Who reenters entrepreneurship? And who ought to? An empirical study of success after failure

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Abstract *The purpose of this article is to contribute to the movement in entrepreneurship research from explanations of performance based exclusively on traits or luck to those based on skills and learning. Both conventional wisdom and extant research in this regard argue for the importance of persistence after failure and learning from failure. Our study of 1,875 entrepreneurs who reentered entrepreneurship after a failed venture supports both persistence and learning, but with a twist. Persistence paid off for entrepreneurs who already had certain kinds of human and social capital, but not for those with a record of unemployment or low opportunity costs. Yet the individuals with those human capital and social capital characteristics were not as likely to become serial entrepreneurs. A Type I error, therefore, appears to hinder the development of habitual entrepreneurship.*

Introduction

"The fact is I lived through that (failure) and I saw a set of reasons why a company goes under and now I'm much more prepared to handle whatever the market sends to me." ("Jake" in Cope (2010)).

"You learn much more from failure... I mean just success coming along is just waiting for that big disaster to get you, because you're not thinking and whole bits of your brain shut down. You think you're invincible, you think you're Teflon coated and you're not." ("Colin" in Cope (2010)).

Entrepreneurship as a field has been moving from an almost exclusive emphasis on the traits of entrepreneurs (McClelland, 1961; Brockhaus, 1982; Stanworth et al., 1989; Woo et al., 1991) to a deeper understanding of the role of experience and learning (Baron and Ensley, 2006; Gompers et al., 2006; Eesley and Roberts, 2006a,b; Sarasvathy, 2008). However, the relationships between the three are far from clear.

Even though some proponents of traits continue to resurface (Baum et al., 2007; Gartner, 1988; McClelland, 1961; Zhao and Seibert, 2006), the attitude is more nuanced, acknowledging that traits can at best be only a part of the

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story. For example, Rauch and Frese (2007) state in their conclusion "... a model of the effects of personality traits on business creation and business success must include other individual differences variables as well as nonpersonality variables, such as action strategies, cognitive ability, and environment, which are additional predictors of performance." (Rauch and Frese, 2007).

When it comes to the role of learning and experience, the focus has mostly been on the impact of the entrepreneur's experience on the performance of the venture he or she starts. Westhead et al. (2005) demonstrate the superior performance of portfolio entrepreneurs over serial and novice entrepreneurs; Baron and Ensley (2006) find support for the superior performance of experienced entrepreneurs at opportunity recognition tasks; and Gompers et al. (2006) provide compelling evidence for the superior performance of serial founders over first-time entrepreneurs among those backed by venture capital funding. They conclude, in fact, that skills acquired through learning by doing better explain entrepreneurial performance than luck. Eesley and Roberts (2006a,b) also argue the same and provide further evidence for the links between learning by doing and key performance measures.

This stream of literature on the links between the entrepreneurs' experience and firm performance raises very interesting questions worthy of empirical attention: Is it merely the fact of starting more than one firm key to better performance, or are there certain types of learning and experience in the early firms that cue in better performance in later firms? Does it matter whether the first firm was a success or a failure? If the latter, is it more likely or less likely that the entrepreneur will start another firm? And even more important, who should start and who not?

Conventional wisdom as well as some recent academic evidence (Cope, 2010) argues that learning from failure is essential to improving the entrepreneur's preparedness for future ventures. Given that about half of all new ventures fail (Headd, 2003), and that entrepreneurs acquire expertise over multiple ventures, it might behoove us to more carefully consider the factors that explain (1) who moves from exiting a failed venture to starting another one and also (2) how well they perform in that second venture.

In the ensuing study, we overcome some limitations of existing studies of renascent entrepreneurship and add to the burgeoning understanding of the role of learning and experience in serial/habitual entrepreneurship. Specifically, we (i) study actual renascent instead of intended renascent entrepreneurship; (ii) take into account the actual performance of the previous business instead of mentioned reasons for business exit (iii) use measures of performance of both ventures in evaluating which individuals actually improved their entrepreneurial skills and which did not; and (iv) study the above with longitudinal register data and not longitudinal or cross sectional survey data.

Longitudinal register data from IDA (Integrated Database for Labour Market Research) - a matched employer-employee database that covers all individuals and firms in Denmark in the period 1980-2007 - enabled us to identify all entrepreneurs starting up one or two businesses in the period 1980-2007 with

the first business started in the period 1988-1998.

The entrepreneurs that started up a second business within six years after the first start-up constitutes the sample of re-starters while those that did not startup again constituted the sample of one-time entrepreneurs. Econometric analyses of the data allowed us to test competing hypotheses about the role of learning from failure and subsequent performance in the next venture. Results show that while failure of the first firm did not deter reentry for almost the entire population of entrepreneurs, performance was contingent on the educational background and prior industry experience.

In other words, the mere fact of failing did not result in learning effects. Instead, some form of absorptive capacity (in terms of education) was necessary for entrepreneurs to benefit from the learning possibilities inherent in their experience of failure in the first firm. Moreover, precisely those individuals with the necessary absorptive capacity seemed to be less likely to become habitual entrepreneurs.

Theory and hypotheses

What explains reentry?

The classic model of entry into entrepreneurship consists in the choice between starting a venture and staying in wage employment. The choice is usually modeled under conditions of economic rationality as the maximization of income given the expected income from entrepreneurship and the opportunity cost of entrepreneurship offered by the wage income that can be earned as an employee in an established business (Stam et al., 2008; Parker, 2004; Jovanovic, 1994, 1982). That model leads to the following career pattern: The entrepreneur behind a successful business will continue his or her entrepreneurial career whereas the entrepreneur behind an unsuccessful business will choose the alternative occupation of being an employee for an established business.

Recent studies focusing on (intended) renascent entrepreneurship reveal that when compared with the general population, a significantly larger share of individuals with past entrepreneurial experience exhibit a preference or revealed preference for re-entering entrepreneurship (Stam et al., 2008). These studies seem to be in opposition to the simple occupational choice model described above where there is no room for habitual entrepreneurship (serial or portfolio), especially after a low performance or failed exit.

We can observe a similar dichotomy in the literature when we approach the reentry decision from the point of view of psychological traits and passive learning about those traits. On the one hand, because failure is associated with negative emotions such as grief, entrepreneurs are less likely to reenter after a business closure (Shepherd, 2003; Shepherd et al., 2009). On the other hand, certain traits such as optimism or even overconfidence is likely to be associated with positive emotions that allow entrepreneurs with those traits to be more likely to reenter (Hayward et al., 2009).

There is a large literature on the biases exhibited by entrepreneurs (Busenitz and Barney, 1997). Prominent among these is overconfidence bias (Camerer and Lovallo, 1999; Forbes, 2005) - namely the tendency among entrepreneurs to overestimate the probability of their own success and the efficacy of their own abilities. A related bias is called comparative optimism (i.e., the tendency of people to report that they are less likely than others to experience negative events, and more likely than others to experience positive events (Helweg-Larsen and Shepperd, 2001). Most studies of these biases have occurred in laboratory settings and almost exclusively focus on entry into the first venture rather than reentry, especially reentry after failure. A notable exception is provided by Ucbasaran et al. (2010), where a survey of a representative sample of 576 British entrepreneurs found that serial entrepreneurs were less likely to report a reduction in optimism after business failure.

Besides the lens of occupational choice and the psychology of biases and emotions, scholars have also approached the question phenomenologically. And again the evidence seems to point to a competing hypothesis with regard to reentry after failure. According to Cope (2010), business failure can be a "harsh teacher" and "have a serious and detrimental impact on an entrepreneur's life" when looking at the financial, emotional, physiological, social, professional, and entrepreneurial sphere. Thus, experiencing failure can discourage entrepreneurs from starting up again or make it impossible for the entrepreneur to start up again. However, failure in opposition to success could also be the catalyst for learning, an argument supported in Cope (2010) through the two statements quoted at the beginning of this paper.

Of course, the simplest lesson of failure – following Stam et al. (2008) we call this passive learning from failure – is that when individuals have imperfect information about their own abilities, failure signals a lack of entrepreneurial abilities and the rational conclusion they would draw would be not to start another venture. In other words, when we examine what entrepreneurs may learn merely from the fact that their venture failed (irrespective of emotional consequences and biases that refract their perception), the simple result would be a lowering of the likelihood that they would reenter entrepreneurship.

In sum, we are led to the following competing hypotheses with regard to the reentry decision:

Hypothesis 1a: Entrepreneurs that exit their first business are more likely to start up a business again. (traits/optimism)

Hypothesis 1b: Entrepreneurs that exit their first business are less likely to start up a business again. (passive learning)

What explains firm performance after reentry?

Several of the arguments and much of the evidence that motivated the competing hypotheses above also have competing implications for the performance

of the firm started after reentry. For example, overconfident entrepreneurs are not only more likely to reenter, they are also more likely to fail - by definition. Using large population surveys from 18 countries, Koellinger et al. (2007) found "a significant negative correlation between this reported level of entrepreneurial confidence and the approximate survival chances of nascent entrepreneurs." In a survey of over 200 entrepreneurs drawn from a national random sample in the US, Hmieleski and Baron (2009) also found a negative correlation between optimism and new venture performance. When Cooper et al. (1991) found, contrary to their expectation, that novice entrepreneurs sought more information than habitual entrepreneurs, they attributed this finding to the overconfidence of habitual entrepreneurs.

Hypothesis 2a: Entrepreneurs that close down with their first business are more likely to close down with a second business (traits/overconfidence).

Yet, there is considerable evidence that failure itself may be an instrument of learning. Again, following Stam et al. (2008), we call this "active learning" - the idea that entrepreneurs can learn useful lessons from failure that add to their competence in building the next venture. Moreover, some may even actively start and close businesses with an explicit focus on experimental learning (Harper, 1996). Evidence for the latter is also found in studies of industrial organization: "To put the point provocatively, we have thought many entrants fail because they start out small, whereas they may start with small commitments when they expect their chances of success to be small. At the same time, small-scale entry commonly provides a real option to invest heavily if early returns are promising. Consistent with this, structural factors long thought to limit entry to an industry now seem more to limit successful entry: if incumbents earn rents, it pays the potential entrant to invest for a "close look" at its chances." (Caves, 1998, p.1961).

The possibility of superior active learning is also supported by the phenomenological evidence in Cope (2010). Finally, there is a growing body of evidence based on entrepreneurial expertise that suggests that both successful and failed ventures may contribute to the development of expertise (Dew et al., 2009; Mitchell et al., 2004). Taken together, these studies point to the following hypothesis about performance after reentry:

Hypothesis 2b: Entrepreneurs that close down with their first business are less likely to close down with a second business (superior active learning).

In sum, existing literature on the subject argues for at least three theoretically informed explanations for competing hypotheses for reentry after failure: (1) traits; (2) passive learning; and (3) active learning.

Study	Dependent	Independent	Finding
Metzger (2006)	Re-start performance (employment growth)	Previous entrepreneurial experience and success	Previous entrepreneurial experience increases firm performance but the effect is eliminated if the previous firm has failed measured by firm or personal bankruptcies.
Schutjens and Stam (2006)	Intended versus realized re-entry	Various variables	Many factors have a significant influence on start-up intentions while only "being located in an urban region" transpired to have a significant effect on the start of a new business.
Amaral and Baptista (2007)	Direct versus latent serial entrepreneurship	Previous exit type	Individuals who close (instead of leave) their first firm are more likely to become direct serial entrepreneurs (starts a new firm directly after having been in the previous firm) than latent serial entrepreneur (starts a new firm after a period as employee or unemployed).
Metzger (2007)	Re-start failure (survival)	Previous entrepreneurial experience and success	Successful entrepreneurial experience has no great effect on the risk of failing again while unsuccessful entrepreneurial experience has a negative effect when previous success is measured by bankruptcy and voulentary closure of a firm in financial distress.
Metzger (2008)	Re-start likelihood	Firm closure and financial loses	Private losses of the entrepreneurs do not affect the likelihood of a re-start but losses at banks and public institutions make re-start less likely. The likelihood of re-start is not affected by different types of previous venture closures that usually are considered to be failures.
Stam et al. (2008)	Re-start abstinence	Prior entrepreneurial experience and nature of firm exit	Having started more than one business in the past has a negative effect on abstinence from re-nascent entrepreneurship. If the previous firm (or parts of it) where sold that has a negative effect on abstinence while prior exit due to personal circumstances has a positive effect on abstinence.
Hessels et al. (2009)	Entrepreneurial activity	Recent entrepreneurial exit (within the past 12 month)	Recent exit is found to decrease the likelihood of no entrepreneurial activity while increase the likelihood of engagement on all other levels (divided into potential, intentional, nascent, young, and established entrepreneurship).

Table 1: Existing studies of entrepreneurial re-start and re-start performance.

Empirically, however, a handful of recent studies, many of them as yet unpublished but summarized in Table 1, point to two possible stylized facts: First, all entrepreneurs irrespective of whether they succeeded or failed in their first venture, are more likely to start another venture than novice entrepreneurs (Amaral and Baptista, 2007; Metzger, 2006, 2007, 2008; Stam et al., 2008). Second, entrepreneurs who start again after failure are significantly more likely to fail (Metzger, 2007).

Additionally, in any test of theoretical explanations of entrepreneurial entry or reentry, one has to account for and rule out the simple alternate empirical hypothesis that people enter and reenter entrepreneurship due to lack of alternative wage employment opportunities (often labeled "push" entrepreneurship in contrast to "pull" entrepreneurship (Parker, 2004)). And we will do exactly that after testing the main competing hypotheses. Before we proceed to describing the method of the study and data analyses, we outline a few additional hypotheses.

The role of human and social capital in active learning

Both human capital (Diochon et al., 2002; Klepper, 2002; Phillips, 2002; Kim et al., 2006; Reynolds et al., 2004; Lazear, 2004; Wagner, 2005) and social capital (Bosma et al., 2004; Stam and Elfring, 2008) have been shown to be of considerable importance in entrepreneurship whether in influencing the startup decision or in subsequent performance of the venture started. Stam et al. (2008) suggest at least two ways that human capital may impact renascent entrepreneurship - first, by increasing the number of opportunities to choose from and second by providing the absorptive capacity needed for ex-entrepreneurs to learn useful lessons from their experience. Both of these are likely to positively impact reentry as well. Hence the following two sub-hypotheses:

Hypothesis 1bb: Entrepreneurs with higher levels of human and social capital (that close down with their first business) are more likely to start up a business again.

Hypothesis 2bb: Entrepreneurs with higher levels of human and social capital are less likely to close down with a second business.

Method

Longitudinal register data from IDA (Integrated Database for Labour Market Research) is used for the analysis. IDA is a matched employer-employee database that covers all individuals and firms in Denmark in the period 1980-2007. From IDA, we identified the founder(s) behind every new business with real activity that was started in Denmark in the period from 1980 till 2007[1]. The founders were sampled using the procedure followed in SÃÿrensen (2007); Nanda

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[1]A new business is identified as a new work place (or new work places) under a new legal unit (employer). Businesses from the primary sector and the energy sector are excluded because of government subsidies and control. Real activity requires the business to have fulltime equivalent employees and turnover of above a given limit dependent on the industry.

and SÃ¿rensen (2010): (i) The founders of a business with personal liability (un-incorporated) are the individuals in the business with an occupational code as employer or self-employed (ii) The founders of a business with limited liability (incorporated) are all individuals present in the firm if there is three or less (iii) The founders of a business with limited liability (incorporated) are the individuals with an occupational code as director, top manager, or wage earner on the highest level if there is more than three; if no one has these occupational codes, the three individuals with the highest wage are identified as the entrepreneurs.

From the total set of founders in IDA we identified all entrepreneurs starting up one or two businesses in the period 1980-2007 with the first business started in the period 1988-1998. In the ensuing analysis, the entrepreneurs that started a second business within six years after the first start-up constitute the sample of re-starters while those that do not start-up again constitute the sample of one-time entrepreneurs. Furthermore, a second start-up has to be within six years after the first start-up given the need to study what is learned from the first business experience and not from other labor market experiences. En-trepreneurial experience before 1980 is not seen as a problem given that the entrepreneurs have no entrepreneurial experience between 1980 until the start up in 1988-1998. However, individuals with an occupational code as employer or self-employed the year before the start-up are excluded. Finally, the small group of serial entrepreneurs behind more than two start-ups in the period is also excluded.
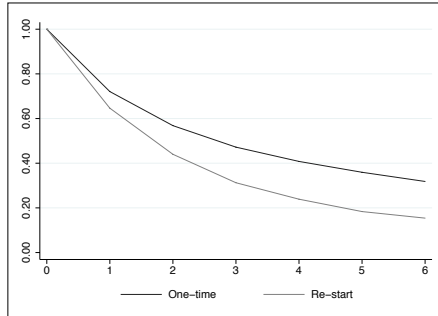
Figure 1: Kaplan Meier survivor function (x-axis is years) for the first business divided into one-time entrepreneurs and re-starters.
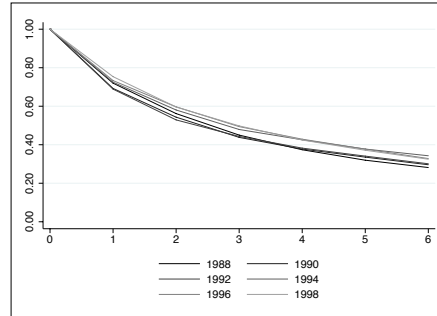
Figure 2: Kaplan Meier survivor function (x-axis is years) for the first business divided by start-up year 1988-1998.

The survival curve for the first business for the resulting 1.875 re-starters and 47.514 one-time entrepreneurs can be seen in Figure 1. It can be seen that one-time entrepreneurs perform better with their first business. Figure 2 shows the survival curve for the first business for all 49.389 entrepreneurs dependent on start-up year. The figure shows no great difference in the likelihood of survival dependent on start-up year.

Following the notion of surviving the "valley of death" in Stam et al. (2008), entrepreneurial failure is defined as not surviving three years after start-up. Not surviving means that the business is closed down and not continued by others. In Table 2, the frequency and percentage share of successful and unsuccessful

Re-starters				One-timers		
Success First	Success Last	n	%	Success First	n	%
0	0	746	40			
0	1	561	30	0	25,645	54
1	0	274	15			
1	1	294	16	1	21,869	46
Total		1,875	100	Total	47,514	100

Table 2: Survival of the first and second business started.

first start-ups can be seen for the re-starters and one-time entrepreneurs. Here we can see again the abovementioned pattern that one-time entrepreneurs perform better with their first venture. 70% of the re-starters close down with their first business within three years while this statistic for the one-time entrepreneurs is 50%. For the re-starters, 30% out of the failed 70% survive with their second venture while half out of the successful 30% also becomes successful with their second venture.

However, to test the competing hypotheses we are interested in, multivariate analysis is called for.

Dependent variables:

- Second business failure: The business is not real active three years after the start-up year (2)

- Second business start-up: A new real active business is founded within six years after the first (2)

Independent variables:

- Person demographics: Gender (2), Age (4), Urban area (2)

- Firm demographics: Household wealth* - ln, Firm size - ln(workers), Industry (6)

- Firm demographics (extra): Same industry start-up (2), Years between start-ups

- Entrepreneurial ability: First business failure (2)

- Human capital: Years of further education, Years in start-up industry**, Number of industries**, Unemployment** (2)

- Social capital: Founding team (2), Parent entrepreneur** (2), Peer (sibling/spouse) entrepreneur** (2), Married (2)

In parentheses can be seen the number of categories for categorical variable; the specific categories can be seen in the tables with regression results. Personal demographics, human capital, and social capital variables are created with information up till the first start-up year (given that they are assumed to be fairly constant until second start-up) while firm demographics variables are

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created with information from the second start-up year. Variables with * and ** indicate that information the year prior to start-up (*) or five years prior to start-up (**) is used. Descriptive statistics of these variables can be found in Table 4.

Human capital

Previous entrepreneurial experience. In the discussion leading to hypotheses development, we showed the importance of this variable for our analysis. Both published articles such as (Ucbasaran et al., 2010; Stam et al., 2008) and unpublished works such as Metzger (2006, 2007, 2008) use this variable to capture human capital.

Education. This is the most commonly used operationalization of human capital. But the role of education for start-up and success is ambiguous. On the one hand, more educated people might be better informed about business opportunities and select themselves into occupations or industries where entrepreneurship is more common. On the other hand, however, the skills that make good entrepreneurs are unlikely to be the same as those embodied in formal qualifications (Parker, 2004). The significance of education is therefore ambiguous but, nevertheless, assumed to be dependent on the industry. Both Wagner (2002) and Hessels et al. (2009) find education not to have an effect on the likelihood of re-start while Stam et al. (2008) find education to have a negative effect on abstinence from renascent entrepreneurship. Turning to the likelihood of successful entrepreneurship, Metzger (2007) and Metzger (2006) find education to lower the likelihood of firm closure and increase the likelihood of growth, respectively.

Work experience. People with more work experience are expected to be (successful) entrepreneurs. More time on the job, whether as an employee or self-employed, allows more time to learn about the business environment, build important networks in this environment, and, therefore, enables access to more opportunities within the work environment (Parker, 2004). From the literature, industry specific experience appears very important for entrepreneurial success. Many studies including Phillips (2002) and Agarwal et al. (2004) find that spin-off entrepreneurs are more likely to survive than other entrepreneurs. Explanations include the transfer of knowledge, resources, and routines from the spin-out company to the new venture. Therefore, the performance of the new venture is also shown to be dependent on the performance of the spin-out company (Phillips, 2002; Agarwal et al., 2004). Looking at abstinence of renascent entrepreneurship, however, prior industry experience is not found to have an effect in Stam et al. (2008).

Generalist as opposed to specialized skills. According to Lazear (2005), individuals characterized as "jacks-of-all-trades", i.e. persons with multiple skills but no expert proficiency, are more likely to become entrepreneurs. If these individuals also are more likely to become successful entrepreneurs, this contrasts the view of successful entrepreneurship triggered by more education and work experience from the same industry. However, it could be that these generalists, with diversified labor market experience, are more likely to be pushed into en-

trepreneurship because of lack of expert skills demanded as an employee. Also unemployment is assumed to push individuals into entrepreneurship (Parker, 2004).

Social capital

The positive impact of social capital on entrepreneurial performance is usually argued to work through two mechanisms: motivation and access to valuable resources like information, customers and suppliers, and capital and labor (Parker, 2004; BrÃijderl and PreisendÃűrfer, 1998; Aldrich and Zimmer, 1986).

Family Support. Several studies emphasize the importance of a moral support network (Hisrich et al., 2005; Parker, 2004; BrÃijderl and PreisendÃűrfer, 1998). The decision to start a business involves risk and uncertainty which is why understanding, backing, and support from family and close friends can be essential for the decision. Empirical support for the importance of family relations and the moral support network can be found in Sanders and Nee (1996) looking at marriage status, Hanlon and Saunders (2007) looking at key supporters for success, and BrÃijderl and PreisendÃűrfer (1998) looking at survival and growth of newly founded businesses.

Mentors. The social network gets an even greater importance for start-up and success if it contains (former) entrepreneurs who can act as mentor or role model; also labeled "peer effects" in the literature. Thereby, it is possible to gain a realistic insight into the values, abilities and skills that are important for starting and running a (successful) business as well as important resources and contacts (Hisrich et al., 2005). This is supported in Nanda and SÃÿrensen (2010) where individuals are more likely to become entrepreneurs if their parents or former work colleagues have entrepreneurial experience and in Davidsson and Honig (2003) where the likelihood of being a nascent entrepreneur is higher for individuals with entrepreneurial parents, entrepreneurial friends or neighbors, or if family and friends have been encouraging about entrepreneurship.

Also, in studies of habitual entrepreneurship, the peer effect for starting up a second time is generally supported: Personal contact with a young entrepreneur makes it more likely to take a second chance (Wagner, 2002), having an entrepreneurial role model makes abstinence from renascent entrepreneurship less likely (Stam et al., 2008), and knowing an entrepreneur increases entrepreneurial engagement (Hessels et al., 2009). In addition, Metzger (2008) finds that team foundation has a positive effect on starting again and team foundation has a positive effect on second venture growth (Metzger, 2006).

Control Variables

Given our focus on illuminating the relationship between previous venture exit, and subsequent venture start-up and performance, we will include in our analysis, control variables for individual demographics as well as business demographics.

Personal demographics

Gender. Females are a minority of the self-employed workforce in all developed countries (Parker, 2004) and Hessels et al. (2009) find that the entrepreneurial engagement after exit is higher for males.

Age. Individuals in mid-career are found to be more likely to found a venture in general (Parker, 2004) while older individuals with previous entrepreneurial experience are less likely to do so (Metzger, 2008; Wagner, 2002; Stam et al., 2008). Moreover, the inverse u-shaped curve for age and entrepreneurship in general could be explained by younger individuals lacking all types of capital: Human (work experience), social (work networks), and financial capital necessary for start-up while older individuals are more risk averse and unwilling to work long hours (Parker, 2004). Metzger (2007) also finds a u-shape for age on the likelihood of closing with a second business.

Business demographics

Size. According to the literature, it is important to control for "the liability of smallness" as separate from "the liability of newness" when controlling for business demographics. Freeman et al. (1983) find that small organizations have a lower likelihood of survival when controlling for age. On way of controlling for "the liability of smallness" is to include variables for financial capital and number of employees in the business (Brüderl et al., 1992). More capital allows the business to cope with random shocks from the environment during the critical start-up period (Brüderl et al., 1992) while larger businesses are better at attracting capital and qualified labour, have lower production cost and can take advantage of economies of scale (Hager et al., 2004). Metzger (2006) finds that previous venture size (number of employees) has a positive effect on the likelihood of starting up again while Metzger (2007) and Metzger (2006) find that size has a surprisingly positive and negative effect on firm survival and growth, respectively.

Industry and Geography (Urban/Rural). The nature of competition and resources necessary for start-up in different industries and urban/rural areas, respectively, call for control variables for industry and area in both analysis of survival and start-up. Schutjens and Stam (2006) find that being located in an urban region is the only factor leading to realized re-start while Stam et al. (2008) find an urban location leading to abstinence of renascent entrepreneurship. Finally, Metzger (2006) find a metropolitan district to have a positive effect on firm growth with a second venture. In both Metzger (2008, 2006) industry dummies have a significant effect while this is not the case in Stam et al. (2008). Additionally, since we are interested in explaining the performance of a second venture, it would also be relevant to include a variable for whether the second business is started in the same industry as the first (if entrepreneurial learning is industry specific versus general) and the time between the first and second start-up (the time the entrepreneur had to learn from the experience).

Analysis

The analyses in the paper are done in three steps:

First, the likelihood of failure with the restart is estimated using probit regression. The model includes the following explanatory variables: previous failure, human and social capital as well as personal and business controls. Furthermore, two interaction effects are also included: failure interacted with human capital and with social capital. The size and significance of these interactions are assessed graphically following the approach in (Ai and Norton, 2003; Norton et al., 2004).

Second, both the likelihood of restart and the likelihood of failure with the restart are estimated through a Heckman probit regression where the latter is treated as the main equation and the former as the selection equation. The benefit of this approach is that the estimates for the likelihood of restart failure take into account that some individuals are *a priori* more likely to be observed with a second business, e.g. push entrepreneurs. In other words, the Heckman probit minimizes selection bias. However, the cost of this approach is that exactly the same variables have to be included in the main and selection equation aside from at least one extra instrument in the selection equation. Hence, variables from the previous probit regressions not observed for the one-time entrepreneurs (e.g. variables related to the second business) had to be dropped.

Third, and finally, the Heckman probit regressions are repeated with a subsample excluding possible push entrepreneurs (operationalized through the exclusion of pre-startup long term unemployed and pre-startup high income individuals).

Table 5 shows the likelihood of failure with a second venture using probit regression utilizing responses from the 1,875 serial entrepreneurs. Model 1 in Table 5 includes control variables for personal demographics and a dummy variable indication failure with the previous venture. Model 2 introduces variables for human capital while Model 3 further adds variables for business demographics; industry dummies are included but not shown in the table. Finally, Model 4 introduces an interaction term for failure and years of education. An interaction term for failure and all human capital variables was introduced but only education turned out to be significant. Because of possible problems of interpretation of the coefficient for the interaction term in probit models (Ai and Norton, 2003; Norton et al., 2004), all interaction effects were assessed with two plots (i) interaction effect as a function of the predicted probability and (ii) the z-statistic of the interaction effect as a function of the predicted probability. Again, only the interaction term with education was found to be significant. The two plots can be seen in Figures 3 and 4.

The model in Table 6 is similar except that variables for social capital are included instead of variables for human capital. Again an interaction term of previous venture failure and all variables for social capital was included and again only one was found to be significant. The significant interaction term is failure and marriage and can be seen in Model 4 of Table 6 and the two plots

(function of predicted probability and z-statistic) can be seen in Figures 5 and 6.

Finally, the Heckman probit models including both human and social capital variables can be seen in Table 7. The selection equation estimating the *a priori* likelihood of being observed is presented at the bottom of the table while the likelihood of failure with the second venture can be seen at the top. The latter takes into account the likelihood of being observed estimated in the former. In order for the Heckman model to work properly, at least one extra variable is needed for the selection equation; one that is correlated with the likelihood of starting up again but uncorrelated with the likelihood of success with the second venture. For this we chose a dummy variable indicating whether the first venture was started with others or not. This seems to be a good instrumental variable both logically and according to Table 3.

Team First	Start again		Success second	
	No	Yes	No	Yes
No	25,701 (54)	846 (45)	464 (45)	382 (45)
Yes	21,813 (46)	1,029 (55)	556 (55)	473 (55)
Total	47,514 (100)	1,875 (100)	1,020 (100)	855 (100)
Pearson χ^2	Pr=0.000		Pr=0.725	

Table 3: Dependence of first firm founding team on second business start-up and success

In Table 7, Model 1 includes variables for personal demographics and human and social capital. Model 2-4 include an interaction variable for failure and education, failure and marriage, and finally, for failure and urban area. The latter is the only significant variable when failure was interacted with the control variables. The variables for business demographics and one variable for social capital (founding team) had to be dropped from the Heckman model given that these included information not available for one-time entrepreneurs.

Excluding push entrepreneurs - those with long unemployment records and those with low opportunity costs

The Heckman models in Table 7 are replicated in Table 8 and 9 where "push" entrepreneurs are excluded. This is done to separate out the probability of reentry by those with viable labor market alternatives as opposed to those without. In Table 8, individuals with more than 25 weeks of unemployment within the five years before first start-up are excluded. To further isolate "pull" entrepreneurs, in Table 9, we removed individuals with an income of less than 200,000 DKR (approximately 35,250 USD) the year before the first start-up. Excluding the previously long term unemployed reduces the sample of re-starters from 1,875 to 1,366 individuals and the total number of entrepreneurs from 49,389 to 35,954. Excluding the low opportunity cost individuals results in a sample of 881 re-starters and 20,280 entrepreneurs.

Results

Likelihood of reentry after failure

Hypothesis 1a: Entrepreneurs that exit their first business are more likely to start up a business again. (traits/optimism)

Hypothesis 1b: Entrepreneurs that exit their first business are less likely to start up a business again. (passive learning)

As the selection equation in Table 7 shows, the likelihood of starting again is significantly higher for previously failed entrepreneurs. Even after excluding possible push entrepreneurs, i.e. the long-term unemployed (Table 8) and the low opportunity cost individuals (Table 9) the effect remains significant and fairly constant. Hence, the passive learning argument behind hypothesis 1b is rejected while hypothesis 1a is not. Previously failed entrepreneurs are more likely to start up a second time. Although we do not specifically measure traits or optimism, the result does seem to cohere with Ucbasaran et al. (2010) findings about serial entrepreneurs continuing to be optimistic in the face of failure as well as with Metzger (2007), which also does not measure optimism directly.

Next, we check whether such optimism is justified.

Likelihood of success after failure

Hypothesis 2a: Entrepreneurs that close down with their first business are more likely to close down with a second business (traits/overconfidence).

Hypothesis 2b: Entrepreneurs that close down with their first business are less likely to close down with a second business (superior active learning).

As seen from Table 5 and 6, initially it appears that failure with the first venture increases the likelihood of failure with the second venture at 1% significance level in all models. The Heckman models (main equations) in Table 7 support this except for Model 1 where the effect is insignificant. However, these findings change when possible push entrepreneurs are excluded. As depicted in Table 8 where the long-term unemployed are excluded, previous failure does not have a significant effect on the likelihood of subsequent failure, even though the coefficients are still positive and significant at 10% in Model 2. Similarly, previous failure is not found to have a positive effect on subsequent failure in the main equations in Table 9 that excludes low opportunity cost individuals. Hence, both hypotheses are rejected when excluding possible push entrepreneurs. Or put another way, previous failure does not have an influence on the likelihood of success with a restart for pull entrepreneurs.

Impact of human and social capital on probability of reentry

Hypothesis 1bb: Entrepreneurs with higher levels of human and social capital (that close down with their first business) are more likely to start up a business again.

Human capital (H 1bb)

Regardless of previous failure, only the number of different industries worked in has a significant positive effect on the likelihood of starting up a second time (see selection equations of Table 7). This could support the "jacks-of-all-trades" theory of entrepreneurial entry or be explained by these individuals lack of steady employment possibilities. Years of education has a positive influence on the likelihood of restart in Table 7 but the variable becomes insignificant when the interaction effect of failure and education is included in Model 2. Excluding the possible push entrepreneurs in Table 8 and 9 does not change these results. Thus, hypothesis 1bb is rejected.

Social capital (H 1bb)

In addition to having founded a previous business with others (the instrument variable), having entrepreneurial peers (i.e. sibling or spouse) significantly increases the likelihood of starting a business again (see selection equations in Table 7). The interaction effect of failure and marriage is found to be insignificant in Model 2. The only change when excluding push entrepreneurs is found in Table 9: the peer effect becomes insignificant when excluding low opportunity cost individuals. Again, hypothesis 1bb is rejected.

Hypothesis 2bb: Entrepreneurs with higher levels of human and social capital are less likely to close down with a second business

Human capital (H 2bb)

Out of the four variables for human capital, only the number of years in the same industry (as the first start-up) significantly lowers the likelihood of failure with the second venture in all models (Table 5 and 6).

Education has the expected negative coefficient but becomes insignificant when the control for business demographics is introduced in Table 5. However, when the interaction term for failure and education is introduced (Model 4) the effect of failure increases, the effect of education is insignificant, and the effect of education under failure is significantly negative. Hence, education is only important for success with the second business if the individual failed with a previous venture. This result is supported in Table 7 (main Model 2) when controlling for possible selection bias.

When excluding long term unemployed in Table 8, the negative effect of industry experience on failure is now only significant at 10% level while the number of different industries now is negative and significant. None of the human capital variables are significant when excluding low opportunity cost individuals in Table 9, although, the coefficients for industry experience and number of industries are negative and significant at 10% level. However, in both tables excluding push entrepreneurs, the interaction effect of failure and education is still significant.

These findings support hypothesis 2bb in the following way. First, industry experience is important for reducing the likelihood of restart failure but only

when push entrepreneurs are not excluded. Second, years of education is important for reducing the likelihood of restart failure but only when having failed with the previous venture. This result is stable when excluding push entrepreneurs.

Social capital (H 2bb)

Two out of the four variables for social capital are significant in all models at 1% significance level in Table 6: Having entrepreneurial parents or having founded the venture with others both have a negative influence on the likelihood of failure with the second venture. Furthermore, the impact of the two variables seems to be of equal size and greater than the positive effect of having failed with a previous venture. The Heckman model supports the results regarding entrepreneurial parents but the variable for entrepreneurial founding team had to be dropped due to technical reasons explained earlier.

Interestingly, marriage is not found to be important for the likelihood of failure with a second venture in Table 6 and 6. However, when an interaction term of failure and marriage is included in Model 4 (Table 6) and Model 3 (Table 7), entrepreneurs that failed with a venture while being married significantly decreases the likelihood of failure with a second venture. The only change in results when excluding possible push entrepreneurs can be found in Table 9 (excluding low opportunity cost individuals). Here the interaction effect of failure and marriage is no longer significant.

Again hypothesis 2bb cannot be rejected. First, having entrepreneurial parents is important for reducing the likelihood of restart failure independent of previous venture performance. Second, being married is important for reducing the likelihood of restart failure but only when having failed with the previous venture.

An important note on the relationship between reentry and success after reentry

None of the human and social capital variables that appear to reduce the probability of failure in the second venture are likely to increase the probability of reentry. This result raises an interesting possibility of Type I error in serial entrepreneurship - namely, the individuals who have a higher likelihood of doing well in the second venture are choosing not to start them.

Controls: Personal and firm demographics

All personal demographics are found to be insignificant at 5% level in all three tables regarding the likelihood of failure with a second venture. However, Table 7 reveals that females and individuals over 50 years are significantly less likely to start-up again while individuals in urban areas are significantly more likely to start up again; Model 4, however, shows that the effect of urban residence is slightly lowered for failed entrepreneurs.

From Table 5 and 6 can be seen that being wealthy and waiting more years before starting again significantly lowers the likelihood of failure with the second

venture. The former supports the theory regarding "the liability of smallness" while the latter could be due to recovery and learning from a previous venture takes time. When controlling for human capital (Table 5), starting a bigger venture also lowers the likelihood of failure, while when controlling for social capital (Table 6), starting in the same industry as the previous venture also lowers the likelihood of failure.

When excluding long term unemployed in Table 8, females are found to be significantly more likely to fail with a second business while individuals aged 31-40 are more likely to restart. Excluding low opportunity cost individuals in Table 9, again result in females are found to be significantly more likely to fail but only on 10% level of significance while also individuals above 40 years old are more likely to fail.

Discussion

An opportunity cost measure of entrepreneurial success was considered but dropped for the following reasons: (i) if the entrepreneur owns two businesses at the same time the income from each businesses cannot be separated from the personal income tax records, (ii) often the entrepreneur is not able to achieve an income from entrepreneurship equal to or above the income from working in an established business (Dahl et al., 2009; Blanchflower and Oswald, 1998), (iii) the majority of studies reveal that entrepreneurs are more satisfied with their work than wage earners (Hundley, 2001; Blanchflower and Oswald, 1998). If the motivation for starting up a business is to a higher degree intrinsic than extrinsic, then survival (being able to keep being an entrepreneur) is a better measure of entrepreneurial success. As shown in Dahl et al. (2009), being one's own boss and enjoying intrinsic work characteristics seems to be the main motivation for entrepreneurship compared to the pursued of high earnings. However, survival could be complemented with a measure of growth in full-time equivalent employees in future studies if it is assumed that growth in firm size leads to higher work satisfaction for the entrepreneur.

Future research should use the above results to take on more detailed analysis of why some individuals make Type I errors with regard to becoming habitual entrepreneurs.

Conclusion

The field of entrepreneurship research, as we pointed out in the beginning of this paper, appears to be moving away from an exclusive focus on traits or luck as the explanation for positive performance to a deeper understanding of entrepreneurial decision-making, learning and expertise development. The current study contributes to this movement by providing additional support for the role of education, prior industry experience and active learning. Yet, while it also points to the validity of traits such as optimism in serial entrepreneurs who persist in venturing after a failure, it raises normative questions as to whether they should indeed do so. Or more importantly, whether those who should be

persisting actually lack the optimism to do so. Persistence pays, but apparently not for everyone. And optimism is prevalent among entrepreneurs, but not among those in whom we need it most.

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Appendix

Variable	Obs.	Mean	St.d.	Min.	Max.
Female	49,389	0.355	0.478	0	1
Age	49,389	34.815	11.139	15	66
Urban	49,389	0.432	0.495	0	1
Failure 1	49,389	0.546	0.498	0	1
Education	49,389	2.888	2.560	-3	11
Years I	49,389	0.724	1.439	0	5
Number I	49,389	1.708	0.972	0	5
Unemployment	49,389	0.472	0.499	0	1
Parent E	49,389	0.166	0.372	0	1
Peer E	49,389	0.158	0.364	0	1
Marriage	49,389	0.443	0.497	0	1
Own others 1	49,389	0.462	0.499	0	1
Own others 2	1,875	0.480	0.500	0	1
Wealth	1,875	71,608.928	2,191,332.393	-18,262,722.000	61,517,672.000
Wealth ln	1,875	4.873	6.051	0	17.935
Size	1,875	2.773	2.321	1	20
Size ln	1,875	0.786	0.650	0	2.996
Same	1,875	0.343	0.475	0	1
Years	1875	3.338	1.711	1	6

Table 4: Descriptive statistics of explanatory variables

	Model 1		Model 2		Model 3		Model 4	
Female	$0.127^\dagger$	(0.069)	0.089	(0.070)	0.064	(0.072)	0.070	(0.072)
31-40	0.029	(0.069)	0.048	(0.070)	0.051	(0.071)	0.044	(0.071)
41-50	0.079	(0.078)	0.102	(0.080)	0.111	(0.082)	0.125	(0.082)
51+	0.101	(0.125)	0.085	(0.125)	0.185	(0.130)	0.184	(0.130)
urban	0.028	(0.058)	0.044	(0.059)	0.055	(0.060)	0.049	(0.060)
Failure	0.222^{**}	(0.063)	0.209^{**}	(0.064)	0.183^{**}	(0.065)	0.477^{**}	(0.111)
Education			-0.032^{**}	(0.012)	-0.018	(0.013)	$0.044^\dagger$	(0.023)
Years I			-0.056^{**}	(0.021)	-0.054^*	(0.022)	-0.054^*	(0.022)
Number I			-0.027	(0.030)	-0.007	(0.031)	-0.008	(0.031)
Unemployment			0.005	(0.060)	-0.023	(0.061)	-0.029	(0.061)
Wealth					-0.017^{**}	(0.005)	-0.018^{**}	(0.005)
Size					-0.132^{**}	(0.048)	-0.133^{**}	(0.048)
Same I					-0.094	(0.066)	-0.086	(0.066)
Years					-0.046^*	(0.018)	-0.046^*	(0.018)
F x Education							-0.088^{**}	(0.027)
Industry dummies	YES		YES		YES		YES	
Constant	$-0.118^\dagger$	(0.072)	0.071	(0.105)	0.349^*	(0.146)	0.134	(0.161)
Pseudo R^2	0.01		0.01		0.03		0.03	
Log-likelihood	-1284		-1276		-1255		-1249	
Observations	1875		1875		1875		1875	

Note: **, *, and † is significant at the 1%, 5%, and 10% level, respectively.

Table 5: Probit model for the likelihood of failure with the second business from 1,875 re-starters. Failure is defined as not surviving three years after the start-up year.

Figure 3: Interaction effect (failure x education) as a function of predicted probability of failure (second business).

Figure 4: Significance of interaction effect (failure x education) as a function of predicted probability of failure (second business).

	Model 1		Model 2		Model 3		Model 4	
Female	0.127†	(0.069)	0.112	(0.070)	0.067	(0.072)	0.071	(0.072)
31-40	0.029	(0.069)	0.026	(0.073)	0.038	(0.074)	0.035	(0.074)
41-50	0.079	(0.078)	0.028	(0.086)	0.069	(0.088)	0.070	(0.088)
51+	0.101	(0.125)	0.081	(0.133)	0.184	(0.137)	0.188	(0.136)
urban	0.028	(0.058)	0.024	(0.059)	0.042	(0.060)	0.043	(0.060)
Failure	0.222**	(0.063)	0.220**	(0.064)	0.189**	(0.065)	0.320**	(0.086)
Parent E			−0.274**	(0.081)	−0.231**	(0.082)	−0.238**	(0.082)
Peer E			0.104	(0.081)	0.099	(0.082)	0.095	(0.082)
Married			−0.112†	(0.067)	−0.084	(0.067)	0.125	(0.112)
Own others			−0.259**	(0.059)	−0.259**	(0.074)	−0.264**	(0.074)
Wealth					−0.017**	(0.005)	−0.017**	(0.005)
Size					−0.019	(0.059)	−0.014	(0.059)
Same I					−0.159*	(0.065)	−0.157*	(0.065)
Years					−0.045*	(0.018)	−0.046*	(0.018)
F x Married							−0.303*	(0.130)
Industry dummies	YES		YES		YES		YES	
Constant	−0.118†	(0.072)	0.102	(0.083)	0.348**	(0.128)	0.253†	(0.134)
Pseudo R^2	0.01		0.02		0.03		0.04	
Log-likelihood	−1284		−1267		−1248		−1245	
Observations	1875		1875		1875		1875	

Note: **, *, and † is significant at the 1%, 5%, and 10% level, respectively.

Table 6: Probit model for the likelihood of failure with the second business from 1,875 re-starters. Failure is defined as not surviving three years after the start-up year.

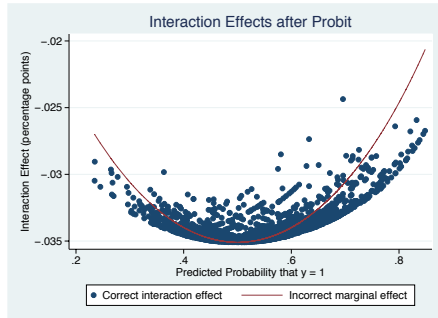**Figure 5:** Interaction effect (failure x married) as a function of predicted probability of failure (second business).
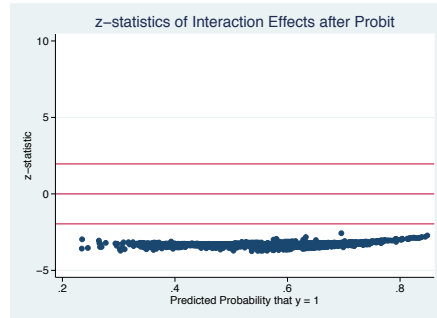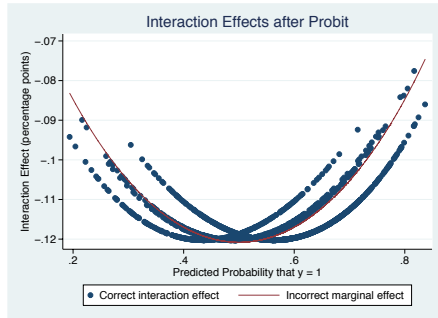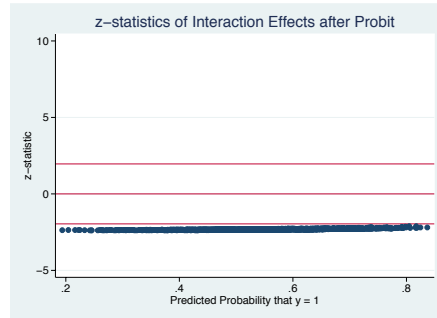

Figure 6: Significance of interaction effect (failure x married) as a function of predicted probability of failure (second business).

	Model 1		Model 2		Model 3		Model 4	
MAIN EQUATION								
Female	0.092	(0.106)	0.086	(0.107)	0.090	(0.107)	0.094	(0.105)
31-40	0.057	(0.073)	0.055	(0.073)	0.052	(0.073)	0.055	(0.073)
41-50	0.088	(0.087)	0.107	(0.088)	0.086	(0.087)	0.086	(0.086)
51+	0.094	(0.149)	0.091	(0.150)	0.091	(0.150)	0.094	(0.149)
urban	0.026	(0.069)	0.023	(0.069)	0.028	(0.069)	$0.226^\dagger$	(0.122)
Failure	0.184	(0.112)	0.483^{**}	(0.147)	0.330^*	(0.129)	0.328^*	(0.143)
Education	-0.030^*	(0.013)	0.031	(0.023)	-0.032^*	(0.013)	-0.031^*	(0.012)
Years I	-0.054^*	(0.021)	-0.053^*	(0.021)	-0.054^*	(0.021)	-0.054^*	(0.021)
Number I	-0.026	(0.035)	-0.025	(0.035)	-0.027	(0.035)	-0.026	(0.035)
Unemployment	-0.021	(0.061)	-0.025	(0.061)	-0.029	(0.061)	-0.016	(0.061)
Parent E	-0.246^{**}	(0.083)	-0.241^{**}	(0.082)	-0.255^{**}	(0.083)	-0.249^{**}	(0.083)
Peer E	0.097	(0.086)	0.104	(0.086)	0.095	(0.086)	0.095	(0.086)
Married	-0.104	(0.067)	$-0.120^\dagger$	(0.068)	0.117	(0.111)	-0.101	(0.067)
F x Education			-0.086^{**}	(0.027)				
F x Marriage					-0.322^*	(0.129)		
F x Urban							-0.290^*	(0.131)
Constant	0.375	(0.826)	0.064	(0.845)	0.241	(0.840)	0.329	(0.833)
SELECTION EQUATION								
Female	-0.283^{**}	(0.025)	-0.283^{**}	(0.025)	-0.283^{**}	(0.025)	-0.284^{**}	(0.025)
31-40	0.014	(0.028)	0.014	(0.028)	0.014	(0.028)	0.013	(0.028)
41-50	-0.025	(0.033)	-0.025	(0.033)	-0.025	(0.033)	-0.025	(0.033)
51+	-0.213^{**}	(0.046)	-0.213^{**}	(0.046)	-0.213^{**}	(0.046)	-0.214^{**}	(0.046)
urban	0.115^{**}	(0.022)	0.114^{**}	(0.022)	0.115^{**}	(0.022)	0.174^{**}	(0.036)
Failure	0.339^{**}	(0.023)	0.341^{**}	(0.037)	0.343^{**}	(0.030)	0.383^{**}	(0.031)
Education	0.013^{**}	(0.004)	$0.014^\dagger$	(0.007)	0.013^{**}	(0.004)	0.013^{**}	(0.004)
Years I	0.004	(0.008)	0.004	(0.008)	0.004	(0.008)	0.004	(0.008)
Number I	0.063^{**}	(0.011)	0.064^{**}	(0.011)	0.063^{**}	(0.011)	0.063^{**}	(0.011)
Unemployment	0.014	(0.022)	0.014	(0.022)	0.014	(0.022)	0.015	(0.022)
Parent E	-0.028	(0.030)	-0.028	(0.030)	-0.028	(0.030)	-0.028	(0.030)
Peer E	0.087^{**}	(0.030)	0.087^{**}	(0.030)	0.087^{**}	(0.030)	0.087^{**}	(0.030)
Married	0.000	(0.025)	0.000	(0.025)	0.006	(0.038)	0.001	(0.025)
Own others	0.206^{**}	(0.022)	0.206^{**}	(0.022)	0.206^{**}	(0.022)	0.205^{**}	(0.022)
F x Education			-0.001	(0.009)				
F x Marriage					-0.009	(0.045)		
F x Urban							-0.090^*	(0.045)
Constant	-2.204^{**}	(0.040)	-2.206^{**}	(0.045)	-2.207^{**}	(0.043)	-2.233^{**}	(0.043)
Constant	-0.097	(0.345)	-0.052	(0.346)	-0.077	(0.348)	-0.123	(0.345)
Pseudo R^2								
Log-likelihood	-8968		-8962		-8964		-8963	
Observations	49389		49389		49389		49389	

Note: **, *, and † is significant at the 1%, 5%, and 10% level, respectively.

Table 7: Heckman probit model for the likelihood of failure with the second business from 1,875 re-starters (main equation) and the likelihood of starting up again from 49,389 first-time entrepreneurs (selection equation). Failure is defined as not surviving three years after the start-up year.

	Model 1		Model 2		Model 3		Model 4	
MAIN EQUATION								
Female	0.193*	(0.092)	0.195*	(0.094)	0.197*	(0.093)	0.195*	(0.091)
31-40	0.077	(0.083)	0.077	(0.083)	0.070	(0.083)	0.071	(0.082)
41-50	0.171†	(0.095)	0.195*	(0.097)	0.170†	(0.096)	0.166†	(0.094)
51+	0.233†	(0.139)	0.242†	(0.141)	0.229	(0.140)	0.230†	(0.138)
urban	0.006	(0.072)	−0.000	(0.073)	0.006	(0.073)	0.130	(0.130)
Failure	0.070	(0.121)	0.323†	(0.182)	0.237	(0.153)	0.164	(0.159)
Education	−0.031*	(0.013)	0.017	(0.024)	−0.033*	(0.013)	−0.032*	(0.013)
Years I	−0.037†	(0.021)	−0.038†	(0.021)	−0.036†	(0.021)	−0.037†	(0.021)
Number I	−0.076*	(0.032)	−0.076*	(0.032)	−0.078*	(0.032)	−0.074*	(0.032)
Parent E	−0.212*	(0.092)	−0.208*	(0.092)	−0.222*	(0.093)	−0.214*	(0.092)
Peer E	0.068	(0.092)	0.069	(0.094)	0.064	(0.093)	0.065	(0.092)
Married	−0.124	(0.076)	−0.139†	(0.077)	0.123	(0.115)	−0.121	(0.075)
F x Education			−0.071*	(0.029)				
F x Marriage					−0.364**	(0.139)		
F x Urban							−0.183	(0.140)
Constant	1.369*	(0.624)	1.167†	(0.678)	1.257†	(0.659)	1.331*	(0.632)
SELECTION EQUATION								
Female	−0.289**	(0.030)	−0.289**	(0.030)	−0.289**	(0.030)	−0.290**	(0.030)
31-40	0.069*	(0.034)	0.069*	(0.034)	0.069*	(0.034)	0.068*	(0.034)
41-50	0.037	(0.039)	0.037	(0.039)	0.037	(0.039)	0.037	(0.039)
51+	−0.162**	(0.054)	−0.162**	(0.054)	−0.162**	(0.054)	−0.163**	(0.054)
urban	0.123**	(0.025)	0.123**	(0.025)	0.123**	(0.025)	0.173**	(0.042)
Failure	0.348**	(0.026)	0.335**	(0.044)	0.329**	(0.035)	0.388**	(0.037)
Education	0.015**	(0.005)	0.013	(0.009)	0.015**	(0.005)	0.015**	(0.005)
Years I	0.003	(0.008)	0.003	(0.008)	0.003	(0.008)	0.003	(0.008)
Number I	0.064**	(0.012)	0.064**	(0.012)	0.064**	(0.012)	0.065**	(0.012)
Parent E	−0.003	(0.034)	−0.003	(0.034)	−0.002	(0.034)	−0.003	(0.034)
Peer E	0.082*	(0.035)	0.082*	(0.035)	0.081*	(0.035)	0.081*	(0.035)
Married	−0.010	(0.030)	−0.010	(0.030)	−0.037	(0.044)	−0.010	(0.030)
Own others	0.207**	(0.026)	0.207**	(0.026)	0.207**	(0.026)	0.207**	(0.026)
F x Education			0.004	(0.010)				
F x Marriage					0.041	(0.052)		
F x Urban							−0.080	(0.052)
Constant	−2.245**	(0.046)	−2.236**	(0.053)	−2.233**	(0.049)	−2.270**	(0.050)
Constant	−0.585	(0.358)	−0.565	(0.365)	−0.578	(0.368)	−0.602†	(0.358)
Pseudo R^2								
Log-likelihood	−6521		−6517		−6517		−6518	
Observations	35954		35954		35954		35954	

Note: **, *, and † is significant at the 1%, 5%, and 10% level, respectively.

Table 8: Heckman probit model for the likelihood of failure with the second business from 1,366 re-starters (main equation) and the likelihood of starting up again from 35,954 first-time entrepreneurs (selection equation). Failure is defined as not surviving three years after the start-up year. Individuals with more than 25 weeks of unemployment within the five years before first start-up are excluded.

	Model 1		Model 2		Model 3		Model 4	
MAIN EQUATION								
Female	$0.167^\dagger$	(0.098)	$0.172^\dagger$	(0.100)	$0.167^\dagger$	(0.099)	$0.165^\dagger$	(0.097)
31-40	0.106	(0.090)	0.114	(0.091)	0.100	(0.090)	0.106	(0.089)
41-50	0.229^*	(0.107)	0.275^*	(0.110)	0.226^*	(0.107)	0.223^*	(0.105)
51+	0.310^*	(0.156)	0.345^*	(0.157)	$0.304^\dagger$	(0.157)	0.312^*	(0.153)
urban	-0.074	(0.076)	-0.079	(0.077)	-0.075	(0.076)	0.053	(0.145)
Failure	0.001	(0.136)	0.401	(0.248)	0.087	(0.173)	0.097	(0.186)
Education	-0.018	(0.015)	$0.054^\dagger$	(0.030)	-0.019	(0.015)	-0.018	(0.015)
Years I	$-0.045^\dagger$	(0.025)	$-0.044^\dagger$	(0.025)	$-0.045^\dagger$	(0.025)	$-0.046^\dagger$	(0.024)
Number I	$-0.071^\dagger$	(0.039)	$-0.071^\dagger$	(0.040)	$-0.073^\dagger$	(0.039)	$-0.070^\dagger$	(0.039)
Unemployment	0.093	(0.076)	0.093	(0.077)	0.090	(0.076)	0.099	(0.075)
Parent E	-0.241^*	(0.105)	-0.219^*	(0.103)	-0.243^*	(0.105)	-0.241^*	(0.104)
Peer E	0.053	(0.105)	0.047	(0.106)	0.053	(0.105)	0.051	(0.104)
Married	-0.058	(0.080)	-0.079	(0.082)	0.057	(0.129)	-0.055	(0.079)
F x Education			-0.107^{**}	(0.039)				
F x Marriage					-0.168	(0.155)		
F x Urban							-0.185	(0.165)
Constant	1.581^{**}	(0.533)	1.280^*	(0.642)	1.530^{**}	(0.556)	1.536^{**}	(0.543)
SELECTION EQUATION								
Female	-0.205^{**}	(0.042)	-0.205^{**}	(0.042)	-0.205^{**}	(0.042)	-0.205^{**}	(0.042)
31-40	-0.003	(0.042)	-0.003	(0.042)	-0.004	(0.042)	-0.004	(0.042)
41-50	-0.075	(0.049)	-0.076	(0.049)	-0.075	(0.049)	-0.076	(0.049)
51+	-0.266^{**}	(0.066)	-0.267^{**}	(0.066)	-0.266^{**}	(0.066)	-0.267^{**}	(0.066)
urban	0.115^{**}	(0.032)	0.115^{**}	(0.032)	0.115^{**}	(0.032)	0.188^{**}	(0.052)
Failure	0.406^{**}	(0.033)	0.394^{**}	(0.058)	0.417^{**}	(0.047)	0.466^{**}	(0.047)
Education	0.005	(0.006)	0.003	(0.010)	0.005	(0.006)	0.005	(0.006)
Years I	0.001	(0.010)	0.001	(0.010)	0.001	(0.010)	0.001	(0.010)
Number I	0.068^{**}	(0.018)	0.068^{**}	(0.018)	0.068^{**}	(0.018)	0.068^{**}	(0.018)
Unemployment	$-0.061^\dagger$	(0.034)	$-0.060^\dagger$	(0.034)	$-0.061^\dagger$	(0.034)	$-0.060^\dagger$	(0.034)
Parent E	0.054	(0.046)	0.053	(0.046)	0.054	(0.046)	0.054	(0.046)
Peer E	0.009	(0.047)	0.009	(0.047)	0.009	(0.047)	0.008	(0.047)
Married	-0.005	(0.035)	-0.005	(0.035)	0.009	(0.054)	-0.005	(0.035)
Own others	0.224^{**}	(0.032)	0.224^{**}	(0.032)	0.224^{**}	(0.032)	0.224^{**}	(0.032)
F x Education			0.003	(0.013)				
F x Marriage					-0.023	(0.066)		
F x Urban							$-0.117^\dagger$	(0.066)
Constant	-2.152^{**}	(0.069)	-2.144^{**}	(0.076)	-2.159^{**}	(0.073)	-2.190^{**}	(0.072)
Constant	-0.799^*	(0.396)	$-0.784^\dagger$	(0.421)	-0.797^*	(0.402)	-0.826^*	(0.395)
Pseudo R^2								
Log-likelihood	-4082		-4077		-4082		-4079	
Observations	20280		20280		20280		20280	

Note: **, *, and † is significant at the 1%, 5%, and 10% level, respectively.

Table 9: Heckman probit model for the likelihood of failure with the second business from 881 re-starters (main equation) and the likelihood of starting up again from 20,280 first-time entrepreneurs (selection equation). Failure is defined as not surviving three years after the start-up year. Individuals with an income less than 200,000 DKR (approximately 35,250 USD) the year before the first start-up are excluded.