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Leaving is Not Failing: Examining Entrepreneurs Decisions To Close

Their Firms

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Abstract

Most of the research in entrepreneurship focuses on business creation side, but this is only one part of the overall economic scene since many new ventures do not survive for any extended period of time. The underlying assumption of early exit research is that closure equals failure. The problem with this approach is that it does not discriminate between a business that has failed because of financial exigency and one that has closed for other reasons, perhaps even as a result of accomplishing its original purpose. This paper posits that exit and closure are different phenomenon. We argue that a combination of human and firm level factors will predict the likelihood of voluntary vs. involuntary closure. We investigate this phenomenon using survey data on firms in the Dominican Republic over a 3 year period. We not only show what variables will impact the different types of closure, we also determine that performance is unrelated to the decision to close voluntarily.

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Introduction

Researchers and governments have concentrated in recent years on examining both business creation and closings. The founding of new businesses by entrepreneurs is universally recognized as a powerful economic engine that stimulates economic growth. A considerable body of research has demonstrated that a positive relationship exists between entrepreneurship and growth (GEM, 2004). Entrepreneurs who create new ventures represent an important channel for social and economic mobility and for promoting innovation. They are also responsible for the creation of a large percentage of all the new jobs in an economy. Indeed, in the U.S., their role in generating employment opportunities has increased over time as the overall economy has changed. In the 1960s 25% of the workforce was employed by the Fortune 500 companies, currently it is less than 10% and small business accounts for 80% of all new job creation. Although cross-national variations exist, these trends are significant and universal. A large percentage of the workforce across the globe is involved in some way in new business ventures. In the U.S., for example, approximately 11% of the 18 and 65 age group is involved in starting

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a new business (Reynolds, 2002). This number, though similar to Brazil (12%) is small when compared to such countries as Korea, India and Chile where over 20% of the population is involved in opening a new business. (GEM, 2004).

Most of the research in entrepreneurship focuses on business creation side, but this is only one part of the overall economic scene since many new ventures do not survive for any extended period of time. Indeed, firm closures are a common and significant phenomenon. In the United States, for example, 550,100 new firms were created in 2002 but in the same year, 584,500 (about 10% of the total number of firms) went out of business (SBA, 2002). A similar situation exists in the United Kingdom where 189,900 new businesses were founded and 174,400 closings were registered in 2002 (Small Business Society, 2003).

The large number of closings has important implications not only for the individual entrepreneurs and their employees but for the overall health of a nation's economy. Most countries seek to apply various public policy measures to promote small business creation. However, in order to encourage a robust entrepreneurial activity, it is essential to understand not only the various dimensions involved in the creation of a successful business, but also the reasons why businesses close.

Heretofore academic scholarship has focused largely on the creation and functioning of new businesses (Davidsson, 2007; Shane, 2006). Yet, understanding how and why firms exit from markets is a central issue of great importance for both researchers and practitioners. The limited research to date, is therefore, somewhat surprising. A considerable body of valuable research in many fields deals with industry growth and change by focusing on how and why firms survive. Entrepreneurship

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research, for example, has traditionally concentrated on the phenomenon of new venture creation, on the analysis of the characteristics that determine the success of new ventures.

The underlying assumption of early exit research is that closure equals failure. As a result, the terms “closing”, “exit”, “mortality”, “death” and “failure” were used interchangeably (Williams, 1993). The problem with this approach is that it does not discriminate between a business that has failed because of financial exigency and one that has closed for other reasons, perhaps even as a result of accomplishing its original purpose. In this frame of analysis, all firms that exit markets are deemed failures. As a result, the high failure rates identified in previous research and reported in the popular press might be misleading because they confound voluntary and involuntary exits, classifying them all as failures. This has important implications for the study of organizations since a better understanding of the processes of firm founding, survival and failure is crucial for continued development of the field.

Early scholars struggled to understand the nature of firm exits and of entrepreneurial failure and to generate accurate data on this phenomenon. Yet, this approach fails to capture the phenomenon of firm disappearance because it is based on an assumption that all firm closings are due to the inability of a firm to perform adequately even though one can identify many reasons other than an ability to perform for an entrepreneur’s decision to close a company. Firms cannot be characterized as failures just because they have shut down (Caves, 1998). It is necessary to understand the reasons why firms close, and whether those closures are for reasons other than financial exigency. In those cases, it is fundamental to understand the drivers of the decision to close the firm.

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Thus, the literature has identified two disparate and distinct aspects to firm closure. First, not all unsuccessful organizations fail – some may be able to sustain significant periods of low performance and not close (Gimeno et al., 1997; De Tienne et al., 2008). Conversely, some successful organizations might exit the market for a variety of reasons that are unrelated to firm performance. Hence, the relationship between performance and closure deserves a more nuanced analysis than has heretofore been the case. Even though historically, researchers who have examined success and failure rates of businesses (Hall, 1994; Williams, 1993) have failed to differentiate conceptually between voluntary and involuntary exits, a new group of researchers have begun to examine the nature of business exits, to try to examine why firms that according to the traditional model, should exit markets, but do not, and to examine the drivers and characteristics of firms that exit markets, even though they would not be considered as financial failures. The first group includes those that examine the persistence of underperforming firms (Gimeno et al., 1997; De Tienne, Shepherd and De Castro, 2008). Researchers in this view examine the reasons why firms that under traditional approaches would leave the markets and be considered as failures, persist in markets. The second approach examines the characteristics of entrepreneurial exits and tries to differentiate between those firms that can be considered as financial failures and those that leave the markets even though they would not be considered financial failures (Bates, 2005; Wennberg, Wiklund, De Tienne, and Cardon, 2010).

One key insight from the literature on the survival of underperforming firms, is that not only economic variables, but also psychological variables contribute to the decisions of entrepreneurs to exit or stay in markets. As a result of these psychological

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drivers, underperforming firms might stay in markets or firms with adequate performance might exit. Our paper contributes by integrating the human capital approach with psychological drivers of individual decision-making and with organizational characteristics that are reflective of both opportunity costs by the entrepreneur, of business know-how, and of how the firm is perceived by outsiders. In doing so, we complement previous work that examined both human capital, opportunity costs and psychological characteristics of the entrepreneur in the decision to close the firm, and extend previous research by incorporating organizational variables that would be indicative of entrepreneur's likelihood to close a business that is not underperforming.

Our paper, although incorporating notions from the former approach, follows the later. That is, we examine the characteristics of firms that close versus those that would be considered failures. In line with research by Bates (2005) and Wennberg et al. (2010), we contend that entrepreneurs may leave a "successful firm" because the nature of their human capital opportunity costs, and non-economic considerations. Bates (2005) uses a human capital approach to examine the difference between the characteristics of owners of "successful and unsuccessful closures". He found that education and previous experience are significantly related to "successful "closures. Wennberg et al. (2010) add a prospect theory approach to the human capital notions and contend that successful closures, that is firms without financial exigency that exit the markets, can be explained by both human capital (experience, education and age) and prospect theory risk avoidance behavior (taking an outside job, reinvestment). In this paper we extend the human capital aspect of a decision to close a business by examining experience (general)

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and expertise (specific) as well as education. In addition we incorporate organizational variables that are indicative of entrepreneur's human capital, such as the nature of firm ownership, and variables that reflect the entrepreneur's business know how (presence of record keeping, presence of outside credit). Finally, key in the decision to close the business are psychological characteristics that motivated the entrepreneur to create the firm. To capture that construct we examine the original drivers of the entrepreneur to start the business (opportunity or necessity).

We begin by reviewing the literature on closure. Building on existing scholarship we develop a number of hypotheses that deal with the effect of specific forces on firm closures. We then test these hypotheses on a sample of entrepreneurial firms from the Dominican Republic. Finally, we discuss the results of the study and suggest further avenues for research.

Organizational Closure

Research in the area of organizational survival points out that many factors other than performance influence the survival of new ventures (Carroll and Huo, 1986; Kallenberg and Leicht, 1991; Gimeno, Cooper and Woo, 1994). Similarly researchers have argued that the decision to close an existing business is not only motivated by financial considerations, but by a variety of causes. Much of this research has focused on entrepreneurs. For instance, Ronstandt (1986) found that 31% of all entrepreneurs exited solely because of financial difficulties, yet for 26% of entrepreneurs financial reasons played no part in their exit decision. Mayer and Goldstein (1961) also found that 20% of all new business closures could be attributed to non-financial reasons, which suggests a

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proactive decision to quit the business. Bates (2002) argues that opportunity costs, switching costs and non-economic considerations influence the decision to close.

Closure has traditionally been linked to failure, that is, entrepreneurs close because of financial exigency -- failure, but recent research has started to reexamine that proposition. There is, for example, work that shows why those that supposedly should close, i.e. underperforming firms, stay (Gimeno et al., 1997; De Tienne et al., 2008) as well as evidence of firms with adequate performance leaving the market (Wennberg, et al., 2009).

We contend that the decision to close is a multifaceted one in which financial concerns are only a part of the equation. The decision is affected also by entrepreneur's motivation and in particular the goals and motivation for starting the firm affect the decision to leave. For example, if the firm was started out of necessity or by following a market opportunity, will affect the decision to leave the market. Additionally, we argue that the nature of the human capital of the entrepreneur affects the choices to leave the market. It also plays a role in the choice of when and how entrepreneurs decide to close their firms.

Some researchers have begun to apply conceptual models to explain firm disappearance (Shepherd, Douglas and Shanley, 2000; DeCastro, Alvarez, Blasick and Ortiz, 1997). In particular, options theory has been used to differentiate between types of firm disappearance (Bowman and Hurray, 1993; McGrath, 1999). Although this work and the studies cited above include the notion that considerations other than economic ones are the basis for the decision, they do have several structural limitations. Although researchers have also highlighted the relationship between social capital and firm survival

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(Bosma et al.), for parsimony sake, we will restrict our arguments to human capital.

Given the nature of social capital, it is valid to speculate however, that the presence of significant social capital, would give added mobility to entrepreneurs and enter into the decision to leave a entrepreneurial venture, regardless of its financial success.

. Additionally, they do not differentiate between surviving firms and types of exit. If they do look at separate types of closure, their analyses tend to be based on limited data in regards to involuntary exits. Most studies also rely on large-scale archival data sets and have yielded important results but the issue of where the decision to close takes place and who makes it remains elusive.

Human Capital and the decision to close

One of the reasons for leaving a firm with adequate returns can be ascribed to the nature of human capital in the entrepreneurial process. Iyigun, and Owen (1998) contend that the human capital required for entrepreneurial and professional activities is different, and that individuals can accumulate human capital for both and choose between the different routes. Given that the risk involved in entrepreneurial activities can result in zero returns even with the requisite human capital, individuals can decide to move from entrepreneurial to professional activities, in particular when they possess valuable human capital, that can move from one area to the other.

Bosma et al. (2004) found that the human capital of the entrepreneurs affected the survival and performance of small firms. Moreover, specific investments in human capital (for example business ownership, experience in activities related to business ownership) both affected survival and performance of small firms and had a stronger effect than general investments in human capital.

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Davisson and Honig (2003) also examined human capital in the context of nascent entrepreneurship and its role in advancing the start up process. They examined education, business education, experience as a manager, work experience, and previous start up experience and found that formal education and start up activity predicted nascent entrepreneurial activities, and having taken business classes and previous start up experience were predictors of frequency of gestation activities over time. Thus consistent with Bosma et al., (2004), Davisson and Honig, (2003) found that human capital affected start up activities. It would be logical to argue that if human capital affects the decision to start, it should also affect the decision to leave.

Although researchers have also highlighted the relationship between social capital and firm survival (Bosma et al., 2004), for the sake of parsimony, we will restrict our arguments to human capital. Given the nature of social capital, it is valid to speculate that the presence of significant social capital would give added mobility to entrepreneurs and enter into the decision to leave a entrepreneurial venture, regardless of its financial success.

Contrary to the standard rational view of the firm, researchers have contended that underperforming firms remain in markets but the reasons why they remain are not necessarily financial, rather they posit that psychological and human capital motivations (Gimeno et al., 1997; DeTiene, 2010). A new stream of research seeks to examine the differences between firms that leave the markets, using human capital and other constructs to explain why both distressed and well performing firms might exit markets. Wennberg et al., (2009). is an example of this new approach. They both re-conceptualized and reexamined entrepreneurial exit. On the re-conceptualization front,

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the most important ideas are that both distressed and well performing firms can exit, and that entrepreneurial exit could be a successful outcome. Their results indicate that both human capital (experience, education and age) and what they call failure avoidance strategies (taking an outside job, reinvestment) affect exit decisions and the mode of exit. In particular, they contribute to our understanding by showing how the framing given by their failure avoidance strategies affect entrepreneur's decisions to exit.

Under these conditions, it is clear that the existing research findings limit our understanding of performance not only because of the gaps identified above but also because almost all the research findings are based on the assumption that performance can be (is?) measured by whether a firm stays in business or not. If survival is not the opposite of failure however, then what does this tell us about organizational performance? Thus, it is essential to approach the question of closure in a more detailed/nuanced way. Accordingly, in order to examine the various concepts subsumed under "exit", we differentiate between the generic concept of exit and its two dimensions "failure", and "closure".

Performance, Exit, Failure, and Closure

Theoretical and empirical research on firm performance has long demonstrated that both personnel and material resources (Teece et al. 1997; Penrose, 1959) are important elements in a firm's success. Accordingly, in this study, we examine both of these widely accepted dimensions, beginning with the individual level.

The ability of individuals to play a positive role in any organization is greatly influenced by their assets. The theory of human capital states that the greater the level of formal

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education or prior experience, the greater the productivity of the individual (Schultz, 1960; Becker, 1975).

In an entrepreneurial firm, the human capital of the entrepreneur is a critical factor in determining success or failure. Extensive empirical research strongly validates this point. For example, education has been long seen as having important effects on entrepreneurial performance. A recent meta-analysis has shown that education does not affect whether or not individuals choose to become entrepreneurs but it has a significant and positive effects on the performance and earnings of the entrepreneur. Moreover, these findings are comparable across countries (Van der Sluis et al, 2004). An earlier study by Cooper and Gimeno-Gascon (1997) found a similar relationship between education and firm performance across multiple studies. Additionally, education has been shown to be positively linked to firm survival (Mengistae, 2006). Therefore we hypothesize the following:

H1a: The entrepreneur's level of education is negatively related to firm exit

H1b: The entrepreneur's level of education is negatively related to firm failure

H1c: The entrepreneur's level of education is positively related to firm closure

However, education is not the only type of human capital that is related to positive performance. The past experience of the entrepreneur has also been shown to have dramatic effects on entrepreneurial survival and performance (Bruderl et al., 1992). However, experience has been divided into two distinct types in the human capital literature, general and specific. General experience includes all the knowledge and skills that an entrepreneur has obtained. Such a background has been shown to impact both the success of the venture and whether or not an entrepreneur will start another firm (Siegel

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and Riechl, 2007; Ronstadt, 1988; Vesper, 1980). Moreover, prior entrepreneurial experience is a good predictor of future entrepreneurial activity and positive performance (Ronstadt, 1988 and Vesper, 1980). Therefore we propose

- H2a: Experience is negatively related to firm exit.
- H2b: Experience is negatively related to firm failure.
- H2c: Experience is positively related to firm closure.

Specific experience, that is, a background in the particular or a related sector has also been shown to be valuable. Research has shown that people are more likely to start businesses in industries where they have experience (Aldrich, 1999) and this industry specific knowledge is used by the entrepreneur(s) to positive effect (Shane, 2003; Shepherd et al., 2000). The entrepreneur's specific human capital is useful for the new business (Shook et al. 2003). Specific human capital relates to that experience or skill set which can be applied to a particular context or activity (Becker, 1975; Gimeno et al.1990; Politis, 2005). Thus we suggest that

- H3a: Expertise is negatively related to firm exit.
- H3b: Expertise is negatively related to firm failure.

However, just as expertise allows an entrepreneur to be more successful, it may also allow the entrepreneur to have a more realistic approach to the industry, therefore being able to make a decision about the potential of the company. Additionally, this expertise may allow the entrepreneur to be more employable at another firm. Therefore, we posit that,

- H3c: Expertise is positively related to firm closure.

The role of organizational variables on firm survival has been argued by Audrestsh and Mahmoud (1995) which found that organizational size, age, innovation

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rate and ownership structure affected firm survival rates. However, ownership structure can also be considered a proxy for business know how, by increasing and diversifying the human capital of the firm in the form of multiple owners.. For this study, we utilize ownership structure not necessarily as an organizational level variable, but as an indicator of business knowledge by the entrepreneur(s).

The ownership structure of an entrepreneurial enterprise has been shown to have a large impact on the performance of the firm (Kaum and Nurik, 1993; Ruef, 2002). Once again, these findings relate back to the human capital that that the owners can bring to the organization -- that the varying types of experience, skill diversity and networks that the individuals have will affect the performance of the firm (Ruef et al. 2003). Specifically, the mixture of knowledge, skills and cognitive styles affects entrepreneurial choices and through these,,organizational performance (Sandberg, 1992; Hambrick and Mason, 1984). Thus,

H4a: The greater the number of owners, the less likely the firm will exit.

Similarly,

H4b: The greater the number of owners, the less likely the firm will fail.

However, these patterns should not hold true for voluntary closure. Given the need for agreement between the owners, one could imagine that getting several people to agree to close the business it will make the effect of ownership size more contested. Therefore we suggest that:

H4c: The greater the number of owners, the less likely the firm will close

As argued above, the resources that the entrepreneur(s) bring to the organization will affect its performance. However, how the firm is managed will also affect its

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performance. This management often reflects the skill set of the entrepreneur and as such is part of the human capital the entrepreneur brings to the firm or might acquire through becoming an entrepreneur. The greater the skill level of the entrepreneur is linked to both business performance and growth (Bird, 1993; Cooper and Gimeno-Gascon, 1992; and Ronstandt, 1984). Additionally, entrepreneurs who have or have access to financial matters and marketing and sales skill have been linked to greater performance (Hood and Young, 1993). In particular the ability to enact controls and actively manage a business have been shown to have a positive affect on firm performance (Edwards and Marullo, 1995). Thus,

H5a: Record keeping is negatively related to firm exit.

H5b: Record keeping is negatively related to firm failure.

However, the skills necessary to be able to effectively manage a business are ones that have a large degree of appropriability across situations and serve as part of the human capital that the entrepreneur can acquire from the process of running a firm and can take into other activities. Therefore the skills that make him/her an effective entrepreneur are skills that would lead to success elsewhere.

H5c: Record keeping is positively related to firm closure.

Firms vary greatly in the role that formalization and centralization play in the organization. Firms with more formalization have been shown to be more likely to survive (Scott, 1992; Edwards, 1994). Our contention is that the process of formalizing the venture reflects human capital characteristics of the entrepreneur, in particular business knowledge. This is important because, entrepreneurs that put greater controls in place should lead to better performing firms. So, the combination of higher human capital

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and better performance should increase the likelihood that should the firm exit it would be by closure, not by failure.

Performance is also related the ability of the entrepreneur to gain financing. For many businesses, the ability to obtain some form of credit will be a main determinant of performance. Moreover, obtaining credit in microenterprises, like the ones in the study, is also a strong indicator that outsiders value positively the human capital of the entrepreneur and what they bring to the venture. Thus we contend that

H6a: Obtaining credit is negatively related to firm exit.

H6b: Obtaining credit is negatively related to firm failure.

H6c: Obtaining credit is positively related to firm closure.

Research has also focused on what motivates an entrepreneur to begin a business and scholars have identified two major factors – opportunity and necessity (Schumpeter, 1934; Krizner, 1973). Based on work in strategy that found that, managers who exploit opportunities are more valuable to firms and that performance is related to opportunity exploitation (Mahoney, 1995), entrepreneurship research has focused on the role that opportunity plays in creating successful firms. Scholars differentiate between firms that are founded in order to take advantage of an opportunity versus ones that are founded out of necessity and argue that ones founded to take advantage of an opportunity will perform better than those started out of necessity (Block and Wagner, 2007)

Moreover, whether entrepreneurs start their business to follow opportunities or because of necessity has been shown to affect country level wealth characteristics. Hessels, Van Gelderen and Thurik, (2008) found that a prevalence of opportunity seeking entrepreneurs was related to economic development whereas necessity entrepreneurship was negatively

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related to economic development. McMullen et al. (2008) found that opportunity entrepreneurship was related to economic freedom indicators.

Shane et al. (2003) contended that entrepreneurial motivation should be a key part of models examining entrepreneurial process. In their model, they suggest that motivation affected both entrepreneurial execution and opportunity recognition. Naffzinger et al. (1994) proposed a model that included entrepreneurial motivations, decisions to become entrepreneurs, and entrepreneurial strategy, management and firm outcomes. Davidsson (1992) argued that differences in achievement motivation can affect growth willingness and that expected outcomes could affect growth willingness. That is that the expectations for the entrepreneurs at start could affect firm choices and behaviors.

However, although scholars have theorized about the relationship between these factors, research examining the relationship between necessity or opportunity entrepreneurship, firm characteristics and behavior, is lacking. Empirical evidence is scant so that the relationship between entrepreneurial motivation and firm outcomes, is at present, taken as an article of faith in the entrepreneurship literature.

In this vein, the motivation for starting a firm could also play a significant role in the decision to exit the firm. Whether the entrepreneur started the firm to pursue an opportunity or because of necessity, we contend can have an effect on the exit decision.

H7a: Starting a firm for necessity is positively related to firm exit.

H7b: Starting a firm for necessity is negatively related to firm failure.

H7c: Starting a firm for opportunity is positively related to firm closure.

DATA AND METHODS

Data

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In this study we use data from a yearly survey that was executed by the government of the Dominican Republic. The sample consisted of firms in specific economic zones across the country, chosen for their representative nature. The survey was administered for three years, from 1993-1996 to a total of 803 firms. Data was collected through self-administered questionnaires to gain information about the growth and performance of Dominican businesses. These businesses cover a range of industries and market segments; however they do tend to be relatively small which is an accurate reflection of the Dominican economy as the average firm has less than 5 employees. The Dominican Republic is a relatively small country with a population of over 9 million. Nonetheless, it has a dynamic economy with one of the highest growth rates in the western hemisphere in the past decade and it has experienced a seven percent growth in GDP in the last five years.

Although over 800 companies were surveyed, many of the surveys were missing data, thus the sample size varies depending on the analysis (around 600). Surveys that were mostly incomplete were removed from the sample. One characteristic that makes this data unique is that if a company was no longer in business in the following year, the Dominican government would track down at least one of the owners and administer a different survey about the reasons for closure. In the 3 year period of the study, this involved a total of 289 firms. As a result of this data, we can get an accurate representation of why firms close.

Variables

The data covers two different levels of analysis, 1) individual level data about the entrepreneur/owner(s) and 2) firm level data. For the individual level data we are

interested in how a number of variables that have been shown to be relevant to performance, therefore we look at the following variables.

Individual Level Variables

Education has been long seen as having important effects on entrepreneurship. A recent meta-analysis has shown that education does not affect whether or not individuals choose to become entrepreneurs but it has a significant effect on performance and earnings of the entrepreneur. These findings are comparable across countries (Van der Sluis et al, 2004). Education is operationalized as the level of formal education of the owner. The range of answers included no education, completing primary, secondary, high school, vocational and university. We felt that attainment of a particular level of education was more valuable for our purposes than just looking at years of education as level of education indicates the accomplishment of a certain series of skills.

Experience of the owner has been shown to have an impact on performance. We look at two different types of experience. The first is general experience, the number of years of experience. The second we define as expertise, whether or not the owner has specific prior experience in the industry that the business is involved in or in running a business. For this variable we combined several different measures, whether they had owned a business before and whether they have been involved in this industry or a related industry in the last three jobs that they had held. We feel that this gives us a particular insight into the effects of industry specific knowledge as a study from Denmark showed that over 70% of all entrepreneurs had some experience in the industry in which they decided to start a firm (Toivonen, 1998).

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Entrepreneurial motivation has been theorized to have a large impact on the reasons that individuals start a business. Scholars (Shapero & Sokol, 1982; Krueger and Braezel, 1994) have separated them into several categories – push, pull and negative displacement. The questionnaire asked the individuals about their motivation for starting a business and we then coded them into three categories: push, pull, and negative displacement. Push included such issues as a desire for independence or autonomy, wealth creation or lifestyle change. Pull was defined by negative external factors to the individual such as job frustration, perceived lack of advancement or dissatisfaction with current employment. Negative Displacement was if the individual had been fired or laid off and were now starting a business as a result.

The amount of outside income (Income Index) may also affect the ability of entrepreneur to start a business. Therefore we look at the amount of external income the entrepreneur has both from their family and from other sources. This is especially important in a country like the Dominican Republic where individuals often receive money from relatives living outside the country. In a recent survey 62% of the adult population stated that they were receiving remittances from abroad (Bendixen and Associates, 2004).

Firm Level Variables

The role that rationalized procedures play within the organization has been shown to have an effect on performance (Edwards and Marullo, 1995). As a result we are interested on these types of behaviors. We created a recordkeeping variable (Bureaucracy) from the data by combining a series of questions about record and bookkeeping practices within the firm, including the tracking of accounts receivable.

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The second aspect of any business is both the availability and use of credit. There have been many studies that document the link between inadequate financial resources and entrepreneurial failure (Gregory et al, 2005; Berger & Udell, 1998; Coleman 2000; Gaskill and Van Auken 1993; Jones 1979). Therefore we created a variable that measured whether or not the company had obtained some type of credit in the last year. The types of credit sources varied from loans from family and friends to bank loans.

As stated above, the number of owners is predicted to influence the decision to close. Ownership structure is measured as the number of owners of the firm. We also measure the reasons for why the firm was created (Opportunity). A series of questions were asked in the questionnaire about whether the firm was created to take advantage of an opportunity in the marketplace. This is a dummy variable with 1 for opportunity and 0 for necessity.

In line with other studies (cite) we used sales as a measure of performance. Given the average size and age of the firms this is an appropriate measure; however we logged the measure to ensure accuracy across the range of firms.

Given the work on the effect of age on firm performance we include a measure of liability of newness. This is operationalized by whether or not the firm was founded in the last year (Stinchcombe, 1968; Freeman, Carroll and Hannan, 1993).

Dependent Variable

Our dependent variable is firm closure. Closure is operationalized in two different ways depending on the analysis. For the first model closure is operationalized as whether the firm is still in business in the current year or not. In the second model the dependent variable differentiates between staying in business or the types of failures. It

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is an unordered categorical variable with three values: still in business, involuntary closure, and voluntary closure. The type of closure was self-identified by the owner/entrepreneur.

MODEL SPECIFICATION & ESTIMATION

We first analyze the data using a logit model. The logit model specification is

$$\ln L = \sum_{j \in S} w_j \ln F(x_j b) + \sum_{j \in S} w_j \ln \{1 - F(x_j b)\}$$

This analysis examines the probability that a firm will close given the alternative of still being in business.

The second model utilizes a multinomial logistic to analyze the probability of staying in business versus either closing voluntary or involuntarily. Model Specification for the multinomial logistic regression is the following

$$P_{ij} = P(Y_i = j | X_i) = \frac{e^{B_j X_i}}{\sum_{j=1}^3 e^{B_j X_i}}$$

P_{ij} = probability that firm i follows logic j where j = (still in business, failed or closed)

B_j = vector of coefficients of the marginal utilities of the X_i vector of independent and control variables.

This method allows us to investigate whether the determinants of the utilities differ for either closure or failure. The coefficient vectors are estimated using the Newton-Raphson maximum likelihood approach (Greene, 1993). Hausman and McFadden's (1984) test for the independence of irrelevant alternatives (IIA), an

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important assumption for discrete choice models, indicates that our sample does not violate the IIA assumption. We test the hypotheses by evaluating the statistical significance of the coefficients associated with the independent variables and their effects relative to the two possible outcomes.

RESULTS

The first model compares the companies that failed over the three years to those that remained in business. We exponentiated the coefficients, converting them to odds ratios so we can better interpret the results. Several findings in the first model are of note. In line with prior research, liability of newness is positively related to the likelihood of a firm closing. When we look at changes in the odds ratios we see that a firm is 2½ times more likely to exit when it is less than a year old. Similarly, sales are related to firm closure. Each point increase in log sales reduces the odds of exit by around 30%. Additionally, the human capital of the entrepreneur is related to closure in terms of both experience and education -- the less of each that the entrepreneur possesses, the more likely the firm is to close. Odds ratios indicate that a less educated entrepreneur is 54 percent more likely to exit than one with more education. Moreover, an entrepreneur without prior experience is almost three times more likely to exit than those with experience. Moreover, companies that engage in high levels of bureaucracy are 64 percent more likely to exit than those that don't.

Two findings that are somewhat counterintuitive revolve around access to financing. Both the amount of credit that the firm has obtained and the level of outside income are positively related to firm disappearance. Specifically, if an entrepreneurial

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firm has received credit has a 120% higher odds of exit. Moreover, exit is also positively related to outside income – an entrepreneur is 15% greater chance of exiting.

The second series of models differentiate between the different types of closure. As stated above, we differentiate between involuntary and voluntary closure. Using multinomial logistic regression we obtained beta coefficients for our two models. In the second model we contrast firm failure and firm closure to staying in business. In table 4 we convert the exponentiated coefficients to odds ratios. Our findings indicate the following effects. As seen in the logistic model, liability of newness continues to play an important role in determining the type of closure. However, it has a varying effect on the different types of closure. Liability of newness is associated with an almost 400% change in the odds for failure. A firm that is less than a year old has an almost 400% greater increase in the odds of failing. It is similarly critical for closure as the odds of closing increase 260% if the firm is new.

Most interestingly for our purposes is that performance has a large and statistically significant negative relationship to involuntary closure but, but no significant effect on voluntary closure, supporting the contention that failure and closure are very different phenomenon. Each point increase in log sales reduces the odds of failure by 75%.

The type of business opened is also important for voluntary closure, with those in non-retail businesses, more likely to close. Non-retail businesses have a 58% higher odds of closing. Entrepreneurial motivation also plays an important role in failure versus closure. Those firms that were started to take advantage of a perceived opportunity were more likely to close voluntarily whereas those that were started due to necessity were

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more likely to fail. The odds ratios demonstrate that firms that are started out of necessity are 34% more likely to fail and firms that are started to take advantage of an opportunity are 75% more likely to close.

Additionally, those firms that have record keeping capabilities are more likely to close voluntarily. The odds of closure increased 127 percent. This finding may help throw light on the results of the previous model around bureaucracy as individuals that have these skills could utilize them in other businesses – or have more alternative opportunities available to them. The ability to obtain outside credit is related to both voluntary and involuntary closure. Having received credit increases the odds of failing by 141% and of closing by 132%. Experience is negatively related to both failure and voluntary closure, though only the former approaches statistical significance. Not surprisingly, the less education an entrepreneur had, the more likely a firm was to fail. The odds increase by 70%. As with the prior model, the more outside income the entrepreneur has, the more likely the firm is to close voluntarily, the odds increase by 24% for point increase in income. This idea of alternative opportunities seems to be supported through the experience variable as well.

Discussion and Conclusions

This paper focused on firm closures, seeking to determine if it is possible to identify different forms such as voluntary and involuntary closures. In order to do so we presented specific hypotheses that dealt with various factors that might lead to different outcomes. Overall, we argued that the human capital of the entrepreneur as well as firm level characteristics will directly affect the exit behavior of a firm and presented a series

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of hypotheses dealing with each variable.

Our first series of hypotheses focused on the human capital of the entrepreneur. Not surprisingly, we found that the more education, experience and expertise an entrepreneur possesses, the less likely her firm will close. However when these individual characteristics are analyzed by type of closure, we were able to identify specific differences. The less education an entrepreneur has, the more likely her firm will fail but not close. This supports the idea that individuals with high levels of human capital (as indicated by education, experience, expertise) have greater opportunities and as such will be more likely to close a business in order to explore other, perhaps more lucrative, alternatives.

Similarly, access to financial capital allows entrepreneurs to exit. Those that have outside funds are more likely to close. Interestingly, all firms who received credit are more likely to close. Perhaps access to credit is an indicator of inadequate funding and as such, the firms are at a performance disadvantage when they enter the market. Clearly more research needs to be done in this area to examine this phenomenon. Firm level variables such as bureaucracy, type of business, and the motivation for starting the business are all related to differences in the likelihood that a business will not close voluntarily. These findings support prior research that examines the effects of firm level on firm failure but has the added significance of looking at how it plays a role when a firm closes voluntarily.

Perhaps the most significant finding is the one that show that performance is unrelated to the decision to close voluntarily. These findings demonstrate that entrepreneurs may close their firms in order to seek other opportunities, not because their

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firm is failing. These findings about the differences between voluntary and involuntary closure provide interesting and unique insights into the drivers for why entrepreneurs may decide to exit a field of activity.

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Table I: Determinants of Firm Failure

	<u>Exit</u>
Newness	1.241 ** (0.450)
Logged Sales	-0.325* (0.180)
# Owners	0.088 (0.322)
Retail	-0.136 (0.222)
Opportunity	-0.301 (0.200)
Bureaucracy	0.499* (0.243)
Credit	0.784** (0.144)
Experience	-0.030* (0.015)
Education	-0.779* (0.430)
Expertise	-0.049 (0.071)
Income index	0.143* (0.078)
Constant	-0.810 (0.855)

N= 500

R2 = .123

Log L -278.671

Chi2 = 76.83

Absolute value of z statistics in parentheses

* significant at 5%; ** significant at 1%

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Table II: Determinants of Failure vs. Voluntary Closure

	<u>Failure</u>	<u>Closure</u>
Newness	1.598** (0.560)	1.283* (0.687)
Logged Sales	-0.606** (0.230)	0.047 (0.278)
# Owners	-0.031 (0.418)	-0.015 (0.509)
Retail	0.284 (0.279)	-0.886** (0.369)
Opportunity	-0.409* (0.245)	0.562* (0.319)
Bureaucracy	0.366 (0.305)	0.824* (0.377)
Credit	0.882** (0.176)	0.844** (0.217)
Experience	-0.024+ (0.019)	-0.026 (0.024)
Education	-1.189* (0.560)	-0.449 (0.694)
Expertise	0.009 (0.088)	-0.093 (0.111)
Income index	0.144 (0.097)	0.215* (0.120)
Constant	-0.691 (1.068)	-3.495 (1.332)**

N = 475

R² = .123

LogL = -331.922

Chi² = 93.46

Absolute value of z statistics in parentheses

* significant at 5%; ** significant at 1%

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Table III: Odds Ratios for Determinants of Firm Failure

	<u>Exit</u>
Newness	3.46
Logged Sales	.72
# Owners	1.09
Retail	.87
Opportunity	.74
Bureaucracy	1.65
Credit	2.19
Experience	.97
Education	.46
Expertise	.95
Income index	1.15
Constant	.44

Table IV: Odds Ratios for Determinants of Failure vs. Voluntary Closure

	<u>Failure</u>	<u>Closure</u>
Newness	4.94	3.61
Logged Sales	1.75	1.05
# Owners	.97	.99
Retail	1.33	.41
Opportunity	.66	1.75
Bureaucracy	1.44	2.28
Credit	2.42	2.33
Experience	.98	.97
Education	.3	.64
Expertise	1.01	.91
Income index	1.15	1.24
Constant	.5	.03

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