

7 Pre-venture Planning

Synopsis

In any given year, approximately 7 percent of the working age population in the United States is actively engaged in efforts to start new businesses.¹ Usually, within a period of two years, about a third of all these entrepreneurial efforts will either result in the creation of new businesses (approximately six million new businesses), or not.² Given the millions of people involved in starting businesses, as well as the billions of dollars they invest in the entrepreneurial process, insights into ways that entrepreneurs could improve their chances of business success, as well as minimize their losses for opportunities that are not viable, would have important benefits. There is much anecdotal speculation that writing a business plan is a critical activity for enhancing entrepreneurial successes and minimizing failures. But does writing a business plan actually provide the benefits suggested?

Professors William B. Gartner and Jianwen (Jon) Liao provide compelling evidence that engaging in business planning can significantly improve an entrepreneur's chances of successfully starting a business. They base their findings on research from a unique survey of people in the process of starting businesses in the United States: the Panel Study of Entrepreneurial Dynamics (PSED). The PSED surveyed 64,622 working age adults to identify a sample of 830 individuals who were currently in the process of starting businesses. These individuals were surveyed each year over a three-year time frame to identify the kinds of activities these entrepreneurs undertook and whether their efforts resulted in the creation of new businesses. By finding individuals in the process of starting new businesses, the PSED avoids a common problem with many studies that analyze only businesses that were successfully started: survivor bias. The PSED has information about both

¹ This chapter was prepared under contract with the U.S. Small Business Administration, Office of Advocacy, by William B. Gartner, Spiro Professor of Entrepreneurial Leadership, Clemson University, and Jianwen (Jon) Liao, Associate Professor of Strategy and Entrepreneurship, Illinois Institute of Technology. The views presented here are those of the authors and not of the U.S. Small Business Administration or the Office of Advocacy.

² Reynolds, P. D., 2007.

entrepreneurs who started businesses and those who quit the process or who are “still trying” to create a business. Comparing successes with failures reveals true contrasts about what activities lead to entrepreneurial success.

The authors survey previous research on the usefulness of business planning that has employed the PSED or datasets developed with methods and questionnaires similar to the PSED. Previous research shows that business planning significantly enhances the chances that an entrepreneur will start a new business. The authors describe how the PSED was constructed, and how it might be used to explore the entrepreneurial process, and find the following:

- Entrepreneurs who started businesses were more likely to complete a business plan than entrepreneurs who were “still active”—still in the process of starting the business—or had quit the process.
- Entrepreneurs who completed a business plan were six times more likely to start a business than those in the “still active” or “quit the process” groups.
- Entrepreneurs who completed written business plans were more likely to start a business than entrepreneurs in the two other groups.
- Entrepreneurs who completed a business plan were more likely to engage in more start-up activities than those in the two other groups.
- Entrepreneurs who completed written business plans were more likely to engage in more start-up activities than entrepreneurs who completed less formal plans (unwritten or informally written).
- Entrepreneurs who contacted and participated in government-sponsored entrepreneurship programs were five times more likely to start a business than entrepreneurs in the two other groups.

Overall, these results suggest that entrepreneurs should engage in business planning during the start-up of their businesses and that they should write a formal business plan. Entrepreneurs who planned and wrote formal business plans were more likely to create a new business than others. Planning matters!

Introduction

A wide variety of methods are used to encourage entrepreneurs to develop business plans during the process of developing their new ventures.³ But do efforts to create business plans improve the chances of starting a new business?

The authors explore whether business planning is helpful in creating new ventures using a unique dataset, the Panel Study of Entrepreneurial Dynamics (PSED). The PSED identified and tracked, over a five-year period, a sample of entrepreneurs in the process of starting businesses, thereby solving a major problem in many studies of entrepreneurs: “survivor bias.” Survivor bias results when a study observes only successful firms—those that survived—excluding any of the businesses that failed. Understanding success requires knowledge of failures. Studying a sample of all entrepreneurs in the process of starting a business enables comparisons between entrepreneurs who successfully started new businesses and those who gave up. The ability to compare and contrast differences among the successes and the “failures” allows researchers using the PSED to generate important insights into the activities that truly influence business creation success.

This project answers a number of questions about the value of planning for starting new businesses:

- Does business planning improve the chances of starting a new business?
- Do more formal business plans (i.e., written plans) improve the chances of starting a new business?
- When should business planning occur during the venture creation process to improve the chances of starting a new business?
- Is business planning a signal that entrepreneurs are engaged in other start-up activities—doing, rather than thinking about starting a new business?

The authors also explored whether entrepreneurs who contact various types of business assistance programs or take classes or workshops on the

³ Examples would include the U.S. Small Business Administration’s support of small business development centers, SCORE, and women’s business centers; public/private partnerships like the Kauffman Foundation’s *FastTrack* program; and university-based activities involving business plan classes and competitions.

topic of starting a business are more likely to engage in business planning, and whether they are more likely to succeed at getting into business.

The chapter is divided into four sections. The first section briefly reviews prior research on the value of planning for success at creating new ventures. The second describes the unique and useful features of the Panel Study of Entrepreneurial Dynamics (PSED) and other spinoffs of this research program for exploring issues involved with new venture creation. The third lays out the ways data from the PSED were analyzed and reports the findings from these analyses. The final section discusses the limitations of using quantitative datasets like the PSED for understanding the process of business planning and then offers some insights into how the results of this study might have implications for public policy and training.

The Value of Pre-venture Planning

Literature from seasoned entrepreneurs, advisors, investors, and academics suggests that entrepreneurs should engage in business planning during the process of venture creation as a way to guide them toward activities useful for starting new firms.⁴ While there has been some concern about devoting too much time to business planning or making the business planning process too sophisticated,⁵ there is a strong belief that it is better to engage in some type of planning in the business creation process. Yet Bhide (2000) suggests that taking action to develop the business is more important than completing a business plan.⁶ This section explores some of the reasons and evidence for the value of business planning as well as arguments for why engaging in planning might be less helpful for starting a business.

Why Plan?

Frederic Delmar and Scott Shane (2003) offer four reasons why entrepreneurs should engage in planning during the process of venture creation. They suggest that planning helps individuals develop a framework and context for taking action so that individuals can: (1) quickly identify what they do not know, (2) understand what resources they need and when these resources

4 See, for example, Abrams, 2003; Ford, Bornstein, Pruitt, Ernst & Young, 2007; Timmons, Zacharakis, Spinelli, 2004.

5 Bhide, 1994; Gumpert, 2002.

6 Bhide, 2000.

might be utilized, (3) identify specific actions that can help solve problems and attain goals, and (4) help communicate to others the purposes, objectives, and activities necessary to achieve venture success.⁷

Entrepreneurs who develop a plan become conscious of their assumptions about how their proposed new business will succeed. Assumptions about the ability of the new firm to be profitable, the resources necessary to start and operate the firm, the knowledge necessary to provide products and services in a timely and cost-effective manner, and the number of potential customers are a few of many issues entrepreneurs consider when planning. By surfacing these assumptions, entrepreneurs can test their beliefs, rather than invest time and resources in actions that may have little chance of succeeding. Planning, therefore, can save time and money in the venture creation process.⁸

Planning can also reduce the likelihood of delays in organizing the new venture, acquiring plant and equipment, and producing goods or providing services. Planning can help an entrepreneur identify when key resources (such as inventory, equipment, licenses and permits, and trained personnel) will likely be needed during the business creation process, thereby saving time and money.⁹

Planning can help entrepreneurs identify specific actions they will need to take to achieve their goals.¹⁰ By identifying specific actions, entrepreneurs can focus their efforts, as well as realize when their efforts are not producing their desired goals. Planning, therefore, keeps individuals on track by channeling their energy and providing benchmarks.¹¹

Finally, planning helps entrepreneurs communicate their vision to others, enabling the emerging venture to gain support and resources.¹² By having a plan, entrepreneurs can enlist potential investors, suppliers, customers, and employees to become involved in the new venture. A business plan also represents a form of “legitimacy,” in that entrepreneurs who have a plan are likely to be seen by others as individuals who have knowledge of the require-

7 Ansoff, 1991; Locke and Latham, 1980.

8 Armstrong, 1982.

9 Armstrong, 1982; Bracker, Keats, and Pearson, 1988.

10 Locke and Latham, 1980.

11 Robinson, 1984; Schrader, Taylor, and Dalton, 1984.

12 Bird, 1992.

ments for business success, rather than “dreamers” who are unaware of potential pitfalls in the start-up process.¹³

Reasons for Not Planning

A number of reasons are offered for why entrepreneurs may not benefit from business planning. First, the process of business creation for new and radically innovative companies may be so unpredictable and uncertain that planning might not help to identify critical contingencies and options. Matthews and Scott (1995) suggested that entrepreneurs who perceive highly uncertain environments may be less likely to engage in planning because they believe that planning efforts will not provide any information that can be usefully acted upon.¹⁴ They found that as the perceptions of uncertainty for how business success might be achieved in particular environments increased for entrepreneurs, they were less likely to engage in business planning.

Second, entrepreneurs construct their businesses through action, and action makes the new venture apparent to entrepreneurs and others. For example, Baker and Nelson (2005) identified entrepreneurs whom they identified as “bricoleurs”—individuals who would “make do with whatever was at hand.”¹⁵ These bricoleurs created the necessary resources for venture development and growth rather than be bound by perceived environmental constraints. They suggest that entrepreneurs construct their businesses and environments through action:

The bricoleurs in our study did not view opportunities as objective and external to the resources and activities of the firm. Rather, the processes of discovering opportunities and enacting resources were often one and the same, with both the resource environment and the opportunity environment idiosyncratic to the specific firm and constructed through processes of bricolage.¹⁶

Baker and Nelson (2005) make a case that action is necessary for people to make sense of what occurs in their lives. This implies that planning before taking action to explore the environment (certain or uncertain) would be pre-

13 Delmar and Shane, 2004; Honig and Karlsson, 2004.

14 Matthews and Scott, 1995.

15 Baker and Nelson, 2005: 330.

16 Ibid, 358.

mature.¹⁷ In this perspective, entrepreneurs may only know what their goals and objectives are once they have taken action to see what goals and objectives might be viable.

Finally, the process of planning takes time, effort, and resources that could be used to engage in activities that might be more helpful for the creation of the new business. For example, Carter, Gartner and Reynolds suggest that:

Behavior such as buying facilities and equipment might be a more significant indicator to others that a nascent business is real than undertaking a behavior such as planning. Buying facilities may show others that the entrepreneur has made a significant commitment to creating a new business compared to what might be a less public demonstration of commitment like planning.¹⁸

Planning, then, might be a distraction from taking the necessary actions to create a business. Entrepreneurs might experience “analysis paralysis” distracting themselves with the process of planning, rather than taking actions to secure customers, acquire resources, hire employees, or undertake other tasks to make the business a reality.

Evidence About Pre-Venture Planning

A major problem in the search for research on the value of planning for creating new ventures is that most studies have not actually looked at new business creation. For example, Bhide (2000) uses as his primary source of data, businesses on the *Inc.* magazine list of the 500 fastest growing private firms in the United States. His sample consists of already established firms, and only firms that have high rates of sales growth; there are no failures and no low-growth firms either, to compare with the high-sales-growth firms. A study that looks only at successful firms is likely to have survivor bias. Over a period of time, many firms would have failed, and the failures would not be accounted for in a register of the survivors to be studied.

A study of reasons for the success of businesses requires that they be compared with businesses that are not successful. A study that looks only at successes may be based on an untested assumption that the failed firms

¹⁷ Weick, 1979.

¹⁸ Carter, Gartner, and Reynolds, 1996: 154.

are not like the successes. So, for example, if successful firms had founders that invested their personal resources in the new ventures, one might assume that the unsuccessful firms had founders that did not invest their personal resources. Without knowing whether the failed firms had investments from their founders, it is impossible to make this assumption; all of the failed firms could also have had such investments, and the founders' personal investment could be an irrelevant factor in the success. Any study of successful firms, then, needs to account for their differences from failed firms.

The number of research studies that have compared entrepreneurs who have successfully created new firms with those who have failed at this process is very small. Indeed, the studies that have looked at planning and its influence on new venture creation rely on either the Panel Study of Entrepreneurial Dynamics¹⁹ or data collection methods and questions based on the PSED.²⁰ Table 7.1 lists the studies that have focused on planning during the process of business creation, the sizes of the samples used, and highlights of the findings about the value of planning and success at getting into business.

These studies strongly suggest that planning matters, with Honig and Karlsson finding a nearly significant result.²¹ Entrepreneurs who complete a business plan are more likely to either continue in the business start-up process or actually start a business than are individuals who do not plan.

A number of other factors influence whether entrepreneurs will be successful in the venture creation process. For example, Delmar and Shane (2003) suggest that the nature of the opportunity pursued by entrepreneurs has a more significant effect on success than the act of planning itself, although in terms of actions that an entrepreneur can take, planning is the most important activity to engage in. Liao and Gartner (2006) found that entrepreneurs who were more uncertain about their chances of financing their businesses and their understanding of the competitive dynamics of their industries were more likely to be successful if they planned early in the start-up process, rather than later. Shane and Delmar (2004) found that entrepreneurs who completed business plans before engaging in efforts to talk

19 Liao and Gartner, 2006; Reynolds, 2007.

20 Delmar and Shane, 2003, 2004; Honig and Karlsson, 2004; Shane and Delmar, 2004.

21 Honig and Karlsson, 2004.

Table 7.1 Previous Research on Business Planning and Success at Starting a Business

Study	Sample size	Method of analysis	Findings on planning
Delmar & Shane, 2003	Sweden PSED: 223	Event history: A hazard function of disbanding	Entrepreneurs who engaged in business planning were less likely to quit the venture creation process during a three-year time frame. Entrepreneurs who engaged in business planning were more likely to increase product development and the number of venture start-up activities. Entrepreneurs with prior start-up experience were less likely to quit the venture creation process. The type of opportunity pursued significantly affected survival.
Delmar & Shane, 2004	Sweden PSED: 223	Event history: A hazard function of disbanding	Entrepreneurs who engaged in business planning and formed a legal entity were less likely to quit the venture creation process during a three-year time frame, and more likely to complete product development, initiate marketing efforts, and obtain inputs.
Honig & Karlsson, 2004	Sweden PSED: 396	Logistical regression on persistence in the start-up process	A nearly significant result ($p < .10$) that entrepreneurs who engaged in business planning were likely to continue in the start-up process (survive). Being a member of a business network, knowing the customer before start-up, and being a manufacturing start-up increased the likelihood of survival by factors of 4.4, 2.7 and 4.0, respectively.
Liao & Gartner, 2006	PSED: 276	Event history: A hazard function of disbanding	Entrepreneurs who engaged in business planning were less likely to quit the venture creation process during a two-year time frame. Entrepreneurs who initiated business plans: early in uncertain competitive and financial environments; and late in certain competitive and financial environments were less likely to quit.
Reynolds, 2007	PSED: 648	Comparison of means (F- test) and cross tabulations (chi-square)	Planning, as a part of a factor that describes the process of developing an organizational and financial structure, along with a variety of human capital (e.g., years of industry, work and managerial experience) and entrepreneurial activities (e.g., total hours and funds invested, contact with helping programs), is more likely to predict success at getting into business.
Shane & Delmar, 2004	Sweden PSED: 223	Event history: A hazard function of disbanding	When entrepreneurs engaged in business planning before talking to customers and initiating marketing and promotion efforts, the "hazard of termination" was reduced by 46 percent and 41 percent, respectively. Each prior start-up by the founding team reduced the hazard of termination by 24 percent. Each additional organizing activity reduced the hazard of termination by 25 percent.

to customers and in marketing and promotion were more likely to continue their start-up efforts (i.e., not quit).

Overall, it would seem that completing a business plan helps enable entrepreneurs to successfully create new businesses. Despite differences in the sample sizes used from each of the two major samples (the U.S. and Swedish PSEDs),²² in how measures were constructed to indicate planning and success in getting into business, and in analytical techniques used to evaluate the data, the results seem to be fairly robust: business planning is an important activity that significantly correlates with creating new ventures.

All of the planning, activity, and outcomes measures used in these studies are broad representations of what individuals actually do when they are involved in starting businesses. The data on business planning and other start-up activities (see Tables 7.2, 7.3, and 7.4) reflect entrepreneurs' subjective reports based on what business planning (or any other activity) means to them. For example, written business plans vary in comprehensiveness and thoroughness; not known are the quality differences among the various written business plans. A written business plan may be 10 pages or 100 pages, may have a detailed analysis of competitors or not, may provide quarterly financial pro formas or not, etc. The quality of the business plan may also reflect the amount of time and effort entrepreneurs have undertaken to develop their business. But the measures used do not provide many details of what entrepreneurs actually did when they completed their business plans. Little information is available about why these business plans were undertaken (or not), or about the purposes for which these business plans were used during the start-up process.

Because all of these studies used the PSED dataset or data from Sweden that used techniques and questions similar to the PSED, the next section of this chapter provides details on how the PSED sample was created, and why it can provide findings with implications generalizable to all entrepreneurs.

The Panel Study of Entrepreneurial Dynamics²³

The primary problem in studying the new venture creation process is that it is both difficult and expensive to find individuals when they are actually

²² A detailed description of the Sweden PSED can be found in Davidsson and Henrekson, 2002.

²³ The section on the PSED is from Reynolds, Carter, Gartner, Greene, and Cox, 2002, and is used with permission.

involved in business start-up activities. On average each year, 5 to 10 of every 100 working-age adults are actively engaged in trying to start new businesses in the United States (Reynolds, Carter, Gartner & Greene, 2004). Conducting a random phone survey to find these 5 to 10 individuals would entail contacting 90 to 95 people not involved in starting a business. Locating a sufficient sample size of entrepreneurs, then, is expensive: most of the funding would be spent contacting non-entrepreneurs. In addition, persuading individuals who are contacted to participate in lengthy and detailed responses to questionnaires is expensive and difficult.

The Panel Study of Entrepreneurial Dynamics (PSED) solved this expensive problem of locating and systematically tracking a cohort of individuals *as they progressed* through the start-up process. It was the first attempt to develop a comprehensive representative portrait of entrepreneurial activity in the United States by studying this critical phenomenon and the people central to it in real time, rather than after the fact.²⁴

More than 120 scholars participated in designing and implementing the research program, and 35 institutions—universities, nongovernmental organizations, private foundations, and government agencies (including the National Science Foundation and the U.S. Small Business Administration’s Office of Advocacy)—invested more than \$2.5 million in this project (with most of the funding coming from a series of Ewing Marion Kauffman Foundation grants).²⁵

The PSED Model and Research Design

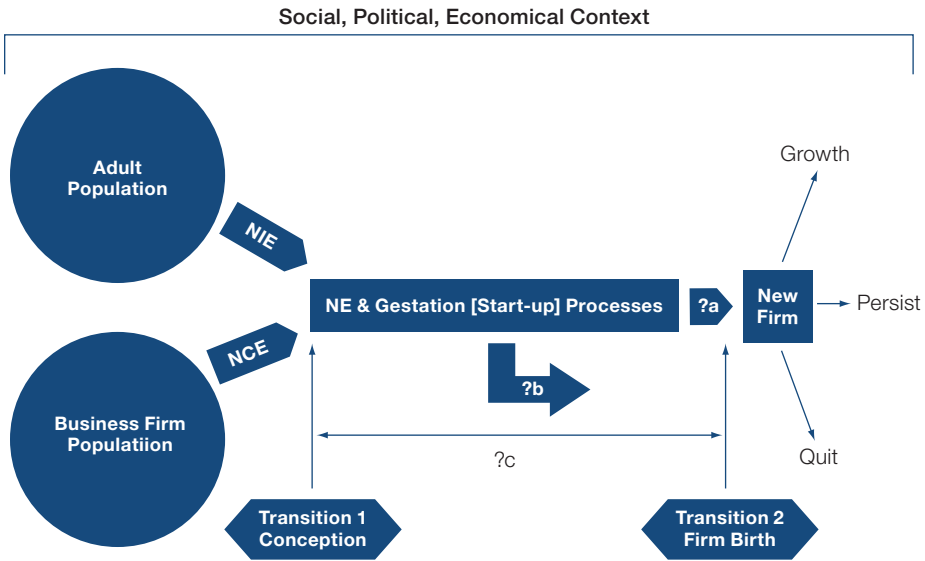
The PSED research program provides systematic, reliable, and generalizable data on important features of the start-up process in the United States.²⁶ Included is information on the proportion and characteristics of the American adult population involved in efforts to start firms, the activities that

24 The PSED process built on earlier efforts by Paul Reynolds and colleagues to study nascent entrepreneurs in Wisconsin (Reynolds and White, 1993; 1997), as well as a small national sample of nascent entrepreneurs who were identified from a study that was “piggy-backed” onto the University of Michigan Institute for Social Research Survey of Consumer Attitudes (Curtin, 1982; Reynolds, 1997). These prior studies indicated that it was technically feasible, as well as financially possible, to locate and survey individuals from the general population of all United States adults who were actively engaged in starting businesses.

25 A list of all those involved in the funding of this project can be found in the *Handbook of Entrepreneurial Dynamics* (Gartner, Shaver, Carter, and Reynolds, 2004, xxvi).

26 This report is an overview of a broader research program focusing on the general features of the entrepreneurial process that is described in detail in Reynolds, 2000.

Figure 7.1 Conceptualization of the Entrepreneurial Process



constitute the start-up process, and the proportion and characteristics of the start-up efforts that become new firms. A number of factors likely influence a person’s decision to engage and persist in efforts to start a new business. Figure 7.1 presents a conceptual model of the start-up process that guided development of the PSED. The model accounts for the influence of political, social, and economic factors that continually affect the entrepreneurial process and depicts three stages with two transition points.

As illustrated on the left side of the model, the first stage of the start-up process involves the population of all adult individuals. These individuals come from two potential sources, the adult population at large and those currently employed in existing businesses.

Start-up Stages

Conception

The first transition point in the model, conception, signifies when individuals from these two sources choose to pursue a new business start-up. Individuals in the start-up phase who intend an independent start-up are considered nascent independent entrepreneurs (NIE). Those sponsored by an existing business are nascent corporate entrepreneurs (NCE). Both groups are

referred to as nascent entrepreneurs (NE). The primary concerns at conception include the following: (1) determining the tendency of individuals to begin the business start-up process; and (2) determining the uniqueness of the individuals or their situation that leads some to enter this transition. The issues underlying conception are related to whether entrepreneurs are different from other individuals in the general population.

Gestation

The second stage of the entrepreneurial process, gestation, encompasses bringing businesses into existence. The detailed emphasis the PSED puts on this stage distinguishes this research program from other efforts. In gestation, the focus is on activities that nascent entrepreneurs undertake to get the start-up launched, as well as the length of time involved in these start-up efforts. The amounts and types of resources invested during the start-up process are of interest, as are questions regarding the composition and characteristics of the individuals involved. The model recognizes three pathways emerging ventures might take through gestation: (1) the nascent entrepreneur creates a new firm;²⁷ (2) the nascent entrepreneur is “still trying” to start the business; and (3) the nascent entrepreneur “gives up” and abandons the start-up effort. In essence, the gestation stage encompasses questions about how nascent entrepreneurs go about the process of starting firms.

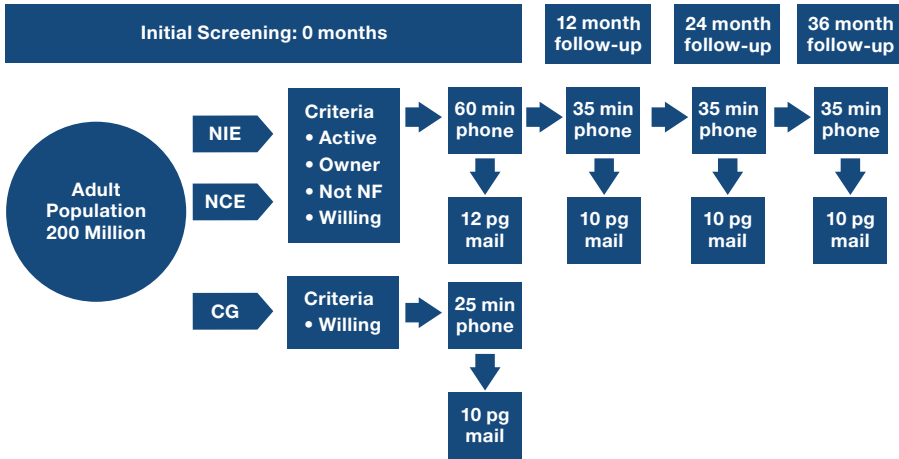
Birth and Infancy

The second transition point in the entrepreneurial process model represents the outcome of gestation, birth, when entrepreneurial activities lead to an infant business. Relative to this transition point, the model asks: Why do some of the business start-up efforts succeed in creating new firms? When a firm birth occurs, the new business transitions into the infancy stage, in which many new firms struggle through a “liability of newness,” a time when the firm’s very survival may be at risk. During infancy, three types of trajectories are possible: growth, persistent but stable survival, or termination.

PSED data make possible the study of the gestation, birth, and infancy process over time to determine how the nature of the individuals, their gesta-

²⁷ A number of measures can be used to define a new firm. In most PSED studies, the start-up status variable (R502, S502, T502) “How would you describe the current status of this business?”—a self-reported measure—is used to determine whether or not a new firm exists. Other new firm indicators, such as receiving money or fees, achieving positive cash flow, filing federal taxes, or paying FICA, can be used to measure the existence of a new firm. See Table 7.2.

Figure 7.2 Research Design Overview



Notes: NIE=nascent independent entrepreneur; NCE=nascent corporate entrepreneur; CG=comparison group; NF=new firm.

tion strategies, and the context of the start-up affect future development of the new firm.

Data Collection

To collect data appropriate for testing the conceptual model in Figure 7.1 a methodology was developed giving importance to (1) a procedure for identifying and interviewing nascent entrepreneurs and a comparison group; and (2) the content of the interviews (Figure 7.2). The first stage in identifying and interviewing nascent entrepreneurs involved large-scale screening of households to create two samples representative of the national population of adults, those 18 years and older. First, a sample of individuals attempting to start a new business was identified—either nascent independent entrepreneurs (NIE) or nascent corporate entrepreneurs (NCE). Second, a representative sample of typical adults not involved with a business start-up was selected as a comparison group (CG). The comparison group is critical for comparing the tendencies and characteristics of the nascent entrepreneurs and generalizing the findings to a representative group of typical adults in the U.S. population. Once the screening procedures identified individuals for the two samples, detailed phone interviews were administered, followed by completion of self-administered questionnaires mailed to respondents. The

third stage involved follow-up interviews with the nascent entrepreneurs 12, 24, and 36 months after their first interview.

In the screening phase of the data collection, a total of 64,622 individuals were contacted by telephone using a random digit dialing process to locate households with listed and unlisted numbers.²⁸ All screening interviews were completed between July 1998 and January 2000. The subsequent detailed interviews to the two samples covered a wide range of topics. Nascent entrepreneurs completed a phone interview that averaged 60 minutes in length, with a range of 35 to 90 minutes. A similar procedure was followed with the comparison group, except that only a randomly selected subset of respondents was taken from those who volunteered during the national screening. The phone interview with respondents in the comparison group took about 25 minutes to complete.

At the completion of the phone interview, all respondents—the nascent entrepreneurs and the comparison group—were asked if they would be willing to complete a brief (12- or 10-page) self-administered mail questionnaire. Ninety-eight percent agreed, and 68 percent of the nascent entrepreneurs and 77 percent of the comparison group respondents returned the mail questionnaires.²⁹

The PSED Datasets

Two major PSED datasets are available for scholars to analyze and study.³⁰ The first dataset is known as the Screener. The Screener contains information on all 64,622 individuals that were contacted by telephone. The interviews provided information on 14 socio-demographic variables relative to the individual and household, including the county and state where the individual is located. Having information on these variables allowed a large number of county-related variables to be added to the records from other data sources (e.g., Census data). The Screener is useful for providing information on broad demographic variables for both the nascent entrepreneurs and for individuals and their households in the comparison group who indicated they were not involved in business start-up activities. This dataset also provides information on the economic and social context (including national and local conditions)

28 See Appendix section on The PSED Model and Research Design.

29 See Appendix for detailed information about the process.

30 See Appendix for detail about the PSED datasets.

of the respondents. With such a large sample of individuals (64,622), the Screener is very useful for computing prevalence rates for nascent entrepreneurial activity as well as for making comparisons between nascent entrepreneurs and individuals in the comparison group on the 181 variables.

The second PSED dataset is known as the Sample. The Sample contains detailed information on the nascent entrepreneurs and individuals in the comparison group who agreed to participate in in-depth phone interviews and mail surveys. There are 1,261 respondents in the Sample (830 nascent entrepreneurs and 431 in the comparison group) and more than 1,200 variables in this dataset for most of the respondents. The Sample provides information about the nascent entrepreneurs and the comparison group on their demographic characteristics, personal context, including work and family responsibilities, social networks, personal background and work experiences, personal dispositions, decision-making styles, risk preferences, and aspirations. In addition, for the nascent entrepreneurs there is detailed information on the nature and sequence of the start-up activities pursued in the firm creation process; the sources and kinds of resources used; and the strategic focus, kinds of industries, and characteristics of the markets where the prospective firms are intended to compete. Follow-up information on the nascent entrepreneurs also was collected 12, 24, and 36 months after the first interview. The variables in the follow-ups are similar to information collected in the first interviews, except that where firms have been started, information on the characteristics of the new firms also was collected.³¹

Sample Selection for this Study

The researchers in this study followed procedures consistent with Reynolds for selecting cases from the PSED sample for inclusion in the analyses.³² First, they selected cases that did not report going into business prior to the initial interview, then cases in which (1) at least one follow-up interview was conducted, (2) the entrepreneur had engaged in three or more start-up behaviors, (3) two start-up activities occurred within a 12-month period, and (4) the entrepreneur did not report positive monthly cash flow two years prior

31 Additional information about the methods and sampling used to generate the PSED can be found in Gartner, Shaver, Carter, and Reynolds (2004) *Handbook of Entrepreneurial Dynamics*. The Institute for Social Research at the University of Michigan administers the PSED (<http://projects.isr.umich.edu/psed/>), and a comprehensive overview of all datasets, questionnaires, and codebooks can be found at: www.psed.info/.

32 Reynolds, 2007.

to any other start-up event. Finally they selected cases in which the first start-up activity was reported less than five years before the initial interview. These decision rules resulted in the selection of 638 cases.

Given the concern about survivor bias, a number of arguments have been offered that strongly urge researchers interested in the activities of nascent entrepreneurs to use cohorts of individuals initiating firms within the same time frame.³³ For example, Gartner, Carter, Lichtenstein and Dooley suggested that a cohort of nascent entrepreneurs who first began start-up activities within two years of the initial interview date would be appropriate, while Delmar and Shane suggest a cohort of nascent entrepreneurs within one year of the initial interview.³⁴ Reynolds has strongly disagreed with this assessment and provides alternative evidence indicating that selecting a cohort of nascent entrepreneurs who first began start-up activities within five years of the initial interview would be appropriate.³⁵ The researchers conducted their own set of analyses of different cohort groups of nascent entrepreneurs who originally initiated start-up actions within 24, 36, 48, 60, and 72 months before the date of the initial interview. Based on these analyses, they selected a cohort group with entrepreneurs who initiated start-up actions within 48 months of the initial interview date. This cohort group represented the best tradeoff for maximizing the number of cases with complete responses to the questions while minimizing any significant differences in the overall characteristics of the cohort sample. This approach led to a cohort of 312 nascent entrepreneurs used in this study.

The PSED dataset comes with post-stratification weights for each respondent based on estimates from the U.S. Census Bureau's Current Population Survey.³⁶ The post-stratification scheme was based on gender, age, racial and ethnic background, and educational attainment.³⁷ Applying these weights for analyses is essential for the generalizability of any studies related to the

33 Delmar and Shane, 2003, 2004; Gartner and Carter, 2003.

34 Delmar, Carter, Lichtenstein, and Dooley, 2003; Delmar and Shane, 2003, 2004.

35 Reynolds, 2007.

36 Curtin and Reynolds, 2004.

37 Household income was considered a metric in the weighting scheme. "Both household income and educational attainment provide estimates of socioeconomic status, but there are fewer missing values for educational attainment (1.8 percent versus 23.7 percent) which reduced the need to estimate weights for cases with missing values" (Curtin and Reynolds, 2004: 491).

PSED dataset. According to Curtin and Reynolds, “Weights should be used in all types of analyses.”³⁸ In accordance with their suggestions for using these weights, the researchers adjusted the weights to reflect the reduction in the number of cases because of missing and not applicable responses.

Measures, Analyses, and Results

Dependent Variable: Start-up Status

The survey conducted at the time of the initial interview is the “Q wave” survey. Follow-up surveys were conducted at intervals of 12 (R wave), 24 (S wave), and 36 (T wave) months to evaluate the status of these start-up efforts. In each of the follow-up interviews (see Table 7.4 for question numbers), nascent entrepreneurs were asked: “How would you describe the current status of this start-up effort? Is it: (1) now an operating business, (2) still in an active start-up phase, (3) still a start-up but currently inactive, (4) no longer being worked on by anyone, or (5) something else?” The researchers combined all responses from the R, S, and T waves and assigned individual nascent entrepreneurs into three categories: (1) “in business”—the entrepreneur is operating an ongoing business; (2) “still active”—the entrepreneur is still in the process of starting the business; and (3) and (4) “inactive/quit”—the entrepreneur is no longer working on trying to start a new business or has given up. Fifty-three respondents answered (5) “something else,” or did not respond. Of the remaining cases, 132 (51.1 percent) were “inactive/quit”; 22 (8.3 percent) were “still active”; and 105 (40.6 percent) were “in business.”

Independent Variables

Business Planning

In each of the four waves of data collection (Q, R, S, and T), nascent entrepreneurs were asked the question, “Has a business plan been prepared for this start-up?” The following scenarios were coded 1 for “Business plan has been prepared”: nascent entrepreneurs had prepared a business plan either in Q

³⁸ Curtin and Reynolds, 2004: 492.

wave, or at a later wave, such as R, S, or T. Cases were coded 0 for “Business plan has not been prepared.”³⁹

Business Plan Formalization

The responses from Q, R, S, and T to the question: “What is the current form of your business plan?” were coded 1 for “unwritten/in head,” 2 for “informally written” and 3 for “formally prepared.” For cases where inconsistent responses occurred among four waves of responses from Q, R, S, and T, the following decision rule applied. If the response at a later round showed an increased degree of formalization (i.e., from unwritten/in head to informally written, or to formally prepared), the highest level of formalization in business planning was coded at the later round. For nascent entrepreneurs who claimed a higher level of formalization in business planning (written business plan) at an early round of data collection (e.g., Q round), but changed to a low level of formalization (informally written) at a later round (e.g., S round), they were coded at the highest level of formalization. This situation may have occurred because the nascent entrepreneurs changed or modified their ideas and their business plans as well. Regardless of the reasons, the change of response at a later round should not change the fact that the nascent entrepreneurs engaged in a formal business planning process at the early stage.⁴⁰

Business Plan Timing

Business planning may occur at any point along a sequence of start-up activities. Entrepreneurs were interviewed about whether they had completed (yes or no) any of 26 different start-up activities (Tables 7.2 and 7.3). If an entrepreneur said “yes,” a month and year were also provided for when that activity occurred. The determination of whether business planning was early or late in the sequence of start-up activities along the four rounds of data collection—Q, R, S, and T—was based on the time (in months) from the date any one of the 26 start-up activities was initiated to the date when business planning occurred. This number was divided by the total gestation time, which is determined as the time (in months) between the dates of the earliest

39 In eight cases, nascent entrepreneurs provided inconsistent claims, in that a business plan was first prepared in Q round, but the response was changed to “a business plan has not been prepared.” The RESIDs for these eight cases are 328100097, 328100113, 328100222, 328100268, 328100430, 328100519, 328100619, and 337800153. These cases were excluded from the analysis.

40 Fourteen cases in which nascent entrepreneurs claimed to have both unwritten and informally written business plans, and eight cases in which they claimed “something else” were eliminated.

Table 7.2 Source of Business Start-up Activities in the PSED

Reynolds and Miller, 1992	Gatewood, Shaver, and Gartner, 1995	Carter, Gartner, and Reynolds, 1996	PSED
Activities			
Personal Commitment			
	Devoted 35+ hours/week on business	Devoted 35+ hours/week on business	Devoted 35+ hours/week on business
Financial Support	Saved money to invest Asked for funding Established credit with suppliers	Saved money to invest Asked for funding Got financial support	Arranged child care Saved money to invest Asked for funding Established credit with suppliers Invested own money
Hiring	Hired employees or managers	Hired employees	Hired employees/ managers
	Organized team	Organized team	Organized team
	Prepared business plan	Prepared business plan	Prepared business plan
	Developed prototype	Developed prototype	Developed model or procedures of product/service
	Applied for copyright, patent, trademark	Applied for license, patent, or permits	Applied for copyright, patent, trademark
	Purchased, rented or leased major equipment	Purchased facilities, equipment, or property	Purchased, rented or leased major equipment
	Defined market opportunity	Rented or leased facilities/ equipment/property	Defined market opportunity
	Developed financials	Developed financials	Developed financials
	Started marketing , promotion	Started marketing , promotion	Started marketing, promotion

Purchased raw materials, supplies	Purchased raw materials, supplies
Took a classes or workshop on starting business	Took a class on starting a business
	Formed legal entity
	Opened business bank account
Indicators	
Sales	Received money, income, or fees
	Positive cash flow
	Received money, income or fees
	Positive cash flow
	Paid managers who are owners a salary
	Filed federal taxes
	Paid FICA
	Unemployment insurance
	D&B listing
	Business phone listing
	Business phone line

Source: Lichtenstein, Carter, Dooley, and Gartner, 2007: 242. Used with permission.

Table 7.3 Business Start-up Activity Questions in the PSED

The wording of questions is taken from the initial interview.

Q109	First, did you spend a lot of time thinking about starting the new business, or did the idea suddenly occur? (1 = spent a lot of time thinking; 2 = idea suddenly occurred; 3 = both, 0 = other) ¹
Q110	And in what year? (did you start to think about this new business)? (four-digit year; 9999 = Don't know or Not applicable) ²
Q110a	And in what month (actual month 1 = 12; 13 = winter; 14 = spring; 15 = summer; 16 = fall; 99 = DK; NA)
Q111	A business plan usually outlines the markets to be served, the products or services to be provided, the resources required, including money, and the expected growth and profit for the new business. Has a business plan been prepared for this start-up? (1 = yes; 2 = no)
Q112	Has it (preparing a business plan) not yet been done or is it not relevant to this business? (1 = Not yet done; 2 = not relevant to this business)
Q113	Is the business plan in process or completed? (1 = in process; 2 = completed)
Q114	What is the current form of your business plan – unwritten or in your head, informally written, formally prepared, or something else? (1 = unwritten/in head; 2 = informally written; 3 = formally prepared; 4 = both 1 and 2; 0 = something else)
Q116	Has a start-up team been organized? (A start-up team is more than one person that helps to put the firm in place, expecting to share ownership. If both married partners own and operate a business, that is a start-up team) (1 = yes; 2 = no)
Q117	Will a start-up team be organized, or is it not relevant to this business? (1 = team will be organized; 2 = not relevant to this business)
Q118	Is organizing a start-up team in process or completed? (1 = in process; 2 = completed)
Q120	At what stage of development is the product or service this start-up will be selling (1 = completed and ready for sale or delivery; 2 = prototype/procedure tested with customers; 3 = model/procedure is being developed; 4 = still in idea stage; 0 = no work has been done on a product or service).
Q122	Have marketing or promotional efforts been started for the product or service this start-up will be selling (1 = yes; 2 = no)
Q124	Has an application for patent, copyright, or trademark relevant to this new business been submitted? (1 = yes; 2 = no)
Q125	Will a patent, copyright, or trademark application related to this business be submitted, or is it not relevant? (1 = will be submitted; 2 = not relevant)
Q126	Has the patent, copyright, or trademark been granted or is it in the process? (1 = granted; 2 = in process)
Q128	Have any raw materials, inventory, supplies, or components for the new start-up been purchased? (1 = yes; 2 = no)
Q129	Will any raw materials, inventory, supplies, or components be purchased or is this not relevant? (1 = intend to purchase; 2 = not relevant)
Q131	Have any major items like equipment, facilities, or property been purchased, leased, or rented for the new start-up? (Major is defined as any item with a retail or sale value of more than \$1,000, and this could be physical space or internet space, like a website). (1 = yes; 2 = no)
Q132	Will there be a purchase, lease, or rent of any major items like equipment, facilities, or property, or is this not relevant? (1 = will be a purchase, lease, or rent, 2 = not relevant)
Q134	Has an effort been made to define the market opportunity by talking with potential customers or getting information about the competition? (1 = yes; 2 = no)
Q135	Will an effort be made to define the market opportunities, or is this not relevant? (1 = effort will be made; 2 = not relevant)

- Q137 Have projected financial statements, such as income and cash flow statements or break-even analysis, been developed? (1 = yes; 2 = no)
- Q139 Are you now saving money to invest in this business? (1 = yes; 2 = no)
- Q140 Have you finished saving money to invest in the new firm, or is that still in process? (1 = finished saving money; 2 = still in process)
- Q141 Do you intend to start saving money to invest in the firm, have you finished saving money to invest, or do you consider it not relevant in this case? (1 = intend to start saving; 2 = finished saving; 3 = not relevant in this case)
- Q143 Have you invested any of your own money in this business? (1 = yes; 2 = no)
- Q145 Have financial institutions or other people been asked for funds? (1 = yes; 2 = no)
- Q146 Is asking others or institution for funds completed or still in process? (1 = completed; 2 = in process)
- Q147 Will others or financial institutions be asked for funds, or is this not relevant for this start-up? (1 = others will be asked; 2 = not relevant)
- Q149 Has credit with a supplier been established? (1 = yes; 2 = no; 3 = not relevant)
- Q150 Have you arranged childcare or household help to allow yourself time to work on the business, either formally or informally with friends and relatives? (1 = yes; 2 = no)
- Q153 Have you begun to devote full time to the business, that is, 35 or more hours per week? (1 = yes; 2 = no)
- Q155 Have any employees or managers been hired for pay – workers that would NOT share ownership? (1 = yes; 2 = no)
- Q156 Will any employees or managers be hired for pay, or are they not relevant for this business (1 = will be hired; 2 = not relevant)
- Q160 Has a bank account been opened exclusively for this new business? (1 = yes; 2 = no; 3 = using an existing commercial account)
- Q162 Has the new business received any money, income, or fees from the sale of goods or services? (1 = yes; 2 = no)
- Q163 Does the monthly revenue now exceed the monthly expenses? (1 = yes; 2 = no)
- Q165 Are salaries for the managers who are also owners included in the computation of monthly expenses? (1 = yes; 2 = no)
- Q167 Have you taken any classes or workshops on starting a business? (1 = yes; 2 = no)
- Q171 Does the new business have its own listing in the phone book? (Enter “yes” if no phone listing because it is only an internet business). (1 = yes; 2 = no; 3 = sharing existing business listing)
- Q175 Has the new business paid any state unemployment insurance taxes? (1 = yes; 2 = no)
- Q177 Has the new business paid any federal social security taxes, sometimes called FICA payments? (1 = yes; 2 = no)
- Q179 Has the new business filed a federal income tax return? (1 = yes; 2 = no)
- Q181 To your knowledge, is the new business listed with Dun and Bradstreet, the credit rating firm? (1 = yes; 2 = no)

¹For all questions that are not date- and time-related: 8 = don't know; 9 = not applicable.

²Every behavior question has a year and month question as to when the activity was completed or undertaken.

Source: Gartner, Carter, and Reynolds (2004: 291-292). Used with permission.

and latest activities indicated from responses in Q, R, S, and T waves. For those events where a year and season were reported (winter, spring, summer, or fall) rather than a month, an appropriate month (February, May, August, or November) was assumed. For those in which only a year was provided, the month was assumed to be June.

Number of Start-up Activities

Following the approach employed by Reynolds and Miller, the researchers counted the number of activities/events engaged in by entrepreneurs during the start-up process through Q, R, S, and T waves of data collection.⁴¹ In a few cases, nascent entrepreneurs reported the same activity in a follow-up interview wave. In those cases, meticulous efforts were taken to ensure that the initiation of one start-up activity was counted once, not repeatedly, and that the activity was identified the first time it was listed.

Other Independent Variables/Covariates

Prior studies argue that the persistence or survival of new ventures depends upon the founder's human capital.⁴² Following Shane and Delmar, the researchers controlled for five dimensions of human capital: education, industry experience, managerial experience, prior start-up experience, and the start-up team.⁴³ For education (Q343), nascent entrepreneurs were asked "what is the highest level of education you have completed so far?" Responses were coded on an ordinal scale from 0 to 9, with 0 indicating "up to eighth grade," and 9 indicating "JD, DBA, or Ph.D." Studies suggest that entrepreneurs with more industry experience are less likely to terminate their new ventures.⁴⁴

Industry experience was measured as the total years of full-time paid work experience in any field within the industry in which these nascent entrepreneurs were starting their emerging firms. For managerial experience, nascent entrepreneurs were asked to respond to the question "For how many years, if any, did you have any managerial, supervisory, or administrative responsibilities?" Consistent with Bruderl and Preisendorfer (1998), the researchers controlled for prior start-up experience and whether the entrepreneur was

41 Reynolds and Miller, 1992.

42 Bates, 1990; Bruderl, Preisendorfer, and Ziegler, 1992; Castrogiovanni, 1996.

43 Shane and Delmar, 2004.

44 Bates, 1990.

involved with a start-up team. Prior start-up experience was measured by the number of start-ups in which a nascent entrepreneur had been involved. First-time entrepreneurs were coded 0 and those with prior start-up experience were coded 1. Lechler, in a review of research on ventures formed by teams versus solo founders indicated that teams were more successful.⁴⁵ A dummy variable was created, with 0 for solo start-up and 1 for a start-up team. The researchers also controlled for the industry: tech-based (1) and non-tech-based (0).

To test the effect of assistance programs on venture creation, the researchers created two dummy independent variables—taking classes on starting a business (Q167) and contact with government-sponsored programs (Q303), with 0 for “no” and 1 for “yes.” Table 7.4 provides a summary of all the dependent and independent variables in the analysis.

Analyses

A multinomial logistic regression model⁴⁶ was conducted to identify the combination of independent variables that differentiate nascent entrepreneurs in the “in business” and “still active” types relative to nascent entrepreneurs in the “inactive/quit” reference type, which is the baseline model. The baseline logit simply compares each category to a baseline category where all the coefficients for the variables are “0.”⁴⁷

As there are three categories in the start-up status variable, there will be two sets of logit functions, where each will be compared with the baseline category of “inactive/quit.”

Analysis of variance (ANOVA) with Bonferroni post hoc comparisons are used to further highlight the differences in business planning, formalization of business planning, and timing of business planning across “in business,” “still active,” and “inactive/quit” groups. ANOVA models are also used to compare the mean differences in the number of start-up activities across business planning and business plan formalization variables.

Results

Table 7.5 lists means, standard deviations, and correlations for the dependent and independent variables. Table 7.6 shows the results of multinomial

45 Lechler, 2001.

46 Maddala, 1983.

47 SPSS, 1999.

Table 7.4 Variable Definitions and Measures

Variable definition	PSED	Item description and coding
Dependent variable		
Start-up status	R502	2 = in business?
	S502	1 = still active?
	T502	0 = discontinued?
Independent variables		
Education	Q343	Educational achievement: (0 = up to eighth grade; 1 = some high school; 2 = high school; 3 = tech or vocational degree; 4 = some college; 5 = community college; 6 = college; 7 = some graduate training; 8 = MS, MBA, MA; 9 = LLB, Ph.D, degree)
Gender	ncgender	1 = male, 0 = female
Industry	Q301	1 = tech; 2 = non-tech
Management experience	Q341	Years of managerial, supervisory and administrative experience.
Industrial experience	Q340	Years of paid full-time experience
Start-up experience	Q200	Number of businesses helped to start; 0 = no, 1 = yes
Start-up team	Q116	Has a start-up team been organized? 0 = no, 1 = yes
	R573	
	S573	
	T573	
Business planning		
Completed a business plan? Y/N	Q111+ R568+ S568+ T568	Have a business plan been prepared for? 1 = yes; 0 = no. (Reviewed four responses from Q, R, S, T)
Business plan relevance	Q112+ R569+ S569+ T569	Has it (preparing a business plan) not yet been done, or is it not relevant to this business? (1 = not yet done; 2 = not relevant to this business)
Business plan status	Q113+ R570+ S570+ T570	Is the business plan in process or completed? (1 = in process; 2 = completed)
Formalization of business planning	Q114 R571 S571 T571	What is the current form of your business plan – unwritten or in your head, informally written, or formally written?
Timing of business planning		Defining the timing of business planning along with the duration of venture gestation.
Government assistance program		
Taking classes(Y/N)	Q167+ R625+ S625+ T625	Have you taken any classes or workshops on starting a business? (0 = no; 1 = yes)
Programs contacted (Y/N)	Q303+ R755+ S755+ T755	Many programs to help new business get established have been developed. Federal, state, and local governments, universities, and voluntary associations sponsor them. Have you made contact with such program? (0 = no; 1 = yes)

Table 7.5: Descriptive Statistics and Correlations

	N	Mean	Std	1	2	3	4	5	6	7	8	9	10	11	12
1. Years of Education	311	4.574	2.031	1.000											
2. Gender	312	0.477	0.500	-0.063	1.000										
3. Years of industry experience	312	17.079	10.821	0.096*	0.099*	1.000									
4. Years of managerial experience	309	8.256	8.304	.216***	0.078	.679***	1.000								
5. Prior start-up experience	141	0.518	0.501	0.059	-0.043	.178**	.307***	1.000							
6. Industry (tech vs nontech)	300	0.320	0.467	0.021	0.111*	-0.052	-0.003	0.035	1.000						
7. Contacts with government-sponsored programs	310	0.118	0.323	.175***	0.026	-0.001	-0.071	0.047	0.027	1.000					
8. Taking classes or workshops	311	0.342	0.475	.136**	-0.072	-0.023	-0.004	0.010	0.058	.175***	1.000				
9. Start-up team organized? Yes/No	311	0.586	0.493	-0.021	0.050	0.035	0.098*	0.043	0.007	0.027	-0.033	1.000			
10. Has a business plan been prepared for?	307	0.675	0.469	0.073	-0.078	0.004	0.066	0.068	.142**	0.008	0.100*	.230***	1.000		
11. The degree of business plan formalization	209	2.288	0.701	0.125*	0.006	-0.003	0.022	0.142	0.126*	0.050	0.033	-0.086	0.039	1.000	
12. Timing of business planning	211	0.471	0.326	-0.045	-0.057	-0.071	-0.142**	0.070	0.067	0.036	0.036	0.010	-0.079	-0.139**	1.000

*** a <=0.01; ** a <=0.05; *a<=0.1.

Table 7.6 Multinomial Logistic Regression Models

	Model 1								
	Still active			In business			Still active		
	β	Wald	Exp(β)	β	Wald	Exp(β)	β	Wald	
Constant	-2.261	3.151*							
Education	-0.093	0.227	0.911	-0.214	2.269	0.807	0.409	0.773	
Gender	0.424	0.332	1.528	1.205	5.689**	3.336	0.361	0.056	
Industrial experience	0.051	1.434	1.052	0.007	0.041	1.007	0.249	4.886**	
Managerial experience	-0.012	0.059	0.988	0.002	0.002	1.002	-0.172	2.842*	
Prior startup experience	0.414	0.344	1.513	0.085	0.029	1.088	3.668	4.023**	
Startup team	0.755	1.146	2.127	-0.365	0.499	0.694	-0.801	0.265	
Industry	-0.516	0.415	0.597	-1.065	3.493*	0.345	0.010	0.000	
Government-sponsored programs	-0.270	0.057	0.763	1.176	3.029*	3.241	-22.229	0.000	
Taking classes or workshops	-1.179	1.914	0.308	-0.088	0.030	0.916	-0.992	0.563	
Business planning	-0.066	0.008	0.937	1.788	8.522**	5.979			
Business plan formulation							1.341	1.975	
Timing of business planning									
Δ -2 log likelihood chi-square			29.169*						
Goodness-of-fit (deviance chi-square)							176.031 (p=.888)		
Cox/Snell pseudo R ²			0.228						
Nagelkerke pseudo R ²			0.272						
Overall percent correctly classified			66.70%						

The reference category is Inactive/Quit.

* $\alpha \leq 0.10$.

** $\alpha \leq 0.05$.

*** $\alpha \leq 0.01$.

logistic regression models rotating the variables of business plan, business plan formalization, and timing of business plan. The validity of the analysis was assessed by means of three major parameters, namely, model fitting information, goodness-of-fit information, and R^2 .

In the model fitting information, the -2 log likelihood value is the intercept-only of the model, and the chi-square value is the difference between the intercept-only and the final model. As shown in Table 7.6, the observed chi-squares for models I, II, and III were 29.169 ($p < 0.1$), 25.120 ($p < 0.05$),

Model II				Model III					
Exp(β)	In business			Still active			In business		
	β	Wald	Exp(β)	β	Wald	Exp(β)	β	Wald	Exp(β)
	-0.768	0.229		-14.665	4.338**		1.408	1.220	
1.505	-0.281	2.603	0.755	0.917	2.006	2.501	-0.344	3.432*	0.709
1.435	1.421	5.474**	4.142	0.814	0.206	2.256	1.517	5.887**	4.560
1.283	0.005	0.017	1.005	0.504	5.397**	1.656	-0.003	0.004	0.997
0.842	-0.024	0.190	0.977	-0.545	4.812**	0.580	-0.024	0.196	0.976
39.188	-0.123	0.039	0.884	9.996	5.274**	21.929	0.030	0.002	1.030
0.449	-0.336	0.292	0.715	-0.462	0.054	0.630	-0.479	0.584	0.620
1.010	-0.603	0.755	0.547	1.533	0.782	4.631	-0.664	0.869	0.515
1.000	1.600	2.914*	4.955	-26.547	0.000	1.000	1.856	3.780*	6.400
0.371	0.155	0.065	1.168	-2.082	1.278	0.125	0.028	0.002	1.028
3.823	1.610	2.280**	5.003						
				-13.773	4.125**	0.000	-0.654	0.539	0.520
25.120**						43.570***			
96.080 (p = .947)						86.919 (p = .986)			
0.389						0.460			
0.462						0.546			
69.00%						76.20%			

and 43.570 ($p < 0.01$) respectively. It can be concluded that the final models are significantly better than the intercept-only models in all three models.

The goodness-of-fit test measures the fitness of the data collected to the model that is being proposed. Deviance chi-square was used to assess goodness of fit. Deviance chi-square is the change in $-2 \log$ -likelihood when the model is compared to a saturated model, that is, when it is compared to a model that has all main effects and interaction. If the model fits well, the log-likelihood should be small and the observed significance level should be large.

As shown in Table 7.6, the deviance chi-squares for models I, II, and III are 176.031 ($p=.888$), 96.080 ($p=.947$), and 86.919 ($p=.986$), suggesting a good fit for all three models.

The pseudo R^2 statistic represents the proportion of variability in the dependent variable that can be explained by the independent variables. Correlation between the variables increases with higher values of the R^2 statistic. As shown in Table 7.6, the Cox/Snell pseudo R^2 statistics for models I, II, and III were .228, .389, and .460, respectively. The Nagelkerke pseudo R^2 statistics were .272, .462, and .546 for models I, II, and III, respectively, thereby demonstrating good explanatory power of the models.

The analysis also provides a classification table that compares the observed and predicted groups with their prediction probabilities. The classification table shows how well a model fits its data. In all three models as shown in Table 7.6, the overall percentages of correct classification were 66.7 percent, 69 percent, and 76.2 percent, suggesting a good successful rate for all models. The percentage is determined by the classification table generated by the logistic model where the logistic equation is applied to the original dataset and the predicted value (0 versus 1) is compared to actual value (0 versus 1). If the predicted value is the same as the actual value (e.g., 0 and 0, 1 and 1), the classification is correct. Otherwise, the classification is false. Therefore, the larger the percentage of correct classifications, the better is the fitness of the model.

Business Planning, Formality, and Timing

Evidence in Table 7.4 suggests that the “in business” entrepreneurs were associated with business planning with a coefficient of 1.788 ($p<0.01$), which is a significant discriminating factor with regard to “still active” and “inactive/quit” entrepreneurs. This finding suggests that the “in business” entrepreneurs are more active in developing business plans. The table also shows that engaging in business planning increases the probability of successfully starting a new business by a factor of 6 ($\text{Exp}(\beta)=5.979$).

The coefficients for the formalization of business plan under model II are statistically significant for the “in business” entrepreneurs. This finding suggests that the greater the degree of business plan formalization (e.g., going from a plan in one’s head to a formal written plan), the more likely it is that an entrepreneur will successfully start a new business.

The “still active” nascent entrepreneurs have a coefficient of -13.773 ($p<0.01$) for the timing of business planning, but this coefficient is not

significant for the “in business” type ($\beta = -0.654$). This result suggests that the “still active” entrepreneurs are likely to complete a business plan earlier than their “in business” and “inactive/quit” counterparts, but that most of the difference is between the “still active” entrepreneurs and the “inactive/quit” entrepreneurs.

The coefficients for government-sponsored programs (Table 7.4) are 1.176 ($p < 0.1$), 1.600 ($p < 0.1$), and 1.856 ($p < 0.1$), respectively. This finding suggests that contact and participation in government-sponsored programs significantly differentiates between the “in business” entrepreneurs and the “inactive/quit” entrepreneurs. The $\exp(\beta)$ has values of 3.241, 4.955, and 6.4, respectively, suggesting that, on average, entrepreneurs who contact and participate in government programs are about five times more likely to successfully start a new business.

The coefficients for industry experience, managerial experience, and prior start-up experience (Table 7.6) are all statistically significant and significant discriminators between the “still active” and “inactive/quit” entrepreneurs. While the signs for industry experience and prior start-up experience are positive, the sign is negative for managerial experience. These findings suggest that entrepreneurs with less industry experience and “no or limited prior” start-up experience were more likely to be inactive or to quit during the venture creation process. However, less managerial experience tended to be associated with the “still trying” group. The “in business” entrepreneurs seem to have less industry, managerial, and prior start-up experience.

Finally, gender has a positive and significant coefficient for all three models for the “in business” entrepreneurs ($\beta = 1.205$, $p < 0.05$; $\beta = 1.421$, $p < 0.05$; $\beta = 1.571$, $p < 0.05$), suggesting that male nascent entrepreneurs have a higher likelihood of starting a business while female entrepreneurs have a higher probability of being in the “inactive/quit” group (Table 7.6).

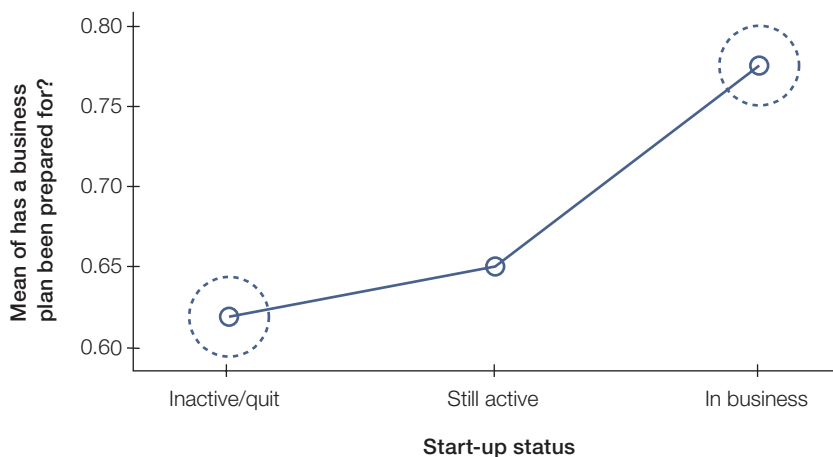
Other variables such as taking classes and workshops on starting a business, having a start-up team, industry, and education, were included in the model, but none of these variables were found to be statistically significant discriminators across all three of the multinomial logistic regression models.

Analysis of Variance (ANOVA)

As indicated in Table 7.7, using the statistical technique of analysis of variance, the mean differences for business plan, business plan formalization, and

Table 7.7 Analysis of Variance (ANOVA)

Variables	Groups	Means		Sum of squares	df	Mean square	F
Has a business plan been prepared for?	Inactive/quit	0.614	Between groups	1.332	2	0.666	3.080**
	Still active	0.658	Within groups	54.285	251	0.216	
	In business	0.766	Total	55.618	253		
The degree of business plan formalization	Inactive/quit	2.176	Between groups	3.719	2	1.859	3.853**
	Still active	2.243	Within groups	83.001	172	0.483	
	In business	2.476	Total	86.720	174		
Timing of business planning/gestation duration	Inactive/Quit	0.565	Between groups	1.876	2	0.938	10.344***
	Still active	0.316	Within groups	15.601	172	0.091	
	In business	0.378	Total	17.477	174		

Figure 7.3 Mean Plot of Business Planning (Yes = 1, No = 2) and Start-up Status

timing of business planning were statistically significant across “in business,” “still active,” and “inactive/quit” groups.

Figures 7.3, 7.4, and 7.5 provide the mean plots for all three planning variables. Bonferroni post hoc comparisons suggest that “in business” nascent entrepreneurs did significantly more business planning (mean = .766) than their “inactive/quit” counterparts (mean = .614). Similarly, the degree of

Figure 7.4 Mean Plot of Degree of Business Plan Formalization and Start-up Status

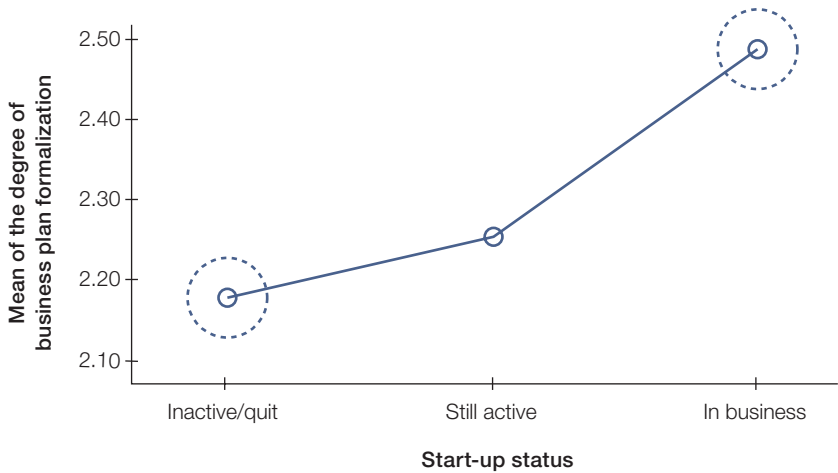
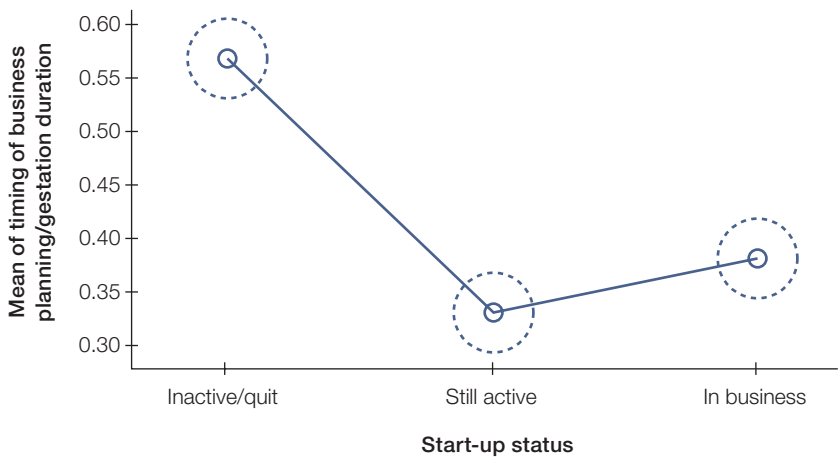


Figure 7.5 Mean Plot of Timing of Business Planning and Start-up Status



business plan formalization is significantly greater for the “in business” group (mean = 2.476), compared with the “inactive/quit” group (mean = 2.176). In terms of the timing of business planning (early or late), the “still active” group seems to engage in business planning significantly earlier (mean = 0.316) than the “in business” group (mean = 0.378), followed by the “inactive/quit” group (mean = 0.565). This finding may suggest that once “inac-

Figure 7.6 Mean Plot of Degree of Business Planning and Start-up Activities

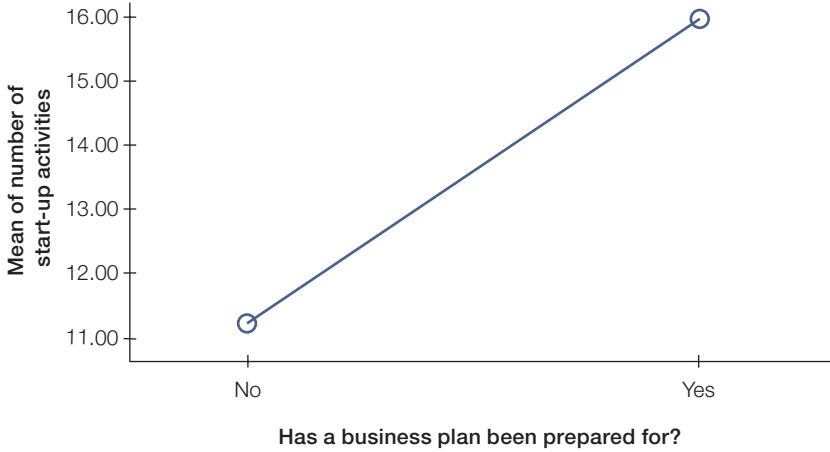
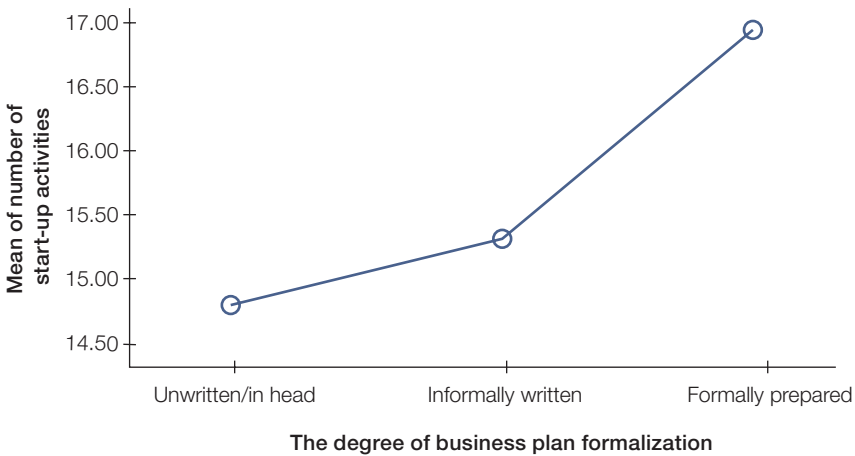


Figure 7.7 Mean Plot of Degree of Business Plan Formalization and Start-up Activities



tive/quit” entrepreneurs engage in business planning, their planning efforts show that continuing to pursue starting a new venture is unfeasible and should be abandoned. By contrast, “still active” nascent entrepreneurs seem to jump into business planning early, but their plans do not lead to additional start-up activities that might lead to successfully starting a business.

As indicated in Figure 7.6, the number of start-up activities for nascent entrepreneurs “with a business plan” and “without a business plan” averaged

15.793 and 11.306 respectively, and is statistically significant ($p < 0.01$). This finding suggests that nascent entrepreneurs who completed a business plan tended to engage in more start-up activities than those without a business plan. Of those nascent entrepreneurs who had business plans, the average number of start-up activities for different levels of business plan formalization, namely “unwritten,” “informally written,” and “formally prepared” are 14.787, 15.195, and 16.898, respectively (Figure 7.7). The ANOVA and its subsequent post hoc pairwise comparisons are all statistically significant ($p < 0.01$). The results suggest that the number of start-up activities entrepreneurs engage in increases significantly with an increased level of business plan formalization.

Discussion

The researchers believe that the results from the analyses of the PSED data on business planning provide evidence that entrepreneurs who engage in business planning will significantly increase their chances of starting a new business. The results also point to a number of other issues in the planning process that enhance the likelihood that new businesses can be successfully started. First, it will be useful to look at some of the limitations of using (1) survey data such as the PSED, (2) different cohort samples from the PSED, and (3) structured questions about planning and entrepreneurial activities, and self-reports about business success.

Limitations

As discussed earlier, it is very challenging for researchers to identify people who are in the process of starting a business, particularly if the goal of creating such a sample of entrepreneurs is to reflect the population of all individuals engaged in business start-up activity. As described in the section on the development of the PSED and in the Appendix to this chapter, determining whether someone is serious about starting a business (i.e., has actually taken some kind of action beyond thinking about wanting to start a business), and finding this person within a period of time reasonably close to when these first business start-up actions occurred, is difficult and expensive. While about 5 to 10 percent of working-age adults might be currently engaged

in starting a business at any particular moment,⁴⁸ this percentage is still a somewhat relatively rare occurrence in the general population. And given that some individuals can take years in the start-up process and still not get into business, the likelihood of capturing a substantial sample of individuals in the exact moment when they actually begin their entrepreneurial efforts is very small.

The researchers believe the PSED sampling process is the most thorough and comprehensive method for finding individuals in the process of starting businesses. Given the substantial amount of funding invested in this program (more than \$2.5 million), and the effort provided by a dedicated number of scholars experienced in survey methodologies and longitudinal panel studies, it is the best and most rigorous existing dataset on the business formation process.

As mentioned earlier, the selection of a contemporaneous cohort of entrepreneurs in the process of starting their businesses has a number of important tradeoffs. In the method used in the PSED, selecting individuals for inclusion in a cohort sample that are both close to the date they first thought about starting a business and that took some other action significantly reduces the number of individuals in the sample. In the analyses here of samples of entrepreneurs who first engaged in starting their firms 24, 36, 48, 60, and 72 months earlier than the time of the first interview, the sample sizes of these cohorts were 157, 254, 312, 356, and 386, respectively. Tradeoffs are made between the size of the cohort sample and the similarities in the cohort of individuals in the process of starting businesses. The researchers made best estimates of what a similar group of entrepreneurs-in-process would look like. Various cohorts chosen with different time frames can change the statistical significance of some of the findings, but the general direction of correlations and outcomes does not change.

A quantitative study such as this offers findings that are probabilistic in nature. A finding with a significance of $p < .01$ suggests 99 percent certainty that this result did not occur by chance. Since many of the analyses are comparisons of “lines” in multi-dimensional space or of mean scores (i.e., averages) between groups, the statistical inferences are always probabilities that certain factors influence others. Probabilities are not guarantees, but estimates of the likelihood something will occur. For example, this chapter

48 Reynolds, Carter, Gartner, and Greene, 2004.

suggests that planning increases the chances of getting into business, not that planning guarantees an individual will get into business.

All of the planning, activity, and outcomes measures used in this study (Tables 7.2, 7.3, and 7.4) are admittedly crude representations of what individuals actually do when they are involved in starting businesses. Entrepreneurs “self-report” whether they have completed an activity or not. The finding that an entrepreneur has completed business planning (or any other activity), then, is based on a subjective sense from each entrepreneur of what completion of business planning (or another activity) means. As the planning formalization measure describes, planning can be completed in various ways: “in your head,” or by unwritten or formal written plan. What respondents might consider a completed plan “in your head” is likely to vary. Likewise, formal business plans vary in comprehensiveness and thoroughness, and the quality differences among the various written business plans are unknown. A written business plan may be 10 pages or 100 pages, have a detailed analysis of competitors or not, provide quarterly financial proformas or not, etc. The quality of the business plan might also reflect the amount of time and effort entrepreneurs have undertaken to develop their business. The finding that individuals who write a formal business plan are likely to complete more business activities is, then, an encouraging result indicating that business plan quality is likely to be reflected in entrepreneurs doing more to understand how their business works. But the measures used do not provide many details of what entrepreneurs actually did when they completed their business plans.

The outcome measure used to indicate whether an entrepreneur had successfully started a business (or not)—Are you currently “in business, still active, or quit”?—is a self-report of these entrepreneurs’ sense of what it means to be in business, to be still active, or to have quit. Entrepreneurs may report that they are “in business,” but these businesses may not have filed for a business license, had a sales transaction, generated positive cash flow, or provided sufficient funds to employ the entrepreneur full time. Delmar and Shane (2003) used multiple measures of business success (e.g., the self-report success measure, product development, and other start-up activities) and found that business planning was positively correlated with them all, though at different levels and significance. Success at getting into business, then, should be considered like a trend toward the establishment of an actual busi-

ness rather than a concrete measure such as getting a business license or filing a business tax return.

The success measure here focuses on the likelihood of getting into business rather than other measures of success that might have a longer-run impact. The success measure does not indicate whether the businesses that are started became profitable, generated positive cash flows, hired employees, grew, or survived after they started. Research that could link the kinds of emerging ventures identified in the PSED dataset with other datasets of new firms could provide valuable insights into the kinds of efforts involved in developing new firms that might lead to profitable and growing businesses.

Overall, even with very broad measures of planning, start-up activities, and outcomes, the findings about the relationship between business planning and success at starting a business appear to be fairly robust.

Results Highlights

The following summarizes the findings presented in the various parts of the results section that are likely to have the most impact on entrepreneurship policy and practice:

- Entrepreneurs who started businesses were more likely to complete a business plan than entrepreneurs who were still active or had quit the process.
- Entrepreneurs who completed a business plan were six times more likely to start a business than those in the “still active” or “quit the process” groups.
- Entrepreneurs who completed written business plans were more likely to start a business than entrepreneurs in the two other groups.
- Entrepreneurs who completed a business plan were more likely to engage in more start-up activities than entrepreneurs from the two other groups.
- Entrepreneurs who completed written business plans were more likely to engage in more start-up activities than entrepreneurs who completed less formal plans (unwritten or informally written).
- Entrepreneurs who contacted and participated in government-sponsored entrepreneurship programs were five times more likely to start a business than entrepreneurs in the two other groups.

Overall, these results suggest that entrepreneurs should engage in business planning during the start-up of their businesses and that entrepreneurs should write a formal business plan. Those entrepreneurs who planned and who wrote formal business plans were more likely to create a new business than others. Planning matters!

Suggestions for Policy

This study provides evidence of the value of government, public/private partnerships, and university efforts to provide training and assistance for entrepreneurs to develop business plans as part of the process of getting into business. Showing that the activity of business planning increases the likelihood of getting into business can be used to encourage entrepreneurs to undertake planning with the knowledge that planning is beneficial. Agencies can also use these findings to require that business plans be generated before other forms of assistance are provided (such as financing and additional consulting support and assistance). Completing a business plan is strongly correlated with completing other business start-up activities, so that a business plan is a signal that the entrepreneur is committed to ensuring that the emerging venture will come to fruition. A business plan might also be considered an indicator that an entrepreneur is committing time and effort to developing the venture. The business plan, then, might be a way to separate committed entrepreneurs from “dabblers” (those still trying) in the process.

The general tenor of this chapter implies that “success” in the business planning process occurs when businesses are started, but a successful outcome of the planning process might also be when entrepreneurs decide to quit the start-up process. Business plans that indicate that an entrepreneur’s original business concept and strategy is faulty and not worthy of pursuing are also important outcomes of the business planning process. Failure can be expensive. Reducing the time and resources invested in venture ideas that are not capable of succeeding improves the efficiency of the entrepreneurial process overall. Most venture creation efforts do not result in new ventures; therefore, any activities such as planning that can reduce the resources invested in nonviable businesses are net benefits because losses are reduced.

The finding that entrepreneurs who use government programs that assist entrepreneurs are more likely to start new businesses is also an encouraging sign that current government efforts to help entrepreneurs can, indeed, help.

Suggestions for Practice

The researchers believe these results make clear the need for entrepreneurs to invest the time and resources necessary to complete a business plan.

Completing a business plan and completing a written business plan strongly predict that entrepreneurs are more likely to start a new business. The finding that entrepreneurs who engage in business planning and who write more formal plans also engage in more activities suggests that business planning may not be a distraction from more important start-up activities, but a corollary to engagement in the start-up process. The results suggest that people who plan are also people who act: planners are doers!

Suggestions for Researchers

The use of longitudinal data to study the process of starting a business is invaluable for uncovering factors that influence subsequent outcomes for entrepreneurial success. The use of such crude measures of planning and other venture creation activities in the PSED, though, suggests the need for more detailed longitudinal case studies and interviews of entrepreneurs during the start-up process to ascertain their motives as well as fine-tune what specifically occurs when entrepreneurs act to create new ventures. It would also be helpful to know more about the reasons entrepreneurs engage in business planning. Few questions are asked in the PSED that attempt to explore why nascent entrepreneurs engage in the activities they do. Providing reasons for planning activities would generate many insights into whether business plans were used to raise capital, etc. Supplementing the PSED cases with matching in-depth case studies of nascent entrepreneurs (i.e., finding nascent entrepreneurs who have similar demographic, start-up, and venture characteristics) could help identify more of the details and logic used by these individuals for how and why they planned.

It would be valuable to explore which specific activities in the business planning process might be more beneficial to entrepreneurs during the start-up process. For example, specific activities involved with finding customers and discerning their needs might be more helpful than other activities, such as developing pro-forma financial statements. Different, specific planning activities might be more or less valuable depending on the types of businesses entrepreneurs are starting or the industries in which these businesses might be competing.

One issue for researchers involved in studying the process of new venture creation to consider is whether entrepreneurs understand the business model for their prospective ventures; that is, do most entrepreneurs understand the specific “formula” for how they will make money? Many entrepreneurs may successfully start a new business, but lack critical insights into how to grow and develop their fledgling firms into businesses that can be profitable and provide positive cash flow. Research that can better define and operationalize the characteristics and processes involved in developing profitable business models would provide significant insights into the value of business planning for venture success.

Conclusions

The finding that entrepreneurs who complete a business plan are six times more likely to get into business than those who do not is a result of some consequence. Nearly all of the evidence offered in this chapter suggests that completing a business plan, and, better, writing a business plan, is positively correlated to getting into business. So completing a business plan is an activity that should be encouraged for entrepreneurs involved in the business start-up process. In a more conservative vein, there appears to be no evidence that business planning, completing a business plan, or writing a business plan is detrimental to the successful development of a business. Planning does not seem to detract from other entrepreneurial activities necessary for starting a business. Indeed, business planning seems to be a strong signal that an entrepreneur is undertaking other important tasks to ensure success at new venture creation. The bottom line is: if you are actively starting a business, do a business plan.

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Appendix

The PSED Model and Research Design

National screening of the adult population was completed by a commercial market research firm (TeleNation Program, Market Facts, Inc.; Arlington Heights, IL). The screening process identifies three random samples of 1,000 adults each week in the contiguous 48 states. Random digit dial sampling procedures (the actual phone numbers are randomly generated) are used to locate households, listed and unlisted. The first individual 18 and older that will complete the phone interview is accepted as a respondent. Quota sampling is used to ensure that half of each sample are men and the other half women. Each sample is completed in a three-day period with a three-call criterion (initial call and two call-backs). However, up to 2 percent of the respondents are called 4-9 times to complete an interview. The interviews are controlled to be less than 30 minutes long to minimize mid-interview terminations.

Five such subsamples were generated from the telephone screening. The first subsample (labeled below as ERC) has been identified as the “ERC sample” or the “mixed gender” sample in other studies. The “ERC” sample was funded by the Entrepreneurship Research Consortium, a group of universities and foundations. The second subsample (labeled CG-ERC) was the “mixed gender” comparison group, also funded by the ERC. The third subsample (labeled NSF-W) has been called the “NSF women only” subsample, as it was funded by a grant to Nancy Carter from the National Science Foundation (NSF) to study women nascent entrepreneurs. The fourth subsample (labeled NSF-MIN) is known as the “NSF minority oversample,” as it was funded through a grant to Patricia Greene from the NSF to study minority nascent entrepreneurs. Finally, a fifth subsample (labeled CG-MIN) was collected that focused on a “minority oversample comparison group,” that was also funded by the NSF grant to Greene.

Because the two different NSF grants came several months apart, the national screening process for identifying nascent entrepreneurs occurred over two broad time periods. Screening of individuals targeted for the nascent entrepreneur ERC group began in July 1998 and ended in April of 1999. Screening of individuals targeted for the NSF-W oversample began in September 1998 and ended in December 1998. Together, these two samples

Table 7A.1 Reported Involvement in Start-up Activity

Target of sample	Pool size	Reports autonomous start-up during market facts screening (SUINVOL)			
		NIE ^a	NCE ^b	Both ^c	Total
ERC					
F	7,563	355	157	59	571
M	7,555	586	260	136	982
NSF-W					
F	8,099	367	147	52	566
M	8,044	577	288	127	992
NSF-Min					
F	14,632	657	280	128	1,065
M	13,682	985	393	211	1,589
CG-ERC					
F	1,007		Unknown. Not asked.		
M	1,003		Unknown. Not asked.		
CG-Min					
F	1,574	80	30	7	117
M	1,463	109	35	29	173
Totals:	64,622	3,527 ^d	1,525 ^d	713 ^d	5,765 ^d

a NIE = Nascent Entrepreneur. A "yes" response to: Are you, alone or with others, now trying to start a new business?

b NCI = Nascent Corporate Entrepreneur. A "yes" response to: Are you, alone or with others, now starting a new business or new venture for your employer? An effort that is part of your job assignment?

c Both. Answered "yes" to both of the NIE + NCE questions.

d Totals for all classifications of nascent entrepreneurs do not include the respondents from either comparison group.

of potential nascent entrepreneurs comprised a total of 31,261 individual respondents. Screening for the CG-ERC comparison group began and was completed in November 1998 with a total of 2,010. Screening for the NSF-MIN minority oversample began in July 1999 and ended in January 2000 with a case listing of 28,314 people. Finally, screening of the CG-MIN minority oversample comparison group began and ended in November 1999 with a case listing of 3,037 people. Thus, a total of 64,622 individuals were screened between July 1998 and January 2000. The characteristics of the various subsamples in the Screener are listed in Table 7A.1.

Whether members of the comparison groups were themselves involved in start-up activity was unfortunately not asked of the mixed gender comparison group (the CG-ERC subsample). Follow-up interviews with these individuals revealed that four of them had in fact started businesses, and in subsequent analyses using the Sample dataset, these four individuals are

dropped. Within the minority oversample comparison group (the CG-Min) subsample, a total of 29 individuals reported some start-up activity, so these individuals were also dropped in analyses using the Sample dataset. Details of the distribution of males and females for the various subsamples and descriptions of the decision rules for identifying nascent entrepreneurs is found in Shaver, Carter, Gartner and Reynolds (2001).

Because of the oversight about start-up activity in the comparison group, the CG-ERC subsample (2010 respondents) was dropped in analyses using the Screener. In addition, another 40 respondents were dropped from analyses using the Screener because of problems with various variables that made these cases suspect. Therefore, the Screener reports on analyses using 62,612 respondents.

To be labeled a “nascent entrepreneur” a respondent had to say, “yes” to either one or both of the following questions:

1. Are you, alone or with others, now trying to start a new business?
2. Are you, alone or with others, now starting a new business or new venture for your employer? An effort that is part of your job assignment?

Nascent entrepreneurs had to meet three additional criteria: (a) be currently active in the start-up effort, (b) anticipate full or part ownership of the new business, and (c) the effort could not have generated a positive monthly cash flow that covered all expenses and owner/manager salaries for more than three months.

The initial stage of the detailed interviews, completed by the University of Wisconsin Survey Research Laboratory, included the third criteria. Only the three-criteria nascent entrepreneurs received the full 60-minute phone interview and 12-page self-administered questionnaire. About one-fourth (27 percent) of the two-criteria nascent entrepreneurs were involved with baby businesses, new firms in the first stages of operational existence, and did not qualify as three-criteria nascents. Hence, the actual prevalence rate of three-criteria nascents would be about three-fourths of that of two-criteria nascents.

On the other hand, the three call-back criteria utilized in the initial screening—three calls to each randomly selected phone number—led to a lower prevalence rate. The prevalence rate for two-criteria nascent entrepreneurs among three call-back respondents was 6.2 per 100, compared with 7.5

per 100 for five to nine call-back respondents. This 21 percent higher prevalence rate is statistically significant.

These two sources of attrition may, therefore, offset each other. The prevalence rate of two-criteria nascent entrepreneurs with the three call-back operational criteria may be equal to the prevalence rate of three-criteria nascent entrepreneurs with the nine call-back operational criteria. The impact of more call-backs on the prevalence rate reflects the extreme time pressures on nascent entrepreneurs, most of whom have a full-time role in the labor force at the same time they are trying to start a new business. They are difficult to find and interview precisely because they are so busy trying to implement a new business.

Those that answered yes to either (6.1 percent to the first and 2.8 percent to the second) or both (1.2 percent) of these questions are then asked about the first two $a + b$ of the three additional criteria. Analyses of population prevalence rates focus on these two-criteria nascent entrepreneurs.

About 87 percent of those respondents that met the $a + b$ criteria provided their first name and phone number for subsequent survey efforts by the University of Wisconsin Survey Research Laboratory in Madison, Wisconsin.

A similar procedure was used to identify candidates for the comparison group, except that all respondents in the sample were offered a chance to participate in a “study of the work and career patterns of all Americans, including those not currently working.” In this case, 62 percent agreed to participate.

In addition to providing candidates for the nascent entrepreneur cohort and the comparison group, the resulting dataset includes basic socio-demographic information on the respondents and their households, as well as the county and state in which the phone was located. This information is used in the analysis of factors affecting the prevalence rates of two-criteria nascents.

Respondents involved in several start-up efforts were asked to focus on only the most recent start-up effort. Up to one-third of the nascent entrepreneurs reported simultaneous participation in several start-ups. Four questions were used to determine if the start-up has NOT had positive monthly cash flow that covers expenses and owner-manager salaries for more than three months.

An infant business was a business in which the start-up effort had a positive monthly cash flow that covered expenses and salaries for the owner/

manager for more than three months (91 days). In the phone interview four questions were asked that were used to make this determination:

Question 162: first year in which money, income, or fees were received.

Question 164: first year in which there was positive monthly cash flow.

Question 165: whether business expenses included owner's salary.

Question 166: first year in which expenses included owner's salary.

Each of the "year" questions was followed by a corresponding "month" question (162a, 164a, 166a) to specify the timing more precisely.

If so, the effort is considered an infant business and not a start-up effort, and respondents are thanked for their time and dropped from the procedure. Approximately one-fourth (27 percent) of the respondents are dropped at this stage, reflecting the ambiguity associated with the phrase "starting a business."

Potential nascent entrepreneurs were more interested in volunteering for the project than those in the comparison group, 87 percent versus 62 percent; but those in the comparison group are more likely to complete all aspects of the data collection procedure; they had a 10 percent higher return rate on the mailed questionnaires.

The time and effort required to obtain completed phone interviews is indicated by the time lags between the initial screening and the phone interview, which averaged 51 days for nascent entrepreneurs and 62 days for the comparison group respondents, with a maximum of 250 days. It is also reflected in the lag between completion of the phone interview and receipt of the mail questionnaire, which averaged 51 and 37 days, respectively, for nascent entrepreneurs and comparison group respondents, with a maximum of 337 days. Further, the number of contacts required to obtain the phone interviews averaged 8 for nascent entrepreneurs and 5 for the comparison group, with a maximum of 74. Twenty-five percent of the nascent entrepreneur phone interviews required more than 9 calls and 25 percent of the comparison group phone interviews required more than 7 calls.

Reactions of the respondents were measured in several ways. Nascent entrepreneurs were asked, at the end of the phone interview, how the experience affected their interest in starting a new firm: 59 percent said it increased their interest, 39 percent said it had no effect, and 1.2 percent indicated that it reduced their interest in starting a new firm. In fact, the positive effect may cause some problems, for some may claim that participation in the project may

increase both the interest and, because of the content of the interview schedules, the business knowledge of the nascent entrepreneur participants. This may improve their chances for business success. In a sense, the Heisenberg effect in research, that collecting data from a phenomenon takes energy from the process under study, may be offset by the Hawthorne effect, that a known research focus on work activity may lead to higher levels of work productivity.

The most difficult issue on which to obtain responses in survey research is information regarding household financial status. It is easier to obtain candid responses about drug use, deviant or extramarital sexual behavior, cheating on income tax returns, and almost any other personal activity. In this project, however, more than 95 percent of the nascent entrepreneurs and 98 percent of the comparison group provided information on both household income and net worth. On the self-administered questionnaires that were returned, 98 percent of the items are completed. In terms of respondent cooperation in survey research in the United States at the end of the twentieth century—this is as good as it gets!

The PSED Datasets

Analyses based on the full screening sample of 62,612 respondents are labeled as the Screener. Various analyses with the detailed data will reflect comparisons among three-criteria nascent of different ethnic backgrounds as well as with appropriate comparison group individuals. The unweighted counts of respondents by ethnic identification are indicated for the two types of analyses in Table 7A.2. Analyses that were conducted on the sample of 1,261 individuals that compose the nascent entrepreneurs and comparison group individuals are labeled Sample.

The attrition between the screening sample and the detailed data on nascent entrepreneurs reflects both losses during the data collection process and purposeful sampling from the screened population to enhance the female and minority detailed samples. The slight underrepresentation of Hispanics in the screening sample reflects the practice, for this study, of restricting all interviews to English.

Ethnic identity was determined in two different ways in the two surveys. In the screening interviews, individuals were asked two questions; one related to whether respondents considered themselves White, Black, Asian, or other. The second question asked whether respondents considered themselves Hispanic or Latino: yes or no. To create a single variable, any person who responded

Table 7A.2 Number of Respondents: By State of Data Collection and Ethnic Background

(Unweighted counts)	Screening sample: Not two-criteria nascent entrepreneurs	Screening sample: Two-criteria nascent entrepreneurs	Detailed sample: Three-criteria nascent entrepreneurs	Detailed samples: Comparison group
Whites	46,289	2,726	492	191
Blacks	5,156	547	210	139
Hispanics	3,519	258	57	69
Asians	1,016	53	11	6
Others	1,427	122	14	20
No information	1,431	68	46	6
Column totals	58,838	3,774	830	431
Total each sample		62,612 Screener		1,261 Sample

“White” or “Other” to the first item and “yes” to the Hispanic item was considered Hispanic. Of those in the Hispanic category, 44 percent responded, “White” to the first item; the remainder responded “Other.” Among those retained in the “Black” category, 3 percent had responded “yes” to the Hispanic item as had 8 percent of those in the “Asian” category. The ethnic identification of the respondents is not, therefore, unambiguous in every case. In the detailed interview, each respondent answered a single item related to ethnic identification as White, Black, Hispanic, American Indian, Asian, etc. Among those in the detailed interviews classified as White, 92 percent were in the White category for the screening interviews; 94 percent of those who claimed Black and Hispanic in the detailed categories were in the same category for the screening interviews. It should be noted that some of this switching reflects a change in actual respondent reporting on the start-up effort, which is often a team initiative, with different members of the team (often spouses) interviewed at the two different points in the data collection process.