

A conversation with 590 Nascent Entrepreneurs

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Abstract This paper summarizes interviews from 1998 with 590 individuals trying to create a business centered around five questions: “Who are you?”, “What are you trying to accomplish?”, “What have you and others put into the business?”, “What have you accomplished?”, “What remains to be done?” These Nascent Entrepreneurs are remarkably similar to the general population. Most have already made personally significant investments of time and money in their firms. For about half of them, these investments have yielded a fully specified product. Their most substantial sources of seed money are their own savings and loans from family and friends. A small minority of Nascent Entrepreneurs have applied for formal business loans, and only half of those applications have been approved.

Keywords Panel study of entrepreneurial dynamics · Entry · Business development · Business partnership · Family business · Business credit

JEL Classification L26 · M13

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1 Introduction

In this paper, we examine a new data set, The Panel Study of Entrepreneurial Dynamics (PSED), to investigate the new business start-up process. We organize our analysis as a conversation with the individuals creating new businesses, Nascent Entrepreneurs (NEs); and five questions structure it: “Who are you?”, “What are you trying to accomplish?”, “What have you and others put into the business?”, “What have you accomplished?”, “What remains to be done?” The NEs’ responses illuminate how entrepreneurs combine their own time and money with external finance to produce a new firm.

We summarize our main conclusions from each question’s answers.

- **Who are you?** Entrepreneurship attracts more young people than the average line of work. NEs have no worse educational qualifications than their non-entrepreneurial counterparts, so “entrepreneurship” does not merely substitute for “labor-market loser”. Family business background seems to be unimportant for whether a man becomes a NE but quite important for the same choice of women.
- **What are you trying to accomplish?** Most NEs plan to open a retail store or a restaurant or provide a health or education-related service, and a sizeable minority of women plan to begin manufacturing something. The vast majority of nascent businesses are independent start-ups and are organized either as sole proprietors or general partnerships. Most of them also plan on their business making a substantial contribution to household income. However, the respondents’ anticipated business sizes differ greatly. Nearly half of them plan to employ nobody but themselves. The majority of the remainder plan to become significant employers within 5 years. Women tend to have plans for smaller businesses than men do.
- **What have you and others put into the business?** We study time inputs by the NE, capital investment by all of the owners involved in the start-up, and funds provided by others.

Time

The average NE has been thinking about starting this new business for 3–4 years, with males putting in more time than females. The average NE has already put in more than 6 months of full time work to get the business started. An analysis of how NEs are currently splitting their time reveals substantial attachment to the labor market or housework. A comparison of the male and female labor supply patterns reveals a significant gender gap: a larger fraction of men put in more market work, but little effort in the house, while the opposite is true for women.

Funds

Most NEs either have saved or are currently saving to start their business, and the vast majority have invested their own money in their own business. Looking at the size of the owners’ capital investments reinforces the view that women aspire to run businesses that are smaller and require less capital: female NEs have put in half as much capital as male NEs throughout the whole distribution of funds invested. It also shows that even though the median investment made so far by male NEs is just \$5,000, there is a long tail in the distribution. An analysis of the other sources of funds shows that informal credit markets (such as the provision of

funds by family and friends) are the first source of funds (after one's own savings) that one attempts to access, with about one third of the sample having done so. Even for this kind of loan, asking is no guarantee of receiving. The acceptance rate varies between 75% for solo NEs and 85% for NEs with partners. Conditional on receiving one such loan, the amounts are modest, but not negligible (\$6,000 is the median total amount received by solo NEs and \$10,000 is the corresponding figure for those with partners). Only 17% of our solo NEs and 28% of our NEs in partnerships apply for formal business loans, and 41–49% of the applicants are granted such a loan. Conditional on receipt, these loans are at least two times as large as those provided by the informal credit network.

- **What have you accomplished?** The PSED's design ensures that its respondent NEs have not had revenues to exceed costs for more than 3 months, but the sample still shows a good deal of heterogeneity in their stage of product development. About 44% of our sample has a product or service that is ready for delivery, while 21% is at the prototype stage. Only 12% of our NEs are employers already, and of this minority, only 30% have two employees or more. About 40% of the sample have already received some revenue from operating their business.
- **Who remains to be done?** The survey asks each NE about the business sizes required for revenues to exceed costs and for the established financial community to provide funding. Ten percent of our NEs say that their firm is already self-sustaining, while only 5% say that their firm already has received funds from the established financial community. A significant fraction, 23%, still faces a lot of uncertainty about both questions and does not know how to answer them. A comparison of the two distributions indicates that business size needed for self-sufficiency is larger than business size needed to borrow from the established financial community. This could indicate that in many cases the NEs believe that they can draw on formal sources of credit before their businesses reach their self-sustaining sizes.

Previous research on entrepreneurship has investigated the preferences, skills, and backgrounds of those choosing entrepreneurship (Lucas 1978; Kihlstrom and Laffont 1979; Fairlie 1999; Scott Morton and Podolny 2002; Lazear 2005), the potential relevance of limitations on entrepreneurs access to credit (Dunn and Holtz-Eakin 2000; Hurst and Lusardi 2004; Cagetti and De Nardi 2006) and the information gained through production about business quality (Jovanovic 1982; Abbring and Campbell 2006). Our results contribute to these other lines of inquiry. Women create businesses less frequently than men, but otherwise NEs' demographic characteristics and human capital backgrounds resemble those from a randomly selected comparison group remarkably well. We must defer an examination of whether this similarity persists when considering only entrepreneurs who eventually launch their firms, but it does show that entrepreneurs do not strongly differ from the general population *ex ante*. NEs nearly all report that their businesses must grow substantially before attracting credit from the established financial community. This, their heavy use of informal credit markets, and formal lenders' low approval rates of their loan requests all suggest that limited access to credit limits entrepreneurship. Of course, the process of applying for loans and searching for business partners itself generates information about the NE's

business proposal. Measuring how NEs base their business continuation decisions on these tasks' outcomes must await future research.

The remainder of this paper proceeds as follows. Section 2 describes the sampling strategy and the main characteristics of the data set, and Sects. 3–6 analyze the 590 NEs' answers to the five central questions. Section 8 offers some concluding remarks.

2 Data collection

NEs are in the middle of two processes central to economic mobility and growth: the movement of their signatures' to the paycheck's front and the creation of a new good or service. They typically start with neither employees nor sales and therefore typically fall through the cracks of administrative data collection.¹ Previous empirical research on the transition to entrepreneurship has therefore employed demographic data sets with questions about self employment, such as the Panel Study of Income Dynamics (Fairlie 1999; Gentry and Hubbard 2000; Hurst and Lusardi 2004) and the National Longitudinal Survey of Young Men (Evans and Leighton 1989). These data sets conflate the self-employed who required little effort to create their jobs with those who founded novel businesses. Lazear (2005) reserves "entrepreneurs" for these individuals. Furthermore, these data sets contain very little information about entrepreneurs' businesses. The Panel Study of Entrepreneurial Dynamics (PSED) was a data collection project undertaken by the Entrepreneurial Research Consortium (ERC) to fill the resulting need for detailed observations of NEs and their businesses.²

Gathering such data presents the challenge of finding potential entrepreneurs. For this, ERC relied on a weekly commercially conducted telephone survey.³ During July, August, November, and December of 1998 and April of 1999; the surveyors asked each of 15,118 respondents

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

For those answering "yes", the surveyors followed with

Will you own all, part, or none of this new business?

If the respondent answered with "all" or "part", the interviewer then asked

In the past 12 months, have you done anything to help start this new business, such as looking for equipment or a location, organizing a start-up team, working on a business plan, beginning to save money, or any other activity that would help launch a new business?

¹ Holtz-Eakin et al. (1994) provide an exception to this rule by linking estate and income tax returns to document a positive effect of bequests on self employment.

² Here, we provide only a brief overview of their collection. Reynolds (2000) provides a more complete description.

³ See Market Facts Inc. (2001) (<http://www.synovate.com/insights/research-on-research/abstract-10-1.html>) for a description of the random procedure used for the selection of telephone numbers.

The market research firm identified those who answered affirmatively as NEs. Of those, 87% agreed to have their first names and phone numbers forwarded to the University of Wisconsin for further questioning. These form the initial sample of NEs. The market research firm also forwarded first names and telephone numbers of a sample who were not asked about their business activities but agreed to be contacted for “a study of the work and career patterns of all Americans, including those not currently working”. Sixty two percent of those asked agreed to be contacted. The ERC used these to collect data from a comparison group. The ERC contracted with the University of Wisconsin Survey Research Laboratory to conduct telephone interviews of both samples. For the overwhelming majority of sampled individuals, the phone interview occurred within 3 months of the initial screening interview.

For the NEs, the interviews began by asking whether the business’s revenues were sufficient to cover the salaries of managers/owners. If so, the ERC considered the firm to be an established business and the interview terminated. This screen eliminated about 27% of the initial NE sample. Seven percent of those left could not be contacted, and 20% refused to be interviewed. The remaining 446 identified and screened NEs cooperated with the survey. The survey of the comparison group yielded exactly half as many responses.⁴

In the middle of 1998 the National Science Foundation funded the ERC to over sample female NEs. The screening interviews for this sample occurred in the last 4 months of that year (concurrently with the initial representative sample) and the telephone interviews occurred quickly thereafter. This sample contains 223 interviews. Curiously, 52 of them are *male*. Some of these seem to have arisen when a husband answered the interview about a husband-wife business partnership, but answers to other questions rule out this explanation for the others. Our analysis excludes these male members of the female over sample.

Not all potential survey respondents cooperate after being contacted, and it is generally unwise to assume that those who do provide information are a random selection from the population. The standard procedure for dealing with the resulting potential for response bias is to re-weight the data so that the distributions of demographic variables match those from a reliable census. The ERC tabulated such weights, which make the telephone survey’s demographics the same as those in the Current Population Survey.⁵ These correct only for response bias from that initial survey, but we nevertheless choose to apply them to this paper’s calculations. In practice, discarding the weights changes the results little.

We begin with the 171 female NEs from the over sample and the 446 NEs from the initial sample. To better understand these NEs, we employ the 223 comparison group observations.⁶ Before proceeding with the analysis, we apply a few simple screens. We keep only those observations with age, education, and experience recorded who were over 20 years old. Table 1 shows the number of observations each screen keeps.

⁴ These figures come from Reynolds (2000) and Gartner et al. (2004).

⁵ See Appendix B of Gartner et al. (2004) for details about these weights’ construction.

⁶ The data set also contains a small minority over sample which we do not use. The ERC collected it in late 1999 and early 2000.

Table 1 PSED samples observation counts

	Men		Women	
	NE	CG	NE	CG
All records	275	104	342	119
With age recorded	272	104	337	119
Over 20 years old	263	102	335	116
With education recorded	261	102	334	116
With experience recorded	260	102	330	115

NE and CG denote NEs and members of the Comparison Group

The final sample has the 590 NEs promised in this paper's title and a comparison group of 227. The predominance of women among the NEs arises from the female over sample. Women are a minority of the randomly selected NEs, a fact which is consistent with their well known under representation among business owners.

3 Who are you?

A casual encounter with a stranger begins with assessing her or his age. If a conversation arose and it became more personal, you might begin by talking about the person's spouse (if one exists) and children. A longer conversation might then turn to the person's schooling and career path. You might learn about someone's family background after some time, and personal financial details could be forthcoming if you had earned a great deal of trust. Our conversation with the 590 NEs follows this general pattern. To make their answers more meaningful, we hold the same conversation with the 217 members of the comparison group.

3.1 Demographics

It is well known that women are under represented among entrepreneurs relative to the population as a whole, and the PSED reflects this; 62% of the representative NE sample is male. Much interest in entrepreneurship arises from this differential participation. For this reason and to maximize our use of the NSF-sponsored female over sample, we compare male and female NEs to their comparison group respondents separately.

The PSED data contain answers to basic demographic questions regarding the person's age, marital status, and the presence of children. To summarize the respondents' ages, we break them into three bins (20–39, 40–59, 50 and over). We say that people who are neither married nor cohabiting are single, and we summarize their parental responsibilities with indicators for the presence of children 18 years or younger. Figure 1 compares the averages of these data across NEs and the Comparison Group. In each of the gender-specific panels, the x -axis gives the percentage of the comparison group with the relevant dummy variable equal to one. The y -axis gives the analogous percentage for the NEs. Each indicator variable has a data point, and a label accompanies each one. Points close to or on the 45 degree line indicate that the two groups

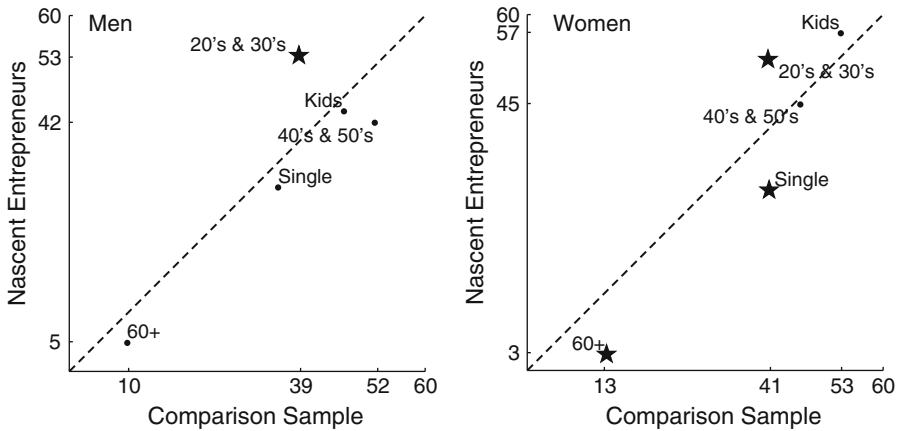


Fig. 1 Comparison of demographic characteristics. Note: Each axis gives the fraction of the indicated sample falling into the given category. All axes are expressed in percentage points, and the *vertical* and *horizontal* axes have the same scale. The axes mark the minimum, median, and maximum frequencies (across the indicated variables) for each sample. A * indicates a statistically significant difference between the NEs and the Comparison Group at the 5% level

have roughly the same percentage of positive respondents in the two samples. A “*” marks variables on which the two samples’ difference is statistically significant at the 5% level.

The figure shows that NEs of both sexes tend to be younger than average. For the men, 53% of the NEs and 39% of the comparison sample are in their 20s or 30s; The analogous percentages for the women are 52 and 41%. In light of the NEs’ relative youth, the other statistically significant result surprised us: Single women compose 41% of the comparison sample but only 30% of the NEs. This *suggests* that marital support contributes to entrepreneurial activity. Further exploration of that hypothesis seems warranted. Fewer men report children in the home than do women, but each sex’s two samples have nearly identical parental obligations. Whatever influences children have on their parents’ entrepreneurial activities cancel each other in the aggregate rate of nascent entrepreneurship.⁷

3.2 Education and experience

The conversation now moves on to educational background and experience. Competing hypotheses of entrepreneurship predict sharply different patterns for these measures of human capital. Some speculate that entrepreneurs are largely the losers of the conventional labor market and expect their education and work experience to be comparatively low. Others focus on the preponderance of entrepreneurs among the very wealthy and tend to predict that they have superior backgrounds. The first step

⁷ The strong similarity of the NE and Comparison groups’ parental obligations continues to manifest itself even after we restrict attention to the presence of children 6 years old and younger.

to discerning among these claims is measurement. For this, the PSED interviewers asked respondents in both samples

How many total years of full time, paid work experience in any field have you had?

We divide the answers into decades (0–9, 10–19, 20–29, and 30 or more) and tabulate each sample's distribution across them. The PSED also asked educational background questions, which we condense into three bins: Less than High School, High School Graduate, and College Graduate.

Figure 2 displays the comparison of these variables in the same format as Fig. 1. For both sexes, the two samples resemble each other remarkably well. The demographic results lead us to expect that early career individuals will also be over represented among the NE samples. For men, this is the case. The fraction of male NEs with less than 9 years of experience is 26%, and the fraction of similarly situated men in the comparison sample is 20%. The difference between men with 10–19 years of experience is even larger (36 vs. 25%) and statistically significant. Women with 0–9 years of experience are also over represented among the NEs (38 vs. 32%), but this difference is not statistically significant. We speculate that the absence of a statistically significant experience pattern for women reflects heterogeneous interruptions of paid work for child bearing and child care that make a woman's work experience a poor proxy for her age. The two samples' educational backgrounds are almost identical for both sexes. No assertion that NEs' human capital differs systematically from that of the general population gets much support from these results.⁸

3.3 Family business background

We want the conversation about family background to drift towards parents' and other family members' entrepreneurship. Much of the previous literature on entrepreneurship has speculated on the transmission of human capital specific to entrepreneurship from parents to children. For example, [Lentz and Laband \(1990\)](#) show that about 50% of their sample of business owners had at least one self-employed parent. Whether this is remarkable depends on the analogous frequency from the general population.

The PSED surveyors asked both samples a variety of questions about the presence, scale, and longevity of family businesses during the respondent's youth. We use those below to determine whether or not entrepreneurial families tend to produce NEs.

- Did either or both of your parents ever manage a business owned by the family?
- Did any business owned by your family ever employ five or more people (including paid family members)?
- Were either of your parents self-employed for 5 years or more?
- Did either of your parents own more than one business?

⁸ [Lazear \(2005\)](#) speculates that entrepreneurs have more *diverse* educational and labor market backgrounds than do members of the general population, and he finds this to be so in a sample of Stanford MBA alumni. The PSED asked detailed questions about the respondent's experience in different business areas, but further examination of this hypothesis requires more analysis than the current paper can accommodate.

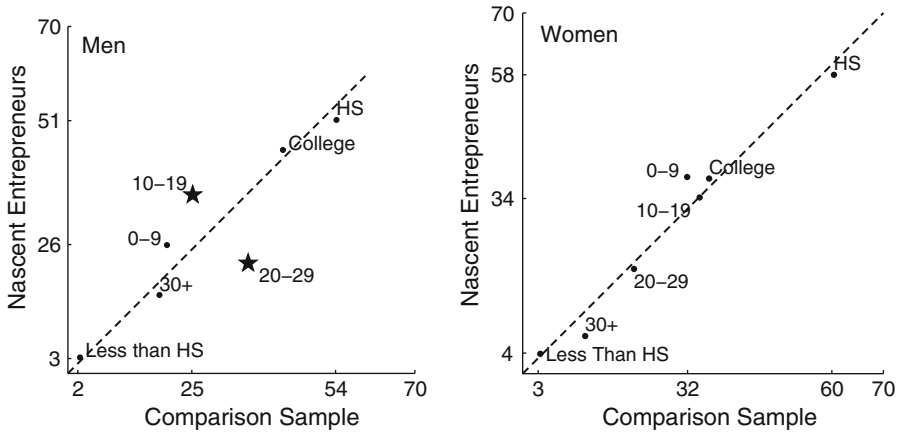


Fig. 2 Comparison of education and work experience. Each axis gives the fraction of the indicated sample falling into the given category in percentage points. Numerical ranges refer to work experience in years. The vertical and horizontal axes have the same scale, and they mark the minimum, median, and maximum frequencies (across the indicated variables) for each sample. A ★ indicates a statistically significant difference between the NEs and the Comparison Group at the 5% level



Fig. 3 Comparison of family business backgrounds. Each axis gives the fraction of the indicated sample falling into the given category in percentage points. The vertical and horizontal axes have the same scale. The axes mark the minimum, median, and maximum frequencies (across the indicated variables) for each sample. A ★ indicates a statistically significant difference between the NEs and the Comparison Group at the 5% level

- Did you ever work for one or both of your parents?
- Did anyone in your extended family own a business?
- Did any close friends or neighbors own a business?

Together, these questions measure the entrepreneurial skills of the respondents' parents and their potential exposure to it. Figure 3 displays the results. For men, the measured family backgrounds line up very close to the 45° line, indicating that

NEs' family backgrounds are not unusually entrepreneurial. For women, the story changes somewhat. Most of the family background indicators are nearly identical across the samples, but two stand out, "Worked for Parents" and "Owned > 1 Business". Of the female NEs, 29% report having worked for their parents' business and 22% say their parents owned multiple businesses. For the comparison group these frequencies are 19 and 13%.⁹ Apparently, childhood experience with entrepreneurship influences women's occupational choices but not men's. [Hurst and Lusardi \(2004\)](#) speculate that the influence of unmeasured family background on entrepreneurship generates the (apparently) spurious correlation between future inheritances and current entrepreneurial choices, and [Fairlie and Robb \(2007\)](#) find that measured family business experience predicts business survival. In this light, we find the nearly identical family business backgrounds of male NEs and their counterparts from the comparison group striking and worthy of further investigation.

3.4 Financial background

Financial questions usually evoke guarded reactions. Surprisingly, the PSED respondents were more forthcoming about their income and wealth than expected. When asked

What was your total household income from all sources and before taxes last year? Be sure to include income from work, government benefits, pensions, and all other sources.

only 77 of the 840 respondents refused to answer. These non-respondents were then asked a sequence of bracketing questions, such as

Then, would you tell me, is your household's total annual income, before taxes, over \$50,000 per year?

Only 20 of the 77 refused to participate in the bracketing questions, so arguably sample selection has only a small impact on the PSED income data. The respondents were less cooperative with questions on wealth (about 3/4 of the respondents gave answers), but most of those who did not answer the direct questions were willing to bracket their wealth.

Figure 4 uses these variables to compare NEs' financial backgrounds with those of the Comparison Group. So that we can use the responses of those who only gave brackets for their income and wealth, we define dummies for high income ($\geq \$50,000$), very high wealth ($\geq \$500,000$), and high wealth ($\geq \$100,000$). The figure also plots the frequencies of home ownership, mortgage debt, and non-mortgage debt exceeding \$5,000.

For the men, the figure shows clearly that the NEs are somewhat *less* well off than their counterparts in the Comparison Group. The two variables with statisti-

⁹ We found these frequencies to be high relative to our subjective prior, but there is no obvious external measure of the same variables with which we can assess their plausibility. Utilizing business census data for this seems worthwhile to us.



Fig. 4 Comparison of financial backgrounds. Each axis gives the fraction of the indicated sample falling into the given category in percentage points. The *vertical* and *horizontal axes* have the same scale, and they mark the minimum, median, and maximum frequencies (across the indicated variables) for each sample. A \star indicates a statistically significant difference between the NEs and the Comparison Group at the 5% level

cally significant differences are “Home owner” (79 vs. 67%) and “Wealth \geq \$100k” (54 vs. 41%).¹⁰ The other variables generally indicate that the NEs have fewer financial achievements than do members of the comparison sample. One obvious possible explanation for these results is the over representation of *young* men among the NEs. Very wealthy women are over represented among the NEs. Otherwise, the female NEs and comparison sample members have very similar financial backgrounds in spite of the NEs being somewhat younger. In parallel with our explanation for such similarity in human capital variables, we speculate here that child bearing and child rearing divorce a woman’s financial achievements from her age.

The similarity of financial status across the two samples tempts one to conclude that the financial constraints do not impede entrepreneurship. This apparent resemblance might arise from aggregating individuals that differ importantly on other dimensions, such as talent. Furthermore, [Bura \(2009\)](#) finds that the relationship between wealth and entrepreneurship is not monotonic in the presence of borrowing constraints in a fully dynamic model. For these reasons, we draw no firm conclusions about the importance of borrowing constraints and wealth for entrepreneurship based on these observations. Instead, we view them as useful reduced-form inputs that should help inform any quantitative theory of entrepreneurship.

¹⁰ The unexpectedly high frequency of such high-wealth individuals in the PSED comparison group led us to compare these results from those obtained from the 1998 Survey of Consumer Finances. For the men, the comparison sample’s median and mean wealth values are \$70,000 and \$245,800, and for women these estimates equal \$65,000 and \$116,800. [Kennickell et al. \(2000\)](#) report analogous estimates for all households from the SCF of \$71,600 and \$282,500. (See their Table 3.) The close match between the estimated medians and the lower estimated means suggests that the PSED’s wealth observations suffer from no systematic over reporting.

3.5 Summary

The 590 NEs in the PSED did not answer “Who are you?” with a great deal of uniformity. Men and women of all ages and backgrounds try to start businesses. Nevertheless some patterns do emerge when comparing the NEs responses to those from the comparison group. Most importantly, entrepreneurship attracts more young people than the average line of work. Female NEs are relatively likely to have childhood entrepreneurial experience. The summary statistics detect no other substantial differences in demographics, human capital, and financial background between the NEs and members of the comparison sample. Our answer to this section’s eponymous question is “A somewhat younger version of the average American.”

4 What are you trying to accomplish?

We now discard the comparison group and henceforth focus on the NEs. The conversation continues with a discussion of what the NEs are trying to accomplish. Their business plans can vary on many dimensions, but some seem particularly relevant: type of product or service, intended scale, intended duration, potential importance for household income, and expected legal organization. The PSED respondents’ answers to questions on these specific subjects give us a useful answer to this section’s question.

Many of our tables report data for three different samples. The column “All” refers to the initial representative sample, which includes both male and female NEs. The column “Males” reports data for the males in the representative sample. The column “Females” refers to all female NEs, both in the representative sample and in the female over sample.

4.1 Industry

The product or service to be sold determines many of the opportunities and constraints facing the NE. The PSED interviewers asked the respondents to place their business into one of 20 categories. These do not replicate any standard industry classification system, because the survey designers correctly anticipated that some industries (like Food Service) would have very high frequencies.

Table 2 tabulates the NEs’ answers. A large fraction of the men (35%) start a business in Health, Education, and Social services. Among the female NE this is also a strong category (20%). One might wonder if this high percentage reflects medical professionals beginning independent practices. The very low percentage of respondents with MDs or equivalent post-graduate degrees (about 3%) indicates that this explanation is wrong. Retail and Restaurants account for 29% of the men and 43% of the women. The final stand-out category surprised us: Manufacturing. Sixteen percent of the women and 8% of the men chose this field. Together, these leading four categories account for 79% of the women and 72% of the men. The remaining NEs of both sexes spread themselves fairly uniformly over the other categories. Two areas’ small frequencies went against our prior: The sum of Business Consulting, Business Services, and Business Consulting or Service, Unspecified only equals 4% for the men and 3%

Table 2 Industry choices

	All	Men	Women
Retail	11	10	16
Restaurant	21	19	27
Customer service	4	5	4
Health, education, social services	31	35	20
Manufacturing	10	8	16
Construction	4	4	3
Agriculture	2	3	2
Mining	2	2	1
Wholesale distribution	0	0	0
Transportation	3	3	2
Utilities	1	0	1
Communications	3	3	2
Finance	1	1	1
Insurance	0	0	0
Real estate	2	2	1
Law or accounting	0	0	1
Computer programming	1	1	0
Business consulting	1	1	1
Business services	1	1	0
Business consulting or service, Unspec.	2	2	2

The table reports the percentage of each sample's NEs developing businesses in the listed industries

for the women; and Construction accounts for only 3% of Men and 2% of women. We speculate that these businesses require very little gestation time and so are likely to be under represented in a sample of NEs relative to a sample of new businesses.

4.2 Business organization

A decision closely related to product choice is the business's sponsorship. Existing firms can sponsor a start-up through a franchise or a less routine cooperation agreement. Furthermore, the possibility exists that some NEs are actually purchasing (and possibly overhauling) a business rather than beginning from scratch. Table 3 reports the frequencies of these three kinds of sponsorship along with the frequency of independent start-ups. Only 10% of the men and 4% of the women are starting a franchised business, and sponsorships from existing firms account for another 5% of the men and 7% of the women. Only 2–3% of these NEs are purchasing a business, so the vast majority of them are independent of any sponsorship.¹¹

A business's legal organization provides a contracting structure. It also determines whether or not the business pays taxes, whether or not it can raise equity funds from the general public, and the liability of its shareholders for the business's activities

¹¹ Filson and Franco (2006) consider another form of "sponsorship", defecting employees starting rival firms. Unfortunately, the PSED did not inquire about the relationship between the NE's current business effort and any previous employers.

Table 3 Sponsorship of start-up effort

	All	Men	Women
Independent start-up	85	83	86
Purchase/takeover	3	2	3
Franchise	5	10	4
Sponsored start-up	7	5	7

The table reports the percentage of each sample's NEs developing businesses in the given categories

Table 4 Legal form

	All	Men	Women
Sole proprietorship	49	49	55
General partnership	18	16	21
Limited partnership	6	7	5
Corporation	9	11	6
Subchapter corporation	8	9	5
Limited liability company	4	4	2
Not yet determined	5	4	5

The table reports the percentage of each sample's NEs developing businesses with the given legal forms

and debts. With a Sole Proprietorship, equity financing is impossible and the single individual owning the business is indistinguishable from the business itself. A General Partnership also cannot raise equity financing and must pass through its profits to its owners for taxation. The partners together are also liable for the business's activities and debts (typically jointly and severally). Other forms of legal organization offer protection from business liability and access to equity-based capital markets in return for additional reporting or business taxation. A Limited Partnership is like a General Partnership with the ability to accept equity financing from one or more Limited Partners who are not liable for the business's actions. Limited Liability Partnerships (which were very new at the time of the PSED survey) and S-corporations take this one step further by eliminating the General Partners from a Limited Partnership. That is, all of the business's owners enjoy limited liability. However, they face limits in their ability to raise equity capital. Finally, C-corporations are familiar from the world of big business. They can raise equity in public markets, and their shareholders only pay income tax on dividends received. In return, C-corporations must pay corporate income tax.

Table 4 reports the percentages of the NEs who expect to choose or already have chosen each legal form. Very small businesses with little need for capital or liability protection should obviously choose to be Sole Proprietorships, so it is unsurprising that almost half of the NEs will go with this organization. General Partnerships account for another 18%, and 5% of the respondents have not yet determined their legal form. Only 27% of the NEs plan to obtain some form of limited liability, and their choices are spread out fairly evenly across the four legal forms.¹²

¹² Herranz et al. (2009) complement this result with a study of organizational forms of surviving businesses in the Survey of Small Businesses Finances. They find that about two thirds of businesses have unlimited liability. We find approximately the same fraction for NEs' businesses.

Table 5 Partnerships

	All	Men	Women
All partnerships	55.1	55.7	47.2
With spouse only	28.1	26.3	27.6
With spouse and other family	0.3	0.4	0.3
With other family only	0.0	0.0	0.0
With family and non-family	8.1	7.1	10.2
With non-family only	18.5	21.8	9.2

The table reports the percentage of each sample's NEs developing businesses in the given partnership categories

All partnerships bring two or more people with different resources and skills together for a common purpose. A relevant dimension of heterogeneity for new business partners is family affiliation. From this point on we use the term “partnership” to indicate a business started by more than one person. A partner from outside the NE’s household brings labor and possibly some financial resources, and he shares the risks of the business venture. However, because complete contracts are hard to write, such cooperation potentially exposes the partners to risks such as each others’ illnesses, personal financial problems, or simple underperformance.

For a NE in a conventional nuclear family, the only available business partner from within the household is the spouse. When couples pool financial resources, adding a spouse as an active business partner only dedicates more of the household time endowment to the business. However, this comes at little cost. Although traditional marriage vows do not mention under performance, they explicitly bind the couple to share health and financial risks whether or not they partner together in business.¹³ Moreover, better information and the high costs of breaking a long-term relationship lower the costs of incomplete contracting. A family member living outside the respondent NE’s household lies between these two extremes. Family members come from similar financial backgrounds, but they still can bring labor and capital to a new business. Separating from your brother or sister is easier than leaving your spouse, but ongoing familial relationships can still mitigate costs of incomplete contracts.

Table 5 gives an empirical perspective on these choices by reporting the frequency of partnerships for the respondent NEs by family affiliation. Its top line gives the overall partnership frequency, which approximately equals 56% for men and 47% for women. A little over half of these partnerships only involve the NE’s spouse. Thus, only about 1/4 of the NEs have partnered with somebody from outside of the home. A trivial percentage has added other family members to a partnership with the spouse, and none of the respondents report partnering only with family members living outside of the household. About 7% of the men and 10% of the women mix partners from within and outside the family.¹⁴ The table’s final line reports the frequency of partnerships without family members, 21.8% for men and 9.2% for women. This is the major

¹³ For example: I, (Bride/Groom), take (you/thee) (Groom/Bride), to be my (wife/husband), to have and to hold from this day forward, for better or for worse, for richer, for poorer, in sickness and in health, to love and to cherish; and I promise to be faithful to you until death parts us. (Source: <http://mag.weddingcentral.com.au/ceremonies/traditional.htm> Wedding Central Australia)

¹⁴ These family members come from both within and outside the respondent’s household.

Table 6 Anticipated business size

	Solo NEs			Partnerships		
	All	Men	Women	All	Men	Women
Wants large business	19	21	13	21	22	16
Expects employment ≥ 1 in						
First year	42	49	29	59	58	53
Fifth year	52	60	38	60	59	58
Expects employment ≥ 5 in						
First year	21	25	10	28	30	23
Fifth year	34	41	20	43	43	39
Will become family's primary income?						
Maybe	63	60	66	58	57	64
Yes	31	33	23	32	34	28

gender difference in the table. Although only a minority of NEs has a partner from outside of the household, men turn non-family contacts into business partnerships more frequently than women do.

4.3 Size

With the exception of those entering Manufacturing, few in our sample could possibly be planning to create a steel mill or similarly large employer. Retailers' and Restaurants' typical scales are much more modest than this. The high frequency of Sole Proprietorships and General Partnerships also suggests that these NEs are creating small businesses. Nevertheless, two open dimensions of the nascent business' intended scale interest us. Its potential economic importance for others (particularly prospective employees) and its possible long-term contribution to household income. We begin examining the first with the NEs' answers to

- Which of the following two statements best describes your preference for the future size of this business: (1) I want the business to be as large as possible, or (2) I want a size I can manage myself or with a few key employees?

The first line of Table 6 reports the fraction of a given sample giving the first answer.

About 20% of NEs aspire to become tycoons with management delegated to others, and this fraction is similar for solos and partnerships. Women have more modest aspirations than men in terms of business size. The PSED interviewers also asked more specific questions about the entrepreneurs' expected employment in the first and fifth years of operation. The table's next two lines report the fraction of each sample planning to employ one or more people in the first and fifth years.¹⁵ About 60% of male NEs expect to become employers over the first 5 years of operation, compared

¹⁵ Many respondents reported "Don't Know", and we consider these to have no definite plans regarding their firm's size. They are included in the denominator when calculating these fractions.

with 30% for female solo NEs and 58% for females with partners. For those who wish to define entrepreneurs as employers to distinguish them from the “merely” self-employed, these numbers do so. Apparently, about 40% of men and almost 50% of women have no intention of designing a job for anybody but themselves. The NEs’ aspirations for employing five or more people confirm the apparent tendency of women to plan smaller businesses. A comparison of expectations about hiring shows that NEs with partners aspire to run firms with more employees.

The second dimension of size is relative to the household’s income. For this, one question asked of the respondents seems relevant,

On a scale of zero to one hundred, where 0 means completely unlikely and 100 means absolutely certain, what is the likelihood that this business will become the primary source of your family’s income?

The answer to this question clusters at three points, 0, 50, and 100. With this in mind, we divided the answers into three categories, “No” (<50), “Maybe” (≥50 and <100) and “Yes” (100 exactly). Table 6 reports the frequencies of “Maybe” and “Yes” for both men and women. About one third of the men and one quarter of the women said they were absolutely certain that their business will become the primary family income. The high actual failure rate for new businesses implies that these individuals either did not interpret the question probabilistically, refuse to acknowledge publicly the possibility of failure, or have overly optimistic expectations. Nevertheless this answer clearly indicates that these NEs believe that their businesses could become their household’s primary income. Forty-four percent of the men and 47% of the women gave an answer between 50 and 99 inclusive. Again, these respondents harbor a substantial hope of becoming self-sustaining entrepreneurs. Overall, most of these NEs believe that they are creating something financially significant for their household.

4.4 Summary

Just as with the demographic questions, the NEs did not characterize their planned businesses with one voice. Nevertheless they share some common threads. Most are opening a retail store or a restaurant or will provide a health or education-related service, and a sizeable minority of women wish to manufacture something. About half of our NEs plan on being sole proprietors, a quarter are choosing some form of limited liability. Most of them also anticipate their business making a substantial contribution to household income. However, the respondents’ expected business sizes differ greatly. Nearly half of them foresee employing nobody but themselves. The majority of the remainder envision becoming significant employers within 5 years. NEs with partners aspire to running firms with more employees. Women also want smaller businesses than do men.

5 What have you and others put in so far?

With the NEs’ goals established, we now turn to what they have done so far to turn their ambitions into reality. Resources for business development can come from the respondent NE and from any business partners. The PSED interviewers asked the

Table 7 Time allocation

	All	Men	Women
Full time NE	30	31	25
Some paid work	68	71	62
Full time paid work	51	56	38
Some housework	68	60	87
Full time housework	15	8	35
Full time paid or house work	81	82	79

The table reports the percentage of each sample falling into the given categories

respondents about their own investments of time and money as well as those of any *active* business partners.

5.1 Time investments

We begin with an examination of the entrepreneur's use of time during the interview week, and we then proceed to study the amount of time elapsed since business conception and the time invested in the business by the respondent and available partners.

5.1.1 Use of NE's time

The development of a business requires time at work. If switching between working for one's self and for others is easy, then we would expect many of our entrepreneurs to concentrate their time on their new businesses. However, labor market frictions can make quitting a job to work on an ultimately failed business much costlier than the foregone earnings. In that case, we expect those with unproven business plans to hedge their bets by continuing to work for pay while developing the business. Financial frictions that impede a NE from smoothing consumption during an extended period of business development without other remuneration give another reason to continue working for others. In either case, the market work delays the new firm's birth.

The PSED interviewers asked each respondent detailed questions about their use of time during the interview week, and Table 7 reports statistics from the answers relevant for measuring the concentration of the respondents' time on their new businesses. The first line reports the fraction of respondents claiming to work 35 hours or more per week on their new businesses. The interviewers defined this to be "full time". This equals 31% for men and 25% for women. For a hard worker, such effort does not exclude maintaining an attachment to the labor market. The table's second line indicate that large majorities of both sexes do so by working for others for pay. One might speculate that most of this is part-time work, so the third line reports the fraction of respondents who report working full time for pay (again defined as at least 35 hours). Full time work for pay accounts for 56% points of the 71% of men working

Table 8 Time since conception

	All	Men	Women
Average	3.9	4.1	3.1
SD	5.8	5.8	3.7
Percentiles			
10	0.5	0.5	0.3
20	0.8	0.8	0.7
30	1.2	1.3	1.1
40	1.7	1.8	1.3
50	2.1	2.3	1.9
60	2.8	3.0	2.3
70	3.5	3.8	3.0
80	5.0	5.1	4.6
90	9.1	10.3	7.1

The table reports the stated moments and percentiles from each sample for elapsed time since business conception in years

for pay. The analogous statistics for women are 38 and 62%. Apparently, about half of NEs have hardly moved away from market work.¹⁶

Home production also takes up a substantial fraction of a typical household's time endowment. Substituting away from home work while keeping the consumption of goods produced in the home unchanged requires finding someone from outside the household to assume these tasks for pay. Thus, both labor market frictions and financial constraints can also impede NEs' time investments in their businesses. The next two lines of Table 7 report the fraction of NEs who do some housework (here defined as at least 6 hours per week) and full time housework. Just as with market work, the majority of the respondents do some housework. The fraction of men doing housework full time is unsurprisingly low, but for women this fraction surpasses one third. The table's final line reports the fraction of the NEs engaged in one or more tasks full time, 82% for men and 79% for women. Overall, only a minority of NEs shows anything like a single-minded dedication to business development. The majority either perceives such specialization to be unwise or financially infeasible.

5.1.2 Time since conception

Understanding how long NEs have been thinking about their start-ups helps place all of their activities into perspective. The PSED interviewers asked the respondents (in two questions)

In what year and month did you start to think about this new business?

We assign this date to the business's conception. The first two rows of Table 8 report mean and standard deviation (in years) of the time elapsed from the business's

¹⁶ Petrova (2005) investigates the possibility that the strong labor market attachment of the PSED's NEs reflects credit market imperfections.

conception to the interview date, and the remaining rows report this distribution's percentiles. On average, the sampled men have had the opportunity to work on their business for 4.1 years. For the women this average is 3.1 years. The percentiles reveal that the difference between men and women mostly arises from differences between their distributions' right tails. A substantial minority of men who seem to never give up the idea of starting a new business raise the 90th percentile to 10.3 years. The 90th percentile for women is only 7.1 years. Thus, both distributions have a thick tail, but that for men is thicker. We have also looked at time since conception separately for solo NEs and for Partnerships. Average time since conception for partnerships is 3.2 years, compared to 4.6 years for solo NEs. The median is about 2 years for both, and the difference in means is driven by a much fatter tail in the distribution of time since conception for the solos.

5.1.3 Time spent on business development

When a business combines the resources of two or more active partners, they both contribute their time. This combination can increase the total time spent on the project or merely split it across the partners. We compare hours spent in the business by Solo owners, and total hours worked on partnerships to evaluate this aspect.

The PSED interviewers asked each respondent to estimate the total time spent on the start-up by the respondent and each active partner. We use this information to gauge total time invested in the business, and we also use the time since business conception to compute hours invested in the business per week.

Table 9 reports data for solo NEs in the top panel and for partnership startups in the bottom panel. The average solo entrepreneur in our sample put in 1,207 hours since the start. The median time investment is far less than that (500 hours), which we would expect from any distribution with a thick right tail. This overall average masks substantial difference between men and women. Throughout the whole distribution women have worked about half as many total hours as men.

The three rightmost columns of this table give the summary statistics pertaining to hours worked per week since business conception. The average amount of weekly time invested for our sample is under 10 hours, a small amount of time. Even those that have worked most intensively have not worked full time since the conception of the business. Since about 30% of our sample declare themselves to be currently working full time for the business (see Table 7), it must be the case that they have not done so continuously since the business's conception. Men's average hours of work per week equals 11, and women's is 8. This discrepancy is smaller than the one for total hours, reflecting the observation that time since conception is on average lower for the respondent women (see Table 8). Accounting for time elapsed since conception brings the distribution of weekly labor input for men and women closer together.

The second panel of Table 9 reports summary statistics for partnership startups. The average total hours for all of the NE partnerships in our sample equals 1,981. This is almost two times the analogous average for solo NEs. So clearly, partners do not merely replace the respondent's time in getting the business started. A look at the average hours per week reveals that this gap is even more substantial when we take into account time since conception. Businesses with partners take off much faster, so

Table 9 Hours worked on the start-up

	Total			Per Week		
	All Solo NEs	Men	Women	All	Men	Women
Average	1, 207	1, 608	757	9.6	10.9	8.1
SD	2, 156	2, 300	1, 049	16.5	17.2	11.9
Percentiles						
10	20	30	20	0.2	0.2	0.2
20	80	100	50	0.8	1.0	0.7
30	150	215	86	1.6	1.7	1.6
40	300	400	150	2.8	2.8	2.8
50	500	600	346	4.6	5.0	4.0
60	700	1, 000	500	6.3	7.2	5.9
70	1, 040	2, 000	750	9.6	11.5	8.3
80	2, 000	2, 080	1, 040	15.4	17.3	11.7
90	3, 250	4, 000	2, 080	27.1	29.3	24.1
Partnerships						
Average	1, 981	1, 979	1, 959	21.7	22.6	18.8
SD	4, 078	4, 071	3, 211	48.8	51.0	26.6
Percentiles						
10	80	100	78	0.8	0.8	0.6
20	160	180	130	1.8	2.1	1.3
30	250	346	200	3.1	3.4	3.1
40	500	500	376	5.3	5.1	6.7
50	692	750	700	9.1	9.1	9.8
60	1, 100	1, 100	1, 384	12.7	12.7	12.9
70	2, 000	2, 000	2, 003	17.7	17.5	19.2
80	3, 000	3, 000	2, 800	28.8	28.7	30.6
90	4, 320	4, 320	5, 000	51.3	51.3	51.7

The table reports the stated moments and percentiles from each sample for total hours worked by all partners since conception and hours worked per week by all partners since conception

average hours per week for partnerships is 22, compared to 10 for solo NEs. The last notable feature of this table is that the respondent's gender matters much less for time invested in partnerships.

5.2 Capital investments

We now turn to the monetary investments. Adding a partner might be a way to obtain easier or cheaper financing, thus alleviating financial constraints that would otherwise limit the size of the business. [Basaluzzo \(2006\)](#) hypothesizes that business partnerships principally serve a financial purpose, and he documents with the PSED that NEs with

Table 10 Monetary investments

	Solo NEs			Partnerships		
	All	Men	Women	All	Men	Women
Average	6,996	7,292	6,562	37,804	38,771	33,534
SD	11,727	11,407	26,353	150,555	138,135	154,847
Percentiles						
10	0	0	50	0	0	0
20	500	500	500	200	225	0
30	800	1,000	600	1,000	1,000	500
40	1,700	2,000	1,000	2,200	3,000	1,800
50	3,000	3,500	1,700	5,000	5,000	3,200
60	5,000	5,000	2,500	10,000	11,000	5,000
70	6,000	6,000	4,000	15,000	20,000	10,000
80	10,000	10,000	5,500	35,000	40,000	18,000
90	20,000	20,000	15,000	75,000	80,000	50,000

non-family partners start more heavily capitalized businesses. With this in mind, we analyze the investments by solo NEs and partnerships separately. To start, Table 10 reports the averages, standard deviations, and percentiles of *total* investments from all owners.

A comparison of these two panels reveals that the bottom deciles of the distributions of monetary investments for solo entrepreneurs and partners are very small and very similar to each other. Starting from the 40th percentile, however, a gap opens up between these distributions, with partners investing far more money in the business than solo NEs. The difference is a factor of about three or four for the top two deciles in the distribution of business monetary investments. These tables thus contain one striking pattern: Partnerships make much larger investments than do NEs operating alone. We have verified that this does not merely reflect the mechanical effect of adding partners' investments: Individual entrepreneurs in partnerships invest more than those without partners. These results are consistent with the observation of [Quadrini \(1999\)](#) based on the PSID that business owners have higher targeted wealth to income ratios than do workers.

These tables are also consistent with the previous evidence that women aspire to run smaller businesses. The median female solo entrepreneurs investment equals about two thirds of her male counterpart's, and this ratio equals about three fifths for those NEs with partners. Of course, these distributions have very thick tails. This brings the averages far above the medians, but more for women than for men. Thus, measuring the investment difference between the sexes with averages makes it smaller.

5.3 External finance

Financial markets are imperfect, but they do exist. The previous analysis has shown that most NEs invest their own funds into their new firms. Tables 11 and 12 provide

Table 11 Solo NEs' external sources of funds

	All			Men			Women		
	Applied	Accepted	Amount	Applied	Accepted	Amount	Applied	Accepted	Amount
All informal funding	34	75	6,000	32	69	11,000	38	79	1,000
from spouse	20	69	2,000	13	67	2,000	39	58	1,000
from other family and friends	18	71	6,000	22	66	10,000	11	89	1,000
from current employer	8	9	100,000	12	9	100,000	1	50	15,000
Formal personal loans	38	89	2,000	37	89	3,000	41	89	1,000
credit card	34	91	2,000	31	93	2,000	39	88	1,000
second mortgage	2	100	15,000	2	100	15,000	2	100	25,000
personal finance company	3	52	30,000	4	52	30,000	1	100	1,500
Formal business funding	12	56	30,000	15	62	30,000	6	36	50,000
from banks	10	54	30,000	13	56	19,000	4	55	50,000
from SBA	2	0		2	0		2	22	50,000
from venture capitalists	3	55	100,000	3	77	100,000	1	0	
All other sources	6	60	5,000	8	60	5,000	1	0	
All sources	61	84	5,000	58	83	6,500	62	85	1,500

"Applied" is the share of the respondents that report having applied for funding, and "Accepted" is the fraction of those whose applications were accepted. Both are in percentage points. "Amount" is the median amount in dollars expected from the funding source conditional on having an accepted application

an overview of the sources of other start-up funds for NEs starting a business on their own or with partners. For each broad category of funding we report the fraction of NEs who report having asked for credit in that given category and the median positive amount received.

About one third of all NEs ask for informal funding from their spouse, other family and friends, or current employer. Those who are trying to start a business with a partner are more likely to have their request granted (86%) compared with those doing it alone (75%), and to receive more money conditional on acceptance (\$10,000 compared to \$6,000). In addition, their partners also receive informal funding in some cases. The median amount conditional upon receipt equals \$16,000. Those with partners are also more likely to seek a formal business loan (23% compared with 12%). Their application acceptance rates and median funding amounts are comparable to those of solo NEs. Both tables' bottom lines report application and acceptance frequencies and median amounts received from all sources of external funds. A little over one half of all NEs receive external funding, regardless of whether they are operating alone or in partnership. The median receipt of partnerships is twice that of solo NEs. The extent to which this arises from partnerships forming around better projects deserves further investigation.

The apparent desire of female NEs to create smaller businesses leads us to expect them to receive less external funding than men. Indeed, this is the case. Women apply for external funds more frequently, and they are more often successful than men. However, their median receipts conditional upon acceptance are dramatically lower

Table 12 Partnerships' external sources of funds

	All			Men			Women		
	Applied	Accepted	Amount	Applied	Accepted	Amount	Applied	Accepted	Amount
Respondent's informal funding	32	86	10,000	27	87	12,500	40	85	7,000
from Spouse	23	89	10,000	19	95	10,000	31	86	5,000
from other family and friends	12	71	10,000	10	69	12,000	15	67	10,000
from current employer	3	52	2,500,000	3	42	2,500,000	2	100	95,000
Partners' informal funding	16	28	16,000	16	20	15,000	13	36	16,000
from spouse	7	72	40,000	6	74	25,000	6	63	2,500
from other family and friends	10	62	30,000	10	52	30,000	8	78	16,000
Formal personal loans	36	89	3,000	35	89	5,000	35	91	3,000
credit card	31	92	2,000	28	94	3,000	32	93	3,000
second mortgage	5	95	35,000	6	95	35,000	3	80	67,000
personal finance company	4	32	15,000	5	34	15,000	1	57	8,000
Formal business funding	23	58	35,000	24	52	42,000	22	67	40,000
from banks	17	60	35,000	16	54	35,000	18	73	40,000
from SBA	5	38	5,000	6	40	5,000	4	33	42,500
from venture capitalists	5	34	5,000,000	6	33	5,000,000	3	45	30,400
All other sources	6	47	20,000	8	47	20,000	4	43	2,000,000
All sources	66	81	10,000	64	80	12,000	66	86	6,000

"Applied" is the share of the respondents that report having applied for funding, and "Accepted" is the fraction of those whose applications were accepted. Both are in percentage points. "Amount" is the median amount in dollars expected from the funding source conditional on having an accepted application

than mens.' The median male solo NE receives \$6,500, while his female counterpart gets only \$1,500. For partnerships, this difference is less striking (as expected, since we only condition on the sex of the respondent) but still substantial, \$12,000 versus \$6,000.

Overall, external funds account for a substantial fraction of monetary capitalization for NEs businesses. Slightly more than half of all NE's receive external funding, and the amounts received are comparable to the median investment of funds from the NEs themselves. A sizeable minority of NEs have already received business funding, and the amounts received are quite large. The high rejection rates of funding applications imply that the NEs do not always evaluate their business proposals realistically. Thus, the rejection process itself might reveal useful information about business quality even before production.¹⁷

¹⁷ See De Nardi et al. (2007) for a discussion of surviving businesses' financing based on observations in the Survey of Consumer Finances.

Table 13 Stage of product development

	All	Men	Women
Complete	44	42	49
Prototype	21	22	16
Development	20	21	19
Idea	15	14	15

6 What have you accomplished?

Given the survey design, none of our NEs have had revenues exceed costs for more than 3 months, but Table 13 shows that there is still a good deal of heterogeneity in their stage of pre-market development. Forty-four percent of our sample have a product or service that is completed and ready for delivery, and 21% are at the prototype stage. Another 20% are developing a model or procedure to sell, while 15% still have not done any work or do not know their start-up's current stage.

Several other questions with binary answers give information about the NE's accomplishments. First,

How would you describe the location where this new business is being developed? Is it a residence or personal property, like a home, garage, farm, or vacation home; is it on the site of an existing business; is it a special location for this start-up, like rented space, an incubator, or something like that; or is it not developed to the point where a specific location is needed?

A business location outside of the home signals maturity, ambition, and capital intensity. We compute the fractions of male and female NEs that already have a special location for the start-up. Consistent with the evidence that we have previously analyzed, we find that male NEs are more likely to already have a special location for the start-up, with 27% of males having such a location compared with 22% of the females.

Attracting the first customer also marks a significant achievement for most new businesses. For this reason, the PSED asks

Has the new business received any money, income, or fees from the sale of goods and services?

In our sample, 41% of the male NEs have already received some revenue from operating this business, compared with 47% of the female NEs. These fractions are very similar to those having finished developing a product or service to sell.

Continuing to inquire about the start-ups revenues, the PSED asks

Does the monthly revenue now exceed the monthly expenses?

The fraction of male and female NEs answering yes are remarkably similar, with 36% of the male and 34% of the female NEs responding yes. This fraction is thus smaller than for the previous question, indicating that even after starting to sell their product, most business still need some time to make enough to cover their operating costs.

7 What remains to be done?

The PSED includes some novel questions about NE's perceptions of the minimum business size required for "self-sufficiency" and to attract external financing. The questions are

How much in total funds, loans and equity will the new business need before it becomes self-sustaining—that is, before income is greater than all monthly expenses, salaries, supplies or parts, inventory, interest, taxes, and other expenses?

and

Businesses usually require some money before they receive financial support from the established community, such as bank loans or purchases of ownership or equity. How much money do you think that the business will need before it can expect any funds from the established financial community?

We first look at the magnitude of the responses of the NEs to these questions. Then, we compute the ratio of the capital that is already in place in the nascent business to these perceived capital needs to see how far along these business are along these dimensions.

Table 14 reports the results. Thirty-three percent of our NEs say that their business is already self-sustaining, while 19% do not know how to answer this question. Regarding the second question, 48% of our sample either have already received such funds or believe that financial support can be obtained at the current capitalization. In contrast to these confident NEs, 18% of the respondents do not even know what the threshold is to receive financial support from the established financial community.

The table also displays the deciles of distributions for those male and female NEs that answer each question with a dollar amount. The information from this table confirms our previous findings that female NEs wish to implement smaller businesses, since both the self-sustaining business size and minimal firm size needed for borrowing are uniformly smaller for female NEs than for male NEs.

The distribution of business capitalization necessary for self-sufficiency shows 30% of the male NEs aim at implementing businesses than are self-sustaining at or below a business size of \$10,000, while 50% of the female NEs are implementing a business with the same kind of capitalization requirements. Among the respondents reporting a dollar amount for business money needed to attract financial support, 30% of both male and female NEs do not think that they need any amount of money to be able to receive financial support from the established financial community. Nevertheless, most of them have not applied for external funds; and a large fraction of those that have applied have been turned down.

For each NE who answers either question with a dollar amount, we computed the ratio of total capital invested in their business to each measure of required business size. After discarding those who report that their businesses are already capitalized well enough, we calculate the deciles of these ratios. The bottom panel of Table 14 reports the results. About 30% of respondents made only negligible progress towards these two goals. The 80th percentiles of these ratios all equal about 50%.

Table 14 Self-reported required capitalizations

Percentile	Self-sufficiency			Borrowing		
	All	Men	Women	All	Men	Women
Do not know	19	15	29	18	14	28
Already met	33	34	33	48	48	47
Percentiles						
10	3,000	4,500	2,500	5,000	5,000	3,000
20	5,000	10,000	5,000	5,000	6,000	5,000
30	10,000	10,000	5,000	10,000	10,000	10,000
40	15,000	20,000	10,000	15,000	10,000	10,000
50	25,000	25,000	10,000	20,000	20,000	15,000
60	40,000	45,000	24,000	25,000	25,000	20,000
70	50,000	75,000	30,000	30,000	35,000	25,000
80	150,000	250,000	50,000	80,000	90,000	40,000
90	500,000	625,000	150,000	300,000	300,000	100,000
Ratios of invested to required funds						
10	0	0	0	0	0	0
20	0	0	0	0	0	0
30	3	3	5	2	2	3
40	13	13	12	11	11	5
50	21	20	20	20	18	10
60	30	25	30	30	30	20
70	40	40	38	35	35	30
80	50	45	50	50	50	50
90	67	67	70	70	71	67

Thus, most of these NEs perceive that business survival will require substantial future growth.

8 Conclusions

Much speculation surrounds the process of creating new firms. This paper develops facts about it by examining NEs' backgrounds and activities. These individuals are somewhat younger than the general population, and the men outnumber the women by about two to one. Otherwise they are demographically unexceptional. They maintain substantial labor market attachments while building their businesses, and their own savings are the primary source of investment. Nevertheless, about one half of NEs receive some external finance; and substantial minorities receive business loans from established financial firms. Although the planned businesses are small (and smaller for women than for men), they are personally significant. About 90% of NEs believe that their new businesses could become their family's primary source of income.

This paper has used observations from the *first* PSED interview. The ERC tracked each NE's progress with up to three subsequent interviews. These would enable us to tie this paper's observations about pre-production entrepreneurial investments with post-production business outcomes. The influence of information revealed during the process of finding business partners and financing on a business's birth, growth, and death strikes us as particularly worthy of further attention.

References

- Abbring, J.H., Campbell, J.R.: A firm's first year. Federal Reserve Bank of Chicago Working Paper 2003–11 (2006)
- Basaluzzo, G.: Entrepreneurial teams in financially constrained economies. Working Paper, ITAM (2006)
- Buera, F.: A dynamic model of entrepreneurship with borrowing constraints. *Ann Finance* (2009) (in press)
- Cagetti, M., De Nardi, M.: Entrepreneurship, frictions, and wealth. *J Polit Econ* **114**(5), 835–870 (2006)
- De Nardi, M., Doctor, P., Krane, S.D.: Evidence on entrepreneurs in the United States: Data from the 1989–2004 Survey of Consumer Finances. *Fed Reserve Bank Chicago Econ Persp Fourth Quart* (3), 18–36 (2007)
- Dunn, T., Holtz-Eakin, D.: Financial capital, human capital, and the transition to self-employment: Evidence from intergenerational links. *J Labor Econ* **18**(2), 282–305 (2000)
- Evans, D.S., Leighton, L.S.: Some empirical aspects of entrepreneurship. *Am Econ Rev* **79**(3), 519–535 (1989)
- Fairlie, R.W.: The absence of the African-American owned business: an analysis of the dynamics of self-employment. *J Labor Econ* **17**(1), 880–108 (1999)
- Fairlie, R.W., Robb, A.M.: Why are black-owned businesses less successful than white-owned businesses? The role of families, inheritances, and business human capital. *J Labor Econ* **25**(2), 289–323 (2007)
- Filson, D., Franco, A.M.: Spin-outs: knowledge diffusion through employee mobility. *RAND J Econ* **37**(4), 841–860 (2006, Winter)
- Gartner, W.B., Shaver, K.G., Carter, N.M., Reynolds P.D. (eds.): *Handbook of Entrepreneurial Dynamics*. Sage Publications (2004)
- Gentry, W.M., Hubbard, R.G.: Tax policy and entrepreneurial entry. *Am Econ Rev* **90**(2), 283–287 (2000)
- Herranz, N., Krasa, S., Villamil, A.P.: Small firms in the SSBF. *Ann Finance* (2009) (in press)
- Holtz-Eakin, D., Joulfaian, D., Rosen, H.S.: Entrepreneurial decisions and liquidity constraints. *RAND J Econ* **25**(2), 334–347 (1994)
- Hurst, E., Lusardi, A.: Liquidity constraints, household wealth, and entrepreneurship. *J. Polit. Econ.* **112**(2), 319–347 (2004)
- Jovanovic, B.: Selection and the evolution of industry. *Econometrica* **50**(3), 649–670 (1982)
- Kennickell, A.B., Starr-McCluer, M., Surette, B.J.: Recent changes in US family finances: results from the 1998 survey of consumer finances. *Fed Reserve Bull* **86**, 1–29 (2000)
- Kihlstrom, R.E., Laffont, J.-J.: A general equilibrium entrepreneurial theory of firm formation based on risk aversion. *J Polit Econ* **87**(4), 719–748 (1979)
- Lazear, E.P.: Entrepreneurship. *J. Labor Econ.* **23**(4), 649–680 (2005)
- Lentz, B.F., Laband, D.N.: Entrepreneurial success and occupational inheritance among proprietors. *Can J Econ* **23**(3), 563–579 (1990)
- Lucas, Robert E., Jr.: On the size distribution of business firms. *Bell J Econ* **9**(2), 508–523 (1978)
- Market Facts Inc.: Dialing selection techniques: random digit versus directory. *Research on Research* (2001)
- Petrova, K.: Part-Time Entrepreneurship and Wealth Effects: New Evidence from the Panel Study of Entrepreneurial Dynamics. Working Paper, Paul Smith's College (2005)
- Quadrini, V.: The importance of entrepreneurship for wealth concentration and mobility. *Rev Income Wealth* **45**, 1–19 (1999)
- Reynolds, P.D.: National panel study of US business startups: background and methodology. *Databases for the Study of Entrepreneurship* **4**, 153–227 (2000)
- Scott Morton, F.M., Podolny, J.M.: Love or money? The effects of owner motivation in the California wine industry. *J Ind Econ* **50**(4), 431–456 (2002)