every year (nearly twice present levels).

Schramm, 2006, p. 175

Entrepreneurship, the creation of new firms and new ventures, is important for America. There is now substantial recognition of the contributions of entrepreneurship to innovation, job growth, and improved productivity (Council on Competitiveness, 2007; Reynolds, 2007a). New firms are also a critical feature of the creation of new sectors, be it automobiles, computers, or big box retail outlets. There is also growing evidence that regions with higher levels of firm creation will have greater economic growth in subsequent periods (Acs and Armington, 2004; Reynolds, 1998). This also appears to be true for countries, as those with higher levels of new firm creation seem to have higher levels of subsequent economic growth (Reynolds et al., 2004). The new firm-economic growth relationship seems pervasive, although the precise mechanisms have yet to be established.

Perhaps the most compelling evidence is that the major source of systematic job expansion is found among new firms. Indeed, there is a net loss of jobs among establishments of any age greater than one year, as jobs destroyed by establishment contractions and terminations outnumber those created by expansions (Acs and Armington, 2004). This suggests that without a steady influx of new firms creating new jobs the total number of jobs would decline.

The attraction of the entrepreneurial benefits has led to a number of suggestions that entrepreneurship is to be encouraged for its social as well as economic benefits; politicians and analysts at all levels seem to differ only the appropriate level of encouragement for more entrepreneurship (Schramm, 2006; Council on Competitiveness, 2007). Much of the United States concern is related to the national potential in relation to global competition.

There is little question that a number of Asian countries, particularly China and India, exhibit high levels of economic growth; part of this growth is related to the level of new firm creation. A comparison of both total firm creation activity and firms with high growth aspiration is provided in Table 1.1 (based on Autio, 2007). Using data developed as part of the Global Entrepreneurship Monitor research program, the number of individuals 18–64-years old in each country is used to estimate the total count of individuals active in the firm creation

Table 1.1 Entrepreneurial activity, all and high growth initiatives in selected global regions.

Regions, Countries	Population: 18–64 yrs old	High growth			
		TEA index prevalence (#/100) (a)	TEA counts	TEA prevalence (#/100) (b)	High growth TEA counts
India, China	1,426,000,000	14.95	206,400,000	0.96	15,300,000
USA	181,000,000	11.31	20,500,000	1.49	2,700,000
Latin America (c)	193,000,000	14.19	25,900,000	0.69	1,200,000
Western Europe (d)	229,000,000	5.53	11,200,000	0.49	1,100,000
Canada	21,000,000	8.49	1,800,000	1.23	300,000
Japan	81,000,000	2.27	1,800,000	0.14	100,000

Notes:

a: From Table 6, Reynolds et al. (2004a).

b: From Table 3, Autio (2007).

c: Argentina, Brazil, and Mexico.

d: Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, UK.

process or managing a new firm, up to 42-months old; those persons included in the Total Entrepreneurial Activity (TEA) index. Both the prevalence rates and total number of active individuals are provided. Five selected regions are ranked by the total counts of TEA active individuals expecting a high growth nascent enterprise; high growth defined as firms expected to have 20 or more employees five years after the firm's birth.

While the United States does well in both the prevalence of all active nascent entrepreneurs as well as those emphasizing a high growth enterprise, the total count is considerably less than the combination of China and India. While differences in prevalence rates appear to be the most natural metric to determine differences in the level of entrepreneurial activity, it still may be true that the larger the number of new firm births, the larger the number of innovative high-growth firms that would be competitive in global markets. China and India have almost eight times as many individuals in the age range of labor force participation (18–64 years of age) and ten times as many active nascent entrepreneurs, 200 million compared to 20 million for the United States. Perhaps more critical, there are six times as many working on a high growth potential start-ups, 15 million compared to 3 million for the United States. Concern about the ability of the United States to compete with dynamic Asian economies seems well placed. Other regions provide less cause for concern.

Latin America and Western Europe have less than half the total numbers of high-potential growth start-ups as the United States. Japan is an interesting case, for despite having a population almost four times the size of Canada, it has one-third the Canadian count of high growth potential nascent entrepreneurs. Compared to the United States, Japan has half the population but just 4% of the count of high-potential growth enterprises.

To remain competitive in the global economy, especially with regard to China and India, the United States should ensure that entrepreneurship is maintained and perhaps expanded. Exhortations for increasing entrepreneurship are often linked to a range of proposals for increasing the level of entrepreneurial opportunities and activity, such as increasing the investment in research and development, a greater focus on

entrepreneurship across all aspects of primary and secondary education, adjustment of government regulations and tax codes to facilitate firm registration, as well as greater recognition and acceptance of entrepreneurship in the society. While many of these ideas and proposals may have a positive impact on the level of entrepreneurial activity, they are frequently based on incomplete or partial understanding of the firm creation process. Just how to achieve the objective in the introductory quotation — doubling the annual count of new firms in the United States — is not well specified. Given that four different longitudinal analyses of the prevalence of new firm creation rates indicate virtually no changes since 1990 this task represents a considerable challenge.¹ More complete and precise information about the firm creation process is required to realize this objective.

Almost all concepts of entrepreneurship — utilized by business persons, policy makers, and academic researchers — include the creation of a new venture, product, or organization as a central aspect. There is no question that individuals or teams of individuals are considered to be the major factors that lead to the creation of a “new” venture, product line, or organization.

Three major stages can be associated with the creation of new enterprises. The first would be the decision of individuals, alone or in teams, to initiate the creation of a new firm — the conception of a new enterprise. The second would be the organization and identification of individuals and resources establish the new firm — the gestation or start-up process. The third would be the culmination of the start-up phase with an operational new firm and the subsequent growth trajectory of the enterprise — the birth of a new firm.

There are a wide range of issues associated with the life-cycle of a business. It would be of some importance to know more about those individuals and teams that enter the process, what proportion actu-

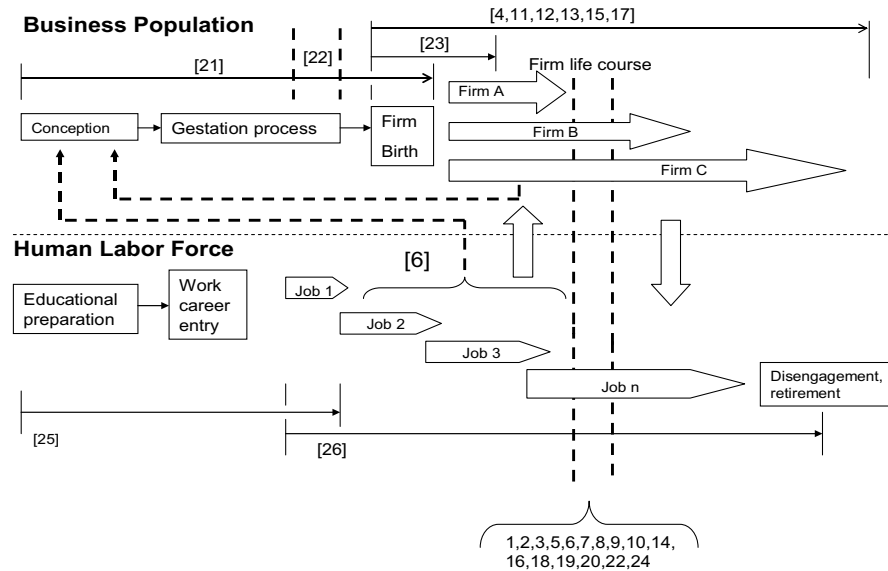
¹This includes data based on increased personal emphasis on self-employment (Fairlie, 2006); comparisons of prevalence of nascent entrepreneurs (Reynolds, 2008); new registrations of employer firms making unemployment insurance payments (Spletzer et al., 2004); and new registrations of employer firms making initial federal social security payments (US Small Business Administration, Office of Advocacy, 2004); when this data is organized in terms of new firms per 1000 in the population, there has been no apparent temporal trend, up or down, since 1990.

ally complete the process with a new business and, in turn, what proportion of these new businesses have a high growth trajectory. For those concerned with the success of individual business enterprises, it would be useful to know what types of people, strategies, and resources lead to success — firm birth and subsequent growth. For those concerned with maintaining a dynamic, competitive entrepreneurial sector, it would be useful to know what types of ambient conditions seem to promote greater levels of start-up efforts, and thus more nascent enterprises. From a societal cost-benefit prospective, there is value in knowing the aggregate amount of time and resources absorbed by the firm creation process, and who bears the costs and shares in the benefits.

What resources for understanding the firm creation process might be available? Given the wealth of data assembled and maintained by the federal government and other interested parties, it is of some interest to consider the availability of data that would lead to understanding of the critical factors affecting the emergence of successful new enterprises. Such an assessment was recently completed by a panel of experts convened to report on this issue within the National Academy of Science (Haltiwanger et al., 2007).² A summary of the conceptualization of the business creation process is presented in Figure 1.1. The presentation is organized around two phenomena, presented horizontally. The top portion represents the business life course and the bottom the work career of typical individuals. The dotted lines leading to the “conception” box indicate the two major processes associated with becoming involved in the conception of a new business. One is the individuals shifting into the start-up mode after a work career holding jobs; the other would be individuals initiating new firms as part of the current job requirements, representing a start-up sponsored by an existing firm.

The major purpose of the conceptualization is to assist in identifying existing data sets and their utility for research on different aspects of the business dynamics process. A total of 26 different data sets were identified as relevant to some aspect of the firm creation and development process; they are listed at the bottom of Figure 1.1.

²The first author of this report, Paul Reynolds, was a member of this panel.



Key to Numbered Data Sets

1	BLS, Business Establishment List	14	Dun & Bradstreet Duns Market Identifier File
2	BLS, Quarterly Census of Employment and Wages	15	NSF [U.S. Census] Longitudinal Research Database
3	BLS, Current Employment Statistics	16	SBA Statistics of US Business
4	BLS, Business Employment Dynamics	17	Business Information Tracking Series [BITS]
5	BLS, American Time Use Survey	18	FRB Survey of Small Business Finances
6	BLS-Census: Current Population Surveys	19	IRS Survey of Income
7	U.S. Census Business Register	20	Standard & Poor's Compustat
8	U.S. Census Company Organization Survey	21	Kauffman Foundation Panel Study of Entrepreneurial Dynamics [U of Michigan]
9	U.S. Census, Economic Census	22	Kauffman Foundation and Others: The Global Entrepreneurship Monitor [GEM]
10	U.S. Census, Survey of Business Owners	23	Kauffman Firm Survey [Mathematica]
11	U.S. Census Longitudinal Business Database	24	Kauffman Financial and Business Databases
12	U.S. Census Integrated Longitudinal Business Database	25	National Longitudinal Survey of Youth [BLS, conducted by Ohio State/NORC]
13	U.S. Census Longitudinal Employer-Household Dynamics	26	Panel Study of Income Dynamics [U Michigan]

BLS = Bureau of Labor Statistics

IRS = Internal Revenue Service

NORC = National Opinion Research Center, Affiliated with the U of Chicago

NSF = National Science Foundation

SBA = Small Business Administration

From Table 4.1, page 68, from Haltiwanger, Lynch, and Mackie, 2007.

Fig. 1.1 Business creation and available data sets.

- Fifteen of the 26 provide cross-sectional information about existing firms at one point in time, but without any capacity for tracking the firms over time (1,2,3,5,6,7,8,9,10,14,16,18,19,20,22,24).
- Seven provide for longitudinal analyses of existing firms, once they are included in an existing firm registry, such as the unemployment insurance files maintained by the Bureau of Labor Statistics, the Longitudinal Business Database maintained by the US Census, or a sample drawn from the Dun and Bradstreet data files (4,11,12,13,15,17,23).
- Three track the labor force activities of people, persons, either as individuals or as members of households, but the focus is on the nature of the jobs they hold and shifts between jobs over the life course. Other than reports of “self-employment,” there is little attention to creating new businesses and the descriptions of the “self-employment” activity is brief and basic (6, 25, 26).
- One, the Global Entrepreneurship Monitor, provides annual comparisons of national measures of firm creation activities, but does not have the potential for tracking individual businesses (22).

Only one extant research program, the Panel Study of Entrepreneurial Dynamics (21), provides detailed information on a representative national sample reflecting the firm creation process. Without the PSED research program there would be no information on this early and critical stage of business dynamics. There would be no information regarding:

- Who gets involved in creating a new business?
- How many nascent entrepreneurs exist?
- What do nascent entrepreneurs do to create a new firm?
- To what extent are new firms based on advances in technology and science?
- What proportion of nascent enterprises complete the process to become a new firm?

- How long does it take to reach a resolution — a new firm or disengagement?
- What is unique about nascent enterprises that become a new business compared to those that do not make the firm birth transition?
- What is the social cost, in terms of sweat equity and personal investments associated with the firm creation process?
- What is unique about those new firms expected to have a substantial growth trajectory after launch?
- How many individuals must implement how many firms to create one firm with substantial growth potential?
- How does the start-up procedure and strategy affect the trajectory of firms once they are launched?

All of these issues have great relevance for efforts to promote new firm creation and improve the efficiency of the process. Without information on these issues, policies designed to increase the level of entrepreneurial activity could be ineffective or counterproductive.

While many have recognized the positive contributions of entrepreneurial activities, others have pointed out that under some conditions these “entrepreneurial ventures” may actually redistribute and concentrate wealth among fewer people; the “entrepreneurial team” benefits while all others suffer a net loss (Baumol, 1968; Baumol et al., 2007). The major implication from such analysis is that conditions should be established to “channel” entrepreneurial energy into avenues that will produce net societal benefits and discourage initiatives, such as fraudulent business activities or schemes to manipulate stock prices, which lead to net societal losses. Developing and implementing such conditions is a continuing challenge; a more complete understanding of the business creation process may lead to the development of more effective procedures for promoting beneficial entrepreneurship.

The Panel Study of Entrepreneurial Dynamics, which focuses on the early stages of the firm creation process, provides the needed information to more fully understand the entrepreneurial process. Data sets from the initial study, PSED I, based on a representative sample developed in 1999 that was followed for four year are publicly available.

A wide range of scholarly articles, dissertations, and book chapters as well as a detailed assessment of the unique nature of those who launch new firms has been completed (Reynolds, 2007b). PSED II, based on a 2005 representative sample of the US population, has completed its first follow-up interview; data from the population screening, initial interview, and first follow-up are now publicly available.

The information from these two projects provides a description of a representative sample of the individuals involved in the firm creation process. Many of the results were unexpected, particularly those related to the scope of participation in firm creation and the diversity of strategies and procedures followed to launch new firms. What follows is an interim report on the information developed from the PSED II following the first follow-up data collection. The results are considered in relation to the results from the earlier PSED I initiative.

This overview makes clear that the PSED II initiative is a unique national resource, the only available source of current information on an important feature of the business dynamics underlying the growth and adaptation of the modern US economy. *There is no other source for most of this information.*

2

Research Program Overview

The US Panel Study of Entrepreneurial Dynamics (PSED) research program now consists of two longitudinal projects. PSED I was based on a representative sample of nascent entrepreneurs identified in 1998–2000 and contacted again three times over the following four years. PSED II is based on a representative sample of nascent entrepreneurs identified in late 2005 and early 2006 with follow-ups at 12 and 24 months. This report provides a preliminary assessment of the initial screening and the first follow-up interviews for PSED II. Although there is a six year lag between the identification of nascent entrepreneur cohorts in these two projects the research procedures were almost identical. The assessment focuses on a comparison between these two representative samples of US nascent entrepreneurs. It turns out the prevalence rates are virtually the same in these two periods. This temporal consistency is also reflected in three other national measures of participation in new firm creation (Spletzer et al., 2004; US Small Business Administration, Office of Advocacy, 2004; Fairlie, 2006).

The major objective of this research program is to provide a comprehensive, objective description of the business creation process. This requires precise operational definitions of the major features of this

phenomenon, including measures that capture the critical transition points. The research design is based on the assumption that the major elements affecting the emergence of a new firm are NOT the direct result of macro-economic conditions, the availability of government programs, the entrepreneurial climate, the presence of friendly financial institutions, supportive family and friends, or speeches by politicians. The impact of all these contextual factors is assumed to be mediated by the direct actions taken by individuals.

People create new firms. This research program is a study of who they are, how they react to their personal and work career context, and what they do to implement a new business.

The research design reflects a general view of the firm creation process, reflected in Figure 2.1.

This conceptualization assumes that individuals pass through the first transition when they begin to take some action to create a new firm. These actions may have been taken on their own behalf or as part of their job at an existing firm. Thus, nascent entrepreneurs are drawn from the adult population as independent nascent entrepreneurs or from an existing business as “nascent intrapreneurs.” There are two potential second transitions: new firm creation or disengagement.

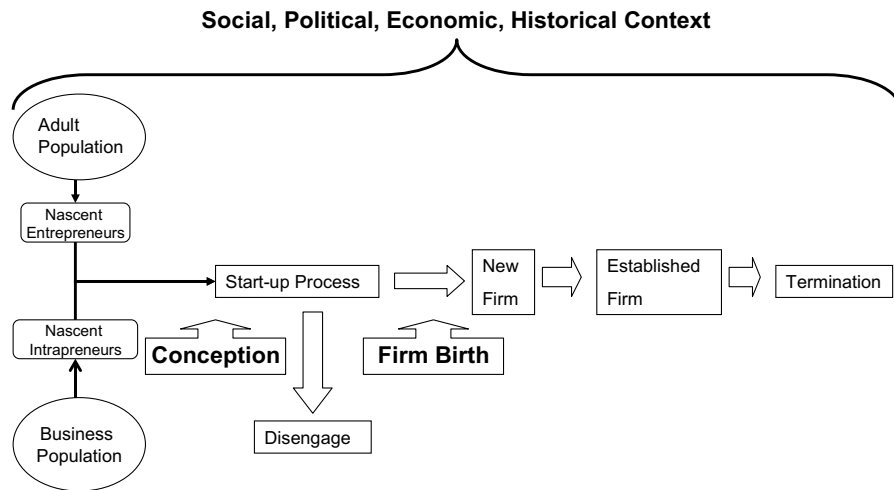


Fig. 2.1 Business life course and context.

A new firm is defined as an independent commercial actor in the economy, affecting the prices and quantities of goods traded in the market. Following a firm birth, these entities pass through a period of being a new firm, become established firms, and, as their economic usefulness declines, terminate operations. The alternative transition for nascent entrepreneurs is disengagement from the start-up process. A substantial proportion, however, seem to be involved in a third option; they remain in the start-up process for a long period of time, never achieving a clear resolution. The entire firm creation process is considered to occur in a distinctive social, political, economic, and historical context.

2.1 Project Design

The design of the two projects is very similar and consists of three phases. The initial phase is the use of commercial survey firms to interview a representative sample of adults to identify those active in the firm creation process. Those who qualify are invited to participate in a more detailed interview about their current situation and activities. About 87% of those identified in the screening as active nascent entrepreneurs agree to participate in the study. These volunteers are then contacted for the second phase, a detailed interview. About 60% complete the initial 60 minute phone interview.¹ The third phase involves follow-up contacts to determine the results of their efforts to create a new firm.

An overview of the basic features of the two projects is presented in Table 2.1.

Details about the procedures, interview schedules, and questionnaires are available on the project website and in other documentation.² This research design has been the model for similar projects completed or underway in Argentina, Australia, Canada, Greece,

¹ Table A.3, p. 464, of Gartner et al. (2004).

² Details of the PSED I project are to be found in Reynolds (2007a,b, 2008) and the three appendices of Gartner et al. (2004). All interview schedules, codebooks, and data sets for the two projects are available at “www.psed.isr.umich.edu”; an overview is provided in Appendix D.

Table 2.1 Overview of project design: PSED I and II.

	PSED I	PSED II
Dates of initial screening,	July 1998 to Jan 2000	Oct 2005 to Jan 2006
detailed interview 1		
Time lag to interview 2	14 months	12 months
Time lag to interview 3	27 months	24 months
Time lag to interview 4	40 months	NA
Size of screening sample:	62,612	31,845
nascent entrepreneurs only		
Interview 1 sample	830	1214
Interview 2 sample	501	972
Interview 3 sample	511	To be completed in 2008
Interview 4 sample	533	None planned at this time
Screening interview length	2 minutes	2 minutes
Detailed interview 1, phone	60 minutes	60 minutes
Detailed interview 1, mail	12 pages	None
Detailed interview 2, phone	60 minutes	60 minutes
Detailed interview 2, mail	8 pages	None
Detailed interview 3, phone	60 minutes	60 minutes
Detailed interview 3, mail	8 pages	None
Detailed interview 4, phone	60 minutes	NA
Detailed interview 4, mail	8 pages	NA

The Netherlands, Norway, Sweden, and the United Kingdom.³ The screening procedure was the basis for the procedures adopted for the cross-national assessment of entrepreneurial activity in the Global Entrepreneurship Monitor (GEM) research program.⁴

The design for PSED II is a revised and enhanced version of that for PSED I. The procedures, therefore, are not identical in all respects. A summary of the major differences is presented in Appendix A. Most significant are the number and wording of the screening items used to identify candidate nascent entrepreneurs. Both features had a major impact on the proportion of respondents considered candidate and, in turn, active nascent entrepreneurs. Adjustments are required to provide

³ Australia began implementing the Comprehensive Australian Study of Entrepreneurial Emergence (CAUSEE) in 2007 (Davidsson, 2004). Other projects reports available for Argentina (de Rearte et al., 1998), Canada (Menzies et al., 2002), the Netherlands (Van Gelderen, 2000), Norway (Alsos and Kolvereid, 1998), and Sweden (Delmar and Davidsson, 2000).

⁴ Considerable detail about the procedures is available, (Reynolds et al., 2005) as well as multiple examples of the resulting cross-national comparisons (Reynolds et al., 2004b).

harmonized estimates of prevalence from the two screening procedures, discussed in Appendix B.

On the other hand, there are fewer differences in the actual interview schedules and follow-up procedures in the two projects. Many of the interview modules are identical or very similar for the two projects, which facilitates comparisons. It should be noted that the low yield of nascent entrepreneurs in PSED I — 830 following screening of over 60,000 individuals — reflected a procedure designed to increase the number of women and minorities in the nascent entrepreneur cohort. A large number of white male active nascent entrepreneurs were identified in the screening but not included in the cohort in order to focus available resources on women and minorities. If resources had allowed the inclusion of all active nascent entrepreneurs identified in the PSED I screening, this cohort would have been three times larger.

The research procedure involves a series of stages, each of which gathers additional information about the individuals and their business creation activity. This allows more precise definition of their status at the time of the first interview. Table 2.2 indicates the adjustments to the sample as more information was obtained from the respondents.

The attrition from candidate nascent entrepreneurs reflects both a selection of respondents for focus, as well as the loss of the individuals who did not wish to participate or could not be located for more detailed interviews. The number of active nascent entrepreneurs — 830 from PSED I and 1,214 for PSED II — is reduced somewhat when those who appear to have periods of profitable operation prior to the first interview are excluded; many were reactivating dormant businesses. The sample of confirmed active nascent entrepreneurs was

Table 2.2 Nascent entrepreneurs by business criteria and recent start-up activity.

	PSED I	PSED II
Screening period	1998–2000	2005–2006
Screened sample	62,612	31,845
Candidate nascent entrepreneurs (2-criteria)	3592	
Candidate nascent entrepreneurs (3-criteria)		1571
Active nascent entrepreneurs	830	1214
Confirmed active nascent entrepreneurs	824	1148
Recent confirmed active nascent entrepreneurs	747	947

then reduced to 824 for PSED I and 1,148 for PSED II. Further analyses of reported start-up activities identify those who initiated start-ups over ten years before the initial detailed interview. The cohorts of nascent entrepreneurs are reduced to 747 for PSED I and 947 for PSED II when only “recent” confirmed active nascent entrepreneurs are included.

It would be, of course, more efficient if there was some way to identify the recent confirmed active nascent entrepreneurs from the very beginning of the process, perhaps during the screening interview. There was a conscious decision to utilize a broader rather than a more restrictive definition of the characteristics of a nascent entrepreneur in the PSED II screening phase so as to reduce errors of omission. A more comprehensive screening would have saved the cost of collecting detailed data on 83 cases in the PSED I project and 277 in PSED II. This attrition is based on a detailed analysis of the activities reported by the nascent entrepreneurs in the full initial interview and takes, on average, about 20 minutes of interview time. Identifying recent confirmed active nascent entrepreneurs is relatively complicated and time consuming; it could not be completed during the brief screening interview. It has not been possible to identify a small number of critical items that will facilitate identifying those that see themselves as nascent entrepreneurs but have not been actively involved in the last few years. While it may be possible to improve the efficiency of the screening process for future research, at this time it remains an operational challenge.

The procedure is designed to provide a representative sample of individuals involved in business creation, identified as nascent entrepreneurs. With one caveat, it may be considered a representative sample of nascent enterprises or firms-in-gestation. Any nascent enterprise implemented by more than one nascent entrepreneur is more likely to be included in the cohort. As a result, if the sample is considered to represent nascent enterprises, it should be recognized as including an over-representation of team efforts (Davidsson, 2004). While recognizing this issue, it is assumed that the practical effect is negligible for the following analysis and no adjustment for a potential over-sample of teams has been implemented.

While the respondents devoted a substantial amount of time to completing the interviews, very few, 1% in PSED I and 2% in PSED II, lost interest in the start-up by virtue of participation. Most, 61% in both studies, reported their interest in the start-up increased upon completion of the initial interview.

3

Participation in the Start-up Process

The first critical transition in the firm creation process is the entry into the start-up phase. An active nascent entrepreneur was defined as a person who (a) considered themselves in the firm creation process; (b) had been engaged in some behavior to implement a new firm — such as having sought a bank loan, prepared a business plan, looked for a business location, or taken other similar actions; (c) expected to own part of the new venture; and (d) the new venture had not yet become an operating business. Estimates of the level of entrepreneurial activity in the US population in the fall of 2005 are provided in Figure 3.1 by age and gender, men to the left and women to the right. The lines indicate the prevalence rate in each age group, and the bars reflect the total number of individuals involved — about 12.6 million persons in total. This was about 8 million men and 4.6 million women. As the average 2005 start-up team involved about 1.7 individuals, this amounts to about 7.4 million nascent enterprises, 4.7 million reported by men and 2.7 million reported by women.

There are two features of the patterns in Figure 3.1 that are extremely stable, found in every sample drawn in the United States since the initial study in 1993. Men are about twice as active as women

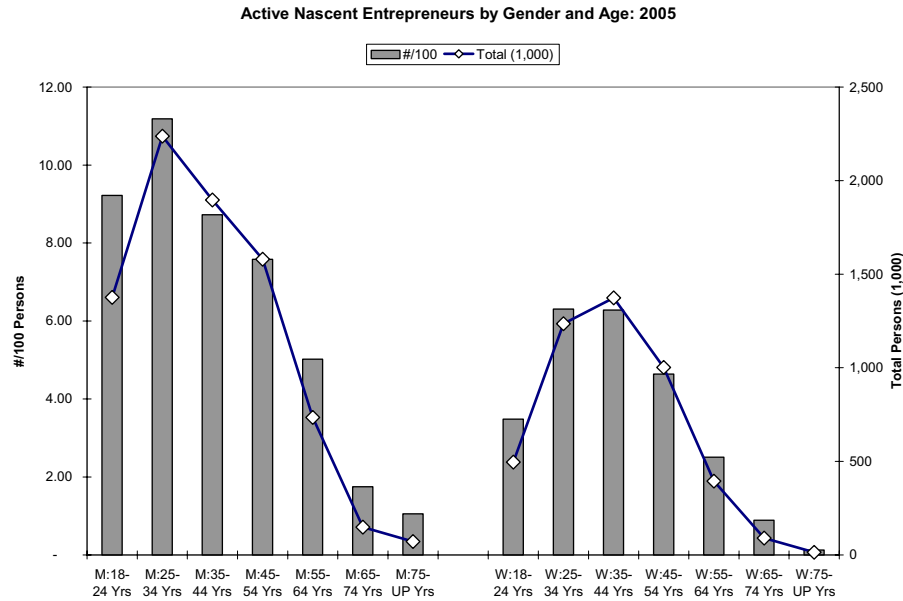


Fig. 3.1 Candidate nascent entrepreneurs participation in firm creation: PSED II.

(both in terms of prevalence rate and total counts) and the peak activity occur among those about 30 years old. These patterns have been observed in a number of other countries, although the details change. In Europe, for example, the overall prevalence rates are about half that of the United States; men are more active relative to women and the age peak is slightly older, about 35 years of age (Delmar and Davidsson, 2000; van Gelderen, 1999).

3.1 Has There Been a Change From 1999 to 2005?

No and yes. There has been no statistically significant change in the prevalence rates based on a two item screening: it was 21.3 per 100 for PSED I and 22.6 per 100 for PSED II (see Table 3.1). These estimates reflect adjustment for differences in screening item wording, reviewed in Appendix B. The estimated prevalence rates for those meeting the criteria for active nascent entrepreneurs — recent start-up behavior, expectations of ownership, and no evidence of a going business — drops

Table 3.1 Comparisons of the level of activity: PSED I and PSED II.

	PSED I	PSED II
Total persons (18–74-years old: millions in 1999, 2005)	190.715	203.796
Candidate nascent entrepreneurs, two item (18–74-years old)	21.3/100	22.6/100
Total candidate nascent entrepreneurs (18–74-years old, millions)	40.622	46.058
Active nascent entrepreneurs, 3 criteria (18–74-years old)	5.62/100	5.96/100
Total active nascent entrepreneurs (18–74-years old, millions)	10.718	12.145
Increase in activity, active nascent entrepreneurs		1.327
Increase from population growth, no change in activity		55%
Increase from more activity, no change in population		42%
Increase from more activity, more population growth		3%

to 5.62 per 100 for PSED I and 5.96 per 100 for PSED II; this increase of 0.34 per 100 is not a statistically significant change. Other longitudinal measures of participation in new firm creation based on increased emphasis on self-employment in the Current Population Surveys, new tax payments for state unemployment insurance, and new payments of federal social security taxes also reflect no changes in the prevalence rates of new activity since 1990 (Spletzer et al., 2004; US Small Business Administration, Office of Advocacy, 2004; Fairlie, 2006).

Knowing the size of the eligible population, those 18–74 years of age, allows estimates of the total number of individuals involved as active nascent entrepreneurs. As shown in Table 3.1, this is 10.7 million for PSED I and 12.1 million for PSED II. While about 1.3 million more individuals are involved in 2005 when compared to 1999 most of this increase, 55%, is accounted for by the growth in the size of the eligible population. About 45% reflects a slight increase in the level of activity, from 5.62 to 5.96 per100; the remaining 3% reflects the joint effect of the combined increases, population size, and prevalence rates.

Given the stability found in the overall prevalence rates, it is to be expected that the patterns related to age and gender would also remain the same. Estimates of the prevalence rates by age and gender in Figure 3.2 indicate very little change; there is no statistically significant difference for 10 of 12 age gender comparisons. One group with a significant change was men 25–34 years of age; the prevalence of active nascent entrepreneurs has increased from 8.2 to 11.5 per 100 for this category. There are increases for men in the adjacent age groups, 18–24 and 35–44, but they are not statistically significant. There are

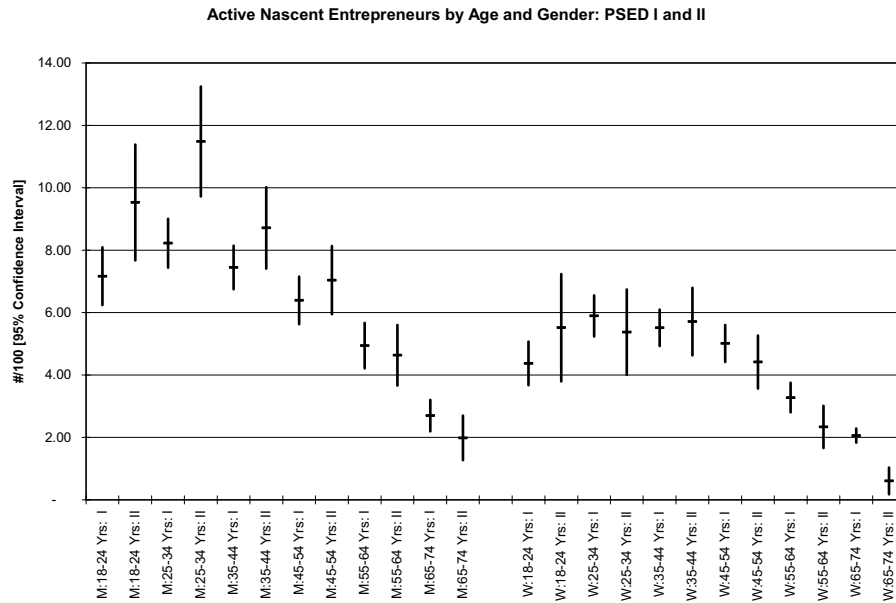


Fig. 3.2 Active nascent entrepreneurs: 1999 and 2005.

few significant changes among the other age groups of men. The pattern among women of different ages is remarkably similar except for those 65–74 years of age. There is a dramatic and significant drop among this older group, from 2 to 0.6 per 100; there is also a drop among men of the same age, but it is more modest.

A similar assessment can be used to consider the impact of ethnicity on the prevalence rate of active nascent entrepreneurs. The patterns for three major ethnic categories — White, African American, and Hispanic — are presented for men and women in Figure 3.3. As can be seen, the differences for the two cohorts are relatively stable. For both PSED I and PSED II African American men and women are substantially higher than White men and women. For PSED I differences for both men and women are statistically significant; this is also true for men in the PSED II cohort. While no differences are statistically significant, Hispanic men are intermediate between White and African American men. Hispanic women are equivalent to African American women in their level of participation. The only group with a substantial change in

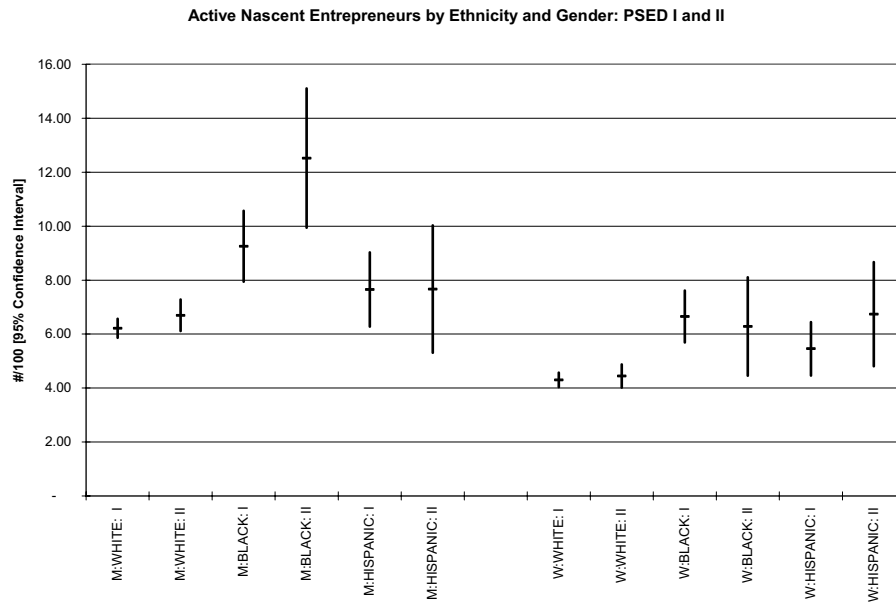


Fig. 3.3 Active nascent entrepreneurs: PSED I and II by gender and ethnicity.

PSED II compared to PSED I are African American men, who may have increased participation by 30%. This difference, a change in prevalence from 9 per 100 to over 12 per 100, is not statistically significant.

Patterns of change related to individual educational attainment, an established measure of human capital, as well as household income, a measure of access to financial resources, are provided in Figures 3.5 and 3.6, again differentiated by gender.

The patterns associated with educational attainment in Figure 3.4 are of some interest. For men, with more education have a slightly higher rate of participation in the PSED I cohort, although no differences are statistically significant. For the PSED II cohort there seems to be no differences associated with different levels of educational attainment. If educational attainment influences the tendency for men to participate in entrepreneurial activity, it has a small impact.

Quite a different pattern emerges for women, where there is a statistically significant difference among those who have not gone beyond a high school degree and those with some post high school education.

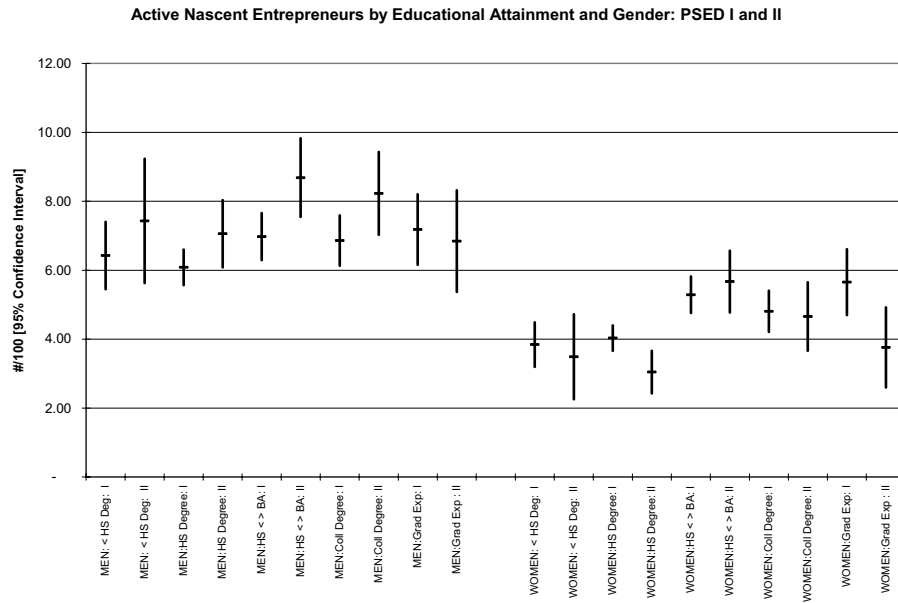


Fig. 3.4 Active nascent entrepreneurs: PSED I and II: Education by gender.

It would appear that for women with a high school degree, the tendency to become involved in start-ups has declined. This may reflect an increase in the proportion of older women, completing their education when a smaller proportion went beyond high school. There is also some evidence that women with post college education are less active, with a decline for the PSED II cohort compared to those in PSED I.

The impact of different levels of household income is provided in Figure 3.5, which indicates slightly higher levels of activity among those with higher levels of household income. Among men this is reflected in an increase among those at the upper end, those reporting household income of \$100,000 per year or more. Among women this is reflected in somewhat lower levels of participation among those with the lowest incomes, particularly those below \$30,000 per year. For both genders, however, the impact of household income is modest, few comparisons are statistically significant.

A combination of these measures was developed by examining the joint occurrence of the two measures, household income and educational

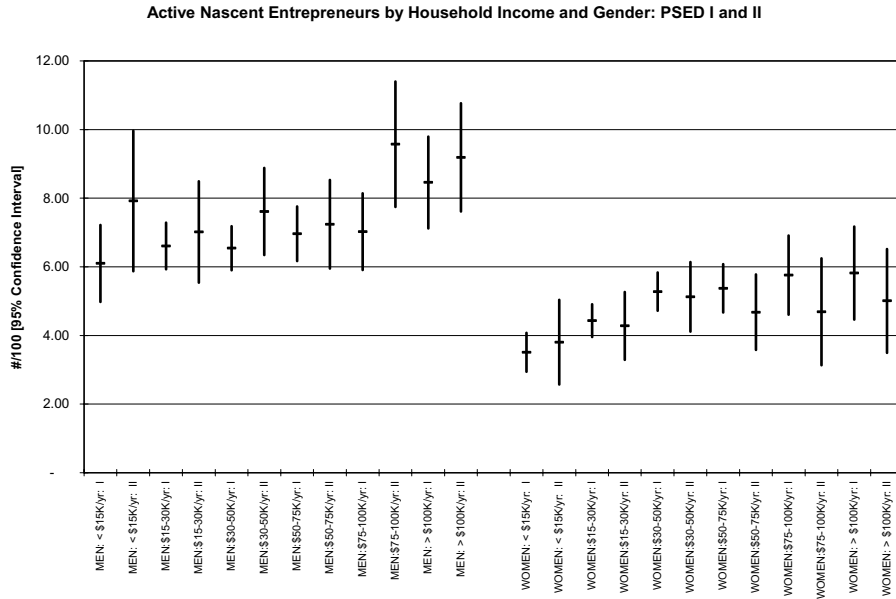


Fig. 3.5 Active nascent entrepreneurs, PSED I and II: HH income by gender.

attainment. Both can be considered indicators of societal status or access to intellectual and financial resources. For this assessment both education and household income were reclassified into three categories. Consideration of the joint patterns led to the creation of five categories. Three involved consistent measures, those low on both measures, those intermediate on both measures, and those high on both measures. Two categories involved inconsistent situations, those low on education but high on household income and those high on education but low on household income. The effects on participation in new firm creation in the PSED I and PSED II cohorts, by gender, are presented in Figure 3.6.

For men the patterns in Figure 3.6 are quite clear. In general, those with more education and household income seem to have higher levels of participation. For the PSED I cohort, the status inconsistent men are similar to those in the intermediate consistent group; for the PSED II cohort, they are equivalent to the highest status consistent groups. None of these differences, however, are statistically significant.

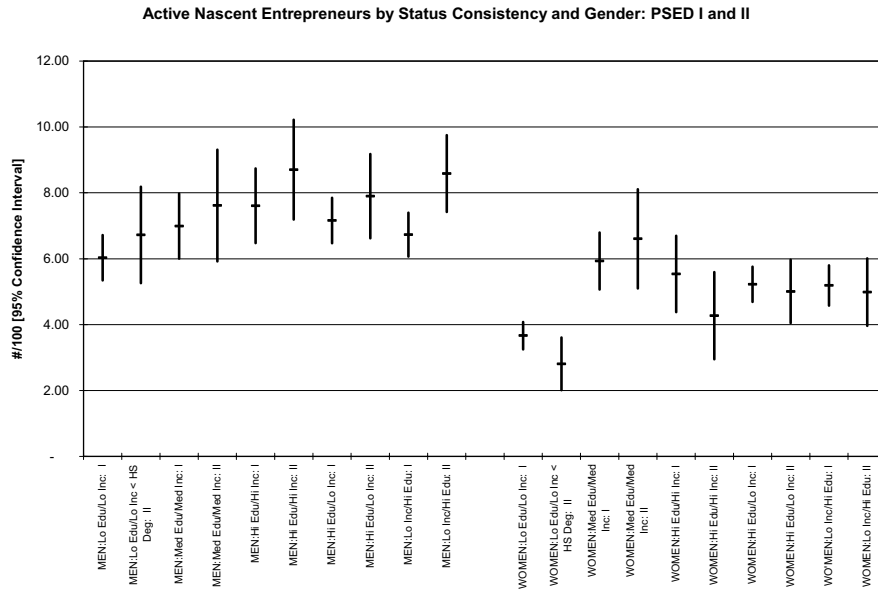


Fig. 3.6 Active nascent entrepreneurs: PSIED I and II, Status consistency by gender.

For women, however, there are major differences. For both cohorts, those women low on both educational attainment and household income are much lower in their participation; the differences are clearly statistically significant. There is no pattern of statistically significant differences among the other four groups. In fact, the higher level of participation was among those intermediate on both educational attainment and household income. This assessment has indicated that the joint impact of the patterns reflected in Figure 3.4, educational attainment, and Figure 3.5, household income, is significant for women in these disadvantaged groups. There is little question that women with few financial and educational resources are less likely to be involved in the firm creation process — they are about one half as likely to participate as other women.

3.2 Overview

In summary, the levels of activity and patterns among those entering the firm creation process are remarkably similar for the PSIED I and

PSED II cohorts. While 12.1 million may have been active nascent entrepreneurs in 2005, compared to 10.7 million in 1999, the major source of the increase was growth in the human population. The patterns related to age, gender, ethnic background, household income, and educational attainment were generally quite similar for the two cohorts. Young adults, 25–34 years of age, are the most active, men are twice as active as women, African Americans are more active than Whites, Hispanics are intermediate between African Americans and Whites, those with more education and household income are slightly more likely to be involved in new firm creation. The most striking patterns are the higher levels of activity among African American men in 2005 and, in both cohorts, the reduced levels of activity among women with little education from low income households.

Without question, participation in new firm creation is widespread among all groups in the United States; a common feature of life pursued by many individuals — more than one in 17 at any point in time.

4

Nascent Entrepreneurs

What are the characteristics of individual nascent entrepreneurs who get involved in the firm creation process? The similarity of the PSED I and PSED II interview schedules allows comparisons on a variety of different features of these two cohorts. The major results are compared in terms of the following:

- Socio-demographic background
- Educational, work experience, and financial background
- Household, family context
- Motivations, orientations toward entrepreneurship.

The descriptions are based on those confirmed as active nascent entrepreneurs, which excludes those screened as nascent entrepreneurs but who appeared to be reactivating a dormant business. In almost all cases the category totals will equal 100%.¹

¹ An analysis restricted to recent active nascent entrepreneurs, those that entered the process within 10 years before the detailed interview, indicates that most patterns were almost identical; hence the larger sample of active nascent entrepreneurs is utilized to provide more precision in the estimates.

4.1 Socio-Demographic Background

The gender and age distribution of the active nascent cohorts is presented separately in Figure 4.1 and as a joint distribution in Figure 4.2. Men are 63% of the active nascents in the PSED I cohort and 62% in PSED II. There is a small shift in the spread of ages. In the PSED I cohort from 1999, 83% of the nascents are between 25 and 54 years of age, this drops slightly to 74% for the PSED II cohort. Consistent with this shift, there is a slightly higher proportion less than 24 years of age or older than 54 years of age. The shift in the age distribution is statistically significant ($p < 0.0001$).

The combined distribution of age by gender is provided in Figure 4.2. Men and women of all ages are found among the active nascent entrepreneurs in both cohorts, although women over 65 are a very small proportion. A greater age spread is present among both men and women in the PSED II cohort.

While it is clear, as shown in Figure 4.3, that African Americans and Hispanics are more likely to enter the firm creation process than

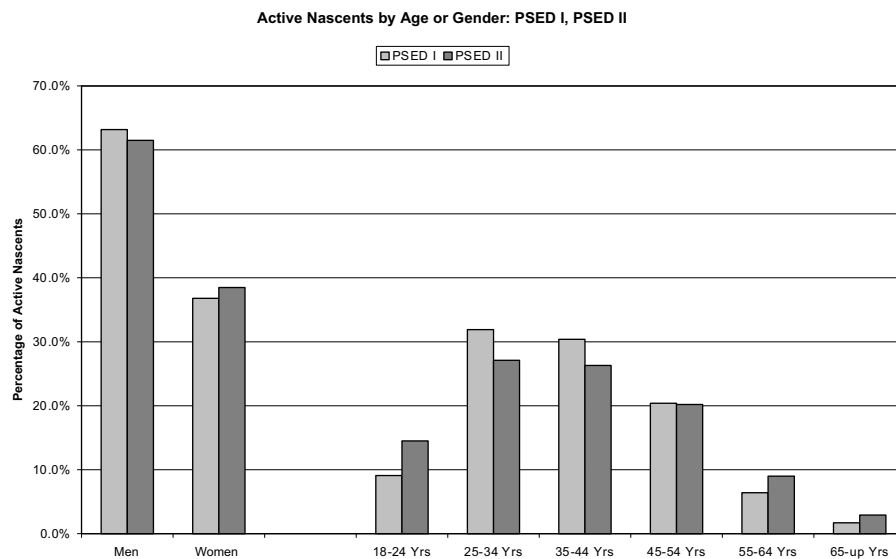


Fig. 4.1 Active nascent entrepreneurs by age or gender: PSED I, PSED II.

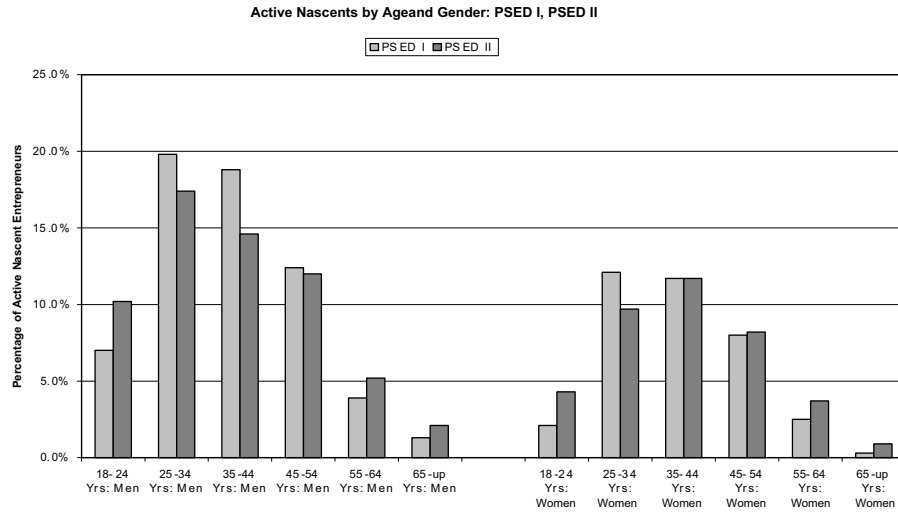


Fig. 4.2 Active nascent entrepreneurs by age and gender: PSED I, PSED II.

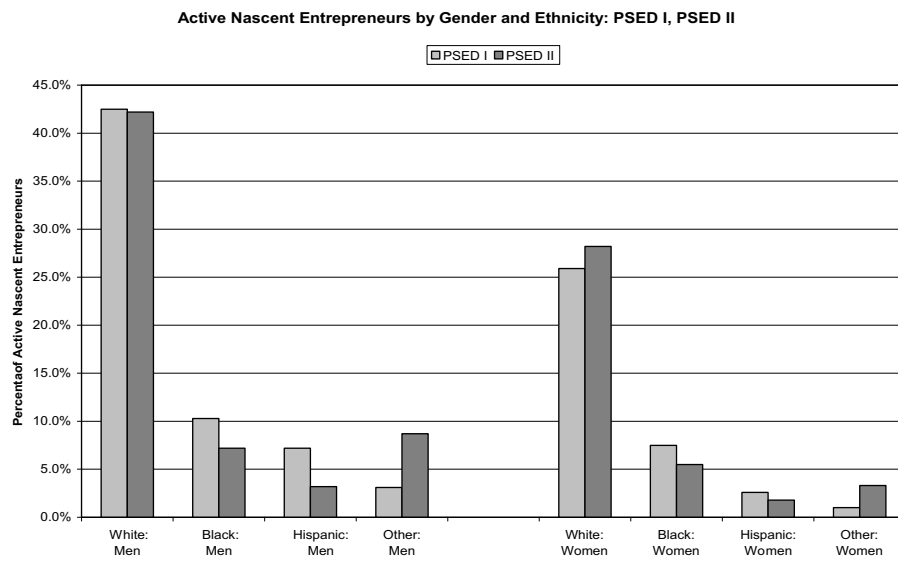


Fig. 4.3 Active nascent entrepreneurs by ethnicity and gender: PSED I, PSED II.

whites; because they are a small proportion of the total population they are also a small proportions among active nascent entrepreneurs, as indicated in Figure 4.3. About 70% of the active nascents in both PSED I and PSED II are White. The proportion in the “other” category is greater in PSED II, along with a decline in the proportions that are African American and Hispanic. This reflects the change in procedures for classifying ethnic background with the result that more individuals are placed in a “mixed ethnic” category and end up in the “other” group. There is, as a consequence, no apparent change in the proportion of different ethnic groups among the active nascent entrepreneurs.

Immigrants, particularly recent arrivals, are a potential source of active nascent entrepreneurs. All respondents in both studies were asked where they were born as well as the birth country of each parent. As a result, they can be classified into one of four categories, shown at the top of Table 4.1. The largest, with over 85% of all active nascent entrepreneurs, is the one where both parents and the active nascent entrepreneur were born in the United States. About 5% in both cohorts report that both parents and the active nascent were born outside the United States. A slightly larger group, about 8%, contains those active nascents born in the United States with one or both parents were born outside the United States. The smallest group is the one where one or both parents were born in the United States, but the active nascent was born outside the United States; these appear to be cases of US citizens working abroad when the active nascent was born. There is no evidence of any substantial changes in this pattern between PSED I and PSED II.

Migration internal to the United States is another issue that can be captured by asking the active nascents about the duration of tenure in the county and state of residence at the time of the interview. The major patterns for PSED I and PSED II are presented at the bottom of Table 4.1. The results are similar for both cohorts; less than 10% have been living in the county for less than 2 years, less than 5% in the state. About 60% have lived in this county for more than 10 years and about 75% have lived in their state for more than 10 years. Consistent with other research, the major source of active nascents in any community is people who have been residents for some time. There is no significant difference between the two cohorts.

Table 4.1 Immigration status and residential tenure of nascent entrepreneurs: PSED I and PSED II.^a

	PSED I (%)	PSED II (%)	Stat. Sign
Nascent entrepreneur, father, mother all US Born	85.2	85.1	
Nascent entrepreneur US born, father or mother outside	7.8	8.7	
Nascent entrepreneur born outside the United States, father or mother in the United States	1.5	1.0	
Nascent entrepreneur, father, mother all born outside the United States	5.5	5.3	$p = 0.6031$
	100.0	100.1	
Lived in county: under 2 years	10.4	9.3	
Lived in county: 2–4 years	15.8	14.2	
Lived in county: 5–9 years	15.2	15.8	
Lived in county: 10–19 years	20.0	20.0	
Lived in county: 20–29 years	19.6	19.9	
Lived in county: 30–39 years	11.2	10.4	
Lived in county: 40–49 years	5.6	6.4	
Lived in county: 50 years or more	2.1	4.0	$p = 0.3870$
	99.9	100.0	
Lived in state: under 2 years	4.7	4.7	
Lived in state: 2–4 years	8.9	6.3	
Lived in state: 5–9 years	10.6	9.5	
Lived in state: 10–19 years	17.3	17.3	
Lived in state: 20–29 years	22.7	25.2	
Lived in state: 30–39 years	17.8	16.2	
Lived in state: 40–49 years	11.1	12.0	
Lived in state: 50 years or more	6.8	8.8	$p = 0.2152$
	99.9	100.0	

^aThroughout this report, statistical significance is indicated by 4 and 5 digit fractions based on Chi-Square or means tests. Numbers larger than 0.05 are generally not considered statistically significant, many of the values are well below 0.01, the indicator that the patterns would have occurred by chance less than 1% of the time.

There has been much interest in the effect of family experiences on the decision to pursue a new firm start-up, and in both studies a number of questions were asked about the parents' experiences with self-employment or business ownership. As presented in Table 4.2, 48% of the PSED I and 47% of the PSED II active nascents reported that their parents were not self-employed or a business owner. Among the PSED I cohort, 33% reported they did not work for their parents; for the PSED II cohort, this was 25%. There is a slightly greater proportion

Table 4.2 Active nascents by working for parents and gender: PSED I and PSED II.

	PSED I (%)	PSED II (%)	Stat. Sign
Father, mother, or both had a business	51.9	52.6	$p = 0.7591$
No parental business	48.1	47.4	
	100.0	100.0	
Worked full time in parent's business	12.2	19.7	$p < 0.0001$
Worked part time in parent's business	24.8	32.9	
Did not work in parent's business	63.1	47.4	
	100.1	100.0	

of PSED II active nascents, 28%, reporting part- or full-time work for their parents, compared to 20% for the PSED I active nascents; this difference is statistically significant ($p < 0.0001$).

In summary, the major patterns are found in both the 1999 and 2005 cohorts of active nascent entrepreneurs are:

- Men are two-thirds of the group.
- More than three-in-four are between 25 and 54 years of age.
- Seven-in-ten are White, with African Americans and Hispanics well represented.
- Over 85% of active nascents and their parents are US born, about 5% from immigrant families, and 10% from families that are a mix of immigrants and US born.
- Over 60% have lived in the county and state for more than 10 years before the interview.
- Half of active nascents had parents involved in self-employment or as a business owner; from one-third to one quarter worked for their parents business.

There are a few differences between the PSED II and PSED I active nascent entrepreneurs: there was a slightly greater spread in ages and more PSED II active nascents report working for their parents' businesses.

4.2 Educational, Work Experience, and Financial Background

The educational experience of the active nascent entrepreneurs is provided in Figure 4.4. About one in four have not gone beyond a high

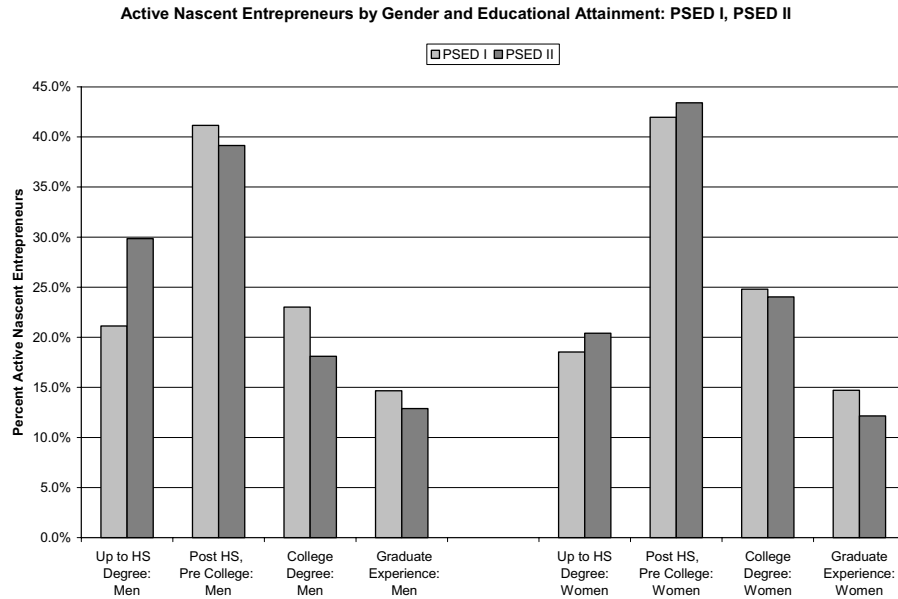


Fig. 4.4 Active nascents by educational attainment and gender: PSED I and PSED II.

school degree, and about two-thirds have not finished college. About one-third have a college degree, with about one-sixth having graduate educational experiences. There is a statistically significant shift between the PSED I and PSED II cohorts; slightly more have not gone beyond high school in the PSED II sample. This reflects a difference among men, as the distribution among women is the same for the two cohorts.

The financial situation of the active nascents, characterized by the annual household income and the current household net worth, are presented in Table 4.3. There were no major gender differences. For this comparison, the 1999 values have been adjusted for inflation to represent 2005 values. About 15% of active nascents are from households with annual incomes in excess of \$100,000 per year and about one-third from households with incomes under \$40,000 per year. Half are from households in the middle categories, \$40–\$100,000 per year.

There has been a statistically significant ($p = 0.0002$) shift from PSED I to PSED II reflected by a larger proportion of PSED II active

Table 4.3 Active nascents by household income and net worth: PSED I and PSED II.

	PSED I (%)	PSED II (%)	Stat. sign
HH Income: \$0–\$20,000	8.3	14.7	
HH Income: \$21–\$40,000	22.5	25.1	
HH Income: \$41–\$60,000	29.4	20.5	
HH Income: \$61–\$80,000	14.2	16.1	
HH Income: \$81–\$100,000	10.1	9.4	
HH Income: \$101–\$150,000	9.4	8.7	
HH Income: \$151,000 and over	6.2	5.5	$p = 0.0002$
	100.1	100.0	
HH Net Worth: Negative to none	12.8	18.1	
HH Net Worth: \$0–\$25,000	22.5	15.3	
HH Net Worth: \$26–\$100,000	27.8	20.5	
HH Net Worth: \$101–\$200,000	14.5	14.4	
HH Net Worth: \$201–\$500,000	14.8	16.7	
HH Net Worth: \$501–\$1,000,000	4.4	8.1	
HH Net Worth: \$1,001,000 and over	3.2	6.8	$p < 0.0001$
	100.0	99.9	

nascents having slightly lower annual household income. This was true for both men and women, as there is no significant difference between them in either the PSED I or PSED II cohorts.

The household net worth among active nascent entrepreneurs is provided in the lower half of Table 4.3. There are statistically significant differences in household wealth among the PSED II active nascents compared to those in PSED I. This includes a larger proportion of active nascent entrepreneurs with household net worth in excess of \$500,000, from 8% to 15%, as well as an increase of 13% to 18% of those with no or negative net worth. These differences may reflect the increased presence of both younger and older nascent entrepreneurs in PSED II. There were no differences between men and women in terms of reports of household net worth.

Previous experience with business start-ups is provided in Figure 4.5. About 60% report no previous experience, 20% one prior start-up experience, and 18% participation in from 2 to 4 prior start-ups. If a serial entrepreneur is one who was involved in 5 or more start-ups, they comprise about 2.5% of all active nascent entrepreneurs. There is no difference between men and women in reports of prior start-up experience. There is a statistically significant difference between the two cohorts ($p < 0.01$). There appears to be a slightly higher

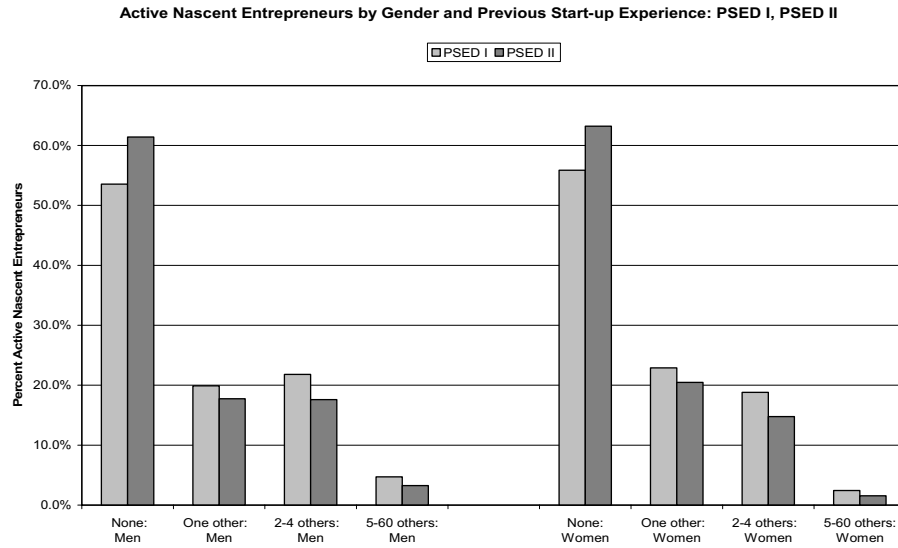


Fig. 4.5 Active nascents by previous start-up experience and gender: PSED I and PSED II.

proportion, 62% versus 54%, who report no other start-up experience in the PSED II cohort.

The amount of same-industry work experiences is described in Figure 4.6. About one quarter report either no prior experience in the same industry or report 15 or more years; there is clear diversity on this measure of human capital. There are systematic gender differences as well, as in both PSED I and PSED II cohorts women report somewhat less same-industry experience than men. About 8% to 10% more women report no same-industry experience.

There was a statistically significant difference between the two cohorts in industry experience ($p < 0.01$). Slightly fewer of the PSED II active nascents report no same-industry experience, 23% versus 25%, or more than 6 years of same-industry experience, 43% versus 47%, and slightly more from 1 to 5 years of same-industry experience, 35% versus 27%.

Some aspects of prior work experience are associated with the nascent entrepreneur's most recent, or last, employment. The size of the last employer is presented in Figure 4.7. There is a substantial

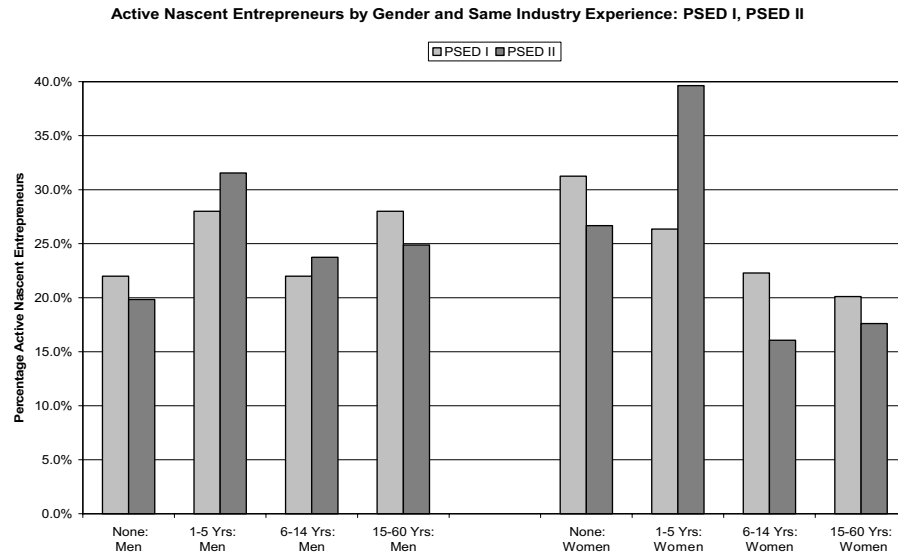


Fig. 4.6 Active nascents by same industry work experience and gender: PSSED I and PSSED II.

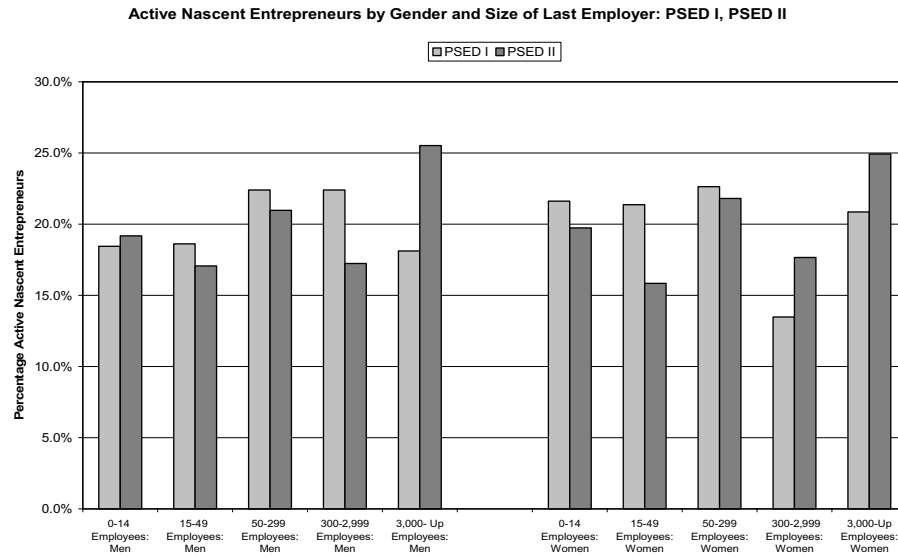


Fig. 4.7 Active nascents by size of last employer and gender: PSSED I and PSSED II.

range; 20% report working for a business with no more than 14 employees and almost one in four report working for an employer with three thousand or more employees. There is no statistically significant difference between the PSED I and PSED II active nascents. Further, there are no significant differences in the reports from men and women.

One feature of an employment experience is related to the distance between the individuals and those making critical decisions for the business. One measure of this “closeness” is the number of individuals between the person and the chief executive officer (CEO). The patterns are provided in Figure 4.8.

About one-third report they were either the decision-maker or reported directly to that person. Another one-third report they were two or three individuals away from the decision-maker. About 12%, one in eight, report they were 10 or more individuals away from the decision-maker; these are persons with experiences in rather large work organizations. There are no significant differences reported by men or women or between the PSED I and PSED II cohorts on this feature of work experience.

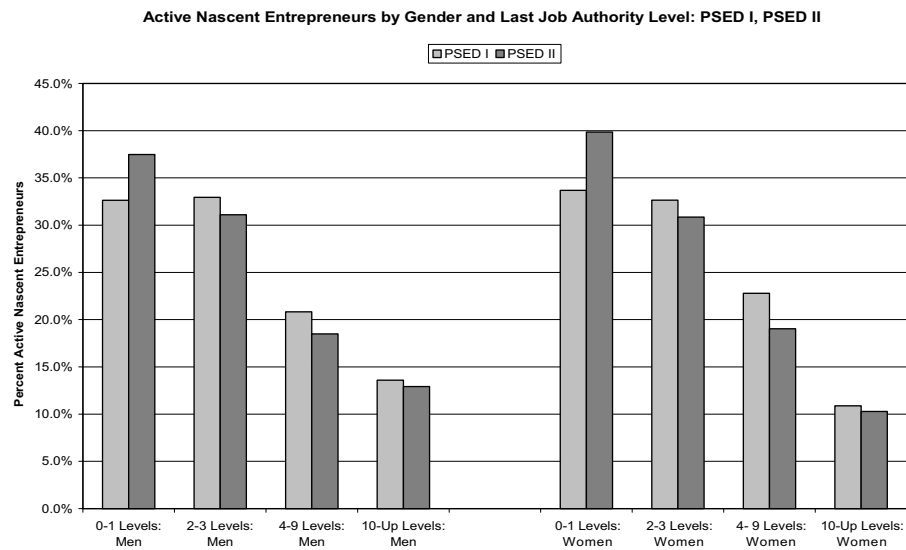


Fig. 4.8 Active nascents by last job authority level and gender: PSED I and PSED II.

At the time of the initial detailed interview, the active nascent entrepreneurs were asked about their current labor force activities. The interview procedure allowed them to report on more than one activity. They could report, therefore, full time work and major responsibilities for housework, part time work and status as a student, full time work and acting as a manager of a business and housework, and so on. As a result, the total counts of activities could be much larger than the number of active nascent entrepreneurs. The percentage reporting each type of activity is provided in Figure 4.9.

Full or part time work is one of the major categories, and the proportion reporting one or the other is greater in the PSED II cohort, 75% compared to 69% in PSED I ($p < 0.01$). This is true for both men and women. This work for pay is, however, concurrent with efforts to create a new business. Several other activities are reported more frequently in the PSED II cohort, such as unemployment, disability or retirement; suggesting that individuals from more diverse situations were pursuing a firm start-up in 2005. The most important feature of this assessment,

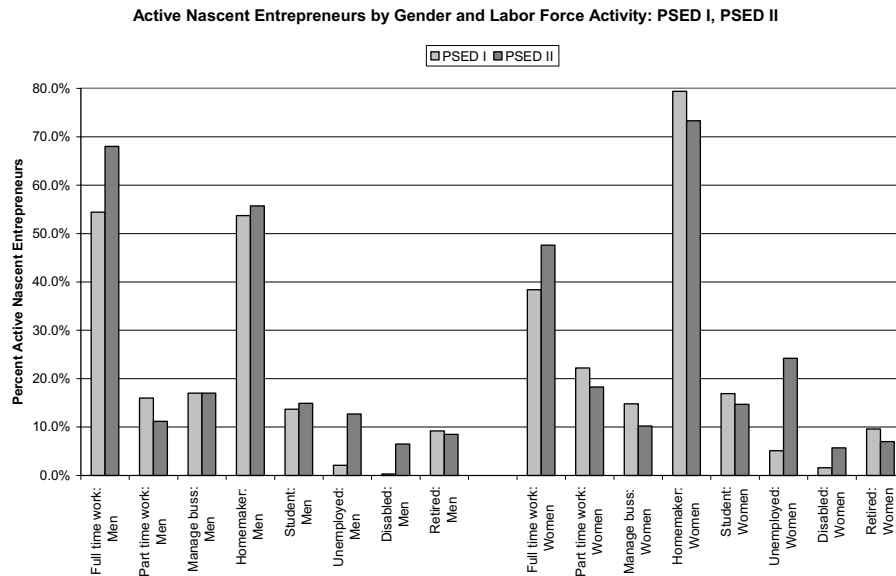


Fig. 4.9 Active nascents by labor force activity and gender: PSED I and PSED II.

however, may be the substantial complexity in the labor force activity of these active nascent entrepreneurs; most are doing many things at the same time.

4.3 Commentary on Educational and Financial Background

Perhaps the most striking feature of the educational and financial background of active nascent entrepreneurs is the very wide range represented in both the PSED I and PSED II cohorts. A substantial proportion of these cohorts are individuals with different levels of educational attainment, household income, and household net worth — from very modest to the most advanced. There is evidence of some shifts toward a larger proportion in PSED II with less educational experience and more modest financial resources, but these shifts do not detract from the substantial diversity among all active nascent entrepreneurs.

There is also considerable diversity in prior experience in the same industry, where women appear to report less experience than men. Employment experience is also quite diverse, with considerable variety in the size of the last employer as well as the closeness of the active nascent entrepreneur to the organizational decision-makers.

The labor force activity at the time of the first detailed interview is quite diverse, with many individuals reporting multiple labor force activities. Most significant is that about two-thirds report full or part time work while they are actively engaged in creating a new firm.

4.4 Household, Family Context

Useful measures of the household and family context would include the extent of home ownership, the marital status of the active nascent entrepreneur, indicators of household size and structure, as well as the presence of children in the household. These are summarized in Table 4.4.

Two-thirds of all active nascent entrepreneurs report home ownership; there are no statistically significant gender differences within the two cohorts. About one quarter of active nascents have never married, about 60% are currently married or “living as married,” about one in

Table 4.4 Active nascents by household context: PSED I and PSED II.

	PSED I (%)	PSED II (%)	Stat. Sign
Home is owned by a HH member	66.3	66.2	$p = 0.9597$
Home is rented	33.7	33.8	
	100.0	100.0	
Never married	17.7	28.3	$p < 0.0001$
Married, partners	69.0	56.9	
Divorced, separated, widowed	13.3	14.8	
	100.0	100.0	
Total household: One person	13.8	15.3	$p = 0.9323$
Total household: Two person	25.1	25.1	
Total household: Three person	20.5	20.0	
Total household: Four person	19.9	19.6	
Total household: Five or more person	20.8	20.0	
	100.1	100.0	
Adults in household: One person	19.7	20.4	$p = 0.2669$
Adults in household: Two persons	60.1	56.5	
Adults in household: Three persons	14.0	14.8	
Adults in household: Four or more persons	6.1	8.3	
	99.9	100.0	
Kids (0–17-years old) in household: None	46.0	48.9	$p = 0.3432$
Kids (0–17-years old) in household: One person	18.4	19.4	
Kids (0–17-years old) in household: Two person	18.8	17.6	
Kids (0–17-years old) in household: Three or more persons	16.9	14.1	
	100.1	100.0	

six are divorced or separated. A very small proportion, less than 2%, are widowed. As shown in Table 4.4, there are some differences between the two cohorts. A larger proportion of the PSED II cohort have yet to be married, 30% compared to 18% for the PSED I cohort, perhaps reflecting their younger ages. While there is no gender difference for the PSED I cohort, the men in the PSED II cohort are more likely to be “never married” than the women.

The total household size, including persons of all ages, is not different for the two cohorts. As reflected in Table 4.4, about 15% of the active nascents are in a single person household. The remainder is evenly distributed across households of two to four persons. One-in-five are in households with five or more persons. There is no difference between men and women with regard to the total household sizes.

There is no difference between the cohorts in the number of children in the households, as shown in Table 4.4. Almost half report no chil-

dren under 18 years of age; about one-fifth (19%) report a single child and another one-fifth (18%) report two children. Only a very small proportion (2%) report five or more children. While there is no gender difference for the PSED I active nascent entrepreneur cohort, there is a statistically significant difference ($p < 0.03$) for the PSED II cohort; women are slightly more likely to report the presence of children in the 2005 sample.

In general, then, active nascent entrepreneurs appeared to have a full family life. Most were associated with home ownership and lived in multi-person households; children were present in the homes of half of the active nascent entrepreneurs. Some small differences seemed to reflect an increase in younger male adults becoming involved in business creation in the PSED II cohort. This was reflected in more never married men and men in households without children in the PSED II cohort. These changes were less apparent for women.

4.5 Motivations and Orientations Toward Entrepreneurship

A number of personal orientations or perspectives related to entrepreneurship have been measured. Perhaps most relevant are differences in motivations to create new firms, personal preferences and attributes, current career options, and preferences regarding the growth of the new business.

A well-developed set of 14 items was used to determine the motivational emphasis of the nascent entrepreneurs in the PSED II phone interview. They were also asked of the PSED I nascents in a self-administered written questionnaire. Both used the same five response scale regarding the importance of the items, ranging from “no extent” to “a very great extent.” Factor analysis was used to identify the items suitable for four indices. The average of the items responses were used to produce an index value. The four indices, with the measure of reliability in brackets, were as follows:

- *Autonomy*, reflecting the freedom to adapt work activities and flexibility in personal and family life (2 items, Alpha = 0.64).

- *Wealth*, reflecting the importance of a larger personal income, financial security, and greater wealth (3 items, Alpha = 0.79).
- *Achievement*, reflecting importance of higher status, recognition, development of new business ideas, fulfilling a personal vision, and ability to influence an organization (5 items, Alpha = 0.76).
- *Respect*, reflecting the importance of following the family tradition, following the example of admired persons, respect from friends, and a business for one's children (4 items, Alpha = 0.69).

The measures of reliability, the Chronbach Alpha values, reach generally acceptable levels.

The results for the PSED I and PSED II cohorts, by gender, are provided in Figure 4.10. In each set of four bars, the first two reflect the PSED I cohort, men and women, and the second two the PSED II cohort, men and women. The relative emphasis in the two cohorts

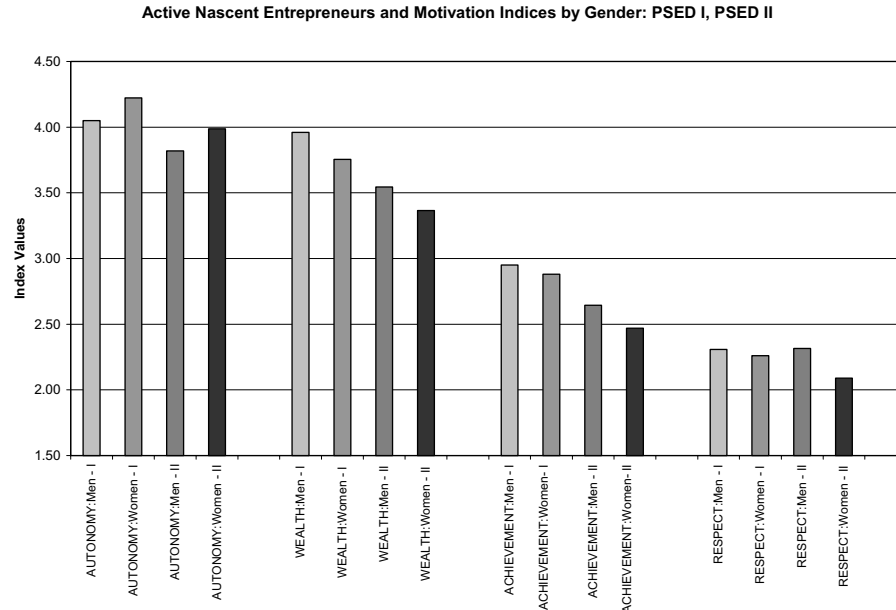


Fig. 4.10 Active nascents by motivational dimensions and gender: PSED I and PSED II.

is the same, with both providing an average response of “to a great extent” to autonomy, between “to a great extent” and “some extent” to measures of wealth, below “some extent” and above “little extent” to the potential for achievement, and “to a little extent” to the potential for respect.

In general, women put slightly less emphasis on achievement, wealth, and respect and a slightly greater emphasis on autonomy; these differences are statistically significant. Active nascent entrepreneurs in the PSED II cohort reflect a slightly reduced emphasis on achievement, wealth and autonomy, with no statistically significant difference related to respect. Not only is the rank order of the dimensions the same for the two cohorts, but it is the same for men and women for the two cohorts.

In summary, the motivations of the active nascent entrepreneurs appear consistent for the PSED I and PSED II cohorts. They could, of course, be quite different for specific active nascent entrepreneurs in either cohort.

The same strategy was used in the development of self-described personal attributes. Thirteen items were almost the same in the two cohorts, determined in phone interviews in PSED II and in a self-administered written questionnaire in PSED I. Items referred to the accuracy or appropriateness of the terms as descriptions of the respondent, answers were provided on a five-point scale with the intermediate point being “neutral” or “it depends” or “neither.” These were converted to a five-point scale; the high number reflects a more accurate self-description.

Eleven of these 13 items were found, based on factor analysis, to provide three useful indices:

- *Background*, including judgments about valuable past experience, appropriate skills, ability to invest the effort required, and the ability to be an effective conversationalist (4 items, Alpha = 0.66).
- *Intensity*, including capacity for a maximum personal effort, willingness to do whatever it takes, desirability of entrepreneurship as a career option, and relevance of the new firm to personal goals (4 items, Alpha = 0.68).

- *Self-Reliant*, reflecting a tendency to be a loner, enjoying coping with uncertainty, and capacity for concealing emotions (3 items, Alpha = 0.30).

It would be better if the last index related to self-reliance had improved reliability, but it is suitable for preliminary analysis. The average value for the relevant items was the basis for the index. The results are presented in Figure 4.11.

The active nascent entrepreneurs tend to consider themselves to have the appropriate background and intensity for start-ups; the average value is “slightly agree” to these items. They are neutral on the extent to which they are self-reliant. Men are more likely to consider themselves as having the appropriate background and self-reliant, but they do not differ from women with regards to intensity.

Those in the PSED II cohort tend to consider themselves as having a slightly more appropriate background and greater intensity or commitment; they are less likely to consider themselves self-reliant. These differences may be due to the lower reliability of the self-reliant scale

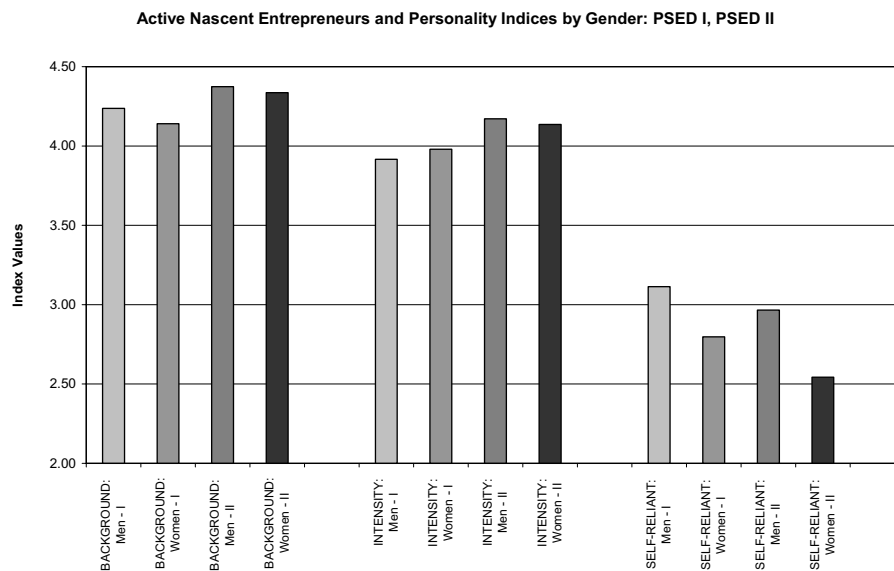


Fig. 4.11 Active nascents by personal descriptions and gender: PSED I and PSED II.

or reflect the use of different data collection procedures, self-completed questionnaire for PSED I and phone interviews for PSED II.

As with the motivational dimensions, the most important feature of the personal descriptions may be the relative accuracy assigned to the different personal descriptions; possessing the relevant background and an intensity of commitment were considered accurate self-descriptions. These patterns are the same for both the PSED I and PSED II active nascents and for both men and women.

A measure of the external or contextual factors that lead to participation in the start-up process was determining if the effort was voluntary, reflecting a desire to pursue new business opportunities, or a reaction to an absence of suitable work options, reflecting actions taken out a necessity to participate in the economy. The item, “Are you involved in this new business to take advantage of business opportunity or because you had no better choices for work?” has been widely used in international surveys of nascent entrepreneurs. While this question was not included in the PSED I interviews of 1998–2000, it has been asked in three other US samples from 2002 through 2004.² Over 90% of the respondents chose one of the two options and a substantial proportion of the other 10% can be classified into one of the two categories. The results are presented, by gender, in Figure 4.12.

There is little change across these four years, with about 12% reporting necessity as the primary motivation. There are, in addition, no statistically significant differences by gender. In the United States, most active nascent entrepreneurs can be considered volunteers pursuing business opportunities; less than one in eight are driven into start-ups by a lack of other options.

Personal orientation toward a growth business were captured by answers to a question that asks nascent entrepreneurs to chose between developing a business that is “as large as possible” and one that could be managed “by myself or with a few key employees.” The results, by gender, are presented in Table 4.5. There is a statistically significant

²Data for 2002 and 2003 from Paul D. Reynolds, Global Entrepreneurship Monitor Adult Population Data sets: 1988–2003, available from ICPSR as Project 20320. Data for 2004 from Paul D. Reynolds, United States Entrepreneurial Assessment, 2004. ICPSR 4688.

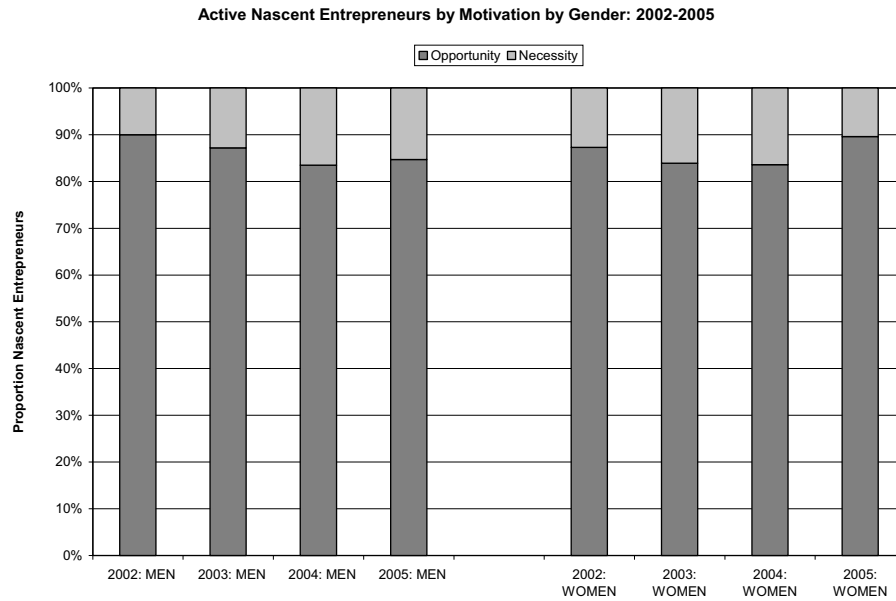


Fig. 4.12 Active nascents by career options and gender: 2002–2005.

Table 4.5 Active nascents by growth orientation and gender: 2002–2005.

	PSED I (%)	PSED II (%)	Stat. Sign
Men: Easy to manage	74.9	75.3	$p = 0.9557$
Men: Maximize growth	24.1	24.7	
	99.0	100.0	
Women: Easy to manage	84.0	81.7	$p = 0.2580$
Women: Maximize growth	16.0	18.3	
	100.0	100.0	

difference by gender, women are less likely to emphasize maximization of growth; but there is no difference between the PSED I and PSED II nascent entrepreneurs. In both cohorts about 22% favor maximum growth.

In summary, there are few differences regarding motivation, personal descriptions, reaction to career options, and growth orientations between the PSED I and PSED II active nascent entrepreneurs. In both groups major sources of motivation are autonomy and wealth, less for achievement and developing respect. Active nascents in both cohorts

consider themselves to have an appropriate background and the intensity suited to the firm creation process; they are less likely to consider themselves as self-reliant. The vast majority is acting to develop a business opportunity; very few are involved out of necessity. Three-quarters prefer a new business that is easy to manage, only one in five want to maximize the growth of the new firm.

4.6 Overview

The description of those consider active nascent entrepreneurs has emphasized two cohorts of individuals involved in firm creation, samples which represent the 12 million persons involved in the United States. Perhaps most striking was the similarity of the patterns in the PSED I and PSED II samples. Indeed, in many cases the patterns were identical. The type of individual attracted to participation in business creation has changed very little between 1999 and 2005.

Men continue to outnumber women as active nascent entrepreneurs by a three-to-two margin. About 80% are between 25 and 54 years of age and two-thirds are White. Most, 85% or more, are born in the United States; just 5% are born outside the United States of parents also born outside the United States. Most have lived in the same state and county for a substantial period of time. Most have finished high school but only about one-third have finished college and about one-sixth have some graduate experience. About half had parents who managed a business, but less than one-in-four worked for their parents. Well over half are married, a substantial minority has never married, and most are in multiple person households and half live in households with children. Most nascents are from households with intermediate levels of income, with just one-in-six from households with income in excess of \$100,000 per year. Nine-of-ten are from households with a net worth of less than half a million. Six-in-ten have no prior start-up experience, one-in-four no prior experience in the industry of the start-up. One-in-five report five or more prior start-up efforts; one-in-four more than 15 years experience in the industry of the start-up. About four-in-five are engaged in work or managing a firm while they pursue a new start-up; prior work experience is very diverse in terms of the size of the employer

and the level of responsibility. Primary motivation is a combination of desires for autonomy, wealth, achievement, and prestige, in that order. Five-in-six are attracted to the business opportunity; the remainder are pursuing their best option for work. One-fourth expect to maximize the growth of the firm; the remainder prefer a firm that is easy to manage.

While there are some differences between men and women, in addition to the higher levels of participation by men, they were generally matters of degree. There is no dominant type of male or female nascent entrepreneur. What is striking is the diversity among the personal situations, individual characteristics, and focus of the nascent entrepreneurs. Clearly, new firm creation is an accepted career option across all segments of the US population.

5

Nascent Enterprises

Nascent entrepreneurs, described in Section 4, are focused on creating a new firm, with their start-up initiatives characterized as nascent enterprises. The successful ones will have turned their nascent enterprises into new firms that affect the supply and demand of goods and services as independent business entities. It is appropriate to review the nature of these nascent businesses, which can be considered in terms of:¹

- Start-up teams: size, ownership, and family relationships
- Characteristics of the nascent enterprises
- Strategic and market orientations of the firms
- Orientations toward growth and market impact
- Number and nature of the start-up activities
- Sweat equity: start-up team investments of time and money

Comparison of the PSED I and PSED II nascent enterprises suggests two broad changes. First, a larger proportion of the PSED II nascent entrepreneurs seem less involved and, perhaps, less prepared to cope

¹ As mentioned on pages 23 and 24, it is likely that the cohort of nascent enterprises contains an over-representation of team start-ups; no adjustment is made to correct for this potential bias (Davidsson, 2004).

with the challenge of new firm creation. Second, concurrent with this development, there may be a larger proportion of PSED II nascent enterprises that are more sophisticated and well financed. In short, both the proportion of naïve hobbyists and “high-potential entrepreneurship” may have increased, with a smaller proportion in an intermediate status.

5.1 Start-up Teams: Size, Ownership, and Family Relationships

A summary of the major characteristics of those who expected to own part of the nascent enterprises is provided in Table 5.1. The presentation is based on a separation of expected human and legal, or juristic, owners. Legal or juristic owners reflect other business or financial institutions that are expected to share ownership (or equity) in the new venture; they are involved in about 4% of the new ventures. Regardless of whether or not juristic owners are included in the calculation of the

Table 5.1 Start-up team size, composition: PSED I and PSED II.

	PSED I	PSED II	Stat. Sign
Number of cases (unweighted)	824	1148	
<i>Start-up team average size</i>			
Start-up team: Human & legal entities	1.78	1.69	$p = 0.02$
Start-up team: Human entities	1.75	1.64	$p = 0.01$
<i>Start-up team: Human & legal entities</i>			
One	47.2%	52.1%	
Two	38.3%	34.6%	
Three	6.8%	7.0%	
Four	4.2%	5.3%	
Five or more	3.4%	1.0%	$p = 0.0007$
<i>Start-up team: Human entities</i>			
One	48.5%	53.8%	
Two	38.0%	34.2%	
Three	6.8%	6.8%	
Four	3.9%	4.6%	
Five or more	2.8%	0.5%	$p = 0.0002$
<i>Start-up team: Legal entities</i>			
None	97.5%	96.9%	
One	1.9%	2.1%	
Two	0.4%	0.4%	
Three	0.0%	0.5%	
Four	0.3%	0.1%	$p = 0.28$

average size of the start-up teams, there has been a slight but statistically significant decline in the average size, from 1.78 to 1.69 for all owners and from 1.75 to 1.64 when only human owners are considered.

The decline in the number of owners was due to an increase in one owner firms, which has increased from 47.2% to 52.1% of the total group. The percentage with larger teams, of five or more individuals, has shown a major decline, falling from 3.4% to 1.0%. These shifts in start-up team size are highly statistically significant, although the substantive impact may not be large. This shift may also reflect the increased numbers of “hobbyists,” those involved in start-ups but less intent on starting an operating business.

There are two ways to assess the character of the human participants in the start-up team. One is to focus on each nascent entrepreneur as a representative of the nascent enterprise, the other is to consider all those identified as participating as part of the start-up team. The survey procedure allowed for up to four additional members to be so described. The 824 nascent firms in 1999 had a total of 1,439 expecting to own a new venture; the 1,148 in 2005 had 1,880 involved. Descriptions of all human owners in start-up team are presented in Table 5.2.

Remarkably, there has been virtually no change in the proportion of men and women involved; men are 63% in 1999 and 62% in 2005. There has been a shift in the age distribution, with slightly larger proportions of those under 25 and over 55 years of age in the PSED II start-up

Table 5.2 Start-up team human owner characteristics: PSED I and PSED II.

	PSED I	PSED II
Number of cases	824	1148
Total all persons on start-up teams	1439	1880
Male	62.7%	62.3%
Female	37.3%	37.7%
18–24-years old	9.6%	13.9%
25–34-years old	30.8%	27.3%
35–44-years old	29.8%	25.7%
45–54-years old	21.1%	19.7%
55-up-years old	8.5%	13.4%
White	71.1%	71.1%
African American	16.5%	12.5%
Hispanic	8.4%	4.0%
Other/Mixed	4.1%	12.5%

teams; this shift to a broader range of ages appears to be statistically significant.

Changes in the ethnic background of those involved in start-ups are difficult to interpret due to the changes in the way ethnic background is classified. Following the new procedures developed by the United States Census, a substantially larger proportion are classified as having either a mixed ethnic background or not included as White, African American, or Hispanic. Other than evidence that the proportion of Whites, 71%, is exactly the same for both PSED I and PSED II, no other interpretation seems justified by the available data.

The involvement of family members or relatives in a start-up is of considerable interest for issues related to policy as well as understanding the dynamics of business creation.² A comparison of the PSED I and PSED II start-up teams in terms of ownership within families and relatives is provided in Table 5.3. Interpretations are complicated by the large proportion of start-ups that are legally sole proprietorships. As shown in Table 4.3, this is about 50% in both the PSED I and PSED II cohorts, although it was slightly greater in PSED II. Non-family teams represent about one in five nascent businesses, so it would be possible to argue that 70% were “not family” firms. On the other hand, many would argue that sole proprietorships often require considerable support and assistance from family and relatives and should be considered family businesses. In that case, about 80% of all start-up efforts would be considered family firms.

Table 5.3 Start-up team and family participation: PSED I and PSED II.

	PSED I (%)	PSED II (%)	Stat. Sign
<i>Start-up team: Family ownership</i>			
Sole proprietorship	48.0	54.2	
Spousal/intimate partner pair	23.6	20.9	
Family team: 50% or more of relationship	6.7	7.3	
Non-family team	21.7	17.6	$p = 0.02245$
	100.0	100.0	
<i>Start-up teams only</i>			
Spousal/intimate partner pair	45.4	45.6	
Family team: 50% or more of relationship	12.9	16.0	
Non-family team	41.7	38.4	$p = 0.32328$

²For this assessment, legal or juristic owners are not included.

The bottom of Table 5.3 reviews the patterns only among those where a human team is identified as expecting ownership of the new firm. Among teams, about 45% are a spouse or intimate pair and another 13%–16% involve more than half of the ownership within a single family group. About 40% of start-up teams, or about 20% of all nascent enterprises, are composed of individuals with no marital or family relationships. This proportion is the same for both the PSED I and PSED II cohorts.

5.2 Nature of the Nascent Business Entity

The economic sector of the nascent firms in 1999 and 2005 are presented in Table 5.4, along with data on the sector distribution for non-employer firms or sole proprietorship firms and employer firms for years between 1999 and 2005. The most recent NAICS coding scheme is used for the comparison. The assessment makes clear that almost all sectors are represented in the two PSED samples. Given the large number of categories, many with small proportions of the total, and the adjustments required to reclassify the 1999 sample into this new classification scheme, it is difficult to identify any significant shifts between 1999 and 2005, although there are some changes. There does seem to be more retail and professional, scientific, and technical service firms in the PSED II cohort than identified by the Economic Census. Much larger samples would be required to identify major shifts in the distribution across economic sectors.

The major business characteristics of the new ventures are presented in Table 5.5. The dominant form is an independent effort implemented by the start-up team, accounting for 84% of the 1999 nascent firms and 82% of those in 2005. A small proportion, 3%, appear to be some type of acquisition, another small percent the development of a franchise, about one-in-twenty a form of multi-level marketing, such as Amway distributors, and another 7% sponsored by existing businesses. Differences between 1999 and 2005 are small, even though they are statistically significant.

Interpretation of changes in the legal form is complicated by a shift in the interview procedure; in 1999 questions asked about the expected

Table 5.4 Economic sector of nascent ventures: PSED I, PSED II, and national distributions.

NAISC		PSED I	PSED II	US Non- employer Firms ^a	US Employer Firms ^b
	Number of cases (unweighted)	824	1148	17,645,062	5,657,774
11	Agriculture, Forestry, Fishing, and Hunting	4.0%	3.1%	1.2%	0.5%
21	Mining	0.0%	0.1%	0.5%	0.3%
22	Utilities	0.0%	0.0%	0.1%	0.1%
23	Construction	6.8%	10.6%	11.7%	12.1%
31-33	Manufacturing	4.5%	6.5%	1.6%	5.3%
42	Wholesale Trade	3.1%	4.4%	2.1%	6.0%
44-45	Retail Trade	20.3%	19.1%	10.4%	12.8%
48-49	Transportation and Warehousing	1.9%	2.3%	4.6%	2.7%
51	Information	6.6%	4.3%	1.3%	1.4%
52	Finance and Insurance	2.8%	2.7%	3.7%	4.0%
53	Real Estate, Rental, and Leasing	3.4%	4.7%	0.7%	4.3%
54	Professional, Scientific, and Technical Services	14.3%	16.8%	14.5%	11.9%
55	Management of Companies and Enterprises	0.2%	0.0%	7.2%	0.5%
56	Adm, Support, Waste Mgt, and Remediation	3.3%	0.3%		5.4%
61	Educational Services	1.9%	2.0%	2.0%	1.1%
62	Health Care and Social Assistance	5.1%	4.5%	8.3%	9.5%
71	Arts, Entertainment, and Recreation	4.3%	3.8%	4.9%	1.7%
72	Accommodation and Food Services	4.3%	5.4%	1.4%	7.3%
81	Consumer Services	12.7%	9.4%	13.9%	11.5%
92	Public Administration	0.4%	0.0%		0.0%
99	Unclassified				1.4%
		99.9%	100.0%	100.0%	99.9%

^a2002 Economic Census: www.census.gov/epcd/nonemployer/2002adv/us/US000.HTM (10 Feb 2005).

^b2001 Counts: www.sba.gov/advo/research/date.htm#us (20 Feb 2005).

legal form while in 2005 they asked about the current legal form. As a result, no legal form is provided for 37% of the PSED II sample where no legal form is present. Nonetheless, sole proprietorship is the dominant legal form. Limited Liability Corporations (LLC) may have gained in popularity between 1999 and 2005.

Table 5.5 Business characteristics of nascent ventures: PSED I and PSED II.

	PSED I	PSED II	Stat. Sign
Number of cases: unweighted	824	1148	
<i>Nascent firm characteristic: Firm type</i>			
Independent, autonomous start-up	83.5%	82.4%	
Purchase, takeover, inherited	2.7%	2.8%	
Franchise	1.0%	3.2%	
Multi-level marketing	4.9%	5.0%	
Sponsored by existing business	6.6%	6.6%	
Other	1.4%	0.0%	$p < 0.0001$
<i>Nascent firm characteristic: Legal form</i>			
[PSED I-expected; PSED II-current]			
Sole proprietorship	48.9%	37.2%	
General partnership	19.2%	6.6%	
Limited partnership	7.0%	2.4%	
Corporation: Limited Liability	3.6%	10.6%	
Corporation: Subchapter S	6.7%	4.5%	
Corporation: General (C-corp)	9.3%	2.0%	
Other/not yet determined	5.2%	36.7%	NA
<i>Nascent firm characteristic: Location</i>			
Personal Residence	64.0%	45.4%	
Existing business site	9.5%	6.1%	
Dedicated location for the new firm	14.2%	8.7%	
Not needed yet	10.4%	38.8%	
Other/mixed categories	1.8%	0.9%	$p < 0.0001$

The location of the nascent firm indicates that the majority were located in private residences at the time of the interview. It is of some interest that the proportion reporting that a location was not yet needed increased from 10% to 39% between 1999 and 2005. This may suggest that a larger proportion of the PSED II nascent enterprises are “less developed” than those in the PSED I cohort.

5.3 Strategic and Market Orientation

Most new firms have some plan for attracting customers, known as their competitive strategy. Selected aspects of the competitive strategy, expected customer base, and the extent of a high technology focus are provided in Table 5.6.

While the same seven competitive strategy items were used in both PSED I and PSED II, the response scales were different. The cohorts are, therefore, compared on the rank order of the importance given to

Table 5.6 Aspects of strategic and market orientation: PSED I and PSED II.

	PSED I	PSED II	Stat. Sign
<i>Competitive strategy [Average ranking of options]</i>			
(PSED I four-point scale; PSED II five-point scale)			
Quality Goods and Services	1(3.61)	1(4.72)	
Niche: serving those missed by others	2(3.14)	2(4.32)	
Contemporary, attractive products	5(2.59)	3(3.97)	
Tech, scientific expertise of start-up team	3(2.71)	4(3.96)	
Superior location, customer convenience	4(2.69)	5(3.95)	
New, advance product, process technology	6(2.71)	6(3.79)	
Lowest price	7(2.53)	7(3.75)	
<i>Project scope of customer base</i>			
Local (up to 20 miles away)	59.1%	61.3%	$p = 0.1258$
Regional (20–100 miles away)	21.6%	20.7%	$p = 0.3959$
National (over 100 miles, within the United States)	17.4%	15.2%	$p = 0.0565$
International (outside the United States)	3.3%	3.0%	$p = 0.4909$
<i>High technology focus</i>			
ITEM: Technology not available 5 years ago	34.4%	22.9%	$p < 0.0001$
ITEM: R&D Spending a major priority	29.2%	25.0%	$p = 0.0228$
ITEM: Business is considered hi tech	36.4%	24.3%	$p < 0.0001$
Index Value (High = hi tech focus; 3 items; Alpha = 0.429)	0.981	0.7184	$p < 0.0001$

the seven factors. The results are, in fact, quite similar, with the same two factors, quality goods and services and servicing a niche missed by others, given maximum emphasis in both cohorts and the same factor, having the lowest prices, ranked as the least important. The other four strategic emphases — contemporary and attractive products, the technical expertise of start-up team, a superior location or customer convenience; and new or advanced products or technology, had intermediate rankings in both cohorts.

In a similar fashion, there is little change in the expected customer base, with 60% expecting customers to be local, within 20 miles of the new firm, 20% expected to be regional, within 100 miles, and most of the remainder, 15%, to be within the United States. Only 3% of the customers are expected to be from outside the United States. Both cohorts are similar in this regard.

Three items were utilized to determine the focus on high technology: use of new technology, firm emphasis on spending for research and development, and if the new firm was considered “high tech.” These three items can be combined to create a single index reflecting an emphasis on high technology. As shown at the bottom of Table 5.6,

the PSED II cohort indicates a statistically significant reduction in emphasis on high technology based on these self-report measures. It is not clear if the PSED I cohort was unusually high in high technology emphasis or the PSED II cohort was unusually low, but the difference is clearly statistically significant.

5.4 Growth and Market Impact

Three indicators are useful to determine the growth orientations of the nascent ventures. First is a single item that asks the respondent about their growth preferences, maximum growth or growth to a comfortable size, presented in Section 4. The other two are projections of the expected growth of the firm over the first five years, if it is established, in terms of sales and employment. All three are presented in Table 5.7 for nascent enterprises in 1999 and 2005.

There is no difference in the proportion of respondents that would like to maximize growth; it is about 22% in both cohorts. There are some statistically significant differences associated with projected job and sales growth. Larger proportions expect no job growth but also expect high levels of job growth in 2005 compared to 1999. In contrast a smaller proportion expects high levels of sales growth in 2005 compared to 1999. The overall pattern is, hence, quite mixed; it is reasonable to assume that growth orientations are about the same for 2005 as in 1999 but that the mix has shifted toward more sole proprietorships in 2005.

Table 5.7 Growth orientations associated with nascent ventures: PSED I and PSED II.

	PSED I (%)	PSED II (%)	Stat. Sign
<i>Growth preferences</i>			
Maximize Firm Growth	21.7	22.1	$p = 0.604$
Grow to a size that is easy to manage	78.3	77.9	
<i>Job growth projections: 5 years into future</i>			
None	18.3	38.1	$p < 0.0001$
Low	32.0	18.1	
Medium	33.3	16.5	
High	16.4	27.3	
<i>Sales growth projections: 5 years into future</i>			
None	5.6	5.7	$p = 0.0069$
Low	28.5	34.5	
Medium	30.2	31.3	
High	35.8	28.5	

There is much interest in the innovative impact of new firms on the nature of the markets for goods and services; the “creative” aspect of “creative destruction.” While most nascent entrepreneurs consider their new firm to provide something new — even if it is only one more restaurant, law firm, or software development venture — an estimate of the impact on changes in the markets is another matter. As an indicator of the expected market impact, the nascent entrepreneurs were asked three questions:

- Will all, some, or none of your potential customers consider this product or service new and unfamiliar?
- Right now, are there many, few, or no other businesses offering the same products or services to your potential customers?
- Were the technologies or procedures required for this product or service generally available more than a year ago?

It seems reasonable to assume that if customers are unfamiliar with the product or service, there is no competition, and if the nascent enterprise employs new technology the firm may have a major impact by providing a new good or service. The responses to these items are converted into a four-point scale related to the level of expected impact, from “none” to “little,” “some” and “maximum.”

While US results for these items are not available from the PSED I cohort the questions have been asked in three other US samples from 2002 through 2004.³ The results are presented, by gender, in Figure 5.1. There has been little significant change over time and little difference between men and women. About 5% expect to have a major impact on the market in which the new firm would participate, another 5% expect to have some impact, and 90% expect to have little or no impact. The majority of the new firms will, as a result, replicate or reproduce existing goods or services already available to potential customers. It is difficult to judge whether the 5% that expect to have a major impact

³Data for 2002 and 2003 from Paul D. Reynolds, Global Entrepreneurship Monitor Adult Population Data sets: 1988–2003, available from ICPSR as Project 20320. Data for 2004 from Paul D. Reynolds, United States Entrepreneurial Assessment, 2004. ICPSR 4688.

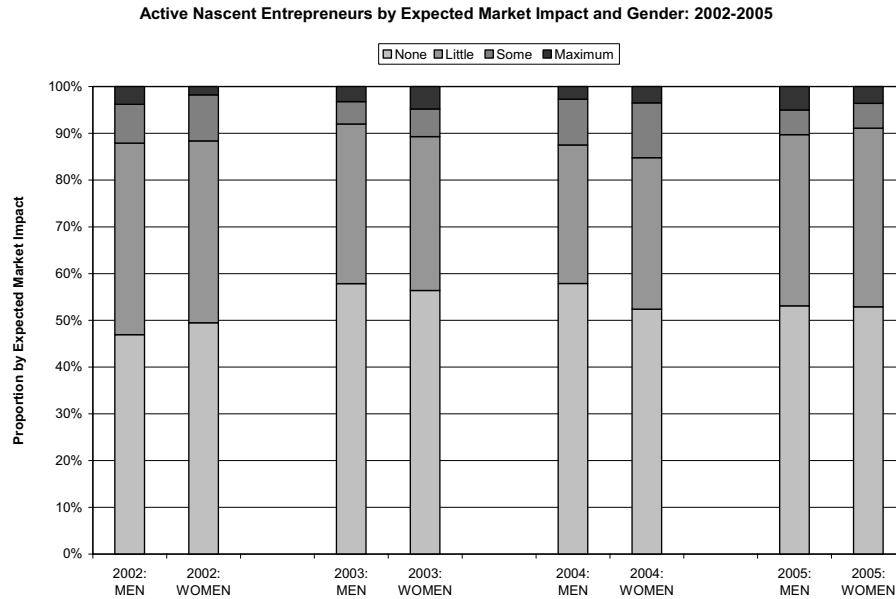


Fig. 5.1 Active nascents by expected market impact and gender: 2002–2005.

on markets represents an unusually high percentage of innovators. But if even 5% of seven million nascent enterprises have an impact on the markets in which they compete as they become operating businesses, it could have a significant impact on the economy.

5.5 Start-Up Activities

New firms do not emerge suddenly or spontaneously, but require a great many activities and substantial effort on the part of the start-up team. The detailed interviews gathered information related to the activities pursued during the start-up period as well as the time when they were initiated. While questions were specifically asked about 26 start-up activities in the PSED I procedures; enhancements associated with the PSED II procedure led to inquiries about a total of 34 start-up activities. Of these, 22 were utilized in both projects.

A summary of the proportion who reported each activity during the first detailed interview is provided in Table 5.8. They are ranked

Table 5.8 Start-up activities by prevalence: PSED I and PSED II.

Start-up activity	Indices	PSED I (%)	PSED II (%)	Average (%)
Serious thought given to the start-up		100	99	100
Actually invested own money in the start-up	SUI.4	87	75	81
Began saving money to invest in the start-up		69	—	69
Began development of model, prototype of product, service	SUI.5	79	53	66
Began talking to customers		—	66	66
Began defining market for product, service	SUI.4	86	40	63
Organized start-up team		58	—	58
First use of physical space		—	57	57
Purchased materials, supplied, inventory, components	SUI.2	70	43	57
Initiated business plan	SUI.3	61	48	55
Began to collect information on competitors		—	49	49
Purchased or leased a capital asset	SUI.2	52	41	47
Began to promote the good or service	SUI.2	56	36	46
Receive income from sales of goods or services	SUI.2	40	47	44
Took classes, seminars to prepare for start-up		41	—	41
Determined regulatory requirements		—	39	39
Open a bank account for the start-up	SUI.1	35	29	32
Established phone book or internet listing	SUI.1	17	44	31
Developed financial projections	SUI.3	37	25	31
Arranged for child care, household help		31	—	31
Began to devote full time to the start-up	SUI.1	31	29	30
Established supplier credit	SUI.2	34	19	27
Legal form of business registered		—	26	26
Sought external funding for the start-up	SUI.3	23	13	18
Hired an accountant		—	17	17
Liability insurance obtained for start-up		—	14	14
Established dedicated phone line for the business		14	—	14
Initiated patent, copyright, trademark protection	SUI.5	20	4	12
Hired a lawyer		—	12	12
Hired an employee	SUI.1	14	7	11
Received first outside funding		—	9	9
Joined a trade association		—	7	7
Proprietary technology fully developed		—	5	5
Initial positive monthly cash flow	SUI.2	2	3	3

Table 5.8 (*Continued*)

Start-up activity	Indices	PSED I (%)	PSED II (%)	Average (%)
Acquired federal Employer Identification Number (EIN)		—	18	18
Filed initial federal tax return	SUI.6	17	12	15
Filed for fictitious name (DBA)		—	11	11
Paid initial federal social security payment	SUI.6	13	9	11
Paid initial state unemployment insurance payment	SUI.6	8	4	6
Know that Dun and Bradstreet established listing		3	3	3

in terms of the average prevalence for both cohorts. Twenty activities used in both projects could be used to develop six indices, presented in Table 5.9. The items in each index are listed in the second column of Table 5.8.

It is no surprise to discover that virtually all nascent entrepreneurs reported giving serious thought to the start-up by the first detailed interview; it is listed separately at the top of Table 5.8. Six activities

Table 5.9 Start-up activities, selected aspects; PSED I and PSED II.

	PSED I	PSED II	Stat. Sign
<i>Start-up acts</i>			
Total included on the interview schedule	26	34	
Number reported on first interview (average)	8.8	7.2	$p < 0.0001$
Percent reporting 1–4 activities	12.5%	30.0%	
Percent reporting 5–8 activities	37.9%	38.0%	
Percent reporting 9–10 activities	18.3%	15.1%	
Percent reporting 10–20 activities	31.3%	16.9%	$p < 0.0001$
	100.0%	100.0%	
SUI.1: Business presence index, % of 4 activities (Alpha = 0.55)	24.3%	27.2%	$p = 0.0251$
SUI.2: Production implementation index, % of 6 activities (Alpha = 0.63)	42.3%	31.5%	$p < 0.0001$
SUI.3: Organizational, financial index, % of 3 activities (Alpha = 0.48)	40.2%	29.1%	$p < 0.0001$
SUI.4: Personal planning index, % of 2 activities (Alpha = 0.21)	86.2%	57.6%	$p < 0.0001$
SUI.5: Task, Product development index, % of 2 activities (Alpha = 0.22)	49.5%	28.7%	$p < 0.0001$
SUI.6: Business registration index, % of 3 activities (Alpha = 0.64)	12.5%	8.2%	$p < 0.0001$

related to the new firm being listed in different business registries are at the bottom of Table 5.8. Less than one in five of the start-ups have completed any of these registration activities. Of the remaining 33 activities, less than 10 have been initiated by more than half of the nascent enterprises. This reflects both the considerable diversity in how new businesses are developed and the different requirements for nascent enterprises in different markets. For example, intellectual property rights will be relevant for only a minority of the start-ups. For a substantial proportion it will not be necessary to purchase or lease major capital assets. Liability insurance is critical in some sectors; less so in others. Perhaps reflecting the success of the procedure for capturing nascent enterprises in their early stages, only about half have begun to develop a business plan by the first detailed interview.

In short, the diversity of emphasis is perhaps the most striking feature of systematic attention to the activities involved in implementing a new firm.

A summary of the start-up activities is provided in Table 5.9. This indicates a somewhat lower level of activity reported among those in the PSED II cohort. The average number of acts reported is statistically significantly lower, 7.2 versus 8.8. Over twice as many PSED II nascents report less than 4 activities when compared to PSED I nascents (30% versus 12%). Almost twice as many PSED I nascent entrepreneurs report over 10 activities (31%) compared to PSED II nascents (17%). This is in spite of the larger range of activities included in the PSED II interview (34 versus 26).

Using twenty activities included in both PSED I and PSED II interview schedules, it has been possible to complete a factor analysis and prepare six indices, each reflecting the proportion of acts reported at the first interview. Items in each of these start-up activity indices are identified in Table 5.8; the relative frequency for each is provided at the bottom of Table 5.9. There is a statistically significant difference between the two cohorts on all six indices. On only one index, related to acts that would enhance the business presence, did the PSED II cohort report more activity. On the other five indices, those in the PSED II cohort report less activity — consistent with the overall reduction in start-up activity in the PSED II cohort.

An appropriate interpretation of these differences is a challenge. First, the differences are statistically significant but, substantively speaking, rather small. Second, several methodological procedures implemented in PSED II were designed to expand the “capture” of nascent enterprises. Both the improved screening item wording and the use of a third item could increase the proportion of “marginally involved” nascent entrepreneurs in the cohort. Perhaps as important, procedures were implemented that reduced the time between the screening interview and the initial detailed interview, which may serve to increase the proportion of “marginally involved” nascent entrepreneurs. Resolving these differences will require more information over a longer proportion of the start-up window and must wait until more follow-up interviews are completed.

5.6 Sweat Equity: Start-up Team Investments of Time and Money

While the activities pursued to implement a new firm may be diverse, they all require some time and many involve financial outlays. The amount of time (Table 5.10) and funds (Table 5.11) invested in the nascent enterprise prior to the initial detailed interview was determined for all members of the start-up team who expected to own part of the new firm.

Because of a small number of extreme values, the average per nascent enterprise is provided in two forms in Table 5.10. The data is provided before and after extremely high values were reset to three standard deviations above the mean value. Without this correction, it would appear that the PSED II nascent start-up teams were devoting significantly more time than those in the PSED I cohort (1943 hours versus 1496 hours). However, after this adjustment is made the averages are almost identical, just under 1500 hours.

When four different measures of the time input are examined — total hours, total hours per team member, total hours per month, and total hours per month per team member — there were some differences. Measures related to total hours suggest little substantive difference between the PSED I and PSED II cohorts, despite the statistically

Table 5.10 Sweat equity: Start-up team investments of time: PSED I and PSED II.

	PSED I	PSED II	Stat. Sign
<i>Time investments from start-up team</i>			
Average total hours, all team members: includes extreme values	1496	1943	$p = 0.0467$
Average total hours, all team members: extreme values reset	1438	1495	$p = 0.6613$
Total hours, all team members: Up to 50	17.8%	20.0%	$p < 0.0001$
Total hours, all team members: 51–250	21.4%	25.3%	
Total hours, all team members: 251–500	11.6%	13.9%	
Total hours, all team members: 501–1000	13.1%	13.9%	
Total hours, all team members: 1001–2000	14.0%	9.3%	
Total hours, all team members: 2001 and more	22.0%	17.7%	
	99.9%	100.1%	
Total hours per team member: 0–40	18.9%	21.7%	$p = 0.0567$
Total hours per team member: 41–150	19.4%	21.3%	
Total hours per team member: 151–500	21.1%	23.4%	
Total hours per team member: 501–1000	14.6%	12.9%	
Total hours per team member: 1001–2000	13.2%	10.0%	
Total hours per team member: 2001-up	12.8%	10.8%	
	100.0%	100.1%	
Total hours per month (conception to wave 1 itw): 0–10	21.9%	18.6%	$p < 0.0001$
Total hours per month (conception to wave 1 itw): 11–30	18.4%	18.2%	
Total hours per month (conception to wave 1 itw): 31–75	21.6%	23.1%	
Total hours per month (conception to wave 1 itw): 76–150	19.4%	14.4%	
Total hours per month (conception to wave 1 itw): 151–300	13.6%	13.3%	
Total hours per month (conception to wave 1 itw): 301 and up	5.0%	12.4%	
	99.9%	100.0%	
Total hours/month/member (conception to wave 1 itw): 0–5	18.7%	16.5%	$p = 0.0001$
Total hours/month/member (conception to wave 1 itw): 6–20	23.6%	19.9%	
Total hours/month/member (conception to wave 1 itw): 21–40	21.6%	22.0%	
Total hours/month/member (conception to wave 1 itw): 41–100	19.1%	17.8%	
Total hours/month/member (conception to wave 1 itw): 101–200	12.6%	12.5%	
Total hours/month/member (conception to wave 1 itw): 201 and up	4.4%	11.4%	
	100.0%	100.1%	

Table 5.11 Sweat equity: Start-up team investments of money: PSED I and PSED II.

	PSED I	PSED II	Stat. Sign
(NOTE: All 1999 values adjusted to 2005 using CPI values.)			
Average total funds, all team members: includes extreme values	32,201	34,729	$p = 0.8383$
Average total funds, all team members: extreme values reset	11,223	10,384	$p = 0.2632$
Total funds, all team members: None	16.2%	21.4%	
Total funds, all team members: Up to \$1000	14.8%	18.7%	
Total funds, all team members: \$1001–\$2500	15.1%	11.7%	
Total funds, all team members: \$2501–\$10,000	24.2%	23.1%	
Total funds, all team members: \$10,001–\$20,000	10.9%	7.5%	
Total funds, all team members: \$20,001–\$50,000	9.2%	8.3%	
Total funds, all team members: \$50,001–\$100,000	4.7%	3.9%	
Total funds, all team members: \$100,001–\$13,000,000	5.0%	5.4%	$p = 0.0016$
	100.1%	100.0%	
Total funds per team member: Up to \$50	17.0%	23.1%	
Total funds per team member: \$51–\$1000	19.2%	21.1%	
Total funds per team member: \$1001–\$4000	23.6%	21.0%	
Total funds per team member: \$4001–\$10,000	18.1%	14.5%	
Total funds per team member: \$10,001–\$20,000	12.4%	9.2%	
Total funds per team member: \$20,001 and up	9.8%	11.1%	$p = 0.0011$
	100.1%	100.0%	
Total funds per month (conception to wave 1 itw): Up to \$30	18.9%	19.7%	
Total funds per month (conception to wave 1 itw): \$31–\$200	24.6%	20.3%	
Total funds per month (conception to wave 1 itw): \$201–\$500	20.6%	15.5%	
Total funds per month (conception to wave 1 itw): \$501–\$1500	18.4%	20.2%	
Total funds per month (conception to wave 1 itw): \$1501–\$4000	11.9%	12.0%	
Total funds per month (conception to wave 1 itw): \$4001 and up	5.5%	12.3%	$p < 0.0001$
	99.9%	100.0%	
Total funds/month/member (conception to wave 1 itw): \$0–\$25	19.3%	19.6%	
Total funds/month/member (conception to wave 1 itw): \$26–\$100	17.5%	14.6%	
Total funds/month/member (conception to wave 1 itw): \$101–\$300	24.5%	19.6%	
Total funds/month/member (conception to wave 1 itw): \$301–\$1000	25.0%	20.6%	
Total funds/month/member (conception to wave 1 itw): \$1001–\$2000	7.7%	11.4%	
Total funds/month/member (conception to wave 1 itw): \$2001 and up	6.0%	14.1%	$p < 0.0001$
	100.0%	99.9%	

significant differences.⁴ On the other hand, measures related to the intensity of the time commitment — total hours per month and total hours per month per team member — suggest that the PSED II cohort has a larger proportion making an intense contribution over a short period of time.

A similar analysis was completed with the total amount of funds personally contributed by all team members who expected to own part of the business. As provided in Table 5.11, these figures have been adjusted to 2005 values with adjustments for changes in the Consumer Price Index, an appropriate indicator of inflation. The results indicate no change in the average personal funding of the nascent enterprises between the PSED I and PSED II cohorts. On the other hand, the range of investments seem greater, as a larger proportion of the PSED II cohorts have invested smaller amounts of money and larger amounts of money than the PSED I cohort, leading to statistically significant differences.

5.7 Overview

Given the similarity of the two samples of nascent entrepreneurs, it should not be a surprise that the two samples of nascent enterprises would be very similar. Differences between the PSED I and PSED II cohorts of nascent enterprises are very modest.

The descriptions of these start-up initiatives suggest that the average team is about 1.7 nascent entrepreneurs; about 50% are being implemented by one person. Legal or juristic owners are about 3% of the total entities involved in start-ups. Non-family teams are involved in about one-in-five nascent enterprises. Over 60% of team members are men, seven-in-ten are White, and most are 25–54-years old. The sector distributions reflect those found among existing firms, with a slightly greater emphasis in retail and business services. Four-of-five are independent start-ups, most are sole proprietorships, and private homes

⁴These total time distributions are not uni-modal bell shaped curves, which leads to an apparent inconsistency. Average values are less for the PSED I cohort, but more cases in the highest category are present for PSED I cohort. The most conservative inference would be to assume no difference.

are the most frequently mentioned business location. Most competitive emphasis is placed on providing quality goods and services to a niche market; price competition is given the least emphasis. Four-in-five customers are expected to be local or regional; only 3% are expected to be international. One fourth expects high sales and job growth within the first five years, slightly less in PSED II compared to PSED I. There is little change in expectations of a major impact on the markets; it is about 5% of all nascent enterprises. Most start-ups are replicating existing business activities. There is considerable diversity in the number and nature of start-up activities reported in the initial detailed interview; less activity is reported for the PSED II nascent enterprises. While there is substantial diversity in the amount and intensity of sweat equity investments; the average start-up absorbed about 1,500 hours of work and \$10,000 by the first detailed interview.

Overall, then, the major patterns reflect considerable diversity among the 7.4 million nascent enterprises represented by the 2005 sample. There are some subtle indications that there is more diversity among the PSED II cohort of nascent enterprises, including greater diversity in the age of the start-up teams, and greater diversity in the personal financial investments — larger proportion with very small or very large personal investments. There may be a larger proportion of the PSED II cohort making intense commitments of time. These small differences, however, are modest in relation to the similarity in measures of the process of implementing nascent enterprises. The procedures adopted to implement new businesses in the United States have not changed much between 1999 and 2005.

6

Status after the Initial Follow-up

How many start-up initiatives are converted into operating firms? How long does this take? How many nascents disengage from the start-up process? How long does that take? While these questions appear rather straightforward, they reflect considerable conceptual and operational complexity. In fact, the complexity begins with attempts to identify the beginning of the start-up process. It is a difficult task to determine when the initiative can be considered a serious career option for the individual. It is further complicated by determining the criteria for when a new firm has become an operational reality or when a nascent entrepreneur has completely disengaged from the start-up effort.

6.1 Conception of the Start-up

A number of criteria were employed to establish the date of conception or a serious effort to participate in the creation of a new firm. The criteria, employed sequentially, and their impact on the two samples are presented in Table 6.1.

The activities, discussed in Section 5, reported by the nascent entrepreneurs in the first detailed interview can be used to determine

Table 6.1 Sample attrition for outcome assessments: PSED I and PSED II.

	PSED I	PSED II
Number of start-up activities in interview	26	34
Original nascent cohort	830	1214
Reports of positive monthly cash flow before 1st interview	6	66
Less than three start-up activities	8	70
No two start-up activities in any 12-month period	53	117
Initial activity over 10 years before first interview	16	14
Cases used in the analysis	747	947
Percentage recent active nascent entrepreneurs	90.0%	78.0%
Number with data from first follow-up interview	447	774
Percentage with first follow-up interview data	59.8%	81.7%

those active and currently involved in the start-up process. A number reported positive monthly cash flow covering expenses and salaries in previous periods and appeared to be reactivating a previous start-up effort. They were removed from the sample. Another group reported only one or two of the activities and did not appear to be very involved. They were removed from the sample. Another group reported three or more activities but no two in a single 12-month period, and was not considered to be very active. They were removed from the sample. Finally, some appeared to have initiated the nascent enterprise more than ten years prior to the first interview. They were removed from the sample. The result was that 90% of the PSED I and 78% of the PSED II cohorts were considered recent active nascent entrepreneurs. However, there were some differences in the success of completing the first follow-up interview; data is available on the first follow-up interview status for 60% of the PSED I cases and 82% for the PSED II. As a result, the analysis based on outcomes at the completion of the first follow-up interview involved 447 cases from the PSED I cohort and 774 cases from the PSED II cohort. For both cohorts the case weights were re-centered to ensure accuracy of inferences regarding statistical significance.

6.2 Identifying the Current Status of the Start-up Initiative

In the follow-up interview, the current status of the start-up was inferred by items in the interview schedule. The critical items are summarized for PSED I and PSED II in Table 6.2.

Table 6.2 Criteria items used to infer current status of the start-up: PSED I and PSED II.

	PSED I	PSED II
New firm	How would you describe the current status of this start-up? Is it ... an operating business?	(1) Received income in 6 of past 12 months (2) Income covered all expenses (3) Owner's wages and salaries included in expenses
Start-up active	How would you describe the current status of this start-up? Is it ... still in an active start-up phase, still a start-up but currently inactive?	(1) Devoted more than 160 hours in past 12 months to start-up. (2) Expect to spend 80 or more hours in next 6 months on start-up. OR: (3) Start-up is a major focus of work career over the next 12 months.
Quit	How would you describe the current status of this start-up? Is it ... no longer being worked on by anyone?	(1) Would you consider yourself disengaged from the business effort discussed a year ago?

For PSED II, inferences that an operational new firm had been established was based on reports that monthly cash flow covering all expenses and owner's salaries had occurred in 6 or more of the past 12 months. In PSED I, the respondent's judgment that an operational new firm was established was accepted as adequate. More complex was the requirement that an active start-up was continuing, for in PSED II they were asked to confirm a level of commitment somewhat above the minimum, at least 4 weeks of work in the past 52 weeks. In PSED I, the respondents were allowed to define for themselves the meaning of "active start-up." The definition of a quit or disengagement was largely similar for the two procedures. These changes were designed to reduce the variation in the definition of a "new firm birth" or "active start-up" introduced by the way nascent entrepreneurs would apply these vague concepts. In both projects, the month and year of the new firm birth or disengagement was provided by the nascent entrepreneur respondent for the nascent enterprise. Active start-ups were assigned a date of the follow-up interview.

6.3 Outcome Status

Knowing the month and year of the conception, or entry into the start-up process, and the month and year of the transition to a new

firm or disengagement from the process, it is possible to construct a temporal pattern showing the proportion of those “recent active nascent entrepreneurs” that changed status as the start-up moved forward. Based only on the first follow-up interviews, this is presented in Figure 6.1 for the PSED I cohort and Figure 6.2 for the PSED II cohort. Since the time from the initial interview to the follow-up interview was relatively short, from 12 to 16 months, tracking the outcome status is restricted to the first 48 months following entry into the start-up process.¹ Most initiatives have remained in the start-up phase for the first four years.

The major outcomes, four years after entry into the start-up process, are summarized in Table 6.3. It makes clear that the proportion who

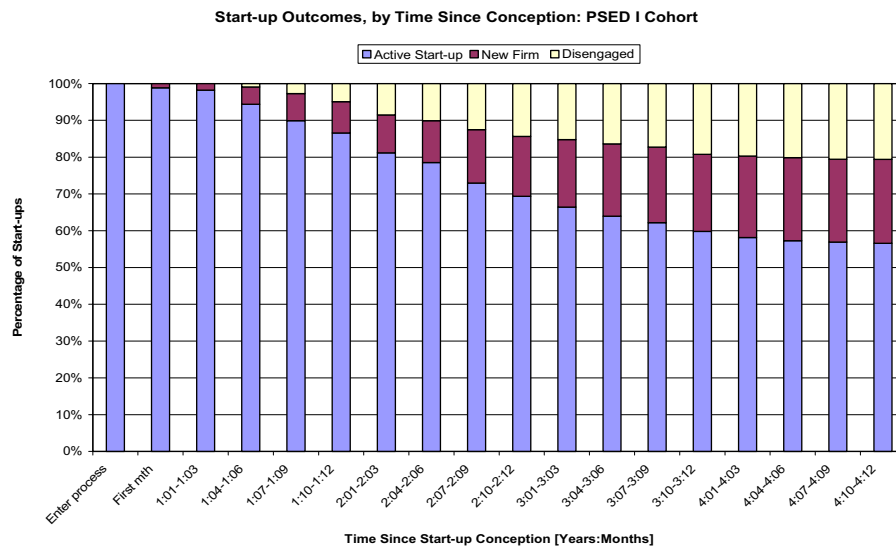


Fig. 6.1 Outcome status, first follow-up, by time since conception: PSED I.

¹ A major complication occurs from the nature of the data collection process. The 12–16-month period captured by the initial detailed and first follow-up interview is best considered an arbitrary period in the gestation window. The gestation period is defined by assessment of the timing of the start-up activities reported in the interview itself, and conception may have occurred many years prior to the first detailed interview (Reynolds, 2007b). Until more follow-ups are completed and a wider segment of the gestation period is covered by the assessment, it seems advisable to examine a reduced segment of the gestation period.

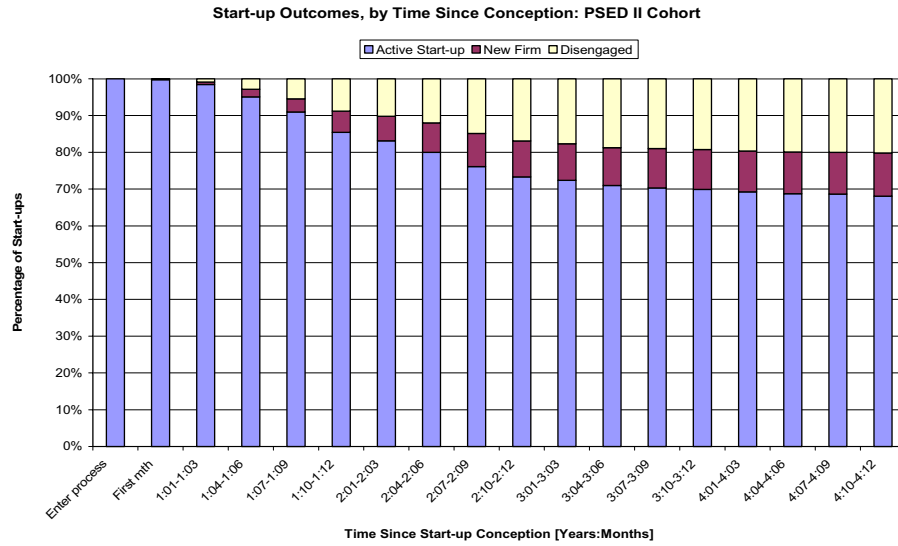


Fig. 6.2 Outcome status, first follow-up, by time since conception: PSED II.

have disengaged, 21% and 20%, are the same for the two cohorts, but that the proportion reporting a new firm in the PSED II cohort, 12%, is about half of that from the PSED I cohort, at 23%. As expected, the proportion reporting active start-up activity is 12% higher in PSED II than in PSED I.

It is possible that there are differences in the time between conception of the start-up and the first interview, the months between conception and the first interview, presented in Table 6.4, indicate that the PSED I cohort is slightly older — by several months — at the first detailed interview than the PSED II cohort. More time would allow more start-ups to become operational new firms. This small difference, however, is unlikely to account for the major differences in the out-

Table 6.3 First follow-up interview outcomes: PSED I and PSED II.

First follow-up outcomes at the end of 4 years	PSED I (%)	PSED II (%)
Disengagement	20.6	20.1
New firm	22.8	11.8
Start-up continues	56.6	68.1
	100.0	100.0

Table 6.4 Start-ups age at first interview: PSED I and PSED II.

	PSED I	PSED II
Conception to initial detailed interview, minimum (months)	0.8	0.7
Conception to initial detailed interview, average (months)	19.8	16.4
Conception to initial detailed interview, median (months)	14.4	10.8
Conception to initial detailed interview, maximum (months)	114.1	114.3

come status, 23% new firms in PSED I compared to 12% new firms in PSED II, four years following conception.

This difference in the proportion of nascents reporting operational new firms between PSED I and PSED II probably reflects the more precise criteria for identifying start-ups that would be considered operational new firms. The result has been for a larger proportion to be considered as active start-ups and fewer new firm births in the PSED II cohort.

6.4 Overview

In both PSED I and PSED II cohorts, the status of the nascent enterprise 12–14 months after the first interview, and four years after entry into the start-up process, are generally quite similar. One in five has discontinued their participation, and from 12% to 23% report an operational new firm. The majority, about two-thirds, report they are still actively involved in the start-up process. An extensive analysis of those factors associated with reports of a new firm in the PSED I cohort using data from three follow-ups over three years after the first interview indicated that the nature and intensity of start-up efforts was the major feature that distinguished the transition to an operational new firms (Reynolds, 2007b). A comparable analysis of the outcomes for the PSED II cohort can be implemented after additional follow-up interviews have been completed.

7

Costs of Participation

It is widely recognized that creating a new firm may require a considerable investment by the start-up team — this may be in the form of time, money, or emotional commitments. These investments are associated with every start-up initiative, regardless of the eventual outcome. While the costs of these investments are offset by the financial and personal rewards associated with a successful new firm for some of the nascent entrepreneurs, those that disengage from the process, or seem to be indefinitely involved in a start-up, never receive economic benefits from this investment. They may, of course, accumulate psychological benefits from engaging in activities they find rewarding. So, while all nascent entrepreneurs involved in new firm creation are making these investments, only a minority receive the benefits of a successful firm ownership. More precise information regarding these informal investments can be developed from the PSED I and PSED II cohorts.

7.1 Start-up Initiative and Informal Contributions

During the initial detailed interview the nascent entrepreneur is asked about the total amount of time and money provided to the start-up

initiative by every member of the start-up team. These team totals from the first detailed interview provide an estimate of the investments involved in each start-up initiative. Reports of outcomes provided during the first follow-up interview can be used to estimate the relationship between these informal, start-up stage investments and the outcomes from participating in the process.

The estimates of the total number of hours provided by all team members are presented in Table 7.1 for PSED I and Table 7.2 for PSED II. These tables represent only those cases for which first follow-up interview data is available. The average number of total hours per start-up was calculated after extreme values (those larger than 3 standard deviations greater than the mean) were reset to 6000 hours. This cap was applied in about 2% of all PSED I and PSED II cases; the largest value was a very unrealistic 72,000 hours. The proportion in each of six categories of time invested is also provided.

Table 7.1 Total hours invested and first follow-up outcomes: PSED I.

	New firm	Disengage	Start-up continues	All outcomes	Stat. Sign
Average number of team hours	1650	943	1631	1494	$p = 0.04$
Up to 50 hours	10.1%	18.1%	11.1%	12.4%	
51–250 hours	11.2%	29.9%	22.9%	21.7%	
251–500 hours	19.5%	7.6%	14.5%	14.2%	
501–1000 hours	11.3%	18.2%	14.3%	14.4%	
1001–2000 hours	17.2%	13.6%	14.8%	15.1%	
2001 and up hours	30.7%	12.6%	22.2%	22.1%	
	100.0%	100.0%	99.8%	99.9%	$p = 0.005$

Table 7.2 Total hours invested and first follow-up outcomes: PSED II.

	New firm	Disengage	Start-up continues	All outcomes	Stat. Sign
Average number of team hours	1248	1193	1858	1652	$p = 0.04$
				($p < 0.04$)	
Up to 50 hours	10.7%	23.3%	14.5%	15.8%	
51–250 hours	25.6%	33.6%	23.0%	25.4%	
251–500 hours	10.9%	12.2%	16.7%	15.1%	
501–1000 hours	15.1%	13.5%	13.4%	13.6%	
1001–2000 hours	19.2%	3.6%	10.1%	9.9%	
2001 and up hours	18.6%	13.9%	22.3%	20.2%	
	100.1%	100.1%	100.0%	100.0%	$p = 0.0001$

The amount of personal time devoted to the start-ups is one measure of the level of commitment of the start-up team to the initiative. In both cohorts, the total hours devoted to the start-up by those that disengaged by the first follow-up interview (943 hours for PSED I, 1193 hours for PSED II) are clearly less than those reporting a new firm or continuation in the start-up effort. There is, however, little systematic difference between those reporting a new firm or continuing with the start-up. The average team hours are the same for the two outcome groups in the PSED I cohort and those continuing in the start-up are reporting more hours than those with new firms in the PSED II cohort. Full resolution of this issue cannot be completed until more follow-up interviews are completed with the PSED II cohort.

The amount of personal funds devoted to the start-up is another measure of commitment. The same procedure employed for analysis of time investments was used for reports of funds invested in the start-up effort by the team members. In this case, however, the PSED I dollar values for 1999 were adjusted for inflation (multiplied by 1.17277) so they would be equivalent to 2005 values. In this case the mean plus three standard deviations was \$50,000; the top 1% was reset to this value. Among these 20 extreme cases were 9 reporting \$1,000,000 or more in start-up team personal investments; the largest value was \$13,000,000. The amount of this informal funding is presented for the PSED I cohort in Table 7.3 and the PSED II cohort in Table 7.4. These amounts do not include funds provided by financial institutions.

There is considerable consistency between the two cohorts. Both report substantially more funds invested in those start-ups that became

Table 7.3 Total team funds invested and first follow-up outcomes: PSED I.

	New firm	Disengage	Start-up continues	All outcomes	Stat. Sign
Average total team contributions	\$15,854	\$10,161	\$11,007	\$11,936	$p = 0.03$
Nothing so far	13.3%	16.5%	11.7%	13.1%	
up to \$2500	12.1%	40.4%	33.2%	29.9%	
\$2501–\$10,000	34.5%	15.8%	27.7%	26.8%	
\$10,001–\$50,000	24.6%	16.1%	16.5%	18.3%	
\$50,001–maximum	15.5%	11.2%	10.8%	12.0%	
	100.0%	100.0%	99.8%	99.9%	$p = 0.0007$

Table 7.4 Total team funds invested and first follow-up outcomes: PSED II.

	New firm	Disengage	Start-up continues	All outcomes	Stat. Sign
Average for total team contributions	\$14,234	\$9264	\$11,657	\$11,478	$p = 0.08$
Nothing so far	15.8%	17.9%	15.6%	16.1%	
up to \$2500	21.2%	38.7%	31.4%	31.6%	
\$2501–\$10,000	26.7%	22.9%	24.7%	24.6%	
\$10,001–\$50,000	24.9%	12.2%	18.3%	17.8%	
\$50,001–maximum	11.4%	8.3%	10.1%	9.9%	
	100.0%	100.0%	100.1%	100.0%	$p = 0.13$

new firms, with less difference between those where the respondent disengaged or is continuing active work on the new initiative. The difference is notable in the proportion reporting total investments in excess of \$10,000, which is 40% of those reporting a new firm in the PSED I cohort and 35% for the PSED II cohort. Less than 30% of the disengaged or continuing start-ups report this level of investment in both cohorts.

7.2 Aggregate Informal Contributions

Because both PSED I and PSED II provide samples that represent the entire population of business creation in the United States, it is possible to develop estimates of the total amount of time and money invested in US new venture creation.¹ These aggregations are based on estimates of the total number of individuals working on new firm creation.

These estimates require several steps, each reflecting assumptions about the phenomena and data collection.

- (1) Estimates of the total number of active nascent entrepreneurs are developed.
- (2) These are adjusted to the total number of nascent enterprises, by dividing by the average team size.

¹ Estimates based on the PSED data sets are likely to constitute a lower bound estimate of time and financial investments since very large or sophisticated new start-ups may not be captured by a household survey. Missing a small proportion of the largest start-ups could have a significant impact on the aggregate estimates. There is no acceptable method to correct for non-response among very large nascent start-ups.

- (3) Based on the findings from the first follow-up interview, these are converted into counts of the total number of initiatives that are new firms, disengagements, or continuing in the start-up mode.
- (4) The average values (time or money) associated with the three outcomes is used to compute the total amount invested (time or money) prior to the first-detailed interview.
- (5) The totals for the outcomes are then added together to get the overall total.

The details for the estimates are provided in Appendix C. The initial estimates of prevalence rates for the PSED I cohort reflects the adjustments made for screening item wording to provide comparability with the PSED II prevalence rates and total estimates. The mean values are the basis for the following estimates and for all point estimates utilized in the calculations (prevalence rates, average team size, and the hours or funds invested); standard errors were calculated. The confidence intervals associated with these point estimates may differ from the true values by 30% or more. They may, however, be too high or too low.

A summary of the results is presented in Table 7.5. The total hours invested in start-ups as reported in the initial detailed interview is estimated at 8.7 billion hours, about 5.3 billion hours per year, for the PSED I cohort and 9.9 billion hours, about 7.3 billion hours per year, for the PSED II cohort. Based on the number of employed persons and the average hours worked for 50 weeks in a year, the total number of hours worked in the United States is 253 billion hours in 1999 and 267 billion hours in 2005. The amount of uncompensated time devoted to start-ups would increase these amounts by 2.1% and 2.7% respectfully. The total hours invested in start-ups each year is about one-third the total work among self-employed workers, which was 20 billion hours in 1999 and 18 billion hours in 2005.²

²Data on the number of persons active in employment, including the self-employed, and hours worked for 1999 are taken from Tables 656 and 658 of the Statistical Abstract of the United States, 2000. For 2005 they are taken from Tables 587 and 588 from the US Bureau of Labor Statistics, Employment and Earnings, January 2006: "www.bls.gov/cps/home.htm."

The total amount of funds invested in start-ups presented in Table 7.5 is estimated at \$66 billion for the PSED I cohort (in 2005 dollars) and at \$69 billion for the PSED II cohort. The annual rate is somewhat less, about \$41 billion for PSED I and \$52 billion for PSED II. For comparison, the annual funding from venture capital for seed, start-up, and early stage investments and total of all small business loans under \$100,000 provided by the entire banking system is presented in Table 7.6.³ Both estimated annual amounts as well as the

Table 7.5 Estimates of aggregate nascent investments: PSED I and PSED II.

	PSED I		PSED II	
Year represented	1999		2005	
Total US population 18–74 years of age (thousands)	190,715		203,796	
Total recent active nascent entrepreneurs (thousands)	9680		12,650	
Total recent active nascent businesses (thousands)	5519		5,977	
<i>Total investments</i>				
All outcomes, total hours (millions)	8674	100%	9871	100%
New firm births, total hours (millions)	1837	21%	880	9%
Terminated start-ups, total hours (millions)	1251	14%	1440	14%
Continuing start-ups, total hours (millions)	4586	64%	7551	76%
All outcomes, total funds (millions)	\$65,714	100%	\$68,597	100%
New firm births, total funds (millions)	\$18,985	29%	\$10,037	15%
Terminated start-ups, total funds (millions)	\$10,910	17%	\$11,184	16%
Continuing start-ups, total funds (millions)	\$35,819	54%	\$47,375	69%
<i>Annual investments</i>				
All outcomes, total hours per year (millions)	5336	100%	7317	100%
New firm births, total hours per year (millions)	1119	21%	681	9%
Terminated start-ups, total hours per year (millions)	1250	23%	1711	23%
Continuing start-ups, total hours per year (millions)	2966	56%	4925	67%
All outcomes, total funds per year (millions)	\$41,494	100%	\$51,956	100%
New firm births, total funds per year (millions)	\$11,565	28%	\$7771	15%
Terminated start-ups, total funds per year (millions)	\$10,910	27%	\$13,288	26%
Continuing start-ups, total funds per year (millions)	\$19,019	46%	\$30,897	59%

³ Data for venture capital investments from the 2007 National Venture Capital Association Yearbook. Data on all small business loans, not just those guaranteed by the SBA, for

Table 7.6 Total start-up team financial support compared to other sources: PSED I and PSED II.

	1999*		2005	
	Amounts (Billions)	Number of firms	Amounts (Billions)	Number of Firms
Start-up team initial investments (yearly rate)	\$41.0	5,519,000	\$52.0	5,979,000
Venture capital: Seed/start-up	\$3.7		\$0.8	
Venture capital: Early stage	13.9		3.7	
Venture capital: Total new	\$17.6		\$4.5	
Venture capital: All investments	\$63.4	<3000	\$22.8	<2000
Small business loans < \$100,000	\$133.0	7,730,000	\$138.0	19,020,000

*Converted to 2005 amounts.

number of investments and loans are provided. Dollar estimates are converted to 2005 amounts.

In 1999, when start-up teams invested about \$41 billion of their own funds into 5.5 million nascent enterprises, the venture capital industry invested about \$18 billion. As the total number of all venture capital deals was less than 3000, no more than several hundred start-ups received support. This was, by the way, the year of the second largest total venture capital investments, \$63 billion, just before the heights of \$122 billion (2005 dollars) reached in the year 2000. In the same year the banking sector provided \$133 billion in 7.7 million loans to small businesses. Some firms may have received several loans. In 2005, the start-up teams provided \$52 billion to almost 6 million nascent enterprises while the venture capital industry provided \$4.5 to several hundred start-ups and early stage firms. During the same year the banking sector provided \$138 billion in 19 million loans. It is clear that the contributions of the start-up teams are a substantial source of financial support for these new firms. They provided more than equity from the venture capital sector but less than loans from the banking sector.⁴ Data on bank loans to the PSED new

1999 taken from SBA, Office of Advocacy, *Small Business Lending in the United States: 2001 Edition*, November 2002. Data for 2005 taken from SBA, Office of Advocacy, *Small Business and Micro Business Lending in the United States, for Data Years 2004–2005*. December 2006.

⁴Two other major sources would be funds provided by relatives, friends, and work colleagues, which may be from \$100–\$200 billion per year (Reynolds, 2007a, p. 83), and those provided by high net worth individuals emphasizing support for start-ups, referred

firms were obtained in the interview, but are not included in these calculations.

The relative contributions in time and money by those reporting different outcomes at the end of the first follow-up interview are presented graphically in Figure 7.1.

There is little question that a substantial amount of the investment in the business creation process is provided by those who have quit by the first follow-up interview. Those reporting termination of start-up efforts in PSED I are providing two-thirds as many work hours as those reporting a new firm, and 50% as many work hours in PSED II. The amount of personal funding provided by those terminating by the first follow-up is 60% of those with new firms in PSED I and is 10% greater in PSED II. This suggests that about half of the time and personal funds are provided by those who will receive no economic benefit from

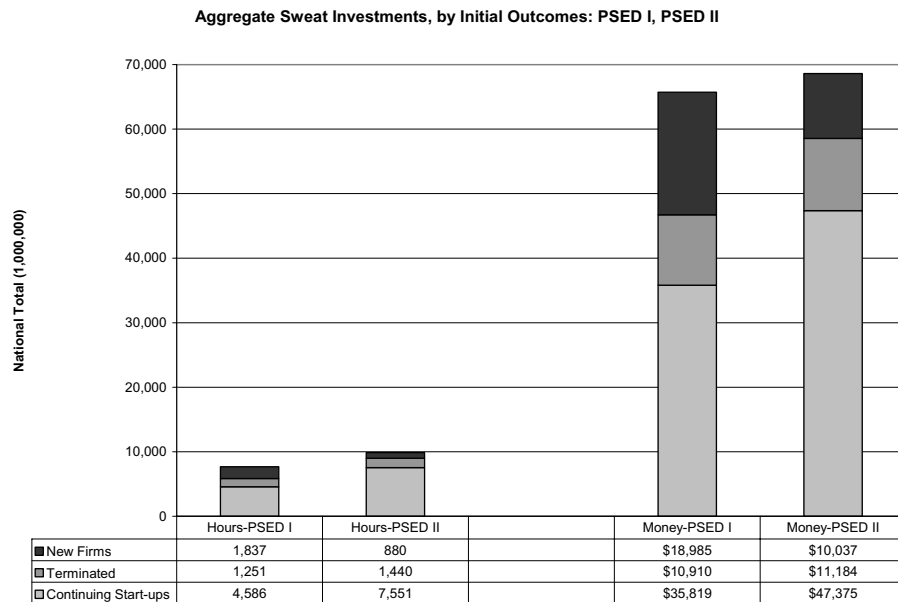


Fig. 7.1 Estimates of aggregate nascent investments: PSED I, II.

to as business angels. Business angel investments to start-ups may equal or exceed that provided by formal venture capital.

a new firm creation. Additional follow-ups will do much to clarify the exact proportions.

7.3 Overview and Commentary

This preliminary assessment, based only on the measures of time and funds invested in start-ups by recent active nascent entrepreneurs who have provided follow-up data, suggest that the time and funds invested in implementing new firms are significant. The average time involved in creating a new firm is between 1,200 and 1,600 hours of work — 30–40 weeks of full time work. Between 39% and 48% involved over 2,000 hours of work — more than 50 weeks of full time effort. The average amount of funding by the start-up team is about \$15,000, with one-in-six involving \$50,000 or more. There is no question that some commitment of time and money is required to implement a new firm. But many who make such sweat equity investments do not report a new firm birth.

The aggregate amounts of time and funds provided by all those in the start-up phase are considerable. The total amount of effort — about 7 billion hours per year—is more than 2% of the total wage and salary work completed in the United States. Only a small proportion, less than 20%, is invested in start-ups that become new firms. The total amount of informal funding — about \$50 billion dollars per year — is several times the annual funding provided by the venture capital community to start-ups and almost half the level of small business loans under \$100,000. Again, a substantial amount of the funding is provided to start-up initiatives that do not develop into new firms.

One of the major benefits from the PSED research program is that the increased knowledge about the start-up process may lead to a higher proportion of start-ups that become new firms. If so, more start-up teams will reap some economic benefits from their personal investments. It may also be possible to develop early warning indicators to identify those start-ups with little chance of becoming a profitable new firm. This could facilitate a timely disengagement from the

start-up initiative, reducing personal investments in start-ups with little promise. Both programs, if successful, would reduce the sunk costs associated with the entrepreneurial sector, by increasing payoff or reducing personal investments. There is clearly a potential for a substantial reduction in the social costs associated with new firm creation, which would increase the ratio of benefits to costs.

8

High Impact Nascent Enterprises

It is well documented that a small proportion of new firms have a substantial impact on the economy, measured either by sales volume, value added, or job creation (Armington and Odle, 1982; Birch et al., 1995; Schreyer, 1996). There is, as a consequence, considerable interest in the unique nature of these high impact new firms. While it is too early to judge the ultimate impact of the nascent enterprises in the PSED samples, there is some information about the expected scope of activity. This takes the form of the estimated level of sales and jobs five years after the firm becomes operational. While only about one-third of the nascent enterprises will become operational new firms (Reynolds, 2007b), the data nonetheless provides a basis for considering the potential scope of operations as envisioned by the start-up team.

The joint distribution of projections of sales and jobs in the fifth year of operation is provided in Table 8.1. For this assessment the PSED I and II samples are combined. This indicates that a small proportion, 6.0%, would be expected to be in the substantial (4) category — more than \$4 million in sales or more than 50 jobs or both. These nascent enterprises can be considered in relation to the remaining 94% of the nascent enterprises, which are divided into three categories, minimal

Table 8.1 Fifth-year expectations: Jobs and annual sales.

	0–5 jobs (%)	6–49 jobs (%)	50–8500 jobs (%)	Row totals (%)
Up to \$500,000 in sales	57.1(1)	18.6(2)	2.2(3)	78.1
\$500,000–\$4 million in sales	5.9(2)	9.1(3)	1.3(4)	16.3
\$4–\$80 million in sales	0.9(3)	2.9(4)	1.8(4)	5.6
Column totals	63.9	30.8	5.3	100

Note: Numbers in parentheses indicate category assignments: (1) Minimal, (2) Small, (3) Moderate, and (4) Substantial.

(1), small (2), and moderate (3) expected scope of operations. The 80 cases included in the substantial category can be considered representative of nascent enterprises that would provide a large impact on the local economy.¹

The relative impact of these different categories of nascent enterprises can be determined by estimating the proportion of all new jobs and total annual sales to be expected from the sample provided from each category as presented in Table 8.2. This shows that 6% in the substantial (4) category will account for over one-third of the total jobs and 60% of the total sales in the fifth year. Further, the 18% in the two top categories (moderate and substantial) will account for about 80% of the fifth year jobs and sales. In contrast, the 57% in the minimal

Table 8.2 Share of 5th year jobs and annual sales by size category.

	Nascent enterprises in sample	Total jobs in five years	Total sales in five years
Total	1306	21,007	\$1.2billion
1: Minimal	57.1%	5.7%	6.3%
2: Small	24.7%	17.6%	11.6%
3: Moderate	12.1%	38.1%	22.7%
4: Substantial	6.1%	38.6%	69.4%
Column totals	100.0%	100.0%	100.0%

Note: Outliers were re-set to 3 standard deviations above the mean value to reduce the impact of extreme cases with very high values.

¹In order to increase confidence in the projected potential of the nascent enterprises in the substantial (4) category, 23 cases where the teams have less than six years of same industry experience, compared to a median value of 22 years for all other cases in this category, were removed. These were mostly young men. It was assumed they had little basis for such optimistic expectations.

category will account for about 6% of the total jobs and annual sales in the fifth year.

These four groups of nascent enterprises are compared in terms of expected impact on the markets and technological emphasis in Table 8.3. Here it can be seen that more than 12% of the enterprises expected to have substantial scope, about one-in-eight, are expected to have a maximum impact on the market sector where they will compete, compared to less than 3%, or one-in-thirty-three, of the minimum impact enterprises. In a similar fashion, the emphasis on new technology is greater for the nascent enterprises expected to have a larger scope five years after they begin operation. While the common expectation that nascent firms poised for substantial growth will have a technological focus and provide new and dramatic changes to the market place is consistent with these patterns, it is clear that a large proportion of nascent enterprises where the growth expectations are modest will also emphasize distinctive technology and expect to provide changes in the goods and services in the marketplace. There is a positive association between growth aspiration, expected market impact, and use of new technology — but it is not very strong.

Given the considerable impact of a small proportion of nascent enterprises positioned for substantial growth, it is of interest to

Table 8.3 Expected market impact and technological emphasis.

	Expected impact of nascent enterprises			
	Minimum (%)	Small (%)	Moderate (%)	Substantial (%)
All	57.1	24.7	12.1	6.1
Market impact: None	57.6	50.4	50.5	28.5
Market impact: Little	34.6	39.4	36.2	49.0
Market impact: Some	5.2	5.4	7.0	9.9
Market impact: Maximum	2.6	4.8	6.3	12.6
	100.0	100.0	100.0	100.0
(Note: PSED II only, $n = 841$)				$p = 0.009$
High Technology Emphasis: None	56.0	43.5	35.0	28.7
High Technology Emphasis: Little	28.3	31.2	32.4	25.1
High Technology Emphasis: Some	12.7	20.0	21.9	29.4
High Technology Emphasis:	3.0	5.3	10.7	16.8
Maximum				
	100.0	100.0	100.0	100.0
				$(p < 0.00001)$

determine the unique features of this small set of nascent enterprises. The following will review the nature of the nascent entrepreneur reporting on the different nascent enterprises, the characteristics of the start-up team, features of the nascent enterprise, and the emphasis during the start-up phase. While early in the start-up process, it is also possible to consider the disposition of these start-up efforts as reported in the first follow-up interview.

8.1 Nascent Entrepreneur

The gender, age, and ethnic background of nascent entrepreneurs reporting on the enterprises with different size expectations are summarized in Table 8.4. There are statistically significant differences related to all three characteristics. For those enterprises expected to have a minimum impact, men and women are almost equally represented, but among the enterprises expected to have greater impact, men dominate; they are reporting on 84% of the substantial nascent enterprises.

Table 8.4 Characteristics of the entrepreneur by expected impact nascent enterprises.

	Expected impact of nascent enterprises			
	Minimum (%)	Small (%)	Moderate (%)	Substantial (%)
All	57.1	24.7	12.1	6.1
Men	54.5	71.7	75.3	83.6
Women	45.5	28.3	24.7	16.4
	100.0	100.0	100.0	100.0
				($p < 0.00001$)
18–24-years old	9.7	17.8	11.3	5.3
25–34-years old	27.3	28.2	28.1	30.3
35–44-years old	29.1	26.4	30.8	35.8
45–54-years old	22.4	20.3	20.1	17.6
55–up-years old	11.4	7.3	9.7	11.0
	99.9	100.0	100.0	100.1
				($p = 0.03$)
White	78.7	57.8	66.4	68.9
African American	9.0	20.0	19.9	15.2
Hispanic	5.0	7.9	7.6	11.5
Other	7.3	14.3	6.1	4.4
	100.0	100.0	100.0	100.0
				($p < 0.00001$)

The patterns related to age are more subtle, the more substantial enterprises tend to be associated with responding nascent entrepreneurs who are 25–44 years of age, and less likely to be under 24-years old. The relation to ethnic background is, once again, complicated by the diverse classification of non-whites; the procedures were different for the two cohorts, PSED I and PSED II. Nonetheless, it is clear that Whites are a larger proportion of the minimum potential nascent enterprises; the proportion of both African Americans and Hispanics is greater for the small, moderate, and substantial enterprises.

The major human and financial resources available to the nascent entrepreneur are considered in relation to the nascent enterprise potential in Table 8.5. Perhaps not unexpectedly, the substantial nascent enterprises are associated with a larger proportion of nascents with college degrees or graduate training; they are 53% of this group. Those who had not completed college are more prevalent among the other three categories.

Both the annual household income and household net worth are greater for those nascent enterprises expected to have higher impacts in their fifth year. One-third of the nascents reporting on substantial impact enterprises report annual incomes in excess of \$100,000 per year; one-quarter report a household net worth in excess of \$500,000. In both cases, the 1999 values have been adjusted for inflation to equal 2005 dollars.

In terms of industry experience, 75% of the nascent entrepreneurs reporting on substantial impact enterprises report 6 or more years of same industry experience; less than 50% of the nascents in the other categories report this level of experience. While this reflects, in part, the elimination of cases from this category where the start-up team has, in total, less than 6 years of same industry experience, it is also likely to be a major feature of the substantial enterprise start-up teams. It is consistent with the reports of experience with other start-ups, where almost one-half of the substantial enterprise nascents report two or more previous start-up efforts, compared to less than one-third of those reporting on enterprises in the other categories.

Other aspects of the nascent entrepreneurs' background are presented in Table 8.6. There are few differences related to residential

Table 8.5 Entrepreneur's resources by impact of nascent enterprises.

	Expected impact of nascent enterprises			
	Minimum (%)	Small (%)	Moderate (%)	Substantial (%)
All	57.1	24.7	12.1	6.1
Up to HS degree	19.8	27.7	19.3	10.2
Post high school, no college degree	42.0	41.1	41.0	36.8
College degree	24.5	19.9	22.0	27.1
Graduate experience	13.8	11.3	17.7	25.9
	100.1	100.0	100.0	100.0
				($p = 0.002$)
HH income: Up to \$20,000/yr	11.3	13.8	7.1	3.6
HH income: \$21–\$40,000/yr	22.2	25.3	20.0	5.5
HH income: \$41–\$60,000/yr	25.3	22.1	21.8	12.0
HH income: \$61–\$80,000/yr	16.8	12.8	20.8	26.0
HH income: \$ 81–\$100,000/yr	9.6	11.2	10.6	18.4
HH income: \$101–\$150,000/yr	10.0	9.1	11.7	13.8
HH income: \$151,000–up/yr	4.8	5.7	8.0	20.7
	100.1	100.0	100.0	100.0
				($p < 0.00001$)
HH net worth: Negative–None	15.7	9.2	13.0	11.8
HH net worth: \$1–\$25,000	17.0	18.7	14.4	9.9
HH net worth: \$26,000–\$100,000	21.6	30.6	27.0	18.0
HH net worth: \$101,000–\$200,000	15.9	13.7	13.9	11.1
HH net worth: \$201,000–\$500,000	16.8	16.1	14.9	23.2
HH net worth: \$501,000–\$1,000,000	7.9	6.4	5.8	11.9
HH net worth: \$1,001,000 to top	5.2	5.2	11.1	14.1
	100.1	99.9	100.1	100.0
				($p = 0.007$)
No prior industry experience	24.0	15.9	22.1	5.8
1–5 years industry experience	34.7	36.1	29.0	18.8
6–14 years industry experience	19.6	23.6	20.2	32.9
15–60 years industry experience	21.7	24.4	28.8	42.5
	100.1	100.0	100.1	100.0
				($p = 0.009$)
No prior start-up experience	61.2	54.1	48.0	39.5
1 prior start-up experience	19.8	23.0	21.8	13.9
2–4 prior start-up experiences	16.4	20.0	22.4	34.4
5–60 prior start-up experiences	2.6	2.9	7.8	12.1
	100.1	100.0	100.0	99.9
				($p < 0.00001$)

tenure. Those associated with substantial enterprises are less likely to have lived in the county for 30 or more years, perhaps reflecting the patterns associated with age; most of the nascents reporting on the substantial enterprises are less than 50-years old. There is no

Table 8.6 Entrepreneur's background by expected impact nascent enterprises.

	Expected impact of nascent enterprises			
	Minimum (%)	Small (%)	Moderate (%)	Substantial (%)
All	57.1	24.7	12.1	6.1
Residence in county: 0–1 year	9.0	8.6	7.6	10.6
Residence in county: 2–9 years	34.5	29.2	24.9	42.2
Residence in county: 10–29 year	37.7	44.0	47.7	38.1
Residence in county: 30-up year	18.9	18.2	19.8	9.1
	100.1	100.0	100.0	100.0 ($p = 0.06$)
Residence in state: 0–1 year	5.5	3.0	4.1	5.9
Residence in state: 2–9 years	16.5	18.5	20.1	20.1
Residence in state: 10–29 year	40.1	46.3	42.6	44.1
Residence in state: 30-up year	37.9	32.2	33.2	30.0
	100.0	100.0	100.0	100.1 ($p = 0.35$)
Nascent, both parents US born	86.7	84.4	87.8	74.0
Nascent US born, one parent immigrant	7.7	7.9	6.9	9.3
Parents US born, nascent immigrant	1.2	0.5	2.0	1.5
Nascent, both parents immigrant	4.3	7.3	3.3	15.2
	99.9	100.1	100.0	100.0 ($p = 0.008$)
Parents did not have a business	45.1	46.8	48.4	42.0
Father, mother or both had a business	54.9	53.2	51.6	58.0
	100.0	100.0	100.0	100.0 ($p = 0.76$)
Did not work for parent's business	55.4	47.6	41.1	55.1
Worked part time for parent's business	29.6	31.3	33.8	34.8
Worked full time for parent's business	14.9	21.1	25.1	10.1
	99.9	100.0	100.0	100.0 ($p = 0.08$)

relationship related to residential tenure in the state; three-fourths have lived in the state for over 10 years. In terms of immigration to the United States, over 80% of the nascents in all categories were born in the United States; three-fourths or more report that their parents were US born as well. However, there is a small and distinctive proportion, 15%, of those reporting on substantial enterprises report that they and their parents were all born outside the United States.

In terms of parent's experience as small business owners, the effects seem modest; neither the parent's ownership of a business or working

for their parents' business has a statistically significant relationship to the expected scope of the nascent enterprise.

The household context of the nascent entrepreneur is reviewed in Table 8.7. Those reporting on substantial enterprises are more likely to be married and less likely to be divorced, separated, or widowed. They are associated with somewhat larger households; over 60% report a household with three or more persons where only one-in-six lives alone. There are no statistically significant patterns related to whether they live in a dwelling that is rented or owned.

The personal orientations of the nascent entrepreneur are summarized in Table 8.8, all differences are statistically significant and some are substantially significant. There is a clear difference in the preference for a firm growth. Almost half of the nascents reporting on substantial enterprises prefer to maximize the growth of the new enterprise, compared to 12% of those reporting on minimal growth enterprises. This ratio reflects a consistent pattern across growth categories, higher expected scope in 5 years is associated with greater personal emphasis on growth.

Table 8.7 Entrepreneur's household context by expected impact nascent enterprises.

	Expected impact of nascent enterprises			
	Minimum (%)	Small (%)	Moderate (%)	Substantial (%)
All	57.1	24.7	12.1	6.1
Never married	21.9	30.3	22.3	19.6
Married, living as married	64.2	52.0	64.9	73.1
Divorced, separated, widowed, other	13.9	17.7	12.8	7.3
	100.0	100.0	100.0	100.0
				($p = 0.002$)
Household size, all persons: One	14.3	17.4	14.8	11.8
Household size, all persons: Two	26.5	20.7	27.8	26.5
Household size, all persons: Three	20.7	25.2	13.7	14.1
Household size, all persons: Four	18.9	21.3	20.7	20.2
Household size, all persons: Five and more	19.5	15.5	23.0	27.4
	100.0	100.0	100.0	100.0
				($p = 0.05$)
Own dwelling	68.2	62.4	67.3	63.5
Rent dwelling	31.8	37.6	32.7	36.5
	100.0	100.0	100.0	100.0
				($p = 0.29$)

Table 8.8 Orientations of the entrepreneur by expected impact of nascent enterprises.

	Expected impact of nascent enterprises				Stat. Sign
	Minimum	Small	Moderate	Substantial	
All	57.1%	24.7%	12.1%	6.1%	
<i>Growth preferences</i>					
Prefers easy to manage firm	88.1%	74.4%	57.4%	51.1%	
Prefers to maximize growth	11.9%	25.6%	42.6%	48.9%	
	100.0%	100.0%	100.0%	100.0%	$p < 0.0001$
<i>Contextual response*</i>					
Involved to pursue opportunity	86.7%	87.7%	93.6%	100.0%	
Involved out of necessity	13.3%	12.3%	6.4%	0.0%	
	100.0%	100.0%	100.0%	100.0%	$p = 0.04$
<i>Motivational dimensions</i>					
Autonomy, independence	3.93	4.10	3.96	3.97	$p = 0.06$
Wealth, financial security	3.42	3.85	3.93	3.89	$p < 0.0001$
Achievement, recognition	2.42	3.01	2.94	3.16	$p < 0.0001$
Respect, other's expectations	2.09	2.56	2.39	2.34	$p < 0.0001$
<i>Personal self-descriptions</i>					
Background for start-up challenge	4.27	4.39	4.47	4.62	$p < 0.0001$
Intensity of commitment	4.05	4.20	4.27	4.35	$p < 0.0001$
Self-reliant, independent	2.81	2.90	2.95	2.90	$p = 0.09$

*PSED II only, $n = 841$.

The same patterns are associated with the primary motivation for participation; not a single nascent entrepreneur associated with substantial enterprises reported they are involved out of necessity; one-in-eight among the minimum potential enterprise nascents are. Clearly, the substantial enterprise nascents are voluntarily pursuing an attractive business opportunity.

All four motivational dimensions show differences among these groups of nascent enterprises. They are rank ordered in terms of emphasis among those in the substantial category. They give highest priority to autonomy and independence, although not as high as those in the small potential category. Second priority is given to wealth and financial security, which is substantially lower only for nascents in the minimum impact group. Third in importance is achievement and recognition, which is higher than those in the other three groups. Least important are efforts to gain respect and meet others' expectations. These

motivational differences are, as usual, in terms of degree of emphasis; the evidence suggests they are all of some significance.

The bottom of Table 8.8 presents self-descriptions on three dimensions where the multi-item indices have reasonably reliability. Only for two do the nascents associated with substantial enterprises appear distinct; they are more likely to report they have the skill and background needed for the challenge of implementing a new firm and they report a stronger intensity of commitment, particularly when compared to those nascent entrepreneurs associated with minimal enterprises. There is no difference associated with self-reports of the degree of independence or self-reliance.

8.2 Start-up Team

The significance of the teams associated with nascent firms is greater for those considered to have substantial potential. The basic features are presented in Table 8.9. Most significant is the presence of multi-person teams, associated with 70% of the substantial nascent enterprises, compared to 45% of those expected to have minimum impact. Further, the presence of spousal pairs is much less, present for only 4% of the substantial enterprises. A “family” business may be considered to include a spousal pair or a multi-person team where relatives may own more than 50% of the new enterprise. They are one-third of minimum potential enterprises, but one-sixth of those in the substantial potential category. The substantial enterprises are unique in that over half are initiated by non-family teams.

The average size increases for all types of team participants, both human and legal or juristic owners, for enterprises expected to have more impact. The vast majority of teams in all categories do not include legal or juristic owners. Teams in the substantial enterprise category have a significantly low proportion with one owner, 34%. A relatively large proportion, 20%, report four or more on the start-up team.

A summary of the total team same industry experience is provided at the bottom of Table 8.9. The average total is over twice as large for the substantial enterprise category when compared to the minimum enterprises. While this category may be affected by deletion of all cases

Table 8.9 Nature of the start-up team by expected impact of nascent enterprises.

	Expected impact of nascent enterprises				Stat. Sign
	Minimum	Small	Moderate	Substantial	
All	57.1%	24.7%	12.1%	6.1%	
One person owner	56.4%	50.0%	45.8%	32.9%	
Spousal pair	28.1%	17.8%	16.8%	7.5%	
Family team: Relatives own > 50%	5.3%	9.1%	10.2%	6.5%	
Non family team	10.2%	23.1%	27.1%	53.1%	
	100.0%	100.0%	100.0%	100.0%	$p < 0.0001$
Team size (average): All owners	1.56	1.77	1.96	2.51	$p < 0.0001$
Team size (average): Natural persons	1.54	1.72	1.88	2.35	$p < 0.0001$
Team size (average): Legal persons	0.01	0.04	0.08	0.16	$p < 0.0001$
One natural person	56.3%	50.3%	44.9%	34.1%	
Two natural persons	36.1%	34.9%	35.0%	23.5%	
Three natural persons	4.6%	8.1%	10.9%	22.4%	
Four natural persons	2.6%	5.3%	5.4%	12.9%	
Five or more natural persons	0.4%	1.5%	3.8%	7.2%	
	100.0%	100.1%	100.0%	100.1%	$p < 0.0001$
Total team industry experience (avg yrs)	11.0	13.5	14.7	26.1	$p < 0.0001$
0–1 yrs same industry experience	25.7%	14.8%	18.8%	0.0%	
2–9 yrs same industry experience	31.6%	36.8%	32.6%	15.8%	
10–19 yrs same industry experience	21.1%	20.6%	15.7%	27.7%	
20–34 yrs same industry experience	16.0%	19.9%	20.9%	30.8%	
35–49 yrs same industry experience	3.7%	4.8%	6.4%	14.2%	
50–149 yrs same industry experience	1.9%	3.1%	5.6%	11.6%	
	100.0%	100.1%	100.0%	100.1%	$p < 0.0001$

where less than 6 years of team experience was present, considerable differences remain. Over one-fourth of the substantial enterprise category start-up teams have over 35 years of same industry experience.

The socio-demographic characteristics of the start-up teams are summarized in Table 8.10. This indicates that the 1,307 nascent enterprises have 2,197 human participants represented on the start-up teams.

Table 8.10 Demographics of start-up team by expected impact of nascent enterprises.

	Expected impact of nascent enterprises				All
	Minimum	Small	Moderate	Substantial	
All	57.1%	24.7%	12.1%	6.1%	100.0%
Total nascent enterprises	746	323	158	79	1307
Total person count	1155	559	298	185	2197
Average persons/team	1.55	1.73	1.89	2.34	1.68
Men	55.2%	67.4%	74.2%	82.8%	63.2%
Women	44.8%	32.6%	25.8%	17.2%	36.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
White	78.6%	61.3%	69.5%	70.5%	72.2%
African American	8.3%	18.6%	19.6%	15.4%	13.0%
Hispanic	3.9%	7.1%	6.2%	8.3%	5.4%
Other	9.2%	13.0%	4.8%	5.8%	9.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
18–24-yrs old	10.7%	16.8%	9.4%	6.2%	11.7%
25–34-yrs old	27.3%	27.7%	28.2%	30.5%	27.8%
35–44-yrs old	28.0%	26.5%	28.2%	30.2%	27.9%
45–54-yrs old	22.0%	19.6%	23.4%	19.3%	21.3%
55–99-yrs old	12.0%	9.3%	10.7%	13.7%	11.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

The patterns for all human team members are very similar to those of the person reporting as a nascent entrepreneur for the enterprise. Again, over 80% of the substantial team members are men, compared to slightly more than half for minimum impact enterprises. Whites make up 70% of the substantial enterprise start-up teams, about the same for moderate impact enterprises, somewhat more for minimum impact and somewhat less among small impact start-up team members. African Americans, in particular, seem to have an increased prevalence among the small and moderate enterprise start-up teams. The age distributions are very similar as found among the reporting nascent entrepreneurs, with more between 25 and 44 years of age on the substantial enterprise start-up teams.

8.3 Nascent Enterprise

Basic features of the nascent enterprises themselves are presented in Table 8.11. As might be expected, more sophisticated legal forms, such as limited partnerships or a corporate structure, are planned for substantial enterprises, with over half expected to have such a form. These

Table 8.11 Characteristics of the nascent enterprise by expected impact.

	Expected impact of nascent enterprises			
	Minimum (%)	Small (%)	Moderate (%)	Substantial (%)
All	57.1	24.7	12.1	6.1
Legal form: Sole proprietorship	56.1	37.5	28.9	16.5
Legal form: General partnership	7.1	11.8	11.3	7.7
Legal form: Limited partnership, corporation	13.6	27.7	36.7	53.3
Legal form: Not determined, other	23.2	23.1	23.2	22.5
Total	100.0	100.0	99.9	100.0 ($p < 0.00001$)
Start-up type: Independent	85.7	82.2	79.0	81.3
Start-up type: Purchase, takeover	1.8	5.5	4.6	1.2
Start-up type: Franchise, multi-level marketing	8.5	4.8	8.1	5.9
Start-up type: Sponsored by existing business	3.9	7.6	8.3	11.6
Total	99.9	100.1	100.0	100.0 ($p = 0.0004$)
Location: Personal residence	65.4	50.0	37.9	32.7
Location: Existing business facility	6.5	8.5	13.6	12.0
Location: Dedicated location for new business	7.9	13.9	15.6	27.7
Location: Not determined, not needed yet	20.3	27.6	32.9	27.6
Total	100.1	100.0	100.0	100.0 ($p < 0.00001$)
Extractive (Farming, Fishing, Forestry, Mining)	5.1	4.1	22.9	0.0
Transformative (Construction, Manufacturing, Wholesale, Transportation)	19.1	24.6	33.1	33.5
Business services	27.8	24.5	20.0	50.9
Consumer services	48.0	46.8	43.9	15.6
Total	100.0	100.0	100.0	100.0 ($p < 0.00001$)

are reported for only about 14% of the minimum impact enterprises, most of which report a sole proprietorship legal form.

While 80% or more of the nascent enterprises in all categories are considered independent, autonomous firms, the presence of an existing business as a sponsor increases the potential impact of the nascent enterprise. Existing businesses sponsor almost 12% of those in the substantial potential category, compared with 4% among the minimum

impact category. While most nascent enterprise are located at a personal residence or the location is not yet determined, the proportion with a dedicated location for the nascent enterprise grows as the potential impact increases; it reaches almost three-in-ten for those in the substantial enterprise group.

The most general classification of economic sectors has four broad categories; these indicate that half of all substantial enterprises are being developed to serve business customers and one-third are in the transformative sectors, which includes construction, manufacturing, transportation, and wholesale. None in this group are in the extractive sector and only about one-sixth in consumer services. The emphasis is almost completely reversed for the minimum impact category, where one-half are in consumer services.

Two basic features of the competitive strategy are presented in Table 8.12. The relative emphasis on seven different aspects of a competitive strategy is presented separately for the PSED I and PSED II cohorts. Although the same items were used for both interviews, the response scales were slightly different, with four alternatives for PSED I and five for PSED II. For both cohorts they are rank ordered in relation to the emphasis given by the substantial enterprise group. The results for the two cohorts are quite similar, with the same issues in the top, middle, and bottom of the rank orders. In both cohorts, greater emphasis is given to providing quality goods and services, the technical expertise of the start-up team, and serving niche markets. Intermediate emphasis is given to technically advanced products and services and contemporary, attractive products. Least emphasis is given to price and location and customer convenience. The lack of focus on this last item may reflect the small proportion in the consumer service sectors.

There are clear differences with respect to the expected locations of customers, although the substantive impacts are not large. The substantial enterprises expect about one-third of the customers to be local, compared to two-thirds for the minimum impact enterprises. In contrast, the substantial enterprises expect almost one-half of their customers to be drawn from national or international markets, compared to less than 20% for the minimum or small potential enterprises. These differences are highly statistically significant.

Table 8.12 Competitive emphasis by expected impact of nascent enterprises.

	Expected impact of nascent enterprises				Stat. Sign
	Minimum	Small	Moderate	Substantial	
All	57.1%	24.7%	12.1%	6.1%	
<i>PSED I competitive strategy</i>					
Quality goods/services	3.61	3.59	3.64	3.69	0.80
Technical expertise of start-up team	2.45	2.80	2.97	3.23	< 0.0001
Serve niche markets	3.06	3.26	3.03	3.09	0.16
Technically advanced products/process	2.40	2.66	2.71	2.71	0.03
Contemporary, attractive products	2.56	2.80	2.74	2.66	0.25
Price emphasis	2.53	2.63	2.52	2.42	0.64
Location, customer convenience	2.59	2.88	2.51	2.39	0.03
<i>PSED II competitive strategy</i>					
Quality goods/services	4.72	4.70	4.79	4.86	0.29
Serve niche markets	4.28	4.41	4.37	4.51	0.10
Technical expertise of start-up team	3.81	3.98	4.01	4.35	0.02
Contemporary, attractive products	3.89	4.14	4.16	4.32	0.007
Technically advanced products/process	3.64	3.94	3.95	4.16	0.005
Price emphasis	3.65	3.93	3.72	4.03	0.03
Location, customer convenience	3.79	4.20	3.89	3.86	0.002
Local customers: within 20 miles	62.9%	58.9%	52.8%	35.2%	< 0.0001
Regional customers: 20–100 miles	21.1%	22.4%	21.8%	19.7%	0.71
National customers: within the United States	14.5%	15.3%	21.7%	35.7%	< 0.0001
International customers: outside the United States	1.6%	4.0%	3.9%	10.9%	< 0.0001
	100.1%	100.6%	100.8%	99.5%	

8.4 Emphasis in the Start-up Process

It is possible that the teams attempting to launch a new enterprise with substantial potential may pursue the initiative differently than those expecting to have a minimum or small impact. The first material presented in Table 8.13 is related to the time between

Table 8.13 Start-Up emphasis by expected impact of nascent enterprises.

	Expected impact of nascent enterprises				Stat. Sign
	Minimum	Small	Moderate	Substantial	
All	57.1%	24.7%	12.1%	6.1%	
Conception to 1st interview (months)	17.7	19.1	18.7	20.8	$p = 0.46$
0-6 months	25.3%	23.7%	25.6%	22.7%	
6-12 months	26.1%	23.5%	23.6%	25.7%	
12-18 months	16.4%	17.8%	14.7%	10.9%	
18-24 months	9.7%	10.3%	12.2%	7.4%	
24-36 months	9.3%	11.4%	8.3%	18.6%	
36-60 months	9.2%	7.9%	9.9%	9.9%	
60-up months	4.0%	5.4%	5.7%	4.8%	
Column totals	100.0%	100.0%	100.0%	100.0%	$p = 0.81$
<i>Team investments</i>					
Total hours, all team members	1367	1807	1832	2355	$p = 0.005$
Total funds, all team members	\$10,406	\$12,503	\$17,343	\$19,943	$p < 0.0001$
Total hours/team member	991	1148	1106	1105	$p = 0.67$
Total funds/team member	\$7201	\$8188	\$10,069	\$9269	$p = 0.03$
Total hours/mth: conception to 1st Itwr	103	161	140	180	$p = 0.002$
Total funds/mth: conception to 1st Itwr	\$1275	\$1291	\$2597	\$2170	$p = 0.0005$
Total hours/mth/member: concept-1st Itwr	71	99	85	79	$p = 0.09$
Total funds/mth/member: concept-1st Itwr	\$840	\$865	\$1556	\$991	$p = 0.008$
<i>Start-up activities</i>					
Average number of start-up activities	8.1	8.1	9.0	9.2	$p = 0.002$
1-2 Start-up activities	1.6%	3.8%	2.1%	6.8%	
3-4 Start-up activities	12.3%	14.4%	13.4%	5.4%	
5-6 Start-up activities	18.9%	16.9%	18.9%	14.0%	
7-8 Start-up activities	24.2%	22.5%	18.4%	14.7%	
9-10 Start-up activities	19.3%	20.6%	10.8%	17.9%	
11-20 Start-up activities	23.6%	21.7%	36.5%	41.2%	
Column totals	100.0%	100.0%	100.0%	100.0%	$p = 0.0001$

Table 8.13 (*Continued*)

	Expected impact of nascent enterprises				Stat. Sign
	Minimum (%)	Small (%)	Moderate (%)	Substantial (%)	
<i>Start-up activity domains</i>					
Personal planning (% initiated)	72.3%	71.3%	75.6%	74.6%	$p = 0.49$
Task, product development (% initiated)	38.0%	36.5%	43.7%	50.8%	$p = 0.0001$
Organizational, finance (% initiated)	31.5	38.1	51.7	49.1	$p < 0.0001$
Business presence (% initiated)	28.7	29.9	34.2	37.5	$p = 0.02$
Production implementation (% initiated)	41.4	37.2	37.1	37.3	$p = 0.03$
Business registration (% initiated)	10.6	10.7	13.9	15.9	$p = 0.13$

the conception or initiation of the start-up process and the initial-detailed interview. It turns out that the average time, which is about 18–20-months, is the same for the nascent enterprises in the four categories.

Total time and money is significantly associated with the expected impact of the start-up. The total hours and times invested by the team members in substantial enterprises is the largest of any category, about 2,400 hours and \$20,000. This is about twice that of the minimum enterprise group. In terms of investments per team member, the moderate and substantial categories are similar, at about 1,100 hours and \$10,000, but only the amount of funds is statistically significantly greater than the minimum enterprise category.

The rate of investments, in terms of time from conception to the first interview, indicate that the enterprises with higher potential are associated with a greater intensity, with 180 hours and \$2,000 per month invested for the substantial enterprises. This is somewhat higher than the minimum and small enterprise categories, but not much different from the moderate category. The rate per month per team member reflects some difference, but mainly when compared to the minimum enterprise group.

In summary, the amount and rate of investments in time and money is higher among those categories with a greater potential, although the substantial enterprise category is not always prominent.

Another measure of investment is the number of start-up activities initiated; these are summarized in the lower half of Table 8.13. In this analysis, only those activities common to both the PSED I and PSED II interview schedules are compared. There is a clear upward trend associated with higher potential categories; the average number of acts initiated increases, and over 40% of those in the substantial category have initiated over 11 different start-up activities.

The six different start-up activities domains are presented at the bottom of Table 8.13. They are rank ordered in terms of emphasis among the substantial enterprise category. For four of the six domains there is a statistically significant difference favoring the categories with higher expected potential. The domain receiving the greatest attention, related to personal planning for the start-up, reflects no difference among the four categories of enterprises. The teams initiating the more substantial enterprises, however, appear to give more emphasis to task and product development as well as organizational and financial issues. They are also more focused on developing a presence for the business among the host community and markets. There is less difference with regard to the actual production implementation to produce a good or service. The domain receiving the least attention, formal registration of the business, is not given much emphasis by start-up teams in any of the enterprise categories.

8.5 Outcomes: First Year Status

The status as reported at the first follow-up interview is presented in Table 8.14. There is, at this early stage, no statistically significant relationship between the expected scope of operation in the fifth year and the outcome status. Regardless of the expected scope five years after they become operational, about three-fourths are still in the start-up process and about one-in-ten report an operational new firm in place; the remainder — one-in-six — has disengaged. Differences may emerge after more time has passed and when additional follow-up interviews are completed.

Table 8.14 High impact nascent enterprises: First follow-up outcomes.

Expected scope	Active start-ups (%)	New firm (%)	Disengagement (%)	All outcomes (%)
Minimal	71.7	12.2	16.1	100.0
Small	77.6	9.8	12.7	100.1
Moderate	76.4	8.4	15.2	100.0
Substantial	77.3	10.6	12.1	100.0
All categories	74.1	11.0	14.9	100.0

(p = 0.42)

8.6 Overview

Nascent enterprises with the greatest potential for becoming significant businesses are of considerable interest to policy makers and scholars. There is no question that a small proportion of the start-ups in the PSED cohorts expect to be substantially larger than the typical new enterprise. The most useful data on the differences in the size attained by these new ventures will be obtained after they have completed the start-up process, been launched as new firms, and have several years of operational experiences to report. Until this occurs, which may take five to ten years, an alternative is to consider the expectations reported by the nascent entrepreneurs involved in the creation and launch of these new firms.

Among the efforts reported by recent active nascent entrepreneurs associated with start-up teams with more than 5 years experience in the industry of the start-up, 6% were identified as expecting a substantial scope of operations five years after the firm's birth. These high impact nascent enterprises would be expected to provide over one-third of the new employment and almost 70% of the annual sales expected for all the nascent enterprises in the cohort. This confirms the recurrent finding that a small proportion of new firms provide the major of the new contributions to the economy.

The distinctive features of the nascent entrepreneurs associated with enterprises expected to have substantial scope include:

- More likely to be men, 25–44 years of age.
- More likely to have college degrees or graduate degrees, and to be associated with households with higher annual household incomes and higher household net worth.

- More likely to have greater same industry and prior start-up experience.
- More likely to report they and their parents were immigrants into the United States (15%) than in other categories, although the majority (74%) are US born of US born parents.
- More likely to be married and living in larger households.
- More likely to consider maximization of growth as a personal preference and much more likely to be in pursuit of a business opportunity.
- More likely to emphasize motives associated with autonomy as well as interest in wealth and financial security and less emphasis on achievement, recognition, or meeting others' expectations.
- More likely to consider that they had the appropriate background and experience as well as a higher intensity of commitment.

These differences are all reasonable in light of the requirements associated with greater growth.

The substantial scope nascent enterprises were also distinct in a number of ways:

- More likely to introduce new goods and services into the market.
- More likely to report an emphasis on high technology.
- More likely to be implemented by non-family teams.
- More likely to have a sophisticated legal form, limited partnership or corporation.
- More likely to have a dedicated, non-residential location for the new business.
- More likely to focus on providing a product or service to other businesses.
- More likely to emphasize the quality of goods and services, niche markets, and technical expertise of the start-up team; price competition and location and customer convenience were deemphasized.

- More likely to consider their customer base in national and international markets.
- More likely to invest more hours (over 2,000) and personal funds (about \$20,000).
- More likely to have initiated a larger number of start-up activities.
- More focused on product development, organizational and financial structure, and developing a presence for the business in the community.

Despite the many dimensions on which more substantial enterprises appear to be distinctive, it is clearly a matter of degree when compared to those with moderate growth expectations. There are, however, substantial differences when compared to those expecting minimal or small amounts of growth in the first five years.

This has been a preliminary assessment, based on differences reported in the initial-detailed interview. This is reflected in perhaps the most critical aspect of a comparison of projected growth: there was no difference in the status of the start-up initiatives reported at the first follow-up interviews. Until more time has passed and additional follow-up interviews have been completed, it is not possible to determine if the aspirations for growth will be related to actual outcomes.

9

Overview and Implications

Few topics are more significant in modern economies than new firm creation. Not only are new firms a major source of jobs, economic growth, market innovation, and improved productivity, entrepreneurship and self-employment is a major career option for a substantial proportion of the work force. Indeed, perhaps up to one-half of all adults are engaged in self-employment or the creation of a new business at some point during their work career.¹ Yet very little is known about the scope of involvement in new firm creation, what individuals and teams do to implement new firms, the outcomes of these start-up efforts, or the social investment required to maintain a continuous stream of new firms in the US economy. While over two dozen data sets have been developed and maintained to explore major features of business dynamics and labor force behavior, there is only one data set that provides detailed descriptions of a representative sample of those in the firm creation process.

The Panel Study of Entrepreneurial Dynamics research program fills this gap. The procedures are designed to provide representative sam-

¹Reynolds et al. (1997), Table 1.2, pg. 5.

ples of individuals engaged in the start-up process and, through follow-up interviews, track their progress and success as they move toward the implementation of a new business. The two projects, PSED I and PSED II, in this research program represent two cohorts, one identified in 1999 and followed for 4 years, and the other identified in 2005 and for which the first follow-up interview data are available. The wealth of details about the individuals, teams, and procedures associated with these two cohorts provides a great deal of information about major features of the business creation process.

Perhaps most significant, there are a lot of individuals involved, about 11 million in 1999 and 12 million in 2005. These 12 million nascent entrepreneurs represent 7.4 million nascent enterprises. The increase between 1999 and 2005 primarily reflects population growth as there has been no change in the prevalence rate of active nascent entrepreneurs, at about 6 per 100 adults 18–74 years of age over this period.

The types of individuals who report participation in business start-ups is quite similar for 1999 and 2005. Men are twice as likely to be involved as women. Those 25–44 years of age are the most active. African Americans are almost twice as active as Whites; Hispanics are intermediate in participation. Men with different levels of education are involved at about the same level; women who have not finished high school are less likely to report participation. Men from households with higher levels of income are more involved and women from households with lower levels of income are less involved. Women with little education and from low income households are much less involved. Overall, mid-career adults of all backgrounds appear to be involved in the business creation process.

A focus on the distinctive features of those active in business creation can be gained from a description of the 12 million active nascent entrepreneurs. Men accounted for three of five of those active, women are two-in-five. About eight-in-ten are between 25 and 54 years of age and two-thirds are White. Most were born in the United States, with just 15% born outside the United States. Most have lived in the same state and county for a substantial period of time. Most have finished high school but only about one-third have finished college and about one-sixth have some graduate school experience. About half had

parents who managed a business, but less than one-in-four worked for their parents. Well over half are married, but a substantial minority has never married, perhaps reflecting their younger ages. Most lived in multiple-person households and half lived in households with children. Most nascents are from households with intermediate levels of income, with just one-in-six from households with income in excess of \$100,000 per year. Nine of ten are from households with a net worth of less than half a million.

Six-in-ten have no prior start-up experience; one-in-four has no prior experience in the industry of the start-up. One-in-five reports five or more prior start-up efforts and one-in-four reports more than 15 years experience in the industry of the start-up. About four-in-five are engaged in work or managing a firm while they pursue a new start-up; prior work experience is very diverse in terms of the size of the employer and the level of responsibility. The primary motivation of those involved in business start-ups was a combination of desires for autonomy, wealth, achievement, and prestige, emphasized in that order. Five-in-six were attracted to the business opportunity; the remainder, necessity entrepreneurs, were pursuing their best option for work. One-fourth expects to maximize the growth of the firm; the rest prefer a firm that is easy to manage.

Overall, the nascent entrepreneurs are very much a cross-section of typical adults in mid-career, unique only in their active involvement in the creation of a new business.

Nascent entrepreneurs reported on the progress of the 7.4 million nascent enterprises they were creating in 2005. The descriptions of these start-up initiatives suggest that the average start-up team is about 1.7 members, with about half limited to one person. Legal or juristic owners are about 3% of the total entities involved in start-ups. Non-family teams are involved in about one-in-five nascent enterprises. Over 60% of team members are men, seven-in-ten are White, and most are 25–54-years old. The sector distribution is similar to that among existing firms, with a slightly greater emphasis in retail and business services. Four-of-five are independent start-ups, most are sole proprietorships, and private homes are the most frequently mentioned location of the start-up activities.

Most competitive emphasis was placed on providing quality goods and services to a niche market; price competition is given the least emphasis. Four-in-five customers are expected to be local or regional; only 3% are expected to be international. One-fourth expected high sales and job growth in the first five years. There is little expectation of major changes in products or services as most are replicating existing business activities.

There was substantial diversity in the amount and intensity of sweat equity investments. The average start-up absorbed about 1,500 hours of work and \$10,000 by the first-detailed interview. The nascent enterprises, as a group, reflect a considerable range of activities, strategies, and start-up teams.

The purpose of follow-up interviews is to consider the outcome of participation in the start-up process; data from the first follow-up from the PSED I and PSED II projects can be used to explore the status one year after the first interview. It would appear that by 48 months from conception about 20% of the nascents have disengaged from the nascent enterprise. From 12%–23% report an operational new firm in place and the remaining 57%–68% report they are continuing to work with the start-up initiative. Clearly more follow-ups are required to track the outcome of these start-up efforts.

Assessment of the total time and money invested by the start-up teams, providing an estimate of the social cost of the total population of start-ups, indicates that about 10 billion hours and \$70 billion are invested in nascent enterprises; this is an annual rate of about 7 billion hours and \$50 billion. Of this level of investment, about half is provided to start-ups that have been discontinued by the first follow-up interview. In short, major costs of the business creation process are born by those who do NOT report a new business creation; the major benefits accrue to those few who manage to create a new business entity.

As a small proportion of new firms are known to provide the majority of contributions in terms of jobs and sales, an assessment of the expected size of the nascent enterprises five years after being launched was undertaken by combining the PSED I and II data sets. Those 6% that were expected, by an experienced start-up team, to provide

over 50 jobs or \$4 million in annual sales at the end of five years were compared to the other 94% of the nascent enterprises. This substantial impact group was expected to provide over 70% of the jobs and sales to be created by all the new enterprises. These high-potential firms were distinctive on a number of characteristics, with larger, more experienced start-ups teams, more men and minority involvement, more emphasis on high technology and producing major changes in the markets where they would compete, utilizing more complex legal forms, and entering business service and transformation economic sectors. There were, however, no differences in outcomes at the end of the initial follow-up interview; the proportion of substantial impact nascent firms that were new firms, discontinued, or still active in the start-up process was the same as all firms. More time must pass and more follow-ups must be completed to provide a useful assessment of the eventual contributions of these high-potential nascent enterprises.

9.1 Understanding Entrepreneurship

As a research initiative, the PSED II project expands and enhances the contributions provided by the PSED I initiative. Both provide an unprecedented description of the firm creation process, which turns out to be more diverse and complex than expected. It has demonstrated that locating and tracking nascent entrepreneurs and nascent enterprises is technically feasible, albeit a somewhat expensive challenge. However, many critical decisions can affect the quality and scope of the data in such a project; success requires the sustained attention of an experienced project team.

Evidence continues to accumulate that many complementary processes affect and enter into the completion of the start-up process with a new firm. There is no one big thing that will guarantee or prevent the creation of a new firm (Reynolds, 2007b). In addition to the complexity, the firm creation process takes a considerable length of time, the median time to implement a new firm is about *two* years and it may take *five* or more years for 90% of the start-ups that will be successful to implement a new firm. This suggests that a minimum follow-up period of at least 5 years to track the outcomes of most of the start-ups

identified in a representative sample is required. Assessment of the impact of start-up activity on the growth trajectory of new firms may require a *ten* year assessment, to capture *five* years of firm history after the firm birth.

Finally, the assessment of a wide range of factors — over 130 independent variables — on the outcome status of nascent enterprises in the PSED I cohort (Reynolds, 2007b) indicated some success with regard to identifying the critical factors promoting a successful firm birth. One significant feature was not captured in the interview process — the nature and quality of the business idea and its relation to the business opportunity as perceived by the start-up team. It is very complex and expensive to collect data on these facets in a phone interview, but the next major advance in the research program should incorporate assessment of this important feature.

9.2 Implementing New Firms

For those who are interested in implementing a new firm, the results from the PSED I assessment and the PSED II preliminary analysis provide a number of implications. Most relevant, anybody can implement a new firm if they have the appropriate business experience, go about it in the right way, and, presumably, are attempting to implement a viable business idea. Men and women, young and old, those with different ethnic backgrounds, levels of education and household wealth are all involved in business start-ups. Some of each group successfully launch new firms — the American dream lives.

Equally significant, there is no one way to implement a business. The critical elements may be implemented in a number of different sequences. On the other hand, several factors were found to facilitate success in the analysis of the PSED I cohort (Reynolds, 2007b), particularly evidence of an intense commitment of time and money over a short period of time — several years — and greater experience in the industry where the new firm would compete. While a complete analysis of the PSED II cohort cannot be completed until more follow-ups are done, the preliminary evidence would suggest that results will be very similar.

9.3 Public Policy

In terms of public policy, there are a number of relevant findings. Perhaps most significant is the scope of activity, both in terms of the number of individuals and the resources involved. At any given time 6% of those 18–74 years old or 12 million adults are active in the firm creation process, attempting to implement over 7 million new firms. Evidence from PSED I, consistent with the initial data from PSED II, suggests that about one-third will be successful, one-third will disengage, and one-third will pursue a start-up effort as a long term hobby (Reynolds, 2007b).

Moreover, the amount of time and personal funds invested is not trivial; each of these cohorts represents about 10 billion hours and \$70 billion before any firms are created. Nascent entrepreneurs who will not launch an operating business invest the most time and money. Efforts to promote more entrepreneurial activity might give more attention to the unequal distribution of costs and benefits, as most of the costs in time and money are born by those who will receive no benefit. One mechanism for reducing the costs born by those nascent entrepreneurs who will not launch a new firm is to increase their sophistication on two issues; how to launch a new firm and the industry sector where the new firm will compete.

Instructional materials associated with the creation of a new firm — the ubiquitous business plan books, manuals, seminars, and courses — are well developed. Further, as 95% of the nascent enterprises are designed to replicate an existing business activity, it should not be a major challenge to organize information about existing economic sectors. On the other hand, locating experts in each sector to provide information to potential competitors may be a greater challenge. Consultation to advise nascent entrepreneurs about the risks and potential payoff of their nascent enterprises may have value, but attempting to convince them to abandon high-risk ventures may be a challenge.

Finally, many policy makers emphasize the value and impact of high-potential nascent enterprises, particularly those that may induce major changes in the market place with new goods and services. The PSED cohorts make clear just how rare such ventures might be.

If one-third of 7.4 million nascent enterprises become operating businesses, and one-half of those are employer firms, and 6% of this number will have a substantial growth, then about 75,000 high-potential new businesses — about one for every 100 nascent enterprises — will emerge from this cohort. Increasing the number of high-potential new businesses may require attention to a number of aspects of the firm creation process.

9.4 Commentary

The PSED research program has demonstrated that it is possible to fill a major gap in understanding the business life course and the business dynamics of modern market economies. Though complex in terms of the conceptualization of the process, development of appropriate data and explication of issues in the analysis of the major patterns, the results have done much to clarify a major gap in knowledge about business creation. As a unique national resource, it would seem to justify continued support.

A

Procedural Differences: PSED I and PSED II

Although the procedures employed in the two projects, PSED I and PSED II, are very similar, they are not identical in all respects. There were several differences, including:

- (1) There were changes in the actual wording of the main screening items, changes harmonized with developments in a complementary cross-national research program, the Global Entrepreneurship Monitor (GEM) initiative.
- (2) Screening for PSED I involved two main items, related to an effort to create an independent new firm or to create a new firm for an employer. For PSED II a third screening item was included, inquiring about owning and managing an existing firm.
- (3) In PSED I, three criteria for qualifying as a nascent enterprise were included in the screening module; self-perception of new firm creation, start-up behaviors within the past 12 months, and expectation of partial or full ownership of the new firm. A fourth criterion was applied at the beginning of the detailed interview by the university based survey unit. In

PSED II, all four criteria were utilized during the initial screening.

- (4) Different commercial survey firms completed the initial screening. Market Facts (now Synovate) of Arlington Heights, IL for PSED I and Opinion Research Corporation of Princeton, NJ for PSED II.
- (5) The initial detailed interview was completed by the University of Wisconsin Survey Research Laboratory for PSED I and by the University of Michigan Institute for Social Research for PSED II.
- (6) The initial detailed assessment for PSED I involved a 60 minute phone interview followed by a 12 page self-administered mail questionnaire; for PSED II only a 60 minute phone interview was administered.

A.1 Impact of Screening Item Wording Changes

The first change involved efforts to improve the scope of activities eligible for inclusion as a nascent enterprise. Over the duration of these two complementary research programs, GEM and PSED, three versions of wording for the initial (BSTART) item were used. The alternatives for PSED I and PSED II were as follows:

PSED I Are you, alone or with others, now trying to start a new business?

PSED II 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 item (BJOBST):

PSED I 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.

PSED II 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?

A detailed analysis of the effect of item wording on the proportion of those that qualified as candidate nascent entrepreneurs, before additional criteria were utilized to exclude candidates, indicated a substantial item wording effect (Reynolds, 2008). This was particularly true of the wording for BSTART. The joint impact of these changes alone seemed to double the prevalence of candidate nascent entrepreneurs, perhaps reflecting the explicit mention of “self-employment” as falling within the scope of relevant activities.

This item wording effect led to the development of a procedure for providing harmonized estimates for comparing prevalence rates for the PSED I and PSED II cohorts. This is discussed in Appendix B.

A.2 Addition of a Third Screening Item

The version of the third screening item, OWNMGE, used for the PSED II project is as follows:

PSED II 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?

The impact of the addition of the third item (OWNMGE) on the prevalence rates of candidate nascent entrepreneurs is provided in Table A.1. The prevalence rates of candidate nascent entrepreneurs are provided for all combinations of the screening items. While the proportion chosen as candidate nascent entrepreneurs increased from 10.1%

Table A.1 Estimated impact of item changes on PSED I prevalence.

	PSED I, 1999		PSED II, 2005	
(Number per 100 persons)		Percentage		Percentage
<i>NASCENT CANDIDATES</i>				
NONE	89.9		76.9	
BSTART	6.2	61	4.1	17
BJOBST	2.6	26	2.0	9
BSTART/BJOBST	1.3	13	1.2	5
OWNMGE			7.1	31
BSTART/OWNMGE			4.7	20
BJOBST/OWNMGE			1.0	4
BSTART/BJOBST/OWNMGE			3.1	13
Total	10.1	100	23.1	100

to 23.1%, less than one-third is accounted for by those reporting they are only owner-managers of a business. Those only owner-managers are 31% of the PSED II candidate nascent entrepreneur group.

In both projects, only those candidate nascent entrepreneurs satisfying four criteria (answered yes to one screen item, reported start-up activity in past year, expected to own part of the firm, and did not yet have a going business) were considered active nascent entrepreneurs and provided with the detailed interviews. Assessment of the data from the detailed interview indicates that two complications developed. A small proportion reported positive monthly cash flow covering expenses and salaries more than 3 months prior to the detailed interview. These were excluded as no longer in the start-up phase.

Another consequence of expanding the scope of activity with the use of the screening items was that some individuals in the sample do not appear to be very involved or committed to the business creation process. These were individuals that (a) reported only 1 or 2 start-up activities (excluding “serious thought”), (b) did not complete more than 1 activity in any 12-month period, and (c) did not report any start-up activity within 10 years of the detailed interview. Because the number of start-up activities, excluding serious thought, was different in the two projects, 27 for PSED I and 36 for PSED II, the identification of recent active nascent entrepreneurs was done separately for the two projects. The attrition of these samples of individuals in relation to the screening items is presented in Table A.2.

There are, of course, eight different patterns of yes and no answers to the three screening items, but those that responded “no” to all three items were not considered to be nascent entrepreneurs and not included in these samples. Most significant, the relationship of the responses to the screening items to inclusion in the various sub-samples is almost identical for the two projects; the patterns of attrition do not vary across the PSED I or PSED II sub-samples. It is quite clear, however, that the third screening item (OWNMGE) has an effect; the impact, however, is not as dramatic as it might appear, as only 11% appear to have been incorporated because they answered YES to the OWNMGE item. All other OWNMGE positive responses are associated with positive responses to the other two screening items. Adding

Table A.2 Screening items responses: PSED I and PSED II.

Independent start-up	Start-up as job obligation	Business owner-manager	PSED I 4-Criteria candidate sample (%)	PSED II 4-Criteria candidate sample (%)	PSED I Active nascent sample (%)	PSED II Active nascent sample (%)	PSED I Recent active nascent (%)	PSED II Recent active nascent (%)
			(n = 830)	(n = 1214)	(n = 824)	(n = 1148)	(n = 747)	(n = 947)
Yes	BJOBST	OWNMGE	83.9	24.9	83.7	25.6	83.3	23.7
	Yes		5.4	3.5	5.5	3.6	5.6	3.1
		Yes		11.6		11.1		10.7
Yes	Yes		10.7	6.2	10.8	6.4	11.1	5.6
Yes	Yes	Yes		32.1		32.2		35.6
		Yes		2.8		2.7		2.6
Yes	Yes	Yes		18.9		18.5		18.8
			100.0	100.1	100.0	100.1	100.0	100.1

Note: Samples in this presentation are not weighted.

this third item may have, therefore, increased the yield of candidate nascent entrepreneurs in PSED II by 11% compared to PSED I. Given the estimated prevalence rate of 5.6/100 for the PSED I screening, an increase of 11% would yield a PSED II prevalence rate of 6.2/100, very close to the observed rate of 6.0/100. This change in procedure could account for all of the observed change in prevalence rates.

A.3 Change in Stage Where Cash Flow Criteria Implemented

None of the other procedural differences seems likely to make much of an impact on the prevalence rates. The third difference, shifting the application of the positive monthly cash flow covering expenses and salaries criteria to the initial screening procedure resulted in a change in responsibilities for the firm doing the screening, but does not appear to have affected the level of activity. It was found that 6 of the 830 PSED I nascent entrepreneurs reported positive monthly cash flow that covered all expenses and salaries more than 90 days before the detailed phone interview; there were 66 similar cases in the PSED II cohort. This larger proportion for PSED II was attributed to wording changes in the PSED II detailed interview schedule which asks about income and expenses in the previous 12 months but not earlier periods; re-activation of dormant firms could not be identified. As a result, these cases were not included in the “recent active nascent” sub-sample.

A.4 Change in Initial Screening Survey Vendors

The fourth difference was a change in the commercial survey firm used to conduct the initial screening, Market Facts (now Synovate) for PSED I and Opinion Research Corporation for PSED II. Both are well-regarded, professionally managed firms that used almost identical procedures for identifying representative samples of households and the same call-back criteria, three calls, with comparable response rates. There are no major procedural differences in this phase of the data collection.

Both survey firms employed procedures to create case weights for each sample replicate of 1,000. This allowed these firms to provide

weighted sample data for immediate use by their commercial clients. More satisfactory weights have been developed for the combination of all screening samples. The samples for a given project were combined and post-stratification weights were developed for the 62,612 cases for PSED I and 31,845 cases for PSED II. This was done for both samples using similar procedures by the University of Michigan's Institute for Social Research. The final case weights for the detailed interviews were harmonized with the two screening samples.

A.5 Change in Detailed Interview Survey Enterprises

The fifth difference was a change in university-based survey research units for the detailed interviews. The University of Wisconsin Survey Research Laboratory conducted PSED I and the University of Michigan Institute for Social Research conducted PSED II. Based on the experiences in PSED I, the operational procedures for provision of the name and phone number of those respondents identified in the screening who volunteered for the study were adjusted. The completion of the detailed phone interview was more efficient and timely in PSED II. The average time between screening and detailed interview was reduced from 48 to 16 days, but the completion rates — the number of eligible respondents who provided the detailed phone interviews — were similar in both studies, 72% for PSED I and 74% for PSED II.

A.6 Change in Initial Data Collection Procedures

The sixth difference was related to the initial data collection procedures. PSED I involved a 60 minute phone interview followed by a 12 page self-administered questionnaire returned in the mail and PSED II involved only the 60 minute phone interview. The PSED I respondents, however, did not know about the optional self-administered questionnaire until they had completed the phone interview, long after they had volunteered to participate.

The initial phone interviews were also different. The major changes involved combining the PSED I phone and mail questionnaire modules into a single phone interview schedule for PSED II, shortening some

modules and eliminating many. Very little new material was added, although some was reorganized to be more efficient and precise in identifying various participants in the gestation process, start-up activities, strategies, and resources assembled. Perhaps 90% of the PSED II detailed phone interview schedule covered the material included in the PSED I interview schedules; a substantial proportion of the modules were identical.

A.7 Estimated Impact of Major Changes

In summary, while the PSED I and PSED II research procedures are very similar, they are not identical. Most of the differences would have an impact after individuals are identified as nascent entrepreneurs and volunteered to contribute to the project. Two changes — adjustment of screening item wording and adding a third screening item — may have affected the prevalence rates of individuals associated with the business creation process. The real issue, of course, is the effect of these changes on the final yield of cases in the samples considered to reflect nascent enterprises or serious nascent enterprises. Examination of Table A.1 suggests that the screening items were equally effective in capturing nascents for the various sub-samples. Because of the larger number of independent samples from three different research programs, it was possible to develop a procedure to adjust PSED I results to compensate for screening item wording effects, presented in Appendix B.

B

PSED I Prevalence Rates with Adjustments for Screening Item Wording

The proportion of those that may qualify as potential nascent entrepreneurs is affected by the number and content of the screening questions included in the interview. An assessment of the impact of these items on 134 independent samples completed in the United States between 1993 and 2006 was used to determine the relative impact of different screening questions. The result was a formula that was very successful in estimating the impact of different item wording (Reynolds, 2007b).

While it is not possible to identify which individuals might have qualified as nascent entrepreneurs if the more effective interview questions had been utilized, it is possible to estimate the additional proportion that would be identified with the more effective questions. The adjustment procedure, however, can only be applied to a representative sample; it cannot be applied to specific individual cases.

Estimates of the prevalence rates that would have resulted in the PSED I screening with more effective interview items can be completed for different sub-samples, such as African American men or women from low income households. In order to provide comparisons of the prevalence rates that would have occurred in 1999, if the

PSED II screening items had been employed, the following procedure was employed.

- (a) For each analysis, the PSED I and PSED II cohorts were sorted into appropriate sub-samples, such as different age and gender sub-samples.
- (b) For each sub-sample, the case weights were re-centered so the average value would equal one.
- (c) The proportion that would qualify as candidate nascent entrepreneurs using the two-item screening was determined. This provided both a mean value and standard errors of the mean.
- (d) These proportions were then adjusted to reflect the increases that would have occurred if the PSED II three-item screening procedures had been utilized. This produced an estimated prevalence rate of candidate nascent entrepreneurs.
- (e) Active nascent entrepreneurs are a subset of candidate nascent entrepreneurs. It was assumed that the attrition was the same for all sub-samples. Based on the PSED II assessment, it was assumed that 26.4% of candidate nascent entrepreneurs would be considered active nascent entrepreneurs.
- (f) For each sub-sample, the standard error of the mean calculated in step “c” above was considered to be a conservative (wider) estimate of the standard error of the mean for that sub-sample.

The final result were point estimates of the prevalence rates of active nascent entrepreneurs for the various sub-samples from the PSED I and PSED II cohorts with conservative estimates of the standard errors of the mean. This procedure was used for all figures in Section 2.

C

Aggregate Informal Sweat Equity Investment Estimates: PSED I and PSED II Cohorts

Table C.1

	Low	High	Mean
PSED I			
Population, 1999, 18-74-yrs old	190,715,000	190,715,000	190,715,000
Active prevalence rate	5,430	5,840	5,640
Total Active Nascent entrepreneurs	10,355,825	11,137,756	10,756,326
Recent active nascent entrepreneurs	90.00%	90.00%	90.00%
Recent active nascent entrepreneurs	9,320,242	10,023,980	9,680,693
Average team size: 1999	1.7540	1.7540	1.7540
Number of start-up initiatives	5,313,707	5,714,926	5,519,209
Outcome: New firm	1,211,525	1,303,003	1,258,380
Outcome: Disengage	1,094,624	1,177,275	1,136,957
Outcome: Start-up continues	3,012,872	3,240,363	3,129,392
	100.10%		
Total			
Total Team Invested Funds (Ave): New firm	\$15,087	\$18,278,280,577	\$18,985,175,406
Total Team Invested Funds (Ave): Disengage	\$9596	\$10,504,008,437	\$10,910,240,808

(Continued)

Table C.1 (Continued)

		Low	High	Mean	
PSED I					
Total Team Invested Funds (Ave): Active start-up		\$11,446	\$34,485,331,309	\$37,089,196,104	\$35,819,018,155
Total all outcomes			\$63,267,620,323	\$68,044,733,460	\$65,714,434,369
	Total				100.00%
Total team hrs (Ave): New firm	1460	1,768,826,781	1,902,384,604	1,837,234,446	21.18%
Total team hrs (Ave): Disengage	1100	1,204,086,003	1,295,002,257	1,250,652,865	14.42%
Total team hrs (Ave): Start-up continues	1785	5,377,976,270	5,784,048,143	5,585,964,303	64.40%
Total team hrs all outcomes		8,350,889,053	8,981,435,004	8,673,851,614	100.00%
Annual Estimates:					
	Avg Time*				
Total team invested per year: New firm	19.7	\$11,133,978,017	\$11,974,665,123	\$11,564,573,851	27.87%
Total team invested per year: Disengage	12.0	\$9,596	\$10,504,008,437	\$11,297,128,779	\$10,910,240,808
Total team invested per year: Active start-up	22.6	\$6,078	\$18,310,795,385	\$19,693,378,462	\$19,018,947,693
Total team invested per year: All outcomes			\$39,948,781,839	\$42,965,172,364	\$41,493,762,352
					100.00%
Annual Estimates:					
	Avg Time*				
Total team hrs per year: New firm	19.7	889	1,077,457,938	1,158,812,957	1,119,127,582
Total team hrs per year: Disengage	12.0	1100	1,204,086,003	1,295,002,257	1,250,652,865
Total team hrs per year: Active start-up	22.6	948	2,855,562,621	3,071,176,005	2,965,998,745
Total team hrs per year: All outcomes			5,137,106,561	5,524,991,219	5,335,779,191
					100.00%

(Continued)

Table C.1 (Continued)

	Low	High	Mean
PSED II			
Population: 2005: 18-74-yrs old	203,796,000	203,796,000	203,796,000
Active prevalence rate	5.230	7.192	6.207
Total Active Nascent entrepreneurs	10,658,313	14,658,222	12,650,439
Recent active nascent entrepreneurs	78.00%	78.00%	78.00%
Recent active nascent entrepreneurs	8,313,484	11,433,413	9,867,342
Average team size :2005	1.6510	1.6510	1.6510
Number of start-up initiatives	5,035,423	6,925,144	5,976,585
Outcome: New firm	594,180	817,167	705,237
Outcome: Disengage	1,017,156	1,398,879	1,207,270
Outcome: Start-up continues	3,424,088	4,709,098	4,064,078
	100.00%		
Total Team Invested Funds (Ave): New firm	\$8,456,963,496	\$11,630,738,220	\$10,037,639,243
	\$14,233		14.63%
Total Team Invested Funds (Ave): Disengage	\$9,422,928,921	\$12,959,216,343	\$11,184,151,518
	\$9264		16.30%
Total Team Invested Funds (Ave): Active start-up	\$39,914,593,302	\$54,893,956,451	\$47,374,957,723
	\$11,657		69.06%
Total all outcomes	\$57,794,485,719	\$79,483,911,014	\$68,596,748,484
	Total		100.00%

(Continued)

Table C.1 (Continued)

		Low	High	Mean	
PSED II					
Total hrs (Ave): New firm		741,536,601	1,019,824,443	880,135,866	8.92%
Total hrs (Ave): Disengage		1,213,466,559	1,668,862,813	1,440,273,398	14.59%
Total hrs (Ave): Start-up continues		6,361,955,422	8,749,504,254	7,551,057,000	76.49%
Total all outcomes (Hours)		8,316,958,582	11,438,191,510	9,871,466,264	100.00%
Annual Estimates					
	Avg Time*				
Total team invested per year: New firm	15.5	\$6,547,326,578	\$9,004,442,493	\$7,771,075,543	14.96%
Total team invested per year: Disengage	10.1	\$11,195,559,114	\$15,397,088,724	\$13,288,100,813	25.58%
Total team invested per year: Active start-up	18.4	\$26,031,256,501	\$35,800,406,381	\$30,896,711,559	59.47%
Total team invested per year: All outcomes		\$43,774,142,193	\$60,201,937,598	\$51,955,887,915	100.00%
Annual Estimates					
	Avg Time*				
Total team hours per year: New firm	15.5	574,092,852	789,541,504	681,395,509	9.31%
Total team hours per year: Disengage	10.1	1,441,742,446	1,982,807,302	1,711,215,919	23.39%
Total team hours per year: Active start-up	18.4	4,149,101,362	5,706,198,426	4,924,602,391	67.30%
Total team hours per year: all outcomes		6,164,936,661	8,478,547,233	7,317,213,819	100.00%

*Conception to first interview (mths).

D

PSED II Data Sets

All data sets related to the PSED research program are available on the data set website: <http://www.psed.isr.umich.edu>. This is maintained by the research team that assembles and documents the data.

These data sets are, however, extensive, as for each round of data collection there are four relevant documents: the procedures used to develop the sample and compute the case weights, the interview procedure, the data set resulting from the interviews, and the codebook that provides details on the pattern of responses for each variable in the data set. For both projects, there are three rounds of data collection of interest. First, the initial screening used to locate candidate nascent entrepreneurs or, for PSED I, a representative sample of typical adults. Second, the detailed first round interviews completed by phone for PSED I and PSED II supplemented by a self-administered questionnaire returned by mail in PSED I. Third, one or more follow-up interviews completed by phone in both PSED I and PSED II and supplemented by a self-administered questionnaire returned by mail in PSED I.

D.1 PSED I

The PSED I datasets are complicated by two factors, multiple cohorts and different time schedules. There were five different samples associated with the study, three of nascent entrepreneurs and two of comparison groups. The utilization of phone interview schedules for each cohort is presented in Table D.1. Following the initial screening, each stage in the procedure is identified as a “wave,” from 1 to 4, or by a letter, Q through T, which appears as the first character of any variable label in the data set; this is true for both phone and self-administered interview schedules.

The scheduling problem reflected the later implementation of the minority over-sample cohort. Funding for this over-sample was received after the initial screening had been completed for the other two samples, so the data collection schedule was delayed by one year and, as a result, only two follow-up interviews were completed with this cohort. In addition, the questionnaires used in the follow-ups were different than for the main mixed gender and female over-samples.

In Table D.1 the major difference is found in the nascent minority over-sample column, where it is indicated that the first and second follow-ups used the interview schedule that was used for the third and fourth follow-ups for the mixed gender and female nascent entrepreneur cohorts. Because these follow-up interview schedules were

Table D.1 Phone interview schedules by nascent entrepreneur cohort: PSED I.

	Nascents: Mixed gender	Nascents: Female over-sample	Nascents: Minority over-sample	Comparison group: Mixed gender	Comparison group: Minority over-sample
Screening	erc_sc.pdf	erc_sc.pdf	erc_sc.pdf	erc_sc.pdf	erc_sc.pdf
Initial detailed (W1)	erc_q1.pdf	erc_q1.pdf	erc_q1.pdf	erc_q1.pdf	erc_q1.pdf
Follow-up 1 (W2)	erc_r2.pdf	erc_r2.pdf	erc_s3.pdf	NA	NA
Follow-up 2 (W3)	erc_s3.pdf	erc_s3.pdf	erc_t4.pdf	NA	NA
Follow-up 3 (W4)	erc_t4.pdf	erc_t4.pdf	NA	NA	NA

Note: NA = not applicable, no data collected.

slightly different — being improved in the light of data collection experiences — there is not a strict harmonization.

Such differences lead to the organization of the data in relation to the interview schedule used. This has been done and the codebooks and data sets are available; they are listed in the following table, Table D.2, identified as “data set by questionnaire.” This may, however, cause confusion for the minority nascent over-sample analysis, where it may appear that the first follow-up, wave R, was not completed with these nascent entrepreneurs.

An appropriate analysis would reset all minority nascent over-sample follow-up values. The “S” variables would be set equal to the “R” variables and the “T” values set to equal the “S” values. Given the large number of variables, however, this is a tedious exercise. To minimize confusion, this has been done for the PSED I data sets and codebooks. They are listed in Table D.2, identified as “dataset by sequence.”

The most complete description of the PSED I data collection procedures and calculation of case weights appear in the Appendices A and B of the Handbook of Entrepreneurial Dynamics (Curtin and Reynolds, 2004; Reynolds and Curtin, 2004) and the Appendices of the PSED I overview monograph (Reynolds, 2007b).

D.2 PSED II

The PSED II data sets are simplified by the absence of a comparison group and the presence of a single cohort of nascent entrepreneurs. There are no over-samples to increase the case counts of women or minorities. The full data sets from the follow-up interviews are being placed on the project website as all cleaning and documentation is completed. The data sets themselves are provided in two forms for those using SPSS or SAS analysis packages. The variable names, variable labels, and value labels are the same for both versions.

Full documentation of the PSED II data collection procedures and operational results are currently in development. The description of the procedure used to produce the case weights is available on the website: `psedii.weights-documentation.pdr`.

Table D.2 Inventory of PSED data sets and documentation.

Topic	Filename	Content
<i>PSED I</i>		
Screening phone interview	erc_sc.pdf	Interview schedule used for screening to locate potential nascent entrepreneurs
Wave 1 detailed phone interview	erc.q1.pdf	Detailed phone interview used with nascent entrepreneurs and comparison group (Wave 1, items identified by "Q" as first character of the variable label)
Wave 2 detailed phone interview	erc.r2.pdf	Detailed phone interview used for first follow-ups with nascent interviews (Wave 2, items identified by "R" as first character of the variable label)
Wave 3 detailed phone interview	erc.s3.pdf	Detailed phone interview used for second follow-ups with nascent interviews (Wave 3, items identified by "S" as first character of the variable label)
Wave 4 detailed phone interview	erc.t4.pdf	Detailed phone interview used for third follow-ups with nascent interviews (Wave 4, items identified by "T" as first character of the variable label)
Wave 1 mail questionnaire: Nascent entrepreneurs	ercmaillong.pdf	Self-completed mail questionnaires provided to nascent entrepreneurs as part of wave 1 (Items identified by "Q" as first character of the variable label)
Wave 1 mail questionnaire: Comparison group		Self-completed mail questionnaires provided to comparison group as part of wave 1 (Items identified by "Q" as first character of the variable label)
Wave 2-4 mail questionnaire: Nascent entrepreneur follow-up	ercmailshort.pdf	Self-completed mail questionnaires provided to nascent entrepreneurs as part of wave 2, 3 or 4 (Items identified by "R", "S", or "T" as first character of the variable label)
Codebook by questionnaire	ercw14q.pdf	Screening interview codebook
Dataset by questionnaire	ercw14q.exe	Screening interview data set
Codebook by sequence	ercw14s.pdf	Codebook consolidated for waves 1-4, organized by questionnaire used for data collection
Dataset by sequence	ercw14s.exe	Data set, as SPSS portable file, consolidated for waves 1-4 by questionnaire used for data collection
		Codebook consolidated for waves 1-4, organized by sequence of data collection for each sub-sample
		Data set, as SPSS portable file, consolidated for waves 1-4 by sequence of data collection for each sub-sample

(Continued)

Table D.2 (*Continued.*)

Topic	Filename	Content
<i>PSED II</i>		
Screening phone interview	psedii_screener_qnaire.pdf	Interview schedule used for screening to locate potential nascent entrepreneurs
Wave A detailed phone interview	psedii_wavea_qnaire.pdf	Detailed phone interview used with nascent entrepreneurs group (Wave A, items identified by "A" as first character of the variable label)
Wave B detailed phone interview	psedii_waveb_qnaire.pdf	Detailed phone interview used with nascent entrepreneurs group for first follow-up interview (Wave B, items identified by "B" as first character of the variable label)
Screening data codebook	psedii_scrn_codebook.pdf	Screening dataset codebook
Screening data file, SPSS	psedII_scrn_spss.exe	Screening dataset, SPSS format
Screening data file, SAS	psedii_scrn_sas.exe	Screening dataset, SAS format
Wave A data codebook	psedii_wavea_codebook.pdf	Detailed phone interview dataset codebook, wave A (First character of all variables is "A")
Wave A data file, SPSS	psedII_wavea_spss.exe	Detailed phone interview dataset, SPSS format, wave A (First character of all variables is "A")
Wave A data file, SAS	psedii_wavea_sas.exe	Detailed phone interview dataset, SAS format, wave A (First character of all variables is "A")
Wave A and screening data codebook	psedii_scrn_wavea_codebook.pdf	Detailed phone interview with all screening variables dataset codebook, wave A (First character of all variables is "A")
Wave A and screening data, SPSS	psedII_scrn_wavea_spss.exe	Detailed phone interview with all screening variables dataset, SPSS format, wave A (First character of all variables is "A")
Wave A and screening data, SAS	psedii_scrn_wavea_sas.exe	Detailed phone interview with all screening variables dataset, SAS format, wave A (First character of all variables is "A")

E

Publications and Papers based on the Panel Study Entrepreneurial Dynamics

Initiated by Per Davidsson (July 2005)
Update by Paul Reynolds (August 2005)
Update by Diana Hechavarria (July 2007)
Update by Paul Reynolds (October 2007)

NOTE: Includes works based on the Swedish, US, and other
PSED type data sets; works reflecting only the Global
Entrepreneurship Monitor research program are excluded.

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