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The Extent and Nature of Opportunity Identification

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Entrepreneurial Entry, Exit and Re-Entry:

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ENTREPRENEURS

ABSTRACT

This study utilizes a human capital framework to explore whether business ownership experience is associated with the number of business opportunities identified, the number of identified opportunities that are pursued, and the nature of those opportunities. Information from a large representative sample of owners of 631 private independent firms is utilized. Controlling for various dimensions of entrepreneurs' general and specific human capital, we find that experienced (habitual) entrepreneurs identify more business opportunities, pursue more of these opportunities and are associated with more innovative opportunities. We can infer that business ownership experience acts as an important guide for entrepreneurs in processing information in a manner than allows them not only identify more opportunities but potentially more innovative ones too.

INTRODUCTION

Opportunity orientated conceptualizations of entrepreneurship are attracting attention as

researchers seek to understand why and how some individuals identify business opportunities (Ardichvili et al. 2003; Shane and Venkataraman, 2000). Further, heterogeneity amongst entrepreneurs with respect to opportunity identification is now being recognized. Why is it that some entrepreneurs identify more or better opportunities? McGrath and MacMillan (2000) suggest that habitual entrepreneurs with business ownership experience have an 'entrepreneurial mindset' that prompts them to search out and pursue opportunities with enormous discipline, and to pursue only the very best opportunities. While there is recognition of differences in the characteristics of habitual and novice entrepreneurs (Westhead and Wright, 1998), there is a scarcity of empirical evidence relating to the relationship between prior business ownership experience and opportunity identification.

From a human capital perspective (Becker, 1975), prior business ownership experience may enhance an entrepreneur's human capital that contributes to opportunity identification. Previous studies have tended to focus on the link between an entrepreneur's human capital profile and various organizational outcomes such as survival and development (Brüderl, et al., 1992; Cooper et al., 1994; Gimeno, et al., 1997). Less is known, however, about the relationship between an entrepreneur's human capital and their behavior (e.g. in terms of opportunity identification and pursuit). Further, there is also growing recognition of the need to adopt a more fine-grained view of human capital in the entrepreneurial context. Davidsson and Honig (2003), for example, distinguish between explicit and tacit aspects of human capital in respect of nascent entrepreneurs. Dimov and Shepherd (2005) examining the related area of venture capital executives emphasize the importance of tacit knowledge but point out the need to examine the specific and general components of human capital. However, there is a scarcity of studies that consider the relationship between an entrepreneur's human capital and their ability to identify and pursue business opportunities.

Two studies that have focused on the relationship between prior knowledge and opportunity identification suggest that exploring the link between human capital and opportunity identification might be fruitful (Shane, 2000; Shepherd and DeTienne, 2005). These studies have acted as a catalyst in an area of entrepreneurship that has not been rigorously explored empirically. They do, however, suggest additional areas for consideration. For example, these studies do not take a fine grained approach to human capital as discussed above. They do not allow us to assess the role of business ownership experience as one dimension of specific human capital in understanding opportunity identification and pursuit relative to other dimension of general and specific human capital. Further, one of these studies is based on student samples and does not consider opportunity pursuit. This is a major research gap since there is a need for both researchers and practitioners to obtain greater understanding of the factors that influence the heterogeneity of business opportunity identification and pursuit behavior. This novel study uses evidence from a large representative sample of 631 entrepreneurs owning private independent businesses to address this research

gap by exploring the role of business ownership experience as a component of an entrepreneurship-specific human capital. By distinguishing between business ownership experience and dimensions of general human capital (e.g., education) as well as other dimensions of specific human capital (e.g., managerial and technical capabilities), the study explores the relative importance of prior business ownership experience with regard to the following behavioral outcomes: the number of opportunities for creating or purchasing a business identified in a given period; the number of identified opportunities that are pursued; and the nature of the latest opportunity pursuit in terms of the degree of innovation involved.

This article is structured as follows. In the next section, the conceptual framework underpinning the study is presented. Hypotheses are then derived. This is followed by a discussion of the research methodology and the data collected. Results are then presented and discussed. Finally, conclusions are reported.

CONCEPTUAL FRAMEWORK

Entrepreneurs are heterogeneous with respect to the amount of information they seek (Cooper et al. 1995) and their opportunity identification behavior (Shane 2001). One potential source of this heterogeneity is differences in the level and nature of their human capital, which has been viewed in terms of attributes, skills (Becker 1975, 1993) and cognitive characteristics (Alvarez and Busenitz 2001). Becker (1993) argues that it is important to distinguish between general and specific aspects of human capital. General human capital is generic to all types of economic activity and includes education, age and gender (Becker, 1975; Cooper et al., 1994; Cressy, 1996). In contrast, specific human capital loses its value outside a particular domain and therefore has a more limited scope of applicability (Gimeno et al. 1997). The notion of specific human capital must be modified and adapted to the context of entrepreneurship. The literature suggests that there are a number of dimensions of human capital that may be more specific to the entrepreneurship context than other contexts. In particular, entrepreneurs must demonstrate capabilities in entrepreneurial, managerial and technical functional areas (Chandler and Hanks 1998, Penrose 1959). Direct entrepreneurial experience gained by the entrepreneur (measured in terms of their business ownership experience) can also contribute to entrepreneurship-specific human capital. From a cognitive perspective, the attitudes of the entrepreneur towards opportunity identification may also represent a crucial dimension of entrepreneurship-specific human capital.

Here, we extend previous studies by examining the relationship between human capital and entrepreneur behavior with regard to the nature and extent of opportunity identification and pursuit. Business ownership has long been recognized as an important dimension of entrepreneurship (Gartner and Shane 1995, Hawley 1927), yet we know little about its linkage with the behavior of entrepreneurs. Entrepreneurial experience adds to specific human capital by providing valuable episodic knowledge, that is, knowledge

developed through direct experience. This experience can offer the entrepreneur an opportunity to learn and assess their ability in the entrepreneurial domain, in turn influencing subsequent activities and outcomes (Minniti and Bygrave 2001). Episodic knowledge acquired through business ownership experience such as managerial experience, enhanced reputation, better access to finance institutions and broader social and business networks (Shane and Khurana 2003, Wright et al. 1997) can be leveraged to identify and exploit business opportunities.

Opportunity identification by entrepreneurs may be a function of an individual's capacity to handle complex information and their prior knowledge (Venkataraman 1997, Shane and Venkataraman 2001). Prior business ownership experience can influence an entrepreneur's capacity to acquire and organize complex information, and subsequently identify and exploit business opportunities. Further, this experience may influence the nature of the opportunities identified. In particular, experience-based knowledge has been viewed as providing "cognitive pathways" that can be followed that lead to creativity (Amabile, 1997). Accordingly, experienced entrepreneurs may identify opportunities that are more innovative. In this study, we seek to assess the relative importance of business ownership experience as a key aspect of specific human capital vis-à-vis other dimensions of specific human capital (i.e., entrepreneur capabilities and attitudes) and general human capital (i.e., age, gender and education) and in 'explaining' entrepreneurial behavior.

DERIVATION OF HYPOTHESES

In this section, hypotheses relating to the links between business ownership experience and information search intensity, the number of business opportunities identified, and the proportion of identified opportunities that are pursued are presented.

Opportunity Identification

Debate surrounds how entrepreneurs identify business opportunities. From an inductive viewpoint, business opportunities are available in the environment and are waiting to be discovered. This view parallels Kirzner's (1973) modern Austrian tradition, whereby the possession of idiosyncratic knowledge and information allows people to see particular opportunities that others cannot see, even if they are not actively searching for opportunities. Conversely, from a deductive viewpoint, imaginative entrepreneurs can leverage their experience, subjective understanding and current information to identify business opportunities (Witt 1998). Both approaches emphasize the role of knowledge and experience. A potentially valuable source of knowledge for entrepreneurs may be based on their prior experience as entrepreneurs.

While multiple approaches to opportunity identification exist (as demonstrated in the preceding paragraph), Kirzner's alertness perspective appears to be dominant. One of the limitations of the 'alertness' approach, however, is that it has tended to ignore the possibility

of there being variations among entrepreneurs. Gaglio and Katz (2001) have argued that Kirzner's alertness theory relates to one extreme of an alertness continuum, but does not explore the possibility of other points on the continuum. Prior business ownership experience may provide an enhancement to specific human capital that allows habitual entrepreneurs to be more alert to opportunities than inexperienced novice entrepreneurs. Experience-based knowledge can direct an individual's attention, expectations, and interpretations of market stimuli, thus facilitating the generation of ideas (Gaglio, 1997). Habitual entrepreneurs may leverage their business ownership experience to 'see' business opportunities that are ignored or not recognized by novice entrepreneurs.

Alertness may be influenced by the way information is processed (Kaish and Gilad 1991). Expert information processing theory suggests that experienced entrepreneurs may organize their knowledge into broad and complex structures in order to make broader inferences, to unify superficially disparate information, and to make qualitatively more sophisticated critical judgments (Glaser and Chi 1988). Experienced (habitual) entrepreneurs associated with higher levels of episodic knowledge (a necessary but insufficient requirement of expertise) may use it to process complex information facilitating business opportunity identification.

Over time, habitual entrepreneurs may acquire contacts that provide them with a flow of information relating to business opportunities, implying that they may need to be less proactive in the search for opportunities and information. Having earned a reputation as a successful entrepreneur, financiers, advisers, other entrepreneurs and business contacts may present business proposals to some habitual entrepreneurs (Wright et al., 1997). Hence, we present the following hypothesis:

> HYPOTHESIS 1. *Experienced (habitual) entrepreneurs will identify more business opportunities than inexperienced (novice) entrepreneurs, in a given time period.*

Opportunity Pursuit

In many studies, there is an implicit assumption that identified opportunities will be automatically exploited. This is not necessarily the case. Exploitation activities are perhaps the most under-researched aspect of entrepreneurship research (Shook et al. 2003). The relationship between business ownership experience and the number of opportunities exploited, therefore, could be explored. However, this examination could be tautological in the context of this study, because the number of opportunities exploited is the basis for our definitions of novice and habitual entrepreneurs. An alternative is to examine a stage between opportunity identification and exploitation, which is termed the pursuit stage in this study. In deciding whether to exploit an opportunity, the expected value of the return from the opportunity must exceed the opportunity cost of alternatives, but also offers the individual

with a premium for bearing uncertainty (Kirzner 1973, Schumpeter 1934). The pursuit stage involves time and resource commitments to evaluate the costs and benefits of exploiting the opportunity idea.

Even though there is no conclusive empirical evidence, casual observation suggests that not all identified opportunities are brought into fruition (Shane and Venkataraman 2000). The extent to which an individual invests time and resources into evaluating (i.e., pursuing) an opportunity is likely to be a function (at least partly) of the individual's human capital characteristics. Opportunity exploitation, for example, has been found to be affected by positive perceptions (Palich and Bagby 1995), and the use of heuristics such as representativeness (Busenitz and Barney 1997). Here, it is suggested an entrepreneur's specific human capital profile (particularly, business ownership experience) will be associated with opportunity pursuit behavior. The transferability of information from business ownership experience to the opportunity (Carroll and Mosakowski 1987) can increase the probability of pursuit, because experience and learning can reduce the costs of exploitation (Shane and Venkataraman 2000). Individuals with prior experience may expect to receive a higher return on their investment (i.e., time and resources invested during the pursuit stage), thereby increasing the likelihood of pursuit. If habitual entrepreneurs have a broader knowledge base and access to further resources, they may feel better prepared to exploit an opportunity once it has passed the evaluation (i.e., pursuit) stage. Consequently, if habitual entrepreneurs are more likely to have the ability and resources to exploit an opportunity, they may be more likely to pursue it. Moreover, due to their business ownership experience, habitual entrepreneurs may identify better quality opportunities (or at least hold the belief that they have identified better quality opportunities), in turn increasing the likelihood of pursuing them. For a set of opportunities identified in a given time period, the following hypothesis is derived:

> HYPOTHESIS 2. *Experienced (habitual) entrepreneurs will pursue a greater proportion of identified opportunities in a given time period than inexperienced (novice) entrepreneurs.*

The Nature of Opportunities Pursued

Focusing on opportunity identification and pursuit, while important, offers limited insight into the nature of the opportunities identified and / or pursued. Identifying and even pursuing an opportunity does not necessarily mean it has wealth creating potential. The innovativeness of an opportunity has been viewed as important in assessing the value (i.e., wealth creating potential) of an opportunity (Fiet, 2002; Shane, 2000). Further, innovation has been widely viewed as a key distinguishing feature of entrepreneurship (Schumpeter, 1934; Carland et al.,

1984). For example, Kirzner (1979) characterized entrepreneurs as "breaking the existing means-ends framework". Entrepreneurs alert to opportunities are willing to abandon existing means-ends frameworks and develop new ones that are realized as new products, services and processes (Gaglio, 2004). While innovation has been highlighted as an important feature of entrepreneur of entrepreneurial opportunities, there is likely to be heterogeneity in the degree of innovativeness. Opportunities can be classified in terms of the degree of their innovativeness (March, 1997; Yu, 2004). Extraordinary opportunities, largely associated with the work of Schumpeter (1934), involve the introduction of products, services or production processes that are radically different from that which is currently available on the market. Ordinary opportunities, on the other hand, often involve more modest innovation, which include identifying profitable discrepancies, gaps and mismatches of knowledge and information which entrepreneurs can act upon for gain or advantage (Yu, 2004). While the individual entrepreneur is often at the heart of identifying and acting upon such opportunities, innovation has frequently been studies from the perspective of the firm. There is growing recognition that the nature of opportunities identified and pursued by entrepreneurs, particularly in terms of the degree of innovation involved, is worthy of greater consideration (Fiet, 2002; Shepherd and DeTienne, 2005).

The human capital of entrepreneurs, in particular their experiences with entrepreneurship, may have a strong bearing on their ability to identify (and pursue) opportunities that are innovative. As intimated earlier, experience contributes to the development of knowledge structures (i.e. the cumulative experience, learning and meanings an individual has encountered and constructed about a specific domain (Gaglio, 1997). These knowledge structures provide a framework for recognizing and evaluating information relevant to an opportunity. As knowledge structures become richer with experience, they facilitate quicker and more effective information processing (Lord and Maher, 1990). This, in turn, reduces the burden on cognitive processing, allowing greater concentration on novel and unique information (Fiske and Taylor, 1991). Evidence suggests that when an ill-structured problem is encountered, individuals with high levels of knowledge will attempt to add structure by making inferences and drawing on existing knowledge (Simon 1973). It follows, therefore, that habitual entrepreneurs with relatively more developed knowledge structures may identify opportunities that are more innovative.

Evidence by Shepherd and DeTienne (2005) support this view. They find that prior knowledge in a domain is positively associated with the identification of more innovative opportunities. However, this study focused on prior knowledge of customer problems and used a relatively small sample of students to test their hypotheses. Clearly, there is a need to empirically explore the relationship between innovativeness and prior knowledge of practicing entrepreneurs. Further, certain aspects of prior knowledge (i.e. human capital) may be more strongly associated with innovativeness than others. The above discussion suggests

that business ownership may facilitate the identification and interpretation of information that leads to more innovative opportunities. Based on this discussion, we present the following hypothesis:

> HYPOTHESIS 3. *With regard to the latest opportunity exploited, experienced (habitual) entrepreneurs will report higher levels of innovation than inexperienced (novice) entrepreneurs.*

RESEARCH METHODOLOGY AND DATA COLLECTED

Sample, Data Collection and Respondents

The sampling frame was constructed by obtaining sampling quotas by four broad industrial categories (i.e., agriculture, forestry and fishing, production, construction and services) and the eleven Government Official Regions from summary tables detailing the population of businesses registered for Value-Added-Tax in Great Britain in 1999 (Office for National Statistics 1999). After excluding non-independent businesses, industry and standard region sampling proportions were identified for a stratified random sample of independent private businesses.

A stratified random sample of 4,324 independent firms was drawn from a cleaned list of business names provided by Dun and Bradstreet. A structured questionnaire was mailed during September 2000 to a single key respondent in each of the selected businesses based on two criteria: (a) possession of sufficient knowledge, and (b) adequate level of involvement with regard to the issues under investigation (Campbell 1955). Thus, the key respondent was a founder and / or principal owner who was also a key decision-maker in the business. To further ensure the validity of our data and that we had identified the correct key informant, we included a number of validation items in the questionnaire. Based on these validation items, 54 respondents were identified as not being a founder and / or the principal owner of the business, and were regarded as non-respondents. Given the key issues under exploration in this study (i.e., opportunity identification and pursuit) and the emphasis on the entrepreneur as the unit of analysis, a key informant approach was adopted (Kumar et al. 1993). Although information was not available from multiple respondents, reliability checks were conducted on key firm-level variables such as business age, employment size and legal status. There was a strong correlation between these variables reported by the key informant and the archival data provided by Dunn and Bradstreet. The correlations ranged from 0.77 to 0.88 suggesting that the data collected from the key informant was reliable.

During the four month data collection period, a further 17 responses were eliminated as they indicated the business was no longer an independent trading entity. After a three-wave mailing (i.e., two reminders), 767 valid questionnaires were obtained from a valid sample of 4,307 independent firms, producing a 17.8% valid response rate. This response rate

compares favorably with similar studies (Storey 1994). For example, Forbes' (2005) recent study finds an effective response rate of 16.6%.

Respondents who reported that they had only inherited an established business and those that filed missing information returns to any of the selected dependent, independent or control variables were excluded from any further analysis. In total, 631 respondents provided complete data for the selected variables explored.

Sample Representation

Using chi-square and Mann Whitney 'U' tests, no statistically significant response bias was detected with regard to industry, standard government official region, legal form, age of the business and employment size between the respondents and non-respondents at the 0.1 level. On these criteria, we have no cause to suspect this sample of firms is not a representative sample of the population of independent private firms in Great Britain.

Measures

Dependent Variables.

Number of Opportunities Identified. Consistent with previous literature (Amabile, 1990; Daft, 1978; Shepherd and DeTienne, 2005), opportunity identification was operationalized in terms of the *number of opportunities identified*. A conservative definition of business opportunities was selected. Respondents were presented with a statement asking them, 'how many opportunities for creating or purchasing a business have you identified ('spotted') within the last five years' (Shepherd and DeTienne, 2005). They were presented with eight opportunity identification outcomes (i.e., 0, 1, 2, 3, 4, 5, 6 to 10, or more than 10 opportunities). Due to only a small number of respondents belonging to some of the presented categories, the eight opportunity identification outcomes were collapsed into three categories. The resulting categorization ensured that an acceptable number of respondents belonged to each category. Respondents who reported that they had failed to identify any opportunities were allocated a score of '1', those who reported that they had identified one or two opportunities were allocated a score of '2', whilst those who had identified three or more opportunities were allocated a score of '3'.

Number of Identified Opportunities that were Pursued. Respondents were presented with a statement asking them, 'how many opportunities for creating and purchasing a business have you pursued (i.e., committed time and resources to) within the last five years' (Hills, Lumpkin and Singh, 1997). They were presented with eight opportunity pursuit outcomes (i.e., 0, 1, 2, 3, 4, 5, 6 to 10, or more than 10 opportunities). As explained above, the eight opportunity pursuit outcomes were collapsed into three categories. Respondents who reported that they had failed to pursue any identified opportunities were allocated a score of '1', those

who reported that they had pursued one or two opportunities were allocated a score of '2', whilst those who had pursued three or more opportunities were allocated a score of '3'.

Innovation. Our innovation measure was based on Manimala (1992). Accordingly, respondents were asked to indicate if they had: 1) Introduced a new product or a new quality of an existing product; 2) introduced a new method of production or modified an existing method; 3) found a new market or employed a new marketing strategy in an existing market; 4) found a new source of supply; 5) found new ways of managing finance; 6) developed new structures, systems, or procedures; 7) introduced a new culture especially through the introduction of innovative people; 8) found new ways of managing and developing personnel; 9) used new ways of managing quality control and R&D; and 10) found new ways of dealing with government and other external agencies. Respondents were awarded a score of '1' if they answered 'yes' and '0' if they answered 'no. These responses were then summated to produce an 'innovation' variable. The reliability of this item is reported below.

Independent Variables. Five sets of business ownership experience variables were measured to ensure that we could account for definitional sensitivities. The name of the variable is indicated in brackets.

Ownership experience 1 (HABITUAL). This relates to a dichotomous variable. Individuals with no prior minority[1] or majority business ownership experience either as a business founder or a purchaser of an independent business but who currently own a minority or majority equity stake in an independent business that is either new or purchased were classified as novice entrepreneurs. Conversely, individuals with prior minority or majority business ownership experience either as a business founder or a purchaser of an independent business who currently own a minority or majority equity stake(s) in an independent business that is either new or purchased were classified as habitual entrepreneurs. Novice entrepreneurs were allocated a value of '0', whilst habitual entrepreneurs were allocated a value of '1'.

Ownership experience 2 (TOTAL). Respondents were asked to indicate the total number of businesses (i.e., established and / or purchased) they had ever had ownership stakes in. TOTAL is an interval level variable.

Ownership experience 3 (SERIAL and PORTFOLIO). A distinction was made between serial (i.e., individuals who have sold / closed a business which they had a minority or majority ownership stake in, and they currently have a minority or majority ownership stake in a single independent business that is either new or purchased) and portfolio entrepreneurs (i.e., individuals who currently have minority or majority ownership stakes in two or more independent businesses that are either new and / or purchased). SERIAL is a dichotomous variable. Serial entrepreneurs were allocated a value of '1', whilst other (i.e., novice and portfolio) entrepreneurs were allocated a value of '0'. Further, PORTFOLIO is

[1] Because a high proportion of entrepreneurial activity is team-based, the definitions used in this study include minority as well as majority ownership stakes to reflect this.

also a dichotomous variable. Portfolio entrepreneurs were allocated a value of '1', whilst other (i.e., novice and serial) entrepreneurs were allocated a value of '0'. Novice entrepreneurs are the reference category.

Ownership experience 4 ($HABITUAL_{exp.\ failure}$ and $HABITUAL_{no\ failure}$). A distinction was made between those entrepreneurs who had experienced business failure and those that had not. Business failure was defined as the closure or sale of a business due to bankruptcy / receivership / liquidation of a business or the performance of a business being too low in relation to expectations. Both variables are dichotomous. Habitual entrepreneurs who had experienced failure ($HABITUAL_{exp.\ failure}$) were allocated a value of '1', whilst others (i.e. habitual entrepreneurs who had not experienced failure and novice entrepreneurs) were allocated a value of '0'. Habitual entrepreneurs who had not experienced failure ($HABITUAL_{no\ failure}$) were allocated a value of '1', whilst others (i.e. habitual entrepreneurs who had experienced failure and novice entrepreneurs) were allocated a value of '0'. Novice entrepreneurs are the reference category.

Ownership experience 5 ($HABITUAL_{failure>success}$, $HABITUAL_{success>failure}$, $HABITUAL_{no\ exit}$, $HABITUAL_{failure=success}$). These variables sought to distinguish between entrepreneurs in terms of their "portfolio" of failures. An entrepreneur who has had to close or sell one business due to bankruptcy / receivership / liquidation of a business or the performance of a business being too low in relation to expectations among a large number of successful business exit (i.e. where the business was sold to realize a capital gain) may behave differently to an entrepreneur who has experienced more failures than successes. Once again, all variables are dichotomous. Habitual entrepreneurs who reported that the number of exits due to business failure exceeded the number of successful business exits ($HABITUAL_{failure>success}$) were awarded a value of '1' or if otherwise '0'. Habitual entrepreneurs who reported that the number of successful business exits exceeded the number of exits due to business failure ($HABITUAL_{success>failure}$) were awarded a value of '1' or if otherwise '0'. Habitual entrepreneurs who reported no business exits ($HABITUAL_{no\ exit}$) were awarded a value of '1' or if otherwise '0'. Finally, habitual entrepreneurs who reported an equal number of business exits that were due to failure and success ($HABITUAL_{failure=success}$) were awarded a value of '1' or if otherwise '0'. Novice entrepreneurs are the reference category.

Control Variables. Prior business ownership experience represents one dimension of human capital. Other dimensions of human capital, therefore, need to be controlled for. Several indicators of both general and specific human capital were collected.

General Human Capital: Education. Education is one of the most frequently examined components of human capital (e.g., Mincer 1974, Becker 1975). Education can be an important source of knowledge, skills, problem-solving ability, discipline, motivation and

self-confidence (Cooper et al. 1994). These attributes enable highly educated entrepreneurs to cope better with problems. They can also leverage their knowledge to search for and acquire additional resources. Respondents reporting only pre-university qualifications were allocated a value of '0', those reporting an undergraduate ' first' university degree or equivalent were allocated a value of '1', and those reporting a postgraduate university degree were allocated a value of '2'.

General Human Capital: Gender. Traditionally women have been associated with lower levels of human capital. Women are more likely to work part-time and withdraw, at least temporarily, from the labor force to have and raise children (Becker 1993). Consequently, women entrepreneurs may have fewer opportunities to develop relevant experience that allows them to acquire resources necessary for business ownership (Cooper et al. 1994). Female entrepreneurs were allocated a value of '0', whilst male entrepreneurs were allocated a value of '1'.

General Human Capital: Age. More mature entrepreneurs may have more diverse skills and experience. However, as part of the ageing process, the human capital stock depreciates over time and requires investment to maintain its value. Cressy (1996) argues that if investment decreases exponentially with age, the relationship between human capital and age will be concave. Therefore, two indicators of age were selected: age and age^2. Respondents indicated their age in years. To avoid problem with multicollinearity, the age of the owner was measured in terms of the deviation from the mean age (i.e., 49), and age of the owner ^{2} was measured at the deviation from the mean age ^{2} (Aiken and West 1991).

Specific Human Capital: Perceived Capabilities. Entrepreneur can demonstrate capabilities with regard to the entrepreneurial, managerial and technical functional areas. Respondents were presented with eight statements relating to their perceived capabilities (Chandler and Hanks 1998, Hills et al. 1997). An R-mode PCA identified three components (i.e., underlying constructs) that can be used to represent relationships among the selected interrelated variables[2]. Component 1 highlights the *'entrepreneurial capability'*, and relates to five statements focusing upon the perceived ability to identify and exploit opportunities. Further, component 2 highlights the *'managerial capability'*. It relates to four statements focusing upon the ability to manage and organize people and resources. Component 3 highlights the *'technical capability'* and relates to two statements focusing upon technical expertise.

Specific Human Capital: Attitudes towards Opportunity Identification. Attitudes represent one aspect of cognition (Delmar 2000). Behavior in a given situation can be viewed as a function of the individual's attitude towards the situation (Fiske and Taylor 1991). Delmar (2000) argues that attitudes are proximal determinants of behavior (i.e., they are more specific and because of their specificity, they are considered to be important determinants of

[2] KMO measure of sampling adequacy = 0.81; Bartlett's test of sphericity significant at 0.001 level; Cumulative % of variance explained is 63.96%. Further details available from authors upon request.

behavior). In line with opportunity based conceptualizations of entrepreneurship, attitudes towards opportunity identification are deemed important and represent one dimension of entrepreneurship-specific human capital. Respondents were presented with six statements relating to their attitudes towards opportunity identification (Hills et al. 1997). An R-mode PCA identified two components[3]. Component 1 highlights the *'developmental approach'*, and relates to four statements focusing upon the view that business opportunities develop over time. Component 2 relates to two statements focusing upon an alertness-based approach to business opportunity identification. This component was labeled *'alertness approach'*. The reliability of the latter scale was low (see below). Only the standardized and ortho-normalized component scores relating to the 'developmental approach' were utilized as an independent variable.

Information Search Intensity. Information can play a key role in the identification and exploitation of opportunities by providing a platform from which to launch a new venture (Fiet 1996, Kaish and Gilad 1991, Shane 2000). Cooper et al.'s (1995) information search intensity measure was operationalized. Each respondent was presented with 12 sources of information they could have utilized. Respondents indicated which of these information sources they had used. Eight out of the 12 sources were used by at least 60% (as guided by Cooper et al. 1995) of the respondents (i.e., suppliers, employees, customers, friends, family, magazines / newspapers, trade publications and other business owners). Respondents also reported the usefulness of the information sources used on a five-point scale ranging from 'not at all useful' (1) to 'very useful' (5). The 'usefulness' ratings for each of the information sources used were added together to produce the information search intensity measure.

Industry. External environmental context was considered. Six dichotomous variables are used to distinguish industry categories based on UK Standard Industrial Classification (SIC) codes: agriculture, forestry, fishing, and mining and quarrying (SIC 0 and SIC 2 combined); manufacturing (SIC 3); construction (SIC 5); transport, storage and communication (SIC 7); financial intermediaries, real estate, renting and business activities (SIC 8); and other services (SIC 9). The reference category relates to distribution, hotels, catering and repairs (SIC 6).

Validity

The structured questionnaire was sent to leading practitioners and academics. To source potential problems and address the problem of face validity, two novice entrepreneur firms, four habitual entrepreneurs (i.e., two serial and two portfolio entrepreneurs) and two internationally recognized leading academics in the field of entrepreneurship were contacted. The structured questionnaire was tested during this pilot exercise. Comments were incorporated within a revised structured questionnaire. No major problems with the structured questionnaire were detected.

[3] KMO measure of sampling adequacy = 0.71; Bartlett's test of sphericity significant at 0.001 level; Cumulative % of variance explained is 55.79%. Further details available from authors upon request.

Convergent and discriminant validity were judged using PCA. Component loadings ranged from .66 to .89 for the 'managerial capability', 'entrepreneurial capability', and the 'technical capability' scales, respectively. Further, component loadings ranged from .60 to .81 for the 'alertness-based approach' and the 'developmental approach' to opportunity identification scales, respectively. All component loadings are statistically significant. Convergent validity is, therefore, apparent with regard to all constructs. The pattern of components appears to be logical and consistent with the literature relating to entrepreneur capabilities and approaches to opportunity identification. The measures also appear to exhibit discriminant validity in so far as the statements load significantly on one component.

To assess the degree to which common method bias might present a problem, all the scaled variables selected for this study were analyzed by a varimax rotated PCA (see for example Tippins and Sohi 2003). Five distinct components relating to the earlier identified constructs emerged: entrepreneurial capability, managerial capability, technical capability, developmental approach to opportunity identification, and alertness approach to opportunity identification. The average statement loading on the intended construct was .72. Of the 85 potential cross-loadings, only 4 were above .30. The absence of cross-loadings among the statements provides confidence that common method bias is not a major problem.

Reliability

The 'entrepreneurial capability', 'managerial capability' and 'technical capability' scales have Cronbach's alphas of .79, .85 and .67, respectively. The Cronbach's alphas for 'developmental' and 'alertness-based' approaches to opportunity identification are .71 and .29, respectively. The latter scale does not meet the recommended reliability level and was removed from subsequent analysis. The 'innovation' scale has a Cronbach's alpha of 0.75.

Data Analysis

Two data analysis techniques were used to test the hypotheses: ordered probit analysis and negative binomial regression. The former was used to test hypotheses 1 and 2, while the latter was used to test hypothesis 3. These techniques are discussed in turn below.

Ordered Probit. Due to the ordinal nature of the opportunity identification and opportunity pursuit variables, ordered logit or ordered probit estimation is appropriate (Greene, 2000). Because there was virtually no difference between the results relating to the ordered probit and logit analyses, only the probit models are discussed. The ordered probit model is based on the following specification:

$y_i^* = \beta' x_i + \varepsilon_i$ with $\beta' = (\beta_1, \beta_2, \ldots, \beta_k)$

where y_i^* denotes the (unobserved) dependent variable by entrepreneur i and x_i denotes the vector which contains the set of explanatory (and control) variables. The error term ε_i is assumed to be independently distributed as the normal distribution $N(0, \sigma^2)$ with mean zero and variance σ^2. y_i^* is related to the ordinal observed variable y_i as follows:

$y_i = 1$ (Zero opportunities identified or pursued) if $y_i^* \leq \delta_1$,
$y_i = 2$ (One or two opportunities identified or pursued) if $\delta_1 < y_i^* \leq \delta_2$,
$y_i = 3$ (Three or more opportunities identified or pursued) if $y_i^* > \delta_2$,

where the δ's are the thresholds (cut-off points) defining the boundaries of different levels of opportunity identification or pursuit intensity.

The probability of an entrepreneur belonging to a particular opportunity identification / pursuit category is:

$\Pr(y_i = \text{Zero opportunities identified or pursued}) = F[-\beta' x_i]$
$\Pr(y_i = \text{One or two opportunities identified or pursued}) = F[\delta_1 - \beta' x_i] - F[-\beta' x_i]$
$\Pr(y_i = \text{Three or more opportunities identified or pursued}) = F[\delta_2 - \beta' x_i] - F[\delta_1 - \beta' x_i]$

where F is the standard normal distribution function.

Negative binomial regression. The 'innovation' dependent variable is based on count data. While in principal an Ordinary Least Squares technique could be adopted, a Poisson regression can produce more reliable results (Greene, 2000). The Poisson regression model has, however, been criticized for assuming equality of the conditional mean and variance functions. A problem arises when there is over-dispersion in the data, that is, where the variance of the dependent variable exceeds the mean. This problem can be addresses by adopting a negative binomial model that allows for over-dispersion (Cameron and Trivedi, 1986). Our tests revealed that there was indeed significant over-dispersion in connection with our 'innovation' dependent variable. Consequently, a negative binomial approach was adopted to test hypothesis 3. The negative binomial model is the same as a Poisson model, that is, the log of the mean, μ, is a linear function of independent variables:

$$\log(\mu) = \text{intercept} + b1*X1 + b2*X2 + \ldots + b3*Xm,$$

which implies that μ is the exponential function of independent variables,

$\mu = \exp(\text{intercept} + b1*X1 + b2*X2 + ...+ b3*Xm)$.

However, instead of assuming that the distribution of Y, number of occurrences of an event (i.e., innovation), is Poisson, we assume that Y has a negative binomial distribution. This involves relaxing the assumption about equality of mean and variance, since the variance of negative binomial is equal to $\mu + k\mu^2$, where $k >= 0$ is a dispersion parameter. The maximum likelihood method is used to estimate k as well as the parameters of the regression model for $\log(\mu)$.

RESULTS

Table 1 provides means and standard deviations for the independent and control variables. Correlation coefficients between these variables are also summarized. The variance inflation factor (VIF) scores suggest that the analysis will not be seriously distorted by multicollinearity.

The results of the ordered probit analysis are presented in Tables 2 and 3. Models 1a, 2a and 3a in Tables 2, 3 and 4 relate to the dependent variables which correspond to the number of business opportunities identified, the number of identified business opportunities pursued, and the innovativeness of the ent6rerpeneur's latest venture, respectively. These models excluded any measure of business ownership experience and, therefore, represent the control models. In Models 1b to 1f, Models 2b to 2f, and Models 3b to 3f, alternative measures of business ownership experience are considered, in turn. The discussion of individual variables below is based on the full models (as opposed to the control models).

Hypothesis 1: Opportunity Identification

Independent variables relating to ownership experience were sequentially included in Models 1b to 1f and are reported in Table 2. All models were highly significant. The models 'explained' significantly more of the dependent variable (i.e., the number of opportunities identified) than the control variables (as reflected in the change in R^2). All ten measures of business ownership experience were positively and significantly associated with the number of opportunities identified. It appears that irrespective of the nature and amount of business ownership experience, it is associated with the identification of more opportunities. Presented evidence provides strong support for hypothesis 1.

A number of the control variables were also significantly associated with the number of opportunities identified. In all models younger, male, and more highly educated entrepreneurs identified more business opportunities. The association between education and opportunity identification was only weakly significant. In addition, entrepreneurs reporting

higher level of managerial and entrepreneurial capability identified significantly more business opportunities with regard to all reported models. The models also show that entrepreneurs reporting high information search intensity identified more business opportunities. Finally, entrepreneurs operating in transport, storage and communication (SIC 7) reported few opportunities identified.

Hypothesis 2: Opportunity Pursuit

Independent variables relating to ownership experience were sequentially included in Models 2b to 2f and are reported in Table 3. The inclusion of the business ownership variables increased the explanatory power of the models above the control model (as reflected in the change in R^2). All measures of business ownership experience, except for three, were positively and significantly associated with the number of opportunities pursued. Habitual entrepreneurs who have experienced more successful exits than failure-based exits and those habitual entrepreneurs that have experienced an equal number of successful and failure-based exits were not significantly associated with opportunity pursuit. An additional group who did not pursue more opportunities than novice entrepreneurs were serial entrepreneurs. Nevertheless, as seven out of ten of our business ownership experience variables are significantly associated with opportunity pursuit, we find support for hypothesis 2.

Three control variables were significantly associated with the dependent variable. Unsurprisingly, entrepreneurs who had identified more opportunities also pursued more opportunities. Opportunity identification is a necessary but not sufficient condition for opportunity pursuit. Entrepreneurs reporting higher entrepreneurial and technical capabilities also pursued a greater number of identified opportunities. This latter relationship was only weakly significant.

Hypothesis 3: Innovation

Independent variables relating to ownership experience were sequentially included in Models 3b to 3f and are reported in Table 4. The inclusion of the business ownership variables did not increase the explanatory power of the models above the control model. However, all except three business ownership experience variables, were positively and significantly associated with the level of innovation in the latest venture. Entrepreneurs who had experienced failure ($HABITUAL_{exp.\ failure}$) and those who had experience more failures than successes ($HABITUAL_{failure>successes}$) were not significantly associated with the level of innovation in the latest venture. Serial entrepreneurs were another group who did not report significantly higher levels of innovation in their latest venture, relative to novice entrepreneurs. Nevertheless, as the majority of our business ownership experience variables were significantly and positively associated with innovation, we find support for hypothesis 3.

With respect to the control variables, higher reported levels of managerial,

entrepreneurial and technical capabilities were positively associated with innovation. In addition, higher levels of information search intensity were positively associated with the level of innovation. Both prior knowledge (embodied in the entrepreneurs' capabilities) and current information may provide ingredients for the entrepreneur to be more creative in the opportunities that they pursue. It is interesting to note that entrepreneurs who identified more opportunities reported higher levels of innovation. This may be because these entrepreneurs have a wider array of opportunities to pick from and choose to pursue those that offer the highest potential. Finally, while entrepreneur operating in manufacturing (SIC 3) and financial intermediaries, real estate, renting and business activities (SIC 8) reported higher levels of innovation in their latest venture, those operating in construction (SIC 5) and transport, storage and communication (SIC 7) reported lower levels. When the human capital of the entrepreneur is controlled for, the environment in which the entrepreneur is operating in can enhance of constrain the level of innovation associated with a venture.

DISCUSSION

This study makes a novel contribution as it is the first to use a large representative sample to explore the links between entrepreneurs' business ownership experience, the extent of their business opportunity identification and pursuit behavior, and the nature of the opportunities they identify. In this section, we summarize and reflect on our findings and identify avenues for future research.

A human capital framework guided this study, and a distinction was made between general and entrepreneurship specific human capital. Business ownership experience was viewed as a source of entrepreneurship specific human capital. Supporting our hypotheses, we found a strong positive association between business ownership experience and the number of business opportunities identified and pursued. We also found that in most cases habitual entrepreneurs reported higher levels of innovation in their latest venture relative to novice entrepreneurs. Habitual entrepreneurs may have a unique mindset (McGrath and MacMillan, 2000) that allows them to identify more business opportunities, as well as more innovative opportunities. Further, they may have similar cognitive characteristics to experts who have at their disposal more cognitive resources, allowing them to concentrate on more unique and novel material (Hillerbrand 1989).

It is interesting to note, however, that there was some heterogeneity amongst the habitual entrepreneurs in this study. While all habitual entrepreneurs, irrespective of the amount and nature of their experience identified more opportunities, certain types of habitual entrepreneurs were not significantly associated with opportunity pursuit or the innovativeness of their latest venture. In particular, while portfolio entrepreneurs (i.e., those who own businesses concurrently) pursue more opportunities and more innovative ones relative to

novice entrepreneurs, serial entrepreneurs did not. The motives for entrepreneurship of these two groups have been argued to be different (Westhead and Wright, 1998). Katz (1994) suggested that these two groups may be guided by different career anchors (i.e. the pattern of self-perceived talents, motives, and values which serve to guide, constrain, stabilize and integrate the person's career). While serial entrepreneurs are concerned with autonomy, portfolio entrepreneurs are driven by wealth and growth. These differing mindsets may explain the differences between these two groups in terms of their willingness of pursue opportunities and the innovativeness of the opportunities they identify.

The nature of previous experiences also appears to influence the willingness to pursue identified opportunities and the innovativeness of them. This study sheds some light on the importance of previous successes and failures reported by entrepreneurs. There is some confusion in the literature about the relative merits of success and failure. Some scholars highlight that experiences of failure can be a useful learning tool as they allow the individual to reflect on what went wrong and take corrective action in subsequent ventures (Sitkin, 1992; McGrath, 1999). In contrast, successful experiences do not necessarily encourage the decision-maker to fully understand what led to the success. In some cases, entrepreneurs may attribute success to themselves when in fact other forces may have had a hand in the outcome. Other scholars have focused on the downside of failure. In particular, the closure of a business due to poor performance can represent a traumatic event (Ucbasaran et al., 2004) and can be associated with negative emotions which get in the way of learning (Shepherd, 2003). In this study, habitual entrepreneurs who have experienced more successful exits than failure-based exits and those habitual entrepreneurs that have experienced an equal number of successful and failure-based exits were not significantly associated with opportunity pursuit. It may be that those who have been successful are reluctant to jeopardize this status. Alternatively, they may apply more stringent criteria when deciding which opportunities are worth investing time and effort into. Entrepreneurs with a balanced track record of successes and failures may be unwilling to tip the balance in favor of failure-based exits and therefore, become cautious when pursuing opportunities. An additional group who did not pursue more opportunities than novice entrepreneurs were serial entrepreneurs.

Entrepreneurs who had experienced failure and those who had experience more failures than successes were not significantly associated with the level of innovation in the latest venture. These entrepreneurs may be struggling to come to terms with their experience(s) of failure. The experience(s) of failure may act as a knock to the entrepreneurs' confidence discouraging them from pursuing opportunities, especially those that may be more innovative and perceived as risky. Taken together, these findings suggest the need to be careful about how experience is measured but also highlight the need to distinguish between the opportunity identification and opportunity pursuit stages.

The above discussion suggests that business ownership (or at least certain types of

business ownership experience) matter. But what does this mean for novice entrepreneurs who want to identify and pursue innovative opportunities? Our findings in relation to some of our control variables suggest that novice entrepreneurs may be able to compensate for their lack of experience. An interesting finding is the detection that business ownership experience and information search intensity are both positively related to the ability to identify opportunities and the innovativeness of these opportunities. Novice entrepreneurs with limited experience may, therefore be able to identify subsequent opportunities by searching for information. Further, information may allow them to identify opportunities of potentially greater value (i.e., in terms of innovation). In addition, entrepreneurs may look to investing in their human capital. We find, however, that human capital is varyingly associated with the three behavioral outcomes. The importance of general and specific human capital appears to be more balanced with regard to opportunity identification. Three general human capital variables (i.e., age, education and gender) and two dimensions of specific human capital other than business ownership experience (i.e., perceived entrepreneurial and managerial capabilities) were found to be significantly associated with the number of business opportunities identified. Human capital (both general and specific) did not appear to be as strongly associated with opportunity pursuit. Only entrepreneurial and technical capabilities were associated with the number of opportunities, though the latter was only weakly significant. With respect to the innovativeness of opportunities, education was negatively associated with innovation. It may be that standardized education can actually stifle creativity. Managerial, entrepreneurial and technical capabilities were all positively associated with innovation. These experientially acquired capabilities may provide entrepreneurs with more ingredients to be creative and innovative in the opportunities they identify and select. Finally, it appears to pay to take a developmental approach to opportunity identification. Innovative opportunities appear to develop over time and may stem from understanding customer problems. Entrepreneurs and potential investors may benefit from taking a broader view of human capital and recognizing that various dimensions of human capital may be more important for certain stages of the entrepreneurial process than others.

Our findings have implications for entrepreneurs, intermediaries and financiers. The finding that information search and networks may substitute for experience in identifying opportunities suggests that novice entrepreneurs need to devote attention to developing their social capital and to use these networks as a source of information for potential opportunities.

Finally, there is some evidence from venture capitalists that habitual entrepreneurs have difficulty in findings attractive investment opportunities the second time around (Wright et al. 1997). Out findings suggest that many habitual entrepreneurs were able to identify and pursue innovative opportunities. However, it does appear that this holds only for certain types of business ownership. Our findings suggest that financiers may benefit from carefully scrutinizing the nature of previous experiences (i.e. in terms of success and failure) reported

by habitual entrepreneurs.

CONCLUSION

Studies exploring the role of human capital on organizational outcomes have generally not focused on entrepreneurial behavior, and those that have examined entrepreneurial behavior have rarely distinguished between general and specific human capital. This study utilized a novel approach by examining the links between general and entrepreneurship specific human capital and the extent and nature of opportunity identification and pursuit, particularly in relation to the relative importance of prior business ownership experience. Our findings have general implications for the development of a human capital perspective on entrepreneurship, and contribute to understanding key aspects of the entrepreneurial process.

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Table 1. Descriptive Statistics and Correlations of Independent and Control Variables (n = 631) [a]

	Mean	S.D.	VIF [b]	1.	2.	3.	4.	5.	6.	7.	8.
1. Education	0.49	0.79	1.09	1.00							
2. Gender	0.87	0.34	1.20	-0.02	1.00						
3. Age [c]	-0.13	10.11	1.14	-0.03	0.18	1.00					
4. Age^2 [c]	102.05	141.04	1.03	-0.06	0.00	0.05	1.00				
5. Managerial capability [d]	0.01	0.99	1.11	-0.10	-0.09	-0.03	-0.03	1.00			
6. Entrepreneurial capability [d]	0.01	1.00	1.16	-0.06	0.00	-0.01	0.05	0.01	1.00		
7. Technical capability [d]	0.00	1.01	1.21	0.04	0.15	0.02	0.01	-0.01	0.00	1.00	
8. Developmental approach	0.00	1.00	1.36	-0.04	-0.03	-0.12	-0.04	0.20	0.29	0.25	1.00
9. Information search	21.68	8.95	1.14	0.00	-0.06	-0.11	0.04	0.14	0.18	-0.03	0.28
10. SIC0&2	0.07	0.26	1.17	-0.08	0.04	0.09	0.13	-0.08	0.05	-0.07	-0.06
11. SIC3	0.11	0.31	1.27	-0.05	0.10	0.06	0.00	0.00	-0.01	0.17	0.04
12. SIC5	0.09	0.29	1.26	-0.11	0.11	-0.05	-0.01	0.07	-0.06	0.10	-0.02
13. SIC7	0.03	0.16	1.07	-0.04	0.00	0.01	0.01	-0.01	-0.01	-0.08	0.07
14. SIC8	0.25	0.43	1.44	0.18	0.07	0.01	-0.04	-0.01	-0.09	0.07	0.02
15. SIC9	0.14	0.35	1.34	0.10	-0.26	-0.07	-0.06	0.04	-0.01	-0.03	0.02
16. Opportunities identified	2.38	0.49	1.24	0.05	0.14	-0.19	-0.05	0.12	0.12	0.04	0.17
17. HABITUAL [e]	0.54	0.50	1.13	0.02	0.10	0.09	-0.03	0.07	0.00	-0.08	0.03
18. TOTAL [e]	2.27	2.39	1.13	-0.01	0.09	0.09	-0.01	0.10	0.02	-0.05	0.01
19. SERIAL [e]	0.23	0.42	1.22	-0.01	-0.01	0.06	-0.02	-0.04	-0.05	-0.06	0.00
20. PORTFOLIO [e]	0.31	0.46	1.33	0.03	0.12	0.04	-0.01	0.11	0.06	-0.03	0.02
21. $HABITUAL_{exp.\ failure}$ [e]	0.18	0.38	1.26	-0.01	0.03	0.04	-0.03	0.04	0.00	-0.05	-0.01
22. $HABITUAL_{no\ failure}$ [e]	0.36	0.48	1.24	0.03	0.08	0.06	-0.01	0.03	0.01	-0.05	0.04
23. $HABITUAL_{failure>success}$ [e]	0.14	0.35	1.21	-0.01	0.01	0.03	-0.01	0.05	-0.03	-0.03	0.02
24. $HABITUAL_{success>failure}$ [e]	0.12	0.32	1.18	-0.02	0.07	0.07	-0.01	0.03	0.02	-0.04	0.00
25. $HABITUAL_{no\ exit}$ [e]	0.26	0.44	1.24	0.05	0.05	0.03	-0.01	0.01	0.01	-0.03	0.03
26. $HABITUAL_{failure\ =\ success}$ [e]	0.02	0.15	1.08	0.01	0.03	-0.01	-0.04	0.01	0.02	-0.03	-0.02

Table 1 continued.

	9.	10.	11.	12.	13.	14.	15.	16.
9. Information search	1.00							
10. SIC0&2	-0.02	1.00						
11. SIC3	-0.02	-0.10	1.00					
12. SIC5	0.05	-0.09	-0.11	1.00				
13. SIC7	0.00	-0.05	-0.06	-0.05	1.00			
14. SIC8	-0.02	-0.16	-0.20	-0.18	-0.09	1.00		
15. SIC9	0.01	-0.11	-0.14	-0.13	-0.07	-0.23	1.00	
16. Opportunities identified	0.13	-0.05	-0.03	-0.03	0.04	0.07	-0.23	1.00
17. HABITUAL [e]	0.00	-0.02	-0.01	0.04	0.03	0.02	0.07	-0.06
18. TOTAL [e]	0.01	0.03	-0.03	0.08	0.02	-0.03	0.02	0.01
19. SERIAL [e]	-0.02	-0.04	0.04	0.08	-0.02	-0.08	-0.01	0.01
20. PORTFOLIO [e]	0.02	0.02	-0.05	-0.03	0.05	0.09	0.02	0.27
21. $HABITUAL_{exp.\ failure}$ [e]	0.03	0.02	0.07	0.07	0.03	-0.08	-0.03	0.17
22. $HABITUAL_{no\ failure}$ [e]	-0.02	-0.03	-0.06	-0.01	0.00	0.08	0.04	0.13
23. $HABITUAL_{failure>success}$ [e]	0.01	0.01	0.07	0.09	-0.01	-0.06	-0.02	0.10
24. $HABITUAL_{success>failure}$ [e]	0.00	0.02	-0.03	0.02	-0.03	-0.04	0.01	0.11

25. $HABITUAL_{no\ exit}$ [e]	-0.02	-0.04	-0.06	-0.04	0.04	0.10	0.04	0.09
26. $HABITUAL_{failure = success}$ [e]	0.04	0.00	0.05	-0.01	0.04	-0.02	-0.06	0.13

Notes. [a] *r* has to be 0.07 or higher to be significant at $p < 0.05$ and *r* has to be 0.09 or higher to be significant at $p < 0.01$ (two-tailed)
[b] Variance Inflation Factor
[c] To avoid problem with multicollinearity, the age of the owner was measured in terms of deviation from the mean age (i.e., 49)
and age of the owner ^{2} was deviation from the mean age ^{2}.
[d] Based on standardized and ortho-normalized component scores which were subsequently used in the multivariate analysis.
[e] As these variables correspond to the different business ownership variables and are not included simultaneously the correlation between them is not reported.

Table 2. Ordered Probit Estimates of Variables Associated with the Number of Identified Opportunities for Creating or Purchasing a Business within the Last Five Years (n = 631)

Variables	***Number of business opportunities identified***											
	Model 1a		Model 1b		Model 1c		Model 1d		Model 1e		Model 1f	
	Coefficients		Coefficients		Coefficients		Coefficients		Coefficients		Coefficients	
Education	0.12	*	0.11	†	0.11	†	0.11	†	0.11	†	0.11	†
Gender	0.61	***	0.50	***	0.53	***	0.47	***	0.52	***	0.51	***
Age of owner	-0.03	***	-0.04	***	-0.04	***	-0.04	***	-0.04	***	-0.04	***
Age of owner ^{2}	0.00		0.00		0.00		0.00		0.00		0.00	
Man. capability	0.15	***	0.14	**	0.12	*	0.12	*	0.14	**	0.14	**
Ent. capability	0.12	*	0.12	*	0.12	*	0.11	*	0.13	*	0.12	*
Tech. capability	0.01		0.06		0.04		0.05		0.06		0.06	
Dev. approach	0.07		0.04		0.05		0.05		0.05		0.05	
Information search	0.01	*	0.01	*	0.01	*	0.01	*	0.01	*	0.01	*
SIC 0&2	-0.16		-0.20		-0.23		-0.23		-0.23		-0.21	
SIC 3	-0.11		-0.12		-0.08		-0.11		-0.15		-0.14	
SIC 5	-0.37	*	-0.47	**	-0.53	**	-0.44	*	-0.49	**	-0.48	**
SIC 7	0.44		0.39		0.40		0.35		0.38		0.39	
SIC 8	-0.01		-0.04		0.00		-0.07		-0.03		-0.02	
SIC 9	-0.03		-0.11		-0.04		-0.13		-0.10		-0.09	
HABITUAL			0.80	***								
TOTAL					0.18	***						
SERIAL							0.60	***				
PORTFOLIO							0.95	***				
$HABITUAL_{exp.\ failure}$									0.97	***		
$HABITUAL_{no\ failure}$									0.71	***		
$HABITUAL_{failure>success}$											0.86	***
$HABITUAL_{success>failure}$											0.86	***
$HABITUAL_{no\ exit}$											0.69	***
$HABITUAL_{failure = success}$											1.31	***
δ_1	0.74		1.10		1.08		1.05		1.10		1.09	
δ_2	1.53		1.94		1.92		1.90		1.94		1.94	
Log Likelihood	-613.58		-581.46		-581.46		-577.87		-579.63		-579.19	
Chi^2	87.78***		152.01***		151.74***		159.20***		155.68***		156.56***	
Pseudo R^2	0.07		0.12		0.12		0.12		0.12		0.12	

Notes. † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 3. Ordered Probit Estimates of Variables Associated with the Number of Identified Opportunities Pursued within the Last Five Years (n = 318)

Variables	***Number of Opportunities Pursued***					
	Model 2a	Model 2b	Model 2c	Model 2d	Model 2e	Model 2f
	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients
CONTROL						
Education	-0.04	-0.02	-0.03	-0.03	-0.02	-0.03
Gender	-0.04	-0.10	-0.08	-0.15	-0.09	-0.08
Age of owner	0.01	0.01	0.01	0.01	0.01	0.01
Age of owner ^{2}	0.00 *	0.00 *	0.00 *	0.00 **	0.00 **	0.00 **
Man. capability	0.09	0.07	0.07	0.05	0.07	0.07
Ent. capability	0.19 **	0.18 *	0.17 *	0.15 *	0.18 *	0.18 *
Tech. capability	0.11	0.13 †	0.12	0.13 †	0.13 †	0.13 †
Dev. approach	0.10	0.10	0.11	0.12	0.10	0.08
Information search	0.00	0.00	0.00	0.00	0.00	0.00
SIC 0&2	-0.16	-0.21	-0.23	-0.24	-0.23	-0.22
SIC 3	-0.24	-0.23	-0.22	-0.21	-0.24	-0.25
SIC 5	0.32	0.26	0.27	0.27	0.27	0.29
SIC 7	0.44	0.45	0.43	0.42	0.45	0.45
SIC 8	0.28	0.28	0.28	0.24	0.28	
SIC 9	-0.16	-0.22	-0.20	-0.24	-0.21	-0.22
Opp.s identified	0.89 ***	0.85 ***	0.82 ***	0.85 ***	0.84 ***	0.88 ***
HABITUAL		0.50 ***				
TOTAL			0.06 ***			
SERIAL				0.23		
PORTFOLIO				0.69 ***		
$HABITUAL_{exp.\ failure}$					0.56 ***	
$HABITUAL_{no\ failure}$					0.47 ***	
$HABITUAL_{failure>success}$						0.62 ***
$HABITUAL_{success>failure}$						0.29
$HABITUAL_{no\ exit}$						0.55 ***
$HABITUAL_{failure = success}$						0.27
δ_1	1.17	1.44	1.17	1.34	1.42	1.51
δ_2	4.34	3.67	3.36	3.61	3.65	3.74
Log Likelihood	-249.30	-243.89	-246.70	-240.33	-243.76	-242.65
Chi^2	68.72***	79.55***	73.93***	86.66***	79.81***	82.02***
Pseudo R^2	0.12	0.14	0.13	0.15	0.14	0.15

Notes. † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 4. Negative Binomial Regression Estimates of Variables Associated with the Level of Innovation in the Latest Venture (n = 631)

Variables	***Innovation***					
	Model 3a	Model 3b	Model 3c	Model 3d	Model 3e	Model 3f
	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients	Coefficients
CONTROL						
Education	-0.06 *	-0.06 *	-0.06 *	-0.06 *	-0.06 *	-0.06 *
Gender	0.09	0.08	0.08	0.07	0.08	
Age of owner	0.00	0.00	0.00	0.00	0.00	0.00
Age of owner ^{2}	0.00	0.00	0.00	0.00	0.00	0.00
Man. capability	0.08 ***	0.08 ***	0.07 ***	0.07 ***	0.08 ***	0.08 ***
Ent. capability	0.12 ***	0.12 ***	0.12 ***	0.12 ***	0.12 ***	0.12 ***
Tech. capability	0.05 *	0.06 *	0.06 *	0.06 *	0.06 *	0.06 **
Dev. approach	0.07 **	0.07 **	0.08 **	0.07 **	0.07 **	0.08 **
Information search	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***	0.01 ***
SIC 0&2	-0.06	-0.06	-0.07	-0.07	-0.06	-0.06
SIC 3	0.16 *	0.16 *	0.17 *	0.16 *	0.16 *	0.16 *
SIC 5	-0.16 †	-0.18 *	-0.18 *	-0.17 †	-0.18 *	-0.17 †
SIC 7	-0.46 **	-0.46 **	-0.46 **	-0.47 **	-0.46 **	-0.46 **
SIC 8	0.13 *	0.12 *	0.13 *	0.12 †	0.12 *	0.13 *
SIC 9	-0.06	-0.07	-0.06	-0.07	-0.07	-0.06
Opp.s identified	0.17 ***	0.15 ***	0.15 ***	0.15 ***	0.16 ***	0.15 ***
Constant	0.76 ***	0.75 ***	0.76 ***	0.76 ***	0.75 ***	0.76 ***
HABITUAL		0.11 *				
TOTAL			0.02 *			
SERIAL				0.07		
PORTFOLIO				0.14 **		
$HABITUAL_{exp.\ failure}$					0.08	
$HABITUAL_{no\ failure}$					0.12 *	
$HABITUAL_{failure>success}$						0.03
$HABITUAL_{success>failure}$						0.16 *
$HABITUAL_{no\ exit}$						0.11 †
$HABITUAL_{failure = success}$						0.30 *
Ln alpha	-2.74	-2.78	-2.78	-2.80	-2.78	-2.84
Alpha	0.06	0.06	0.06	0.06	0.06	0.06
Log Likelihood	-1376.97	-1374.51	-1374.57	-1373.82	-1374.37	-1372.15
Chi^2	175.44***	180.37***	180.24***	181.74***	180.65***	185.08***
Pseudo R^2	0.06	0.06	0.06	0.06	0.06	0.06

Notes. † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$