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A little bit of knowledge is a dangerous thing: Entrepreneurial experience and new venture disengagement

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Abstract: Existing research has offered conflicting narratives of how entrepreneurial experience influences whether founders will continue working on or disengage from their ventures. We theorize and test how entrepreneurs with varying levels of experience disengage from early-stage companies. Findings reveal a U-shaped relationship, such that novices and highly experienced entrepreneurs are more likely to quit their ventures, while moderately experienced entrepreneurs are more likely to persist in their pursuits. We offer both theoretical and empirical explanations for how the propensity to disengage from new ventures evolves with entrepreneurial experience.

1. Introduction

Entrepreneurs gain many skills as they launch their ventures. Scholars and practitioners alike expect that with more entrepreneurial attempts, founders will become better at creating profitable businesses (Gompers et al. 2010; Holland & Shepherd, 2013; Lévesque, Minniti, & Shepherd, 2009). Yet, most ventures do not develop as anticipated and eventually, founders must determine whether to persist or disengage from their ventures. By *disengage*, we mean a decision to withdraw from full-time work on the business due to unmet expectations and pursue other career opportunities. While practitioners have urged entrepreneurs to gain awareness of when to quit (Ries, 2011), we argue that disengagement-as-a-skill has been underemphasized by academics analyzing how experience influences venture performance (Sarasvathy, Menon, & Kuechle, 2013; Wiltbank, Dew, Read, & Sarasvathy, 2006). Research on the experience-disengagement relationship has yet to reveal consistent patterns. One reason for this may be because experience is perceived to have a linear relationship on disengagement. We develop an alternate theory that portrays experience as having a *non*-linear relationship on disengagement, such that novice and expert entrepreneurs will disengage at different rates than those with moderate experience. Our longitudinal analysis offers evidence for this relationship and its corresponding implications for scholars and practitioners.

2. Entrepreneurial experience and venture disengagement

Conventional thinking suggests experience's influence is linear – additional experience will more strongly influence entrepreneurial outcomes. However, research on the experience-disengagement relationship has yielded inconsistent conclusions. A comprehensive review (Please see Appendix A) led us to a total of 22 papers on this topic, the majority of which were based on small, cross-sectional samples. Ten studies showed insignificant effects between experience and the likelihood of disengagement, seven showed a negative relationship, two had mixed findings, and three revealed a positive relationship. None of the studies presented or reported findings of curvilinear results. As such, we propose a framework that revisits the fundamental assumption about experience and its influence on entrepreneurial trajectories. We turned to research demonstrating the non-linear influence of experience. A closer examination of cognition, strategic management, and entrepreneurship studies reveals that novices, the moderately experienced, and experts all leverage their experience differently in their pursuits (Cormier & Hagman, 1987; Haleblan & Finkelstein, 1999; Toft-Kehler et al., 2014). This research reveals that “a little bit of experience can be a dangerous thing” – at low levels, actors inappropriately apply experience to seemingly similar, yet inherently different, tasks. We argue that the differential effects of experience may also produce a non-linear relationship on the decision to disengage.

3. Methods and Data

To answer our research question we created a longitudinal dataset with information about founders and their ventures. We constructed our sample using two databases maintained by Statistics Sweden: RAMS (yearly data on all firms) and LISA (yearly data on all Swedish inhabitants from 1989). From RAMS we sampled three full cohorts of firms started 1994, 1995, and 1996, followed until 2002.¹ From LISA we created experience variables for all prior venturing activities from 1989-1993 and used National Tax Board data to gather financial information. To decrease industry heterogeneity, we limited our sample to firms in knowledge-intensive sectors based on OECD classifications (Götzfried, 2004).² As a result, our sample consists of the full population of 29,338 new knowledge-intensive ventures founded in Sweden between 1994-1996.

3.1. Dependent variable

¹ To minimize right censoring and incorporate up to five years of data prior to the focal venture.

² In Sweden, 35 percent of all new firms belong to these sectors, including information technology, chemicals, medicine, telecom, finance, business services, education and research (Folta, Delmar, & Wennberg, 2010).

The dependent variable, *likelihood of disengagement*, is based on a yearly indicator of whether an individual is still working full-time in their venture (1= disengaged, 0=working full-time). The founder disengages when they begin work on or at another firm. We highlight two other decisions related to this variable: We retained bankrupt firms in our sample, since this is a viable pathway for disengagement, and bankruptcy and liquidation are rare (Thorburn, 2000). However, we dropped firms that experienced a trade sale which is generally considered an exit-outcome which does not reflect disengagement due to unmet expectations (Arora & Nandkumar, 2011).³

3.2. Independent variable

Our independent variable is *entrepreneurial experience*, defined as years of full-time involvement as a founder or co-founder in a prior venture. To reduce the effect of individuals arbitrarily entering and exiting (e.g. tax speculation or engaging in “portfolio entrepreneurship” (Westhead & Wright, 1998)), we required a two-year gap between ventures in the same industry and location to be considered a separate venturing activity.

3.3. Control variables

To address alternative explanations, we included several control variables. We control for founders’ basic demographic characteristics: *gender* (1=male), *age*, and *number of children* living at home (updated annually). To account for entrepreneurs’ ability to support the firm, we included household *wealth* based on equity reported to tax authorities, which tracks wealth excess of 800,000 SEK (~100,000 USD). Firms in our data are either incorporated (limited liability) or unincorporated (partnerships and proprietorships with unlimited liability). Since financial liability may affect the likelihood of disengagement, we controlled for *legal form* (1= incorporations). To account for additional investments in underperforming firms, we included a *new investments* variable based on yearly equity injections (Wennberg et al. 2010). We controlled for *entrepreneurial earnings* as a measure of performance. We used firm-level performance variables from RAMS and individual-level data from LISA to calculate earnings based on Hamilton’s (2000) definition [revenues – expenses = money taken out + entrepreneurial earnings] and used its natural log value to correct for skewness. *Education* was measured in years. We also controlled for other types

³ We deleted 1,102 trade sales (representing 1.2% of disengaged founders) from the dataset. One limitation of our sample is that we are unable to directly measure the number of bankruptcies. However, according to the Swedish census data, the recent average number of annual bankruptcies is 0.19% of all privately held firms (from 2010-2015).

of experience: *Management experience* was based on a “personnel responsibility” categorical variable in the 1990 census (0=no experience, 1=some experience, and 2=extensive experience). *Industry experience* was a count of years within the focal industry. *Venture similarity experience* was based on Finkelstein and Haleblan’s (1999) measure of comparing industry affiliations of prior ventures. Last, we controlled for industry (at the SIC-2 level) and time-varying effects (year dummies).

3.4. Empirical strategy

We used a Cox proportional hazard model to estimate the likelihood of disengagement. The Cox model does not require assumptions about the underlying shape of the hazard distribution. To address “tied events” in the data, we used the Efron procedure. All coefficients in the regressions are displayed as Hazard Ratios (HR) to ease interpretation of marginal effects. A coefficient of 0.95 can be interpreted as “a one-unit increase in covariate X *decreases* the likelihood of the outcome variable by 5 percent,” while 1.05 indicates that “a one-unit increase in covariate X *increases* the likelihood of the outcome variable by 5 percent.”

To ensure that predicted effects did not deviate abnormally from observed values and that proportional-hazard assumptions were met, we plotted Kaplan–Meier survival curves for relevant variables and compared them with predictions from the Cox models. Table 1 includes means, standard deviations, and a correlation matrix for the variables. We saw no evidence of multicollinearity (VIF \leq 4).

Table 1: Descriptive statistics and correlations

#	Variable	Mean	Std. Dev.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	Disengagement	0.15	0.35	0	1														
2	Sex	0.69	0.46	0	1	0.01													
3	Age	45.45	10.75	0	95	-0.11	0.02												
4	Children	0.83	1.08	0	8	0.01	-0.03	-0.31											
5	Wealth	359,663	1,908,581	0	2.4E+08	0.00	-0.01	0.14	-0.04										
6	Legal form	0.41	0.15	0	1	0.19	0.08	0.01	0.02	0.04									
7	New investments this year	60,800	42,400	-9.2E+06	1.3E+09	0.02	0.00	0.00	0.00	0.00	0.02								
8	Ent. earnings (ln)	7.41	5.66	0	15.584	-0.45	-0.07	0.12	0.01	0.04	-0.38	-0.02							
9	Years of education	12.93	2.50	0	20	-0.01	0.05	-0.01	0.07	0.04	0.02	0.00	0.09						
10	Management experience	0.51	0.56	0	2	-0.02	0.14	0.23	-0.01	0.06	0.03	0.00	0.10	0.29					
11	Industry experience	1.41	1.97	0	5	-0.03	0.04	0.11	0.00	0.01	0.13	-0.04	-0.10	0.02	0.08				
12	Venture similarity	2.70	1.94	0	12.41	0.02	-0.07	-0.18	0.01	-0.01	-0.17	-0.01	0.10	0.00	-0.13	-0.41			
13	Entrepreneurial experier	0.34	0.74	0	5	-0.01	0.06	0.12	-0.02	0.01	0.04	0.01	-0.10	0.00	-0.08	0.02	-0.01		
14	Ent. experience ²	0.66	2.03	0	25	0.00	0.04	0.10	-0.01	0.01	0.01	0.00	-0.04	0.01	-0.07	0.00	0.00	0.91	

Table 2: Cox regression on new venture disengagement

	Model 1	Model 2	Model 3
Sex	0.891*** (0.018)	0.902*** (0.019)	0.905*** (0.019)
Age	0.995*** (0.001)	0.996*** (0.001)	0.997*** (0.001)
Children	1.013 (0.008)	1.017* (0.008)	1.017* (0.008)
Wealth	1.000*** (0.000)	1.000*** (0.000)	1.000*** (0.000)
Legal form	1.043*** (0.002)	1.043*** (0.002)	1.043*** (0.002)
New investments this year	1.000** (0.000)	1.000** (0.000)	1.000** (0.000)
Ent. earnings (ln)	0.799*** (0.002)	0.798*** (0.002)	0.798*** (0.002)
Years of education	1.006 (0.004)	1.008+ (0.004)	1.007 (0.004)
Management experience	1.109*** (0.020)	1.096*** (0.020)	1.098*** (0.020)
industry experience	0.991 (0.006)	0.990 (0.006)	0.991 (0.006)
Venture similarity	1.071*** (0.006)	1.070*** (0.006)	1.070*** (0.006)
Entrepreneurial experience		0.885*** (0.012)	0.686*** (0.020)
Ent. experience ²			1.108*** (0.011)
Log-likelihood value:	-115649	-115605	-115558
Likelihood ratio test:		87.26***	88.42***
Akaike Information Criterion (AIC)	78264	78261	78246
Ventures:	29.338	29.338	29.338
Disengaged ventures:	12.719	12.719	12.719
Venture-year observations:	89.296	89.296	89.296

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. Coefficients in hazard rate form; standard errors clustered on the venture level in parenthesis. All models include industry dummies and time dummies.

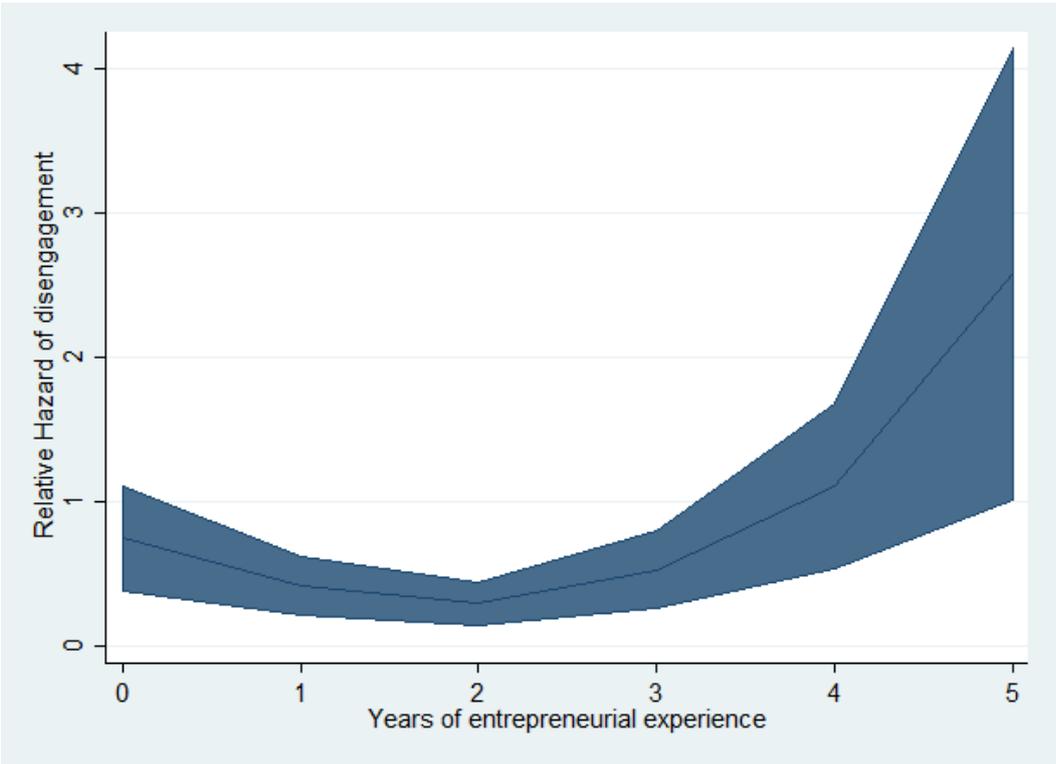
4. Results

Table 2 provides the Cox model results predicting disengagement. Model 1 is the base model with control variables only. Models 2 and 3 introduce the independent variables hierarchically.

The increase in fit statistics (log-likelihood and AIC values) across Models 1–3 demonstrates that the independent variables add explanatory power to the model beyond the controls.

To summarize Model 1: founders who were men, with children, greater wealth, incorporated ventures, who received additional investments and had management experience or experience with similar ventures were all more likely to disengage. Founders who were older or running more profitable ventures were less likely to disengage. In Model 2, the hazard ratio for entrepreneurial experience is less than one (HR=0.885; $p < 0.001$). In Model 3, the quadratic hazard ratio is positive (HR=1.108; $p < 0.001$), while the linear term remains negative and statistically significant. Plotted marginal effects in Figure 1 reveal experience to have the U-shaped effect, with the likelihood of venture disengagement lowest at moderate levels of entrepreneurial experience.

Figure 1: Marginal effects of entrepreneurial experience on disengagement



Results remained consistent after mean centering our key variables and trimming outliers. We also experimented with controls for performance in prior ventures to approximate innate entrepreneurial skills, however this did not affect the overall patterns reported (results available upon request).

4.1. Robustness checks

Since the databases are left censored at 1989, it is possible that especially older entrepreneurs may have experience unaccounted for in the dataset. As this introduces potential type-2 errors (falsely rejecting our hypothesis) the left-censored experience variable induces a conservative test of our hypotheses. Results remained consistent even with three robustness tests: First, we controlled for censoring with a dummy for entrepreneurs with 5+ years of experience. This slightly decreased effects sizes, but significance levels of the experience and experience² variables were still well below 5%. Second, we estimated our model on three previous cohorts where the experience variable was censored at 3, 4, and 5 years of experience, respectively. Although effects sizes weakened, we still observed the same U-shaped effect. Third, we estimated models including only those people ‘at risk’ of running a venture before the start of the observation period, meaning they were 19 years or older in 1989. We then compare the observed distribution of entrepreneurial experience in this dataset to that of our full data to compare whether there is a potential bias in not accounting for these older entrepreneurs who could have more extensive experience than what we observe. Results were qualitatively identical. To explore the possibility of differential effects produced by other disengagement outcomes, we also ran a competing risks model (with trade sale as the alternate event). We observed similar results for our original dependent variable, but did not observe the same relationship for the trade sale outcome.

5. Discussion

This study’s main objective is to promote a new approach to understanding the entrepreneurial experience-disengagement relationship. We argue that one reason for the inconsistencies of existing research is because experience has a curvilinear relationship with venture disengagement – a pattern not identified in prior work. Like other acquired skills, knowing when to call it quits comes with experience. Our analyses reveal that novice and highly experienced entrepreneurs are more likely to disengage with their ventures than those with moderate levels of experience, albeit for different reasons. This U-shaped pattern helps clarify why the experience-disengagement relationship can go in opposite directions under some circumstances. For example, Delmar and

Shane (2006) reported a negative relationship based on analyses of a shorter timeframe (30 months), while Wennberg et al. (2010) demonstrated a positive relationship. Although these studies operationalized experience differently, our model offers a unified framework for these seemingly contradictory conclusions.

To explain these findings, we focus on each section of the U-shaped pattern, starting with the novice entrepreneurs, proceeding to moderately experienced, and concluding with experts. *Novice entrepreneurs* are at risk of high disengagement because they are most reliant on external feedback to bridge their knowledge gaps about their business ideas and early venturing efforts. These entrepreneurs will seek out and receive unfiltered suggestions and criticisms from advisors, lead users and customers, and other stakeholders. Without first-hand experience, these novices lack perspective to discern true signals from noisy feedback generated by all new ventures. Without this perspective, novices may disengage prematurely by misinterpreting slow customer traction or stagnant user adoption as leading indicators of their prospects for growth and survival. They are most vulnerable to stakeholder skepticism and succumb to doubts about whether their ventures can actually succeed. Some ventures simply require time to achieve product-market fit, but novices may not be patient enough for their efforts to mature (Kim, Longest, & Lippmann, 2015). Moreover, stress and financial uncertainties associated with the entrepreneurial lifestyle may take its toll on novices, leading them to disengage rather quickly to pursue other endeavors.

While novices are prone to disengage quickly, our results show that moderately experienced entrepreneurs are more determined to persist. We speculate that their ongoing efforts are driven in part by the competence traps they face associated with their modest expertise. Having just enough experience to exhibit some confidence, these entrepreneurs are susceptible to superstitious learning – making incorrect inferences from past events – and trust their “gut feelings” without systematically gathering and analyzing relevant data from their stakeholders (Cooper, Woo, & Dunkelberg, 1988; Levitt & March, 1988; Toft-Kehler et al., 2014). As

organizational learning research has shown, making accurate inferences from past experiences is not a trivial exercise since the mapping between experiences often occurs out of context, resulting in outdated or misguided applications. This is especially important for entrepreneurship since building a new venture is a complex undertaking and differences in industry, location, and length of time can affect the accuracy of the inferences. When moderately experienced entrepreneurs rely heavily on their limited knowledge, they become vulnerable to falling into competence traps and convince themselves their ventures can succeed if they only persist longer. Thus, these entrepreneurs are least likely to disengage, even if it may be in their best interest.

For our last group – the expert entrepreneurs – we speculate that their past experiences enable them to be most discerning than their less-experienced counterparts, enabling them to disengage quickly from unpromising ventures (Raffiee & Feng, 2013; Shepherd, McMullen, & Jennings, 2007). With extensive experience, expert entrepreneurs can assess venture potential more quickly. With the perspective gained from their experiences, these entrepreneurs also know how and where to obtain reliable information to validate nascent opportunities and can analyze incoming information more accurately. They are more decisive about disengaging, because they understand the opportunity costs of persisting in less-promising ventures. While expert entrepreneurs are as likely to disengage as novices, the reasons for doing so differ considerably.

In summary, we show how entrepreneurial experience provides a basis for concrete strategic actions to disengage from unpromising ventures (Delmar & Shane, 2006; Holland & Shepherd, 2013; Zahra & Wright, 2011). Our work highlights disengagement – in addition to venture creation and growth – as an important outcome of experience (Arora & Nandkumar, 2011; Dimov, 2010). Our findings suggest expert entrepreneurs are best positioned to determine when to persist or disengage from new ventures (Sarasvathy, 2008). Our work highlights how experience helps entrepreneurs discern when to stop devoting resources to unsustainable efforts (Sarasvathy & Venkataraman, 2011) and more effectively manage entrepreneurial risk (Gunther McGrath, 1999). Over the arc of a career, time and capital are also valuable resources, so

knowing when to quit may also increase overall career success (Burton, Sørensen, & Dobrev, 2016; Dimov, 2010).

We offer several opportunities for future research to further refine our study. One popular technique amongst practitioners is to “pivot” quickly when the business model is not working. Our study design cannot capture these fine-grained but substantive changes, but this limitation opens up opportunities for future studies on disengagement *within* firms (e.g., Bakker & Shepherd, 2015). For example, highly experienced entrepreneurs may pivot more quickly based on their unwillingness to bear the opportunity costs of underperformance (Blank, 2013; Ries, 2011). Future research may also seek to pinpoint the mechanisms jointly contributing to disengagement and the likelihood of re-entry as a way to further probe these practitioner recommendations (Parker, 2013; Rocha, Carneiro, & Varum, 2015). While our study provides one empirical analysis of a non-linear, U-shaped relationship between experience and disengagement, future work in other contexts and with longer observation windows can help further generalize these insights and determine more precisely the inflection point on the experience curve to differentiate novice, moderately experienced, and expert entrepreneurs.

6. Conclusion

Findings of a U-shaped relationship between entrepreneurial experience and the likelihood of disengagement showed that novices and highly experienced entrepreneurs are more likely to disengage from new ventures as compared to moderately experienced entrepreneurs. Our study offers clarity into the conflicting outcomes of prior research, emphasizes disengagement as an acquired skill, and offers empirical support to behaviors advocated by entrepreneurial practitioners.

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