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Getting your hopes up but not seeing them through? Experiences as determinants of income expectations and persistence during the venturing process

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ABSTRACT

In this study, we investigate the effects of industry and startup experiences on income expectations and persistence of nascent entrepreneurs. We posit that experience can have two interrelated effects: (1) it provides skills that may affect persistence, but also (2) affects performance expectations. We develop and test hypotheses about the impact of industry and startup experience on both expectations and persistence. Data of 808 nascent entrepreneurs from the Panel Study of Entrepreneurial Dynamics show that industry experience increases income expectations and persistence alike, whereas startup experience increases expectations without increasing persistence. We discuss implications for scholarship and practice.

Introduction

Why do some entrepreneurs who initiate the startup process convinced of having a profitable project quit before seeing the business established, while others who start out with less promising expectations may persist to see their business established? How initial performance expectations about a new venture (imperfectly) relate to persistence with the nascent venture has been a topic of marked interest in the entrepreneurship literature (Gimeno, Folta, Cooper, & Woo, 1997; Hechavarria, Renko, & Matthews, 2012). This topic is relevant because unrealistic initial income expectations may lead entrepreneurs to quit too soon or too late, thereby missing out on a potentially more profitable opportunity or escalating commitment to a poor idea. In this study, we seek to contribute to the growing literature on entrepreneurial persistence and related constructs of resilience and grit (Chirico, Salvato, Byrne, Akhteer, & Arriaga Múrquiz, 2017; Nicolopoulou, 2014; Randolph, Li, & Daspit, 2017; van Gelderen, Thurik, & Patel, 2011).

A stream of the literature has focused on the determinants of entrepreneurial expectations (Renko, Kroeck, & Bullough, 2011; Shaver, Gartner, Crosby, Bacalarova, & Gatewood, 2001; Uy, Foo, & Ilies, 2015) while a different stream

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has explored the link between expectations and persistence or other entrepreneurial outcomes (Gatewood, Shaver, Powers, & Gartner, 2002; Wiklund & Shepherd, 2003). A common underlying factor serving these separate streams of research is *experience*. On the one hand, past experiences shape entrepreneurs' expectations: they form the basis for estimating future entrepreneurial outcomes (Gatewood et al., 2002). On the other hand, experience initially allows entrepreneurs to develop skills, learn patterns of action, and accumulate performance enhancing knowledge that affects their persistence (Corbett, 2007; Stuart & Abetti, 1990; ToftKehler, Wennberg, & Kim, 2014).

Based on this dual effect of experience, we add to the literature by exploring how experience impacts income expectations on one hand and persistence on the other. We also question whether different types of experiences have similar impact on early stage nascent ventures. Some experiences may generate overly optimistic expectations at the venture's outset that lead to disappointment and hence to lower persistence. By contrast, other experiences may provide entrepreneurs with skills and knowledge that position them to progress through the nascent stage. Therefore, if different types of experiences affect expectations in different ways, they may also lead to different degrees of satisfaction or disappointment with the early feedback received in the startup process, increasing or decreasing entrepreneurs' persistence.

Entrepreneurial persistence, defined as the continuation of effortful action despite impediments, threats, or failures, either real or imagined (Gimeno et al., 1997; Hechavarria et al., 2012), has been underexplored compared to its relevance for understanding entrepreneurial startup and exit dynamics (Ayala & Manzano, 2014; Chirico et al., 2017; Davidsson, 2012; DeTienne, McKelvie, & Chandler, 2015; Freeland & Keister, 2016; Guenther, Oertel, & Walgenbach, 2016; Lewis, 2015; Randolph et al., 2017; Uy et al., 2015; van Gelderen et al., 2011; Wennberg, Wiklund, DeTienne, & Cardon, 2010). Understanding persistence during the nascent stage allows important insights into the period before entrepreneurs make a choice between launching and quitting the startup project. Persisting through this nascent period while gathering more information about the opportunity is crucial for validating the need it solves, vetting its market potential, and determining its feasibility. However, persistence is costly in terms of time, resources, and opportunity costs, suggesting that entrepreneurs only persist if they perceive future benefits to outweigh these costs.

Prior studies exploring entrepreneurial expectations have focused on post-entry situations (e.g., after the venture has been formally established), and in particular on whether entrepreneurs met their aspirations (e.g., Cassar, 2014; Hyytinen, Lahtonen, & Pajarinen, 2014). However, in preentry situations (e.g., before entrepreneurs formally establish their business) there is much more uncertainty for entrepreneurs than in post-entry situations because they are in the process of finding out relevant information that they lack, such as custom

ers' preferences or competitors' strengths and weaknesses. Because of this high uncertainty and resulting difficulties inherent in the pre-entry process of starting a new business, it is important to understand the factors that keep entrepreneurs persisting during that initial period (Wicker & Davidsson, 2015), and in particular how preentry experiences and expectations motivate entrepreneurs to develop their ventures.

We rely on the central tenet of expectancy theory (Rotter, 1954) as applied to entrepreneurial settings (Gatewood et al., 2002; Renko et al., 2011), that entrepreneurial behavior is a function of an entrepreneur's expectation about the consequences of that behavior. As suggested by Renko et al. (2011), expectancy theory predicts that an entrepreneur will exert certain effort on a new venture based on the expectation that those efforts will produce a desirable outcome (e.g., starting a new venture will lead to financial success). We use this general logic in expectancy theory to propose that the motivation to persist with a new entrepreneurial project is a function of income expectation of such project. Within this framework, we explore how the two most important and often studied experience types – specific industry experience and startup experience – relate both to initial income expectations and subsequent persistence.

We use income expectations as an approximation of performance expectations assuming that entrepreneurs, regardless of their ultimate goal, expect some level of future income as a means to keep the venture operational and to fulfill other potential objectives. For example, even if an entrepreneur may not be driven by income and is actually driven by the goal of "working autonomously," she still needs her new venture to generate an income above a certain threshold for it to survive and be able to fulfill her ultimate goal.

We add to the growing literature on persistence by modeling how different experiences determine entrepreneurs' expectations and persistence through their dual role both as inputs that shape expectations and as skillenhancing factors that help entrepreneurs to continue the nascent startup process. By simultaneously analyzing two important experience types, allowing for their direct and indirect effects through expectations, we uncover nuanced links of how experiences relate to entrepreneurial startup behavior. We also contribute by shifting the research focus toward preentry dynamics of entrepreneurs. Determinants of nascent startup persistence should receive further attention because understanding them can help us better interpret existing studies and design new ones at later stages that do not suffer from survival bias and left truncation (Yang & Aldrich, 2012).

In the next sections, we develop testable hypotheses that link industry and startup experience to initial income expectations and subsequent persistence with the same venture. A discussion of data, variables, and analytical techniques follows. We then present our findings and conclude with a discussion of their theoretical and practical implications.

Literature review and hypotheses

Entrepreneurial persistence

Persistence has often been associated with desirable traits such as commitment, tenacity, or feelings of responsibility and dedication toward a target (Baum & Locke, 2004; Cardon & Kirk, 2015; Markman, Baron, & Balkin, 2005; Murnieks, Cardon, Sudek, White, & Brooks, 2016), which are all helpful for entrepreneurs to overcome obstacles (Kuratko & Hodgetts, 2007). Relatedly, persisting also allows entrepreneurs to buy more time to test multiple business hypotheses until they reach a viable configuration of resources, something that Garud and Van de Ven (1992) termed "action persistence" (p. 93). A different view described by Davidsson (2006) describes persistence as negative, because it hinders the rapid discarding of poor ideas. This argument complements the idea by Garud and colleagues that persisting too long and sustaining investments in a poor opportunity is harmful for entrepreneurs (Garud, Kumaraswamy, Nayyar, McGrath, & Levitt, 1998). Such behavior reflects the escalation-of-commitment trap known to drive individuals toward suboptimal outcomes (Davidsson, 2012). Regardless of the viewpoint adopted, persistence entails opportunity costs of not doing something else, and might even increase switching costs if entrepreneurs invest their time into learning about one particular market or technology (Gimeno et al., 1997).

Other constructs closely related to persistence, such as "resilience" or "grit" have also received substantial attention in recent years (Ayala & Manzano, 2014; Lewis, 2015; Nicolopoulou, 2014; Randolph et al., 2017; van Gelderen et al., 2011). Whereas persistence refers more generally to the effortful continuation of a new venture, studies on resilience and grit emphasize the capacity of entrepreneurs to overcome particularly difficult challenges (Ayala & Manzano, 2014). In this study, we use the term persistence to refer to its general definition as well as the concepts of resilience and grit.

Early studies have used persistence as a proxy for success based on the idea that the successful establishment of any new firm requires that entrepreneurs persist throughout the nascent phase of the project (Birch, 1981; Delmar & Shane, 2006; DeTienne, Shepherd, & De Castro, 2008; Kirchhoff & Philips, 1988; Liao & Gartner, 2006). Yet, more recent efforts to better define what startup success is (Davidsson, 2012) underline the necessity to study persistence separately from progress or success (Davidsson & Gordon, 2016; Dimov, 2010; Hechavarria, Matthews, & Reynolds, 2016; Khan, Tang, & Joshi, 2014; Parker & Belghitar, 2006). Therefore, the need to better understand its distinctiveness motivates further exploration of its antecedents.

The links between experiences, expectations and persistence

The central idea of expectancy theory, namely that expectations of future outcomes drives individuals' motivation to pursue certain actions has been present

in studies of entrepreneurial behavior for years (Edelman, Brush, Manolova, & Greene, 2010; Gatewood, 1993; Gimeno et al., 1997; Renko et al., 2011; Shepperd & Taylor, 1999). For example, expectancy theory has been used to predict how expectations about a particular business affect the choice of minority members to become entrepreneurs (Edelman et al., 2010), the growth intentions of nascent entrepreneurs (Manolova, Brush, Edelman, & Shaver, 2012) task effort or quality of performance (Gatewood et al., 2002), or the likelihood of having an operating business (Renko et al., 2011).

This notion has also been present in related frameworks to describe how expectations influence an individual's choice to pursue an entrepreneurial career (e.g., Campbell & Pritchard, 1976; Cassar, 2006; Douglas & Shepherd, 2000; Gatewood, 1993; Gimeno et al., 1997; Katz, 1992; Shane & Venkataraman, 2000), the innovation activity in organizations (Monge, Cozzens, & Contractor, 1992), job choice in general (Saks, Wiesner, & Summers, 1994), and the effort exerted toward starting a business (Renko et al., 2011). Expectations have also been shown to determine subsequent actions of individuals through the venturing pro cess, such as whether to continue development or the amount of resources to invest (Gimeno et al., 1997; McCarthy, Schoorman, & Cooper, 1993). Similarly, other frameworks have emphasized the idea of "potential for returns" to the entrepreneur's human capital as key driver of entrepreneurial decisions (Campbell, 1992; Evans & Jovanovic, 1989; Evans & Leighton, 1989). Others have conceptualized the motivation to engage in certain activities as the result of computing the "expected subjective utility" from different outcomes as a basis for a theory of volunteer motivation (Harrison, 1995), and more recently, Gruber, Kim, and Brinckmann (2015) used a subjective utility-like model to explore how differences in entrepreneurs' experiences affected various dimensions of opportunity evaluations expected by entrepreneurs.

The common prediction among these frameworks is that entrepreneurs form subjective expectations about their chances of obtaining desirable outcomes, and such expectations become an important motivational engine to pursue their venture (Krueger, Reilly, & Carsrud, 2000; Renko et al., 2011; Steel & König, 2006). Put differently, entrepreneurs' actions are driven by their expected consequences. By desirable outcomes we do not necessarily mean financial rewards. We acknowledge that many entrepreneurs are motivated by "working autonomously without a boss," or "earning the respect of peers," among other nonpecuniary outcomes. Especially, effectuation scholars assert that simple calculations of expected income or returns alone do not drive entrepreneurial action (Dew, Read, Sarasvathy, & Wiltbank, 2009). While we agree with this view, we also consider that any entrepreneur expects some level of future revenues as a means to keep the venture oper ational and to fulfill other potential objectives. Therefore, we assume that entrepreneurs form initial expectations of future income that relate to their subsequent persistence.

In this study, we extend this literature by highlighting the role of experiences in shaping entrepreneurial expectations and therefore shaping persistence indirectly. More formally, we argue that entrepreneurs' prior experiences serve as antecedents that affect persistence in two ways: first, they affect beliefs about the venture's future performance (e.g., income expectations), which later impact persistence. Second, prior experiences provide entrepreneurs with skills, in a learning-by-doing sense, equipping entrepreneurs with a repertoire of practiced actions that have been successfully used to solve problems in the past. In that sense, experience constitutes a key resource of the nascent venture, which provides experienced entre preneurs with an improved ability to pursue successful strategies (Barney, 1991; Newbert, Kirchhoff, & Walsh, 2007; Prahalad & Hamel, 1990; Wernerfelt, 1984) and persist with their venture development. In the next section, we build on this dual role of experience to develop hypotheses about the relationship between experiences, expectations, and persistence, as re flected in the conceptual model in Figure 1. To do so, we focus on industry specific work experience (Cassar, 2010, 2014; Newbert et al., 2007), and entrepreneurial startup experience (Corbett, 2005; Dimov, 2010), the two most examined forms of experience in the entrepreneurial context.

The effect of industry and startup experience on income expectations

A large amount of tacit knowledge accumulated over time is necessary to understand the workings of an industry (Dencker & Gruber, 2015). Specific industry experience is difficult to replicate through other forms of experience. With industry experience, entrepreneurs become familiar with the structure and competitive dynamics, key players (competitors and suppliers), their relative strength, industry quality standards, or customer preferences, and develop industry-specific managerial capabilities that allow them to spot trends in the industry (Newbert et al., 2007; Walsh & Linton, 2011). Such information is useful to estimate the effort required to develop a new product that is likely to meet market demands. At the same time, it helps better estimate the potential

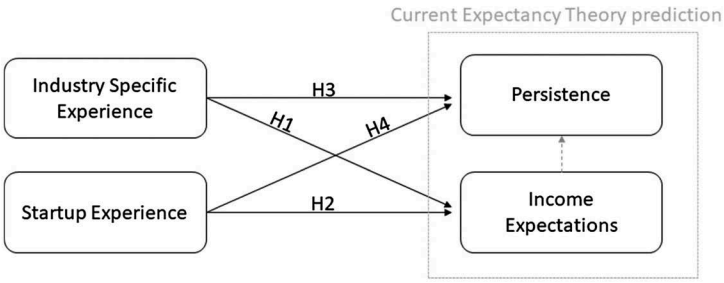

Figure 1. Conceptual diagram and hypotheses.

payoff. Thus, entrepreneurs with years of industry experience who decide to start a new venture more accurately predicting whether they will obtain rewards worth their efforts (Cassar, 2014). This implies that by systematically discarding projects of limited payoffs, they predominantly engage in ventures for which they have high income expectations.

Another argument for a positive relationship between industry experience and income expectations for a nascent venture is that of opportunity costs for entrepreneurs who have relevant industry experience (Cassar, 2006; Shane & Venkataraman, 2000). Consistent with Cassar's (2006) findings that entrepreneurs with high opportunity costs expect to be involved in ventures with larger future revenues, we argue that industry experience will increase opportunity costs and therefore the income expectations of nascent entrepreneurs.

H1: Industry experience increases income expectations for nascent ventures.

Due to the uncertainty involved in any entrepreneurial context, entrepreneurs rarely identify the efforts necessary to successfully start and run a new venture fully and a priori. They often have to learn by experimentation (Starr & Bygrave, 1991). By reflecting on their previous startup experiences, entrepreneurs can improve predictions of future outcomes related to new ventures (Jacob, Lys, & Neale, 1999). Literature on serial entrepreneurship argues that startup experience leads to the development of entrepreneurship-specific knowledge and human capital needed for startup success (Ucbasaran, Westhead, & Wright, 2008, 2009; Unger, Rauch, Frese, & Rosenbusch, 2011). Such specific knowledge further facilitates comprehension of the task at hand (Dimov, 2010), facilitates estimation of future task-specific outcomes (Hopp & Sonderegger, 2015), and helps to develop strong cognitive frameworks that enhance the selection of opportunities (Baron & Ensley, 2006; Gaglio, 1997; Gruber, MacMillan, & Thompson, 2008). Hence, previous startup experience provides a better understanding of the efforts required to achieve desired level of income, and consequently allows better selection of ventures to engage in. This leads experienced entrepreneurs to engage in a startup project only if they expect their accumulated human and social capital to produce high returns.

H2: Startup experience increases income expectations for nascent ventures.

We argue and test whether industry and startup experience will display a curvilinear relationship with income expectations. Scholars have found that the effect of experience on many outcome variables diminishes over time (Campbell et al. 2012; Garrett, Miao, Qian, & Bae, 2017; Parker, 2013). Garrett et al. (2017) argue that as individuals gain experience in an industry, they gain further expertise in form of market and technological know-how. This should translate into increasing income expectations, commensurate with the

achievements and experience gathered in the industry. This perspective largely investigates the positive side of highly specific industry experience.

At the same time, studies linking industry experience with entrepreneurial expectations claimed that extensive industry experience may moderate performance expectations because it allows entrepreneurs to "know what they do not know" (Landier & Thesmar, 2009; Russo & Schoemaker, 1992), suggesting that each additional year of industry experience increases expectations slightly less. In the same line, the relative advantage of the additional year of industry experience is significantly greater at lower experience levels than at higher ones (Avolio, Waldman, & McDaniel, 1990; McDaniel, Schmidt, & Hunter, 1988; Sturman, 2003). We agree with these findings and suggest that one underlying factor is the increasing specialization that comes with many years of working in a specific industry (that of the focal venture). We argue that diminishing returns on time spent in the industry are a function of industry experience becoming increasingly fine-tuned to the context in which is it gained. Therefore, experience that is very context-specific becomes less useful in new contexts. This in turn should reduce the expected income from venturing at very high levels of industry experience.

H3: The positive effect of industry experience on income expectations for a nascent venture increases at a decreasing rate (curvilinear effect).

As for startup experience, an extensive experience with startups makes entrepreneurs more vividly aware of the complexity of starting a new firm (McGrath & MacMillan, 2000; Shane, 2000) and of the low success rates of new ventures (Hayward, Shepherd, & Griffin, 2006), which may translate into more slowly growing income expectations. Nevertheless, nascent entrepreneurs with prior startup experience develop relevant expertise for a new startup (Kalleberg & Leicht, 1991). With increasing startup experience, this may lead them to develop confidence in their ability. That in turn should show in their expectation to generate high income from the identification of a promising opportunity (Shane, 2003). Overall, this should result in initially growing income expectations with the first few startup experiences.

However, beyond a certain number of startups founded, the additional involvement with any one new venture does not increase their income expectations linearly. Instead, there is evidence that "entrepreneurs only obtain temporary benefits from spells of venturing (i.e., being a serial entrepreneur), which eventually die away" (Parker, 2013: p. 652). Further research by ToftKehler et al. (2014) specifies that the difficulty to generalize any previous startup experience correctly to the next venture often results in negative implications. This suggests that beyond a certain number of

startups, there is only a marginal benefit from previous startup experience. As a consequence, we posit:

H4: The positive effect of startup experience on income expectations for a nascent venture increases at a decreasing rate (curvilinear effect).

The effect of industry and startup experience on persistence

Previous research indicates that industry experience reduces the likelihood of startup failure (Cooper, GimenoGascon, & Woo, 1994), suggesting that entrepreneurs who are wellversed in the specific industry in which they venture may have higher chances to persist through the nascent startup phase. At the same time, Cassar (2010) found that industry experience has no effect on entrepreneurial forecast bias (the gap between expectations and realized outcomes), suggesting that performance expectations based on industry experience are well-calibrated, and, as a consequence, industry experience may indirectly affect persistence through the generation of accurate expectations (e.g., expectations that are not overly optimistic). In other words, entrepreneurs forming accurate expectations are less likely to experience disappointment and waning motivation when their initial expectations meet market feedback. Hence, they are more likely to stay motivated to persist with their venture.

H5: Industry experience has a positive effect on entrepreneurial persistence.

By contrast, entrepreneurs with startup experience are more aware of the complexity of starting a new firm and of their typically low success rates Rer Up, 2005, and may more readily accept negative feedback from the market and therefore quit their efforts more easily than those without startup experience. At the same time, entrepreneurs with previous startup experience may be psychologically attracted by the excitement of starting new projects and thus may more quickly decide to quit and start another venture (Gimeno et al., 1997) if market feedback falls below expectations. Also, startup experience can reduce the costs of identifying profitable opportunities (King & Tucci, 2002) and make the process of switching to a new venture more affordable, less fearsome, and hence more probable to recur. This would reduce persistence in any one project in favor of starting a new one. As a result, an individual with substantial startup experience is more likely to switch in the face of negative market feedback, and therefore persist less on average.

H6: Startup experience has a negative effect on entrepreneurial persistence.

Methods

Data and sample

We used the most recent 2013 release of the Harmonized Panel Studies of Entrepreneurial Dynamics (PSED) combining PSED I and PSED II. Both data sets present longitudinal records of business creation in the United States by 31,264 American adults screened in an effort to identify the individuals actively involved in trying to start a venture. The PSED procedure to collect observations starts with a screener interview asking participants to attest that they (a) consider themselves actively involved in the venture creation process, (b) have engaged in startup activities within the past 12 months, (c) expect to own all or a part of the resulting firm, and (d) do not consider their venture an operating business yet (Reynolds & Curtin, 2011). At the interview time 1,599 individuals were actively involved in starting a new business and complied with the additional sample definition by Davidsson and Gordon (2012) and Reynolds and Curtin (2011). Like them, we disregarded respondents if they: (a) reported positive cash flow from the venture before the screening interview, (b) reported two or fewer startup activities within the preceding 12 months, (c) failed to report their startup status at least once, or (d) had worked on their nascent venture for longer than 10 years prior to the first interview. Avoiding unbalanced comparisons, we restricted the sample to respondents who provided all control variables. The resulting 808 individuals constituted the final sample. Mean comparisons of demographics revealed no sample selection bias entailed by dropping observations for the just described reasons. We do clarify, however, that our final sample differs from the rest of the data in terms of age, ethnicity, and education, most likely because of different data availability between screener and first complete interview as well as purposeful oversampling of minorities by the PSED creators.

The reason for choosing the harmonized PSED lies in three major advantages for our study. First, it followed each individual and his or her initial venturing effort over time, providing longitudinal persistence data during the nascent startup process. Second, respondents separately reported the two types of prior experience: industry and startup experience. Data for these experiences were recorded independently of and chronologically before our persistence dependent variable. This helps to mitigate common method and endogeneity concerns. Third, the PSED data include important controls that help to rule out competing explanations. We introduce dependent, independent, and control variables next.

Variables

Dependent Variables – Expectations and Persistence

We measured expectations as the respondents' expected total revenue or income (in log USD) for the first year and alternatively for the fifth year in

which the venture would be fully operational. Because any choice of a timeframe to measure expectations is somewhat arbitrary, we choose to capture expectations for two different points in time to check for the robustness of our model. Recording these data before any income is earned or even a new firm is established helped to prevent hindsight bias (Cassar & Craig, 2009).

For the persistence measure, interviewers asked at each yearly follow up interview: "Do you consider your venturing efforts to have already led to a new firm, are you still trying to start your nascent venture, or have you given up on it?" The "new firm" status in addition required sufficient cashflow to cover basic operating expenses – inclusive of founder salary – for six of the preceding 12 months. While this is a high standard for classifying a new firm, this strict classification effectively differentiates established ventures from ongoing nascent startup efforts (Parker, 2011; Reynolds & Curtin, 2011). The demanding performance standards help theoretical comparison, because without them, respondents might have reported startup status for different levels of venture advancement. The "still trying" or persistence status required respondents to: (a) spent more than 160 hours over the past 12 months on the development of the venture, (b) expected a similar time investment over the next six months, and (c) expressed a clear commitment to the venture as the major focus of his or her professional activity in the coming year. Again, clear additional boundaries assured a unified and comparable understanding of persistence and guarded against confusion with ventures that were dormant or dabbling. Lastly, "abandonment" entailed the respondent being disengaged from the venture with no intention to return. For any status, corroborating the individual self-reported status with other measurable outcomes strengthens our confidence in the robustness and inter-respondent comparability of our measures. All ventures started with a value of 0 (= persistence) at the date of conception (first of two subsequent startup events within 12 months). This status changed to 1 (= not persisting with the startup effort anymore) if ventures were "abandoned."

Explanatory Variables – Experience Types

Our main explanatory variables are specific industry experience and startup experience. Previous studies used these variables widely and often (e.g., Cassar, 2010, 2014; Dimov, 2010; Newbert et al., 2007; Parker, 2011; Walsh & Linton, 2015). We employed them for comparability purposes and to extend our understanding of them. Specific industry experience records in a continuous manner the individual's accumulated years of working within the industry of the nascent venture. The venture relevant industry experience allows us to ensure direct applicability of the entrepreneur's specific industry experience to the nascent startup under consideration. Startup experience

records how many startups an individual has started or helped to start. Both variables are on comparable scales, starting at zero and increasing in positive integer values.

Control Variables

For our analyses we used 12 control and 20 industry dummy variables. The majority of control variables were already established as influencing the venturing outcome (Hechavarria et al., 2016; Kacperczyk, 2012; Parker, 2011). We controlled for technology differences with *newtech*, coded as 1 if the technologies or procedures required for the venture were generally not available more than five years ago, and as 0 otherwise. *Conception lag* controlled for left truncation (Yang & Aldrich, 2012), which occurs if respondents have been exposed to the risk of an event happening for different periods of time prior to the first data collection. Hence, conception lag calculates how many months passed between the first interview and the venture's conception (Hechavarria et al., 2016). *Intrapreneur* recorded if a new venture started together with an employer, affecting startup persistence through different resource endowments or the availability of a regular salary.

In terms of demographic controls, *age* was measured continuously. Only adults at least 18 years old participated. *Education was* measured categorically, controlling for heightened entrepreneurial intentions (Rauch & Hulsink, 2015). Additional socio-economic controls included: *Female* as the gender of a respondent (1 = female, 0 = male), *Married* (1 = married, 0 = not married), *Native born* in the United States (1 = yes, 0 = no) and controlled for differences in social support networks. *Ethnicity*, known to impact persistence (Freeland & Keister, 2016), recorded if the respondent was of African (American), Asian, or Hispanic descent (1 = yes, 0 = no). *Owner-occupier* stated whether a respondent owns the dwelling in which he or she resides (1 = yes, 0 = no). *Household income* reported the natural log of last year's household income in U.S. dollars. In particular, the variables *married, household income*, and *owner-occupier* controlled for the important caveat that availability of resources could allow entrepreneurs to persist longer with the venture development process. Twenty industry dummies controlled for different startup industries that might have different resource requirements, regulations, or other factors affecting income expectations and persistence.

Analyses and results

Descriptive statistics are shown in Table 1. On average, respondents persisted for 1,243 days, expected a yearly income of 33,252 USD (ln 33,252 = 10.41) in the first and 121,000 USD in the fifth year of operation, had nine years of industry-specific experience and over 10 years of managerial experience. Half of respondents had started one or more ventures before. Twenty-five percent

Table 1. Descriptive statistics and correlations.

	Variable	Mean	S.E.	Min	Max	1	2	3	4	5	6	7
1	Persistence (in days)	1243.71	844.02	0	3640	1						
2	Industry experience	9.05	10.14	0	47	0.0835*	1					
3	Startup experience	1.08	1.93	0	20	0.0156	0.0929*	1				
4	Income expectations 5 (ln)	11.70	1.86	5.99	20.03	0.0369	0.1021*	0.2180*	1			
5	Income expectations 12 (ln)	10.41	1.95	0.69	17.99	−0.0083	0.0821*	0.0525	0.7950*	1		
6	Newtech	0.24	0.43	0	1	−0.0181	−0.0063	0.0728*	0.0917*	0.0181	1	
7	Conception lag	16.59	16.71	0.16	109.96	0.5568*	0.0872*	−0.0354	0.0350	−0.0005	0.0031	1
8	Intrapreneur	0.25	0.43	0	1	0.0218	0.0280	−0.0669	0.1131*	0.1234*	−0.0440	0.0128
9	Industry (4 digit SIC codes)	4949.88	1730.48	1100	9200	0.0257	−0.0504	−0.0258	−0.0240	0.0008	0.0332	−0.0166
10	Age	42.89	11.81	18	83	0.1130*	0.3475*	0.2082*	0.0336	0.0035	−.0149	0.0392
11	Education	2.37	0.99	1	4	0.0651	0.0367	0.1148*	0.1125*	0.0473	0.0638	0.0319
12	Female	0.42	0.49	0	1	−0.0105	−0.1082*	−0.1108*	−0.2691*	−0.2150*	−0.0041	−0.0104
13	Married	0.55	0.50	0	1	0.0062	−0.0549	0.0212	0.0277	0.0587	−0.0603	0.0120
14	Native-born	0.95	0.22	0	1	−0.0529	0.0445	0.0360	−0.0110	0.0190	−0.0327	−0.0317
15	Ethnicity	0.20	0.40	0	1	0.0555	−0.0554	−0.0880*	0.0098	0.0122	0.0112	0.0258
16	Owneroccupier	0.71	0.46	0	1	0.0258	0.0857*	0.1140*	−0.0187	−0.0077	−0.0040	0.0706*
17	Household income (ln)	10.86	0.82	7.31	16.24	0.0223	0.0294	0.1882*	0.2849*	0.2448*	−0.0264	−0.0364

		8	9	10	11	12	13	14	15	16	17
8	Intrapreneur	1									
9	Industry (SIC codes)	−0.0527	1								
10	Age	−0.0681	−0.0309	1							
11	Education	−0.0822*	0.0953*	0.1654*	1						
12	Female	−0.1234*	0.0504	−0.0244	0.0552	1					
13	Married	−0.0612	−0.0878*	0.1091*	0.0309	0.0470	1				
14	Native-born	0.0113	−0.0275	0.0473	−0.0934*	−0.0008	0.0210	1			
15	Ethnicity	0.0385	0.1008*	−0.1690*	−0.0324	0.0367	−0.1174*	−0.1433*	1		
16	Owneroccupier	−0.0813*	−0.0521	0.2575*	0.1262*	0.0655	0.2832*	0.0165	−0.1702*	1	
17	Household income (ln)	−0.0434	−0.0346	0.1388*	0.2868*	−0.0391	0.3254*	−0.0499	−0.0982*	0.3368*	

N = 808, * indicates significant pairwise correlation at least at the 5% level.

Table 2. Regressions on income expectations for 1st year (in ln USD).

	Expectation for year 1				
	Model 0	Model 1	Model 2	Model 3	Model 4
Variables	Controls Only	Both Experiences	Curvilinear Industry exp	Curvilinear Startup exp	Full model
Industry-specific Experience		0.014*	0.043*	0.014*	0.039*
		(.007)	(.018)	(.007)	(.019)
Industry-specific Experience^2			−0.001+		−0.001
			(.001)		(.001)
Startup experience		−0.002	−0.006	0.198*	0.191*
		(.075)	(.075)	(.096)	(.096)
Startup experience^2				− 0.018	−0.018
				(.013)	(.013)
Newtech	0.137	0.139	0.131	0.118	0.111
	(.164)	(.160)	(.160)	(.160)	(.160)
Intrapreneur	0.477**	0.464**	0.457**	0.466**	0.460**
	(.139)	(.138)	(.139)	(.138)	(.138)
Age	−0.003	−0.007	−0.006	−0.010	−0.009
	(.006)	(.007)	(.007)	(.007)	(.007)
Education	0.007	0.009	0.000	0.000	0.007
	(.068)	(.067)	(.067)	(.067)	(.067)
Female	−0.745**	−0.719***	−0.716***	−0.712***	−0.709***
	(.132)	(.132)	(.132)	(.131)	(.131)
Married	0.053	0.081	0.084	0.059	0.063
	(.140)	(.137)	(.136)	(.135)	(.134)
Native-born	0.350	0.331	0.318	0.336	0.323
	(.384)	(.389)	(.390)	(.392)	(.392)
Ethnicity	0.162	0.160	0.143	0.156	0.141
	(.138)	(.138)	(.140)	(.138)	(.139)
Owneroccupier	−0.308*	−0.318*	−0.313*	−0.320*	−0.315*
	(.153)	(.153)	(.153)	(.154)	(.154)
Household Income (ln)	0.643***	0.643***	0.637***	0.651***	0.645***
	(.093)	(.094)	(.095)	(.099)	(.099)
Constant	3.527**	3.578***	3.555**	3.540***	3.521**
	(1.110)	(1.120)	(1.126)	(1.173)	(1.177)
Number of Observations	808	808	808	808	808
Degrees of freedom	10	12	13	13	14
F-Statistic	12.63***	11.99***	11.51***	11.48***	11.10***
R^2	0.123	0.128	0.131	0.142	0.145
Root MSE	1,836	1,834	1,832	1,819	1,818

Notes: Regression coefficients with robust standard errors in parenthesis.
***Significance at the 0.1% level, **Significance at the 1% level, *Significance at the 5% level, +Significance at the 10% level.

started a new business together with their employer. We recorded 42 percent female entrepreneurs. Most respondents were married, Caucasian, native-born, and male. This reflects demographic analyses of nascent entrepreneurs in the United States (Parker, 2011).

Tables 2 and 3 present results of the OLS regressions that modeled the expected income from the venturing activity in the first (Table 2) and in the fifth (Table 3) full year of operation after the launch. Model 0 in both tables displays only control variables. Model 1 in both tables includes the

Table 3. Regressions on income expectations for 5th year (in ln USD).

	Expectation for year 5				
	Model 0	Model 1	Model 2	Model 3	Model 4
	Controls only	Both Experiences	Curvilinear Industry exp	Curvilinear Startup exp	Full model
Industry-specific Experience		0.014*	0.038*	0.014*	0.039*
		(.006)	(.018)	(.006)	(.018)
Industry-specific Experience^2			−0.001		−0.001
			(.001)		(.001)
Startup Experience		0.144***	0.142***	0.119*	0.113*
		(.034)	(.034)	(.058)	(.058)
Startup Experience^2				0.002	0.003
				(.005)	(.005)
Newtech	0.430**	0.384*	0.377*	0.387*	0.380*
	(.154)	(.152)	(.152)	(.153)	(.152)
Intrapreneur	0.414**	0.439**	0.433**	0.438**	0.432**
	(.147)	(.145)	(.146)	(.145)	(.146)
Age	0.003	−0.005	−0.004	−0.005	−0.004
	(.007)	(.006)	(.006)	(.006)	(.006)
Education	0.097	0.087	0.080	0.089	0.081
	(.066)	(.065)	(.065)	(.065)	(.065)
Female	−0.908***	−0.822***	−0.819***	−0.822***	−0.820***
	(.124)	(.123)	(.123)	(.123)	(.123)
Married	−0.082	−0.024	−0.021	−0.021	−0.018
	(.134)	(.134)	(.133)	(.134)	(.133)
Native-born	0.147	0.079	0.067	0.079	0.066
	(.311)	(.307)	(.307)	(.307)	(.308)
Ethnicity	0.149	0.171	0.156	0.172	0.157
	(.140)	(.138)	(.138)	(.138)	(.138)
Owneroccupier	−0.402**	−0.428**	−0.423**	−0.427**	−0.422**
	(.157)	(.156)	(.156)	(.156)	(.156)
Household Income (ln)	0.706***	0.652***	0.646***	0.651***	0.645***
	(.101)	(.092)	(.092)	(.092)	(.092)
Constant	4.032***	4.730***	4.710***	4.734***	4.715***
	(1.113)	(1.025)	(1.028)	(1.020)	(1.022)
Number of observations	808	808	808	808	808
Degrees of freedom	10	12	13	13	14
F-Statistic	16.13***	16.40***	15.64***	15.31***	14.70***
R^2 Adj $R2$	0.180	0.206	0.208	0.206	0.209
Root MSE	1,697	1,673	1,671	1,673	1,672

Notes: Regression coefficients with robust standard errors in parenthesis.
***Significance at the 0.1% level, **Significance at the 1% level, *Significance at the 5% level, $^+$Significance at the 10% level.

simultaneous linear effects of industry experience and startup experience on ex-pectation. These models provide support for H1 in both tables, and limited support for H2, since startup experience only relates significantly to long-term income expectations. Models 2 and 3 show no or only vague marginal support for the curvilinear relationships we hypothesized as H3 and H4. Hence, these cannot be supported. Indeed, the full model, Model 4 in both tables also shows support for only the simultaneous linear effects. It is worth noting that startup experience has a substantially larger effect size than industry experience. We discuss these results in the discussion section.

Table 4. Cox regressions on persistence with "hazard" of abandonment (up to 72 month).

Variables	Model 0 Controls	Model 1 Industry-specific Experience	Model 2 Startup Experience	Model 3 Full model
Industry		0.983*		0.983*
Experience		(.007)		(.007)
Startup			0.990	0.991
Experience			(.031)	(.030)
Income	0.862*	0.859*	0.865*	0.861*
Expectations yr 5	(.054)	(.055)	(.055)	(.055)
Income	1.137*	1.142*	1.137*	1.142*
Expectations yr 1	(.069)	(.070)	(.069)	(.071)
Newtech	0.976	0.966	0.978	0.969
	(.145)	(.143)	(.147)	(.145)
Conception lag	0.954***	0.954***	0.954***	0.954***
	(.005)	(.005)	(.005)	(.005)
Intrapreneur	0.896	0.907	0.893	0.905
	(.126)	(.127)	(.126)	(.127)
Industry controls (20)	yes	yes	yes	yes
Socio-demographic controls (8)	yes	yes	yes	yes
Observations	805	805	805	805
Abandoned ventures	358	358	358	358
Degrees of freedom	30	31	31	32
Wald χ^2	1424.42***	1858.91***	1343.27***	1683.93***
Log Pseudolikelihood	−2090	−2086	−2090	−2086

Notes: Hazard ratios with robust standard errors in parenthesis.
***Significant at the 0.1% level, **Significant at the 1% level, *Significant at the 5% level, +Significant at the 10% level.

Table 4 presents four models of persistence. We used the PSED measure of elapsed calendar days between the conception date and the end of persistence ("abandonment"). Using weekly and monthly measures did not change the results. Three ventures recorded an end to their persistence before being conceived, lowering the sample for this analysis to 805 respondents. Out of the 805 respondents, abandonment occurred in 358 cases. The stcox command in Stata13 allows for the inclusion of robust standard errors to address heteroscedasticity (White, 1980).

Table 4 presents the results of four cox hazard models. Reported hazard ratios (HRs) above 1 indicate a higher incidence of abandonment, and hence shorter persistence. A HR below 1 indicates the reverse, that is, a lower incidence of abandonment and longer persistence.

After the controls-only Model, Models 1 and 2 tested the effect of industry, and startup experience respectively on the persistence of nascent venturers. The HRs below 1 for industry experience (HR = 0.983, p = .011) provides support for the positive influence on the persistence of entrepreneurs. Specifically, the HR suggests that the additional year of industry-specific experience lowers the likelihood of abandonment by about two percent and thus increases the chances to persist. This supports H5. We could not find support for H6.

Model 3 shows the same impact of industry-specific experience in the presence of both experience types together. Hence, Model 3 also supports

H5. The impact (or lack thereof) of each experience type on persistence in the presence of the other experience type changes only marginally compared to the single experience effects.

As a robustness check, we used a trichotomous outcome variable to conceptualize startup event history more finely (e.g., Carter, Gartner, & Reynolds, 1996; Hechavarria et al., 2016; Parker & Belghitar, 2006). Results of competing risk regressions were essentially the same even if we differentiated the end of any persistence spell between "abandonment" on one hand, and "new firm" on the other.

Discussion and conclusion

We provide the results in this study about the impact of two types of experience on initial income expectations and subsequent persistence with a nascent venture. We found that industry experience increase income expectations and persistence alike, but startup experience increases income expectations without increasing persistence. Interestingly, we observe that the type of experience that increases entrepreneurs' hopes the most in terms of expected income, startup experience, does not contribute to persisting with the same new venture, whereas industry experience, which moderately increases expectations, contributes to higher levels of persistence. Our argument for such finding is the following: if income expectations are initially overly optimistic, they are not likely to resist market feedback, leading entrepreneurs to quit their venturing efforts. If, however, initial income expectations are more realistic, market feedback is less likely to fall below expectations, thus prompting longer persistence. In other words, persistence is not a direct consequence of initial expectations but rather a function of the updated expectations against which entrepreneurs compare initial expectations with actual market feedback. Dimov (2010) similarly used the idea of an updating process by which nascent entrepreneurs receive pertinent information over time that helps them update their expectations about their opportunity confidence. Thus, our study emphasizes the idea of entrepreneurial motivation to persist as a dynamic process.

Our study furthermore complements work by Uy and colleagues (2015), who also investigated the efforts of nascent entrepreneurs by focusing on their sense of progress. Here, we offer a further distinction between experiential inputs that impact expectations and outcomes differently. Still, further research is necessary to distinguish whether nascent entrepreneurs who perceive progress and persist do so because their initial expectations were more realistic and thus more consistent with future market feedback, or, on the contrary, expectations were overly cautious, making entrepreneurs perceive any market feedback as good news.

Could persistence also be reflecting "failure to adapt or change beliefs"? To answer this question, our work should be seen in conjunction with studies that present industry experience as leading to strong commitment to certain industry

perceptions, which may prevent adaptation to the environment (Finkelstein & Hambrick, 1996; Porac, Thomas, & Baden-Fuller, 1989). Additionally, biases such as sunkcost effect (Tan & Yates, 1995) or escalation of commitment (McCarthy et al., 1993) can lead entrepreneurs to persist stubbornly in the face of negative feedback (Holland & Shepherd, 2013). Under this explanation, our findings that industry experience increases persistence could reflect that these experiences may increase future income expectations based on a preconceived idea of the industry conditions (or the quality of the new product) even if it objectively differs from the immediate feedback received from the market, leading experienced entrepreneurs to persist longer than inexperienced ones. In order to account for this possibility, we conducted additional tests (not reported here) including the interactions between expectations and each type of experience in the persistence model. Interactions were insignificant. Their inclusion did not change the fit or main results of the models.

The questions whether it is worthwhile to persist and until when, should concern scholars and practitioners for all the investments undertaken in new ventures and the long persistence horizons we analyze in this study. While we did not take a normative perspective characterizing persistence as neither good nor as bad, linking persistence to subsequent outcomes would enable such perspective. Using a longer time frame to study how initial expectations formed by past experiences affect persistence beyond the launch would help us to understand the potential continuation of the effects we proposed here. Indeed, this would help to advance the discussion on the merits and drawbacks of persistence (Davidsson, 2012).

Finally, by showing that some entrepreneurs endowed with substantial amounts of valuable experience do not persist until they have the possibility of observing any actual performance, that is abandon the efforts before, we provide preliminary empirical arguments for the existence of survival bias in studies of entrepreneurial performance, similar to what Parker and Belghitar (2006) address. Whether some of the demographic differences that researchers use to explain aspirations-performance gaps are actually driven by differences in persistence for entrepreneurs with poorly formed expectations needs further investigation.

In the same line of future research opportunities, we find it promising to investigate the experiences of entrepreneurs in greater detail in order to arrive at finer differentiation between which type of experience at what level, for what timeframe, and in which sector is most impactful for the initial aspirations, expectations, and persistence trajectories of nascent ventures. In particular, in technology-intensive contexts the role of an entrepreneur's individual prior technology experience is a promising research avenue to explore.[1] Another possible extension of this work would be to adopt different metrics of performance expectations that capture non-pecuniary

[1]We thank an anonymous reviewer for this idea.

aspects of performance. For example, expectations about growth in organizational size, or expectations about repuation may differently relate to both experience and persistence. We hope that future research will enlighten this area with novel findings.

Notwithstanding its contribution, this paper is subject to limitations. The purposeful change of measurement context and item context between the data collection of specific experience measures and initial income expectations helps to reduce concerns about common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). As data on experience and initial income expectations were collected jointly during the same initial interview, we cannot completely rule out the possibility that some respondents would have considered their responses to the experience questions while they were reporting their future income expectations. However, since these two sections of the interview protocol were separated by over 100 questions dealing with nine different topics, any memory effect is not likely to have a significant impact on our results.

Also, while the strict definition of firm launch helps to differentiate persisting from abandoned ventures, it becomes problematic if the same unobservable variables affect initial expectations and the likelihood of abandonment.

Our research has important implications for practitioners. First, the results help to clarify how industry-specific experience and startup experience both drive entrepreneurs' income expectations. One additional year of industry-specific experience adds almost 4 percent to both, the expected first and fifth year venturing income. Even more pronounced, the additional startup an entrepreneur was involved with prior to the current venturing effort increases first-year income expectations by 19 percent and fifth-year income expectations still by 11 percent. This optimism in expectations was first detected by Cooper, Woo, and Dunkelberg (1988), who concluded: "it is probably natural to experience feelings of entrepreneurial euphoria when first becoming a business owner" (p. 98). Our findings now show that not only first-time entrepreneurs show optimism, but also serial entrepreneurs show increased income expectations with their subsequent venturing efforts.

A second and possibly most important implication for practitioners is that expectations alone may be misleading indicators of persistence. Higher expectations do not necessarily imply that entrepreneurs will maintain their motivation for the startup for longer. In fact, higher income expectations for the first year have negative effects on persistence. Only income expectations for the fifth year are positively associated with persistence in our models. Relatedly, although startup experience is shown to be an important driver of expectations, entrepreneurs should be aware that startup experience does not matter for persistence in the same way as industry experience does.

Third, our findings enable practitioners to benchmark their experiences and expectations against those of their peers. For example, an individual with 10 years of industry experience can compare his or her income expectations

with those of other individuals with the same amount of experience in the same industry. Individual reflection on why expectations are below or above average could help in better understanding venturing motivations and prospects on individual level.

For policy makers, our study can provide insights regarding the mechanisms driving abandonment or persistence in the nascent phases of entrepreneurship, potentially guiding policies directed at the early selection and promotion of projects of given characteristics, for example if the objective is to promote self-employment among young, inexperienced individuals or among experienced professionals affected by unemployment.

A final important takeaway from our research is its large-scale, empirical support for the idea of forming a startup team made up of people with complementary backgrounds and experiences. These teams are likely to have different expectations and attitudes toward persistence. For example, serial entrepreneurs who have created several startups and move into a new and unknown industry can benefit from the knowledge of an entrepreneur with many years of industry experience and therefore improve the assessment of the performance-outcome relation in a new project, leading to a balanced and possibly better calibrated perception of the actual chances of the venturing effort.

To conclude, we claim that not all types of experience that get our hopes up are actually helpful in seeing them through. The finding that industry experience increases income expectations while they also increase the probability of persisting suggests that industry experience may improve the accuracy of performance forecasts leading to higher persistence. By contrast, the finding that startup experience has a strong impact on expectations but does not increase the probability of persisting suggests that entrepreneurs with startup experience may produce less accurate forecasts which eventually harm persistence.

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