ENTREPRENEURIAL EXIT AND FIRM PERFORMANCE

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ABSTRACT

This article explores the topic of entrepreneurial exit by bringing together two perspectives and units of analysis: the business owner and the firm. We use standard binomial and multinomial logistic specifications to investigate i) the factors influencing individuals’ selection out of business ownership; ii) the modes of that exit, i.e. sell-off or firm discontinuance and iii) the relation between exit and firm performance. A typology is put forward which discriminates between four types of entrepreneurial exit: ‘entrepreneurial failure’; ‘divestment choice’; ‘managerial turnover’ and ‘planned exit strategy’. Results highlight different owner human-capital, demographic traits and firm-level characteristics between sell-offs and closures. Evidence shows that some businesses can be considered successful at closure, thus telling apart the concepts of failure and exit.

INTRODUCTION

A significant amount of research in entrepreneurship and market dynamics focuses on determinants of new firms’ entry and survival as a way to understand business performance (see Santarelli and Vivarelli, 2006, for a recent review). The most common views underlying those studies suggest that firms’ dissolution relates mostly with failure (see, for instance, Caves’ 1998), thus supporting the argument that firms survival is an adequate indicator for measuring entrepreneurial success. However, dissimilarities between entrepreneurs’ traits and firms’ characteristics at the moment of closure have been often blurred, leading to failure in recognizing ‘entrepreneurial exit’ as a heterogeneous phenomenon.

In fact, by looking solely at the life duration of a firm, one cannot completely capture its performance, since not all firms are compulsory liquidated neither all entrepreneurs’ decisions to exit are involuntary. Taylor, (1999) investigated the duration of self-employment spells differentiating between involuntary and voluntary terminations. The author found that while a relatively small percentage of self-employment spells were due to bankruptcy, resulting in individuals’ unemployment; the highest percentage of businesses terminated with a move of the entrepreneur to a better or different alternative activity. Chrisman and McMullan (2000), have also detected that closure through bankruptcy is a relatively rare event.

Hence, exit can also be seen as a voluntary decision of the entrepreneur, driven by lack of willingness to continue in business. Voluntary entrepreneurial exit is associated with diverse factors, namely: recognition of a better business opportunity (McGrath and Macmillan, 2000; Shane, 2000); resources’ allocation to better markets (McGrath, 1999); positive occupational prospects as a paid employee (Van Praag, 2003; Bates, 2005) or reentrance as an entrepreneur through starting-up or acquiring a different firm in the market (Westhead and Wright, 1998). Furthermore, a voluntary exit of the entrepreneur can either take place through discontinuance of the firm or, through sell-off, in the case the firm continues operating with a different owner (Holmes and Schmitz, 1995, 1996; Bates, 1999).

The fact that exit can be voluntary, implies that when approaching entrepreneurial ‘success’ one should consider both the entrepreneurs’ and the firms’ thresholds of performance. Entrepreneurial exit may not occur because firm performance is insufficient to meet the requirements of the market, but because the business owner deems that same performance to be sufficient. We have therefore a different set of determinants for firm dissolution (associated with competitive conditions in the industry and
individual firm characteristics) and for entrepreneurial exit (associated with individual preferences, in which the entrepreneur establishes a ‘threshold’ for business performance below which he/she chooses to exit) (Gimeno et al., 1997; Headd, 2003).

The purpose of the present paper is to further explore differences between the individual and firm-level factors influencing the modes of entrepreneurial exit (i.e. ‘sell-off’ and ‘closure’) and to link those factors to firm performance at the moment of exit. Specifically, we use a longitudinal matched employer-employee dataset to test our typology of ‘entrepreneurial exit’, while addressing three key questions: i) What are the factors associated with exit from entrepreneurship?; ii) What distinguishes entrepreneurs who exit business ownership by discontinuing the firm vs. those who exit from business ownership through sell-off?; iii) How do entrepreneurs’ individual decision to sell-off or close the business, relates with firms’ observed threshold of performance in the market?

The paper is structured as follows. The next section briefly describes the underlying theoretical contributions on entrepreneurial exit, defines the research goals and propositions of the present study and provides the theoretical framework for the econometric models considered. Section 3 presents the data, discusses in some detail the issues in variables’ construction and describes the empirical methods used. Section 4 displays and discusses the results from model estimation; Section 5 provides some concluding remarks.

BACKGROUND LITERATURE AND HYPOTHESIS

Modes of Entrepreneurial Exit

There are many different types of exit discussed in the literature. A great body of the extant literature is largely conducted at the firm or industry level and exploring different types of firm discontinuance, such as market exit or technological exit (e.g. Bowman and Singh, 1993; Burgelman, 1996; Argyres, 1996). However, and as referred in the introductory section, recent scholarship has been shifting attention towards the exit decisions of the entrepreneur, and looking into business closure and entrepreneurial failure as distinct phenomena, since under this perspective – and for the most part of the cases – leaving the business does not necessarily imply that the firm will leave the market.

For example, Schary (1991) considers that business owners can choose at any time to: continue operations; be acquired; voluntary liquidate or declare bankruptcy. Additionally, the author deems important economic differences between diverse forms of exit and estimate models linking the form of exit to profitability, firm characteristics and decision-making processes. Watson and Everett (1993; 1996) created five categories for exit: ceasing to exist (discontinuance for any reason); closing or a change in ownership; filing for bankruptcy; closing to limit losses; and failing to reach financial goals. Clark and Wrigley (1997) assert that exit can happen by means of closure, de-merger or divestment. Holmes and Schmitz’s (1995, 1996) research on business turnover distinguishes small business discontinuity (failures) from sale (success). Using a model matching the owner and the business as well as the characteristics of firms that survive beyond that match, the authors find that the probability that a business manager change jobs, in case of the firm is sold, is the highest for those with the shortest tenure. Moreover, they claim that among businesses with managers who have the same tenure at their business, the probability that a business fails is decreasing in the age of the business.

The finding that firms’ dissolution declines with age (Mata and Portugal, 1994; Carroll and Hannan, 2000) is partially corroborated when looking at the modes of exit. Mitchell (1994) finds that while the dissolution rate declines with age for start-up firms, sell-off rates increase with age. Taylor, (1999) highlights the importance of having some work experience as a paid-employee but no previous unemployment experience, in explaining voluntary exits.
Entrepreneurial Exit and Firm Performance

The assessment of firms’ positive performance – or entrepreneurial success – is approached disjointedly in the literature; whether in terms of normative measures, such as firm survival, market share, productivity, profitability, size; whether in terms of subjective measures such as the entrepreneurs’ perceptions.

Survival approaches such like the ones developed by Taylor (1999) or Van Praag (2003) differ from the traditional views on performance as measured by duration of the firm (see Chopra’s 2005 review on survival). While the former author estimates separate models distinguishing voluntary and involuntary terminations, the later uses a competing risks model where success in business is defined as negative if the firm experiences a compulsory exit and positive if exit results from a voluntary decision of the entrepreneur.

However, some studies take into account the fact that firms’ poor economic performance (Gimeno et al., 1997) or entrepreneurs’ failure to achieve their intangible goals (Bates, 2005; Headd, 2003) per se, do not relate directly to exit. In effect, many individuals re-enter or remain in entrepreneurship despite not having had success in their previous entrepreneurial efforts (Flores and Blackburn, 2006).

The literature presents mixed evidence regarding the relationship between firm performance (as measured by economic measures such as turnover or profitability) and exit. Mitchell (1994) stresses that exit declines with greater sales for start-ups, but sell-off rates is no related with sales; furthermore, sales levels have little effect on the divestiture rate. (Schary, 1991) finds no relation between exit and profitability. However, Wennberg and Wiklund (2006), using data on exit for both firms and entrepreneurs, distinguish between ‘sell-off’, ‘closure’ and ‘full exit’, characterize the large majority of entrepreneurial exits as being ´exits by success’, i.e. firms that are sold while outperforming (in terms of gross turnover) other incumbent firms in the market.

According to Headd (2003), about half of new employer firms survive beyond four years and about a third of closed businesses were successful at closure. The author also find that firms having no startup capital and having a relatively young owner – were also common in businesses considered successful at closure and that inborn factors such as race and gender played negligible roles in determining survivability and success at closure. Bates (2005) stresses that successful exit is more likely to take place among highly educated owners running firms in skilled-service fields, such as professional services; individuals with prior experience in the field where they set up their small business; existence of strong owner human-capital traits, namely, college graduates with relevant prior work experience.

Research Propositions and Hypothesis

Our approach combines the mode of exit (sell-off vs. closure) with firms’ economic performance (above vs. bellow the market’s average). Drawing on the theoretical underpinnings of entrepreneurial exit, we put forward four different modes of exit:

I. ‘entrepreneurial failure’ (closure with low performance);
II. ‘divestment choice’ (closure with high performance);
III. ‘managerial turnover’ (sell-off with low performance);
IV. ‘planned exit strategy’ (sell-off with high performance).

We consider that while only ‘entrepreneurial failure’ is associated with involuntary exits, the remaining forms of exit are deemed voluntary.
Furthermore, from the empirical literature on the modes of entrepreneurial exit and firm performance assessed in this section, several exploratory research hypothesis result:

**H1.** heterogeneity exists across forms of exit, involving individual and firm-level characteristics

**H2.** exit through closure (sell-off) do not necessarily associates with firms’ negative (positive) economic performance

**H3.** exit through closure (sell-off) is negatively (positively) associated with firms’ age

**H4.** exit through closure (sell-off) is negatively (not) associated with firms’ sales volume

**H5.** closure is not significantly affected by the owner’s gender

**H6.** years of experience as a paid-employee is positively associated with voluntary exit

**H7.** years of experience in non-employment is negatively associated with voluntary exit

**H8.** exit with high performance is positively associated with owners’ higher education

**H9.** exit with high performance is negatively associated with owners’ experience in different sectors

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**RESEARCH DESIGN**

**Data Description and Construction of the Variables**

The present investigation uses detailed information on individuals’ backgrounds, career paths, and flows between firms and sectors on the Portuguese economy. The main data source is the ‘Quadros de Pessoal’ (QP), a unique database gathered from mandatory information submitted each year by Portuguese firms to the Ministry of Social Security and Labor. The longitudinal matched employer-employee data include extensive information on the business owners’ and workers’ traits and occupational mobility, as well as on firms and establishments’ characteristics, for the period 1986-2003.

Our sample covers the period 1986-2000 and, after data cleansing, it accounts for about 320,000 exits from business ownership and a total 2.5 million observations. We find this sample to be appropriate to study heterogeneous factors concerning firms and individuals’ exit, since it consists in a large, unbiased sample that accounts almost for the total population of firms and individuals in the Portuguese economy.

For the purpose of this research, a broad definition of “entrepreneurs” is used, comprehending those individuals who report themselves as business owners, regardless if they have full or partial ownership, and have started, acquired or inherited the business. We deliberately chose not to restrict our analysis to those who started businesses, preferring to examine differences between starters and acquirers/inheritors in our empirical analysis. The terms “entrepreneur” and “business owner” are thus used interchangeably.

The data allow us to disentangle continuance and discontinuance of firms. Exit from the sample and firms’ shutdown is not necessarily the same; nevertheless, our dataset results from a questionnaire that is mandatory for all private firms in the Portuguese economy. Hence, if at a certain period the firm stops being present in the dataset we consider that it has been discontinued. Additionally, and for the sake of robustness, in our analysis we use only individuals and firms that are present within the period 1986-2000, so that we can guarantee that we are observing factual exits, i.e. out of the data base in the following three years: 2001-2003.
Despite the data give us no direct information distinguishing mergers and acquisitions from true extinctions of firms; we estimate a proxy for merger accounting for liquidations, by looking at the extent to which a sizeable part of the workforce of each firm moves to a different one. We found that around 1% of the total number of liquidations is due to merger within the Portuguese private sector, which suggests that inability to trace mergers is not likely to impact significantly upon results.

We explore a diverse assortment of variables, which we have grouped into the following three major dimensions of analysis:

I) **Owner demographic traits and human-capital**: Age; Retirement (more than 65 years old); Gender; University education; Years of experience, as a paid-employee, as a business owner and as a non-employed; Experience in different firms, in different firms as a business owner or in different sectors; The Owner is the founder of the firm; Number of business owners in the firm; Earnings; Exit from business ownership and Modes of exit from business ownership;

II) **Firm-level characteristics**: Age of the firm; Firm Size; Firm productivity and Sector of economic activity

III) **Macroeconomic context**: Performance of the sector (average turnover) and Unemployment rate

**Dependent Variables**

The main variable of interest is ‘Exit from business ownership’ which we defined as a binary dependent variable. An individual is considered to exit business ownership if he or she leaves its current business to enter non-employment or paid employment in another firm. Entrepreneurial exit excludes those cases of business owners who despite exiting the firm, do not change their professional occupation; in other words, an individual who switch directly to a subsequent firm but remain a business owner in that firm, is not considered to have exited business ownership. The binary dependent variable distinguishes ‘exiters’ (assuming value 1) from a control group of ‘non-exiters’ (assuming value 0).

The second main variable of interest are the ‘Modes of exit’ defined as a categorical dependent variable. The response distinguishes between a control group of individuals who do not exit business ownership (assuming value 0); those who exit business ownership with continuance of the firm, i.e. through ‘Sell-off’ (assuming value 1) and finally, those who exit business ownership with discontinuance of the firm, i.e. through ‘Closure’ (assuming value 2).

In order to account for ‘exits with high or low performance’, we constructed a dummy variable as a based on information on the average sales per sector, at the two-digit level of NACE. This variable equals 1 (‘high performance’) if, at the moment of exit, the sales per employee of the firm were the same or higher than the sector average; and equals 0 (‘low performance’) if they were lower than the sector average. This allows us to estimate a model using a different dependent variable: a product interaction of ‘exit from business ownership’ and the ‘performance’ dummy variable.

The choice of exploring performance as an economic outcome was contingent to the information available on our dataset (data do not provide information on owners’ perceptions). However, despite its significance for entrepreneurship research, subjective measures of success (overlooking economic indicators), may be associated with a sort of ‘choice-supportive bias’, where after exit entrepreneurs have the tendency to remember their choices as better than they actually were and overestimate firm performance. In fact, the literature provides evidence that entrepreneurs may suffer from unrealistic optimism in anticipating high entrepreneurial performance in the start-up process (Cooper et al., 1988; De Meza and Southey, 1996) or during the development process (Lowe and Ziedonis, 2006). Overoptimism
can also be viewed as one possible explanation for the high rate of new business failures (Camerer and Lovallo, 1999).

**Independent Variables**

Two variables are included in the models, in a way to account for ownership status: number of business owners in the firm and a binary variable, distinguishing individuals who have started the firm from those who did not. We assume that entry into entrepreneurship occurs through a start-up if an individual enters a firm for the first time and that same firm is new in the market, (i.e. the firm’s date of foundation and the owner’s date of admission in the firm are the same). Otherwise, we consider that an existing firm has been acquired by the business owner.

In order to study the influence of specific and general experience in the labor market, we build different variables accounting, at each period, for the number of years individuals have spent in different occupations, such as paid-employment, business ownership and non-employment. Moreover, we employ variables measuring the number of individuals’ presence in prior firms, such as prior firms being business owners and finally, number of prior experiences in different economic sectors.

In our original data, information on owners’ earning is provided only for a reduced number of cases. Nevertheless, in a way to overcome this fact, we use the highest wage paid within the firm as a proxy for the business owners’ earnings. Hourly earnings are calculated by dividing base wage plus regular payments by the number of hours worked per month and deflated with the Consumers Price Index with. Overtime payments are not included.

**Control Variables**

There are diverse factors that despite not being central to this research are profusely explored in the literature and, deemed to impact upon the individuals’ decision to exit business ownership. Some of those variables are included in the regressions as a way to confer robustness to the phenomena being modeled.

We control for sector of economic activity since specific business environments may impact differently on the firm’s profitability and performance as well as on the choice to exit or remain business ownership. We use dummy variables distinguishing Primary sector; Total manufacturing; Energy and construction; Services; Community, social and personal services. Primary sector was omitted from the regressions in order to avoid collinearity.

Our measure of Industry performance draws on the average sales variation in the sector per year and it was calculated using NACE codes at the two-digit level.

Unemployment rate was included as the control variable for macroeconomic environment. The variable was constructed by calculating the unemployment rate variations relative to the homologous last quarters in 1986-2000.

We acknowledge the inability of our data in providing information concerning some exogenous factors leading to exit (i.e. health, death); however, we use a dummy to control for exits through retirement of the business owner, assuming value one if the individual is aged 65 or more years, otherwise assuming the value zero.

**Empirical Methods**

In order to investigate why individuals exit business ownership and the different modes of that exit, our study resorts to a form of the classic discrete choice model, similar to those proposed by Evans and
Jovanovic (1989), and Taylor (1996) – and reviewed by Parker (2004). In these models, occupational choice is determined by expected utility from each different occupation. As the occupational choice decision is modeled using longitudinal data, individuals are considered to be “at risk” of exiting entrepreneurship to other status (paid employment or non-employment) at any given moment. Given the specificity of the response variable, we found the logistic and the multinomial logistic models to be a suitable empirical strategy (following similar approaches to entrepreneurial exit developed by, for example, Schary, 1991; Headd, 2003 and Bates, 2005).

We assume that there are two entrepreneurial choices \((j)\), here denoted by \(E\) (exit entrepreneurship) and \(R\) (remain in entrepreneurship). Each individual \((i)\) has a vector \(X\) of observed characteristics and derives utility \(U_{ij} = U(X_{i};j) + u_{ij}\) if they work in a \(j\) specific situation (\(E\) or \(R\)), where \(U(X_{i};j)\) is observable utility and \(u_{ij}\) is unobserved utility.

\[
E(U_{j}) = f(D, H, O, E) \tag{1}
\]

The expected utility from exiting entrepreneurship \([E(U_{j})]\) is a function of: \(D = \)individual demographic characteristics; \(H = \)Human capital and experience; \(O = \)organizational features and \(E = \)Economic environment.

An individual will exit entrepreneurship if \(E(U_{E}) > E(U_{R})\), in addition, he or she will remain as an entrepreneur if: \(E(U_{E}) < E(U_{R})\).

We can define the observable indicator variable \(z_{i}^{*}\) as:

\[
\begin{align*}
 z_{i}^{*} & = E(U_{E}) - E(U_{R}) - u_{iE} + u_{iR} \tag{2} \\
 z_{i} & = \alpha + \beta' X_{i} + \upsilon_{i} \tag{3}
\end{align*}
\]

where \(z_{i}\) equals 1 if \(z_{i}^{*} \geq 0\) [i.e. individual \(i\) is observed in \(E\)] and \(z_{i}\) equals 0 if \(z_{i}^{*} \leq 0\) [i.e. individual \(i\) is observed in \(R\)], being \(Pr(z_{i}=1) = Pr(z_{i}^{*} \geq 0)\).

Logistic regression was used to assess the factors affecting the decision to re-enter entrepreneurship. Hence, our model becomes:

\[
Pr(z_{i} = 1) = \frac{e^{(\beta' X_{i})}}{1 + e^{(\beta' X_{i})}} \tag{4}
\]

The initial logistic model (4) is extended to estimate different modes of exit. Hence, we consider that individual \(i\) has \(J\) categorical observations and let \(z_{it}\) denote the \(t\)th observation for individual \(i\), \(i = 1, \ldots, J\). If there are \(J\) possible response states then \(Pr(z_{it} = j \mid X_{it})\), \(j = 1, \ldots, J\), is the probability that individual \(i\) has response \(j\) at time \(t\) given \(X_{it}\), a column vector of explanatory variables for that observation.

The multinomial model is expressed as

\[
r(z_{it} = j \mid X_{it}) = \frac{e^{(\beta' X_{i})}}{\sum_{k=1}^{J} e^{(\beta' X_{i})}}. \tag{5}
\]

The model pairs each response category with an arbitrary baseline category. In our analysis the response has three states (\(J = 3\)): individuals who do not exit business ownership (\(j = 0\)), individuals who exit business ownership through sell-off (\(j = 1\)) and individuals who exit business ownership through closure (\(j = 2\)). The group of individuals who do not exit business ownership is set as the reference category in order to facilitate interpretation of the results, so that \(\beta_{1} = 0\).
We estimate five different models accounting for individual and firm-level factors associated with entrepreneurial exit, estimating:

**Model I:** the probability of exiting entrepreneurship (a simple marginal effects model);

**Model II:** the probability of exiting entrepreneurship, estimated using a fixed-effects logistic procedure, in order to deal with unobserved heterogeneity between individuals;

**Model III:** the probability of exiting entrepreneurship through different modes: sell-off vs. closure (marginal effects);

**Model IV:** the probability of exiting entrepreneurship with ‘high performance’, through different modes: sell-off vs. closure (marginal effects);

**Model V:** the probability of exiting entrepreneurship with ‘low performance’, through different modes: sell-off vs. closure (marginal effects);

**RESULTS**

**Descriptive Statistics**

In opposition to the common perception that individuals leave business ownership through closure with poor performance of the firm (bankruptcy or insolvency), our descriptive analysis shows that the highest percentage of entrepreneurs who exit their firms do it through sell-off (about 65%) instead of closure; i.e. leaving the business does not imply the extinction of the firm. Hence, it can be argued that, notwithstanding being interdependent entities, the firm and the business owner(s), can be analyzed separately. In particular, the performance thresholds that lead to exit by a business owner are not necessarily the same as those that lead to exit by the firm.

About 60% of individuals who start their firms exit business ownership within the first two years of existence of the firm, while the same occurs for only about 5% acquirers. Whereas all founders who exit business ownership do it in firms aged up to 15 years old, only 60% of acquirers exit entrepreneurship in firms with the same age. While about 50% of the business owners who close their businesses, do it within the first five years of the firms’ life span; half of those who sell-off their business do it within the first eleven years. These results suggest that business ownership turnover happens in more mature stages of the firm’s life cycle, than most turnover of firms, as firm survival studies find that at least one third of business closures occur in the first three years after start-up (Caves, 1998).

As shown in Figure 1, about 85% of exits from business ownership are associated with low performance of the firm when compared with the average performance of the industry. The fact that a considerable number of exits from business ownership take place despite of firm success in the market – the remaining 15% of exits occur when firms are performing above the industry average – is in line with hypothesis \(H2\) and suggests that exit should be dissociated from failure. As proposed in the literature, and according to our occupational choice model, a possible explanation is that business owners may leave their successful firms if they detect a new business opportunity or a better alternative available in the labor market that would maximize their utility.

The data revealed different categories of exit that fit our proposed typology in the following way: 12% of closures with low performance (‘entrepreneurial failure’); 3% of closures with high performance (‘divestment choice’); 53% of sell-offs with low performance (‘managerial turnover’) and 32% of sell-offs with high performance (‘planned exit strategy’). The very high proportion of sell-offs and, in particular, the fact that a majority of firm sell-offs are of low-performing firms deserves further
discussion, While the high proportion of individuals who become business owners through acquisition is a distinguishing characteristic of the Portuguese economy – one with high rates of business ownership but with relatively low start-up rates (see Baptista and Thurik, 2007; and Baptista et al., 2007) – which is likely associated with high start-up costs and bureaucracy, the proportion of sell-offs of low performance firms indicates that business owners have significantly different preferences and performance thresholds with regard to the businesses they wish to own. The study of the determinants of these performance thresholds is therefore an important avenue of research for future exploration.

**Estimations on the Modes Entrepreneurial Exit: ‘Sell-Off’ Vs. ‘Closure’**

The variables’ signals are the same in the marginal effects and fixed effects models (except for average sales’ variation in the sector), suggesting that results are robust. The older the firm, the lower the likelihood of entrepreneurial exit, independently of entrepreneurial exit happens with sell-off or closure. Thus, we partially confirm hypothesis H3. The model with fixed effects reports that average sales’ variation in the sector affects negatively the probability of exit (which is in line with hypothesis H4). However, this effect is mixed, as it is positive for the modes of exit reported in marginal effects’ models.

Gender is not significant as determinant of firm closure. Hence, we partially observe H5. Being a female is, in general, negatively associated with entrepreneurial exit; the effect persists for the case of sell-offs. The higher the business owner’s age, the higher the likelihood of exiting entrepreneurship. As expected, being 65 years old or more is positively associated with entrepreneurial exit, since a significant percentage of the business owners still active usually retire once they reach this age. However, according to the descriptive statistics, exit through retirement accounts for only 3% of total entrepreneurial exits in the data, thus having a residual impact on the overall results.

Having university education is positively associated with exiting entrepreneurship, regardless of continuance or discontinuance of the firm after exit of the business owner. The overall impact of an individual’s number of years as non-employed or as a paid-employee are negatively associated with exit, but the number of years of experience as a business owner have a positive effect on exit from entrepreneurship. Owners who are more likely to leave entrepreneurship are those who have been in that same occupation for longer. However, when looking separately at different modes of exit, experience as a business owner impacts negatively on exit for those who sell-off their business; and the more years an individual is non-employed, the higher the probability of leaving entrepreneurship.

Entrepreneurial exit is more likely to occur if the firm has low levels of labor productivity. Size of the firm, measured by number of employees, has a negative effect on entrepreneurial exit, meaning that business owners are more likely to leave their businesses if they own smaller firms rather than larger ones. This effect is stronger for sell-off than for firm closure.

Exit is positively related with the number of business owners in the firm. The effect is stronger for sell-offs. On the on hand, this suggests that having partial ownership of a firm implies a shared responsibility and strategic decision-making; thus, entrepreneurs by choosing to leave the business are not necessarily jeopardizing the firm’s continuance in the market. On the other hand, this result may indicate that sell-off does not necessarily imply a radical managerial turnover of the firm, since owners who are leaving the firm may be selling their equity ownership share to their counterparts instead of selling to external acquirers. Being the founder of the firm is negatively correlated with entrepreneurial exit. This may relate with higher locus of control or higher knowledge about the specificity of the business. Being the founder strongly influences exit through sell-off rather than exit through closure.

The results show that, in general, enjoying higher earnings per hour does not deter individuals from exiting business ownership. However, those business owners who benefit from higher hourly earnings are
the ones more likely to sell-off their businesses, while exit through discontinuance of the firm is correlated with lower earnings per hour.

If the individual has previous experience in different firms and in different sectors of economic activity, he or she will be more prone to exit entrepreneurial activity. Conversely, having previous experience in different firms as a business owner will act as a deterrent of entrepreneurial exit. The effect of experience in different sectors turns negative when considering exit through sell-off.

**Estimations on the Firm Performance Status for ‘Sell-Offs’ and ‘Closures’**

The more years an individual experiences as a paid-employee, the lower the likelihood of exiting. This contradicts our hypothesis (H6) that the number of years of experience as a paid-employee is positively associated with voluntary exit. The higher the business owners’ years of experience in non-employment, the higher the probability of closure with low performance, i.e. entrepreneurial failure. This supports our hypothesis (H7) that the number of years as non-employed is negatively associated with voluntary exit.

In general, having higher education is positively associated with entrepreneurial exit, with a slightly higher effect on closures than on sell-offs (thus conflicting with hypothesis H8). This suggests that the opportunity cost of business ownership is higher for the more educated. Also, if business owners have a more diversified experience across sectors, they are more likely to fail (i.e. close with low performance), thus supporting our final our hypothesis (H9).

**CONCLUSIONS**

This paper has provided an exploratory investigation of the modes and determinants of entrepreneurial exit using a large longitudinal data set linking firms and individuals. More specifically, our analysis examines the characteristics and backgrounds of individuals who exit business ownership towards non-employment or paid-employment. Determinants of entrepreneurial exit are examined in the framework of an occupational choice model using a wide array of variables, including individuals’ demographics, general human capital (formal education), specific human capital (labor market and entrepreneurial experience), firm-level characteristics and macroeconomic context. This investigation also proposes and tests a typology consisting on four different modes of exit: ‘entrepreneurial failure’; ‘divestment choice’; ‘managerial turnover’ and ‘planned exit strategy’.

This research, while still tentative, brings new empirical evidence to the fore which may have important future implications for theory-building in the domains of entrepreneurial exit and occupational choice, by providing a clearer picture of the role played by individual, firm level, and environmental factors in determining entrepreneurial exit through sell-off vs. firm dissolution, and the ways these are associated with firm performance.

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**REFERENCES**


Figure 1: Percentage Of Business Owners Selling Or Discontinuing 'High' Or 'Low Performance' Businesses, In 86-00

Percentage of business owners selling or discontinuing 'high' or 'low performance' businesses, in 1986-2000

- 'Entrepreneurial Failure'
- 'Managerial Turnover'
- 'Divestment Choice'
- 'Planned Exit Strategy'

High Performance: Sell-off, Closure
Low Performance: Sell-off, Closure

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Table 1: Logistic Regressions on Entrepreneurial Exit

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<tr>
<th>Description of the Variables</th>
<th>Model I</th>
<th>Model II</th>
<th>Model III</th>
<th>Model IV</th>
<th>Model V</th>
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<td></td>
<td>Exit (fixed effects)</td>
<td>Modes of Exit</td>
<td>Modes of Exit with High-performance</td>
<td>Modes of Exit with Low-performance</td>
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<td>[0.009]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>Age of the individual</td>
<td>0.002***</td>
<td>0.043***</td>
<td>0.001***</td>
<td>0.000***</td>
<td>0.001***</td>
</tr>
<tr>
<td></td>
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<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>Squared age of the individual (divided by 1000)</td>
<td>-0.010***</td>
<td>-0.102***</td>
<td>0.000***</td>
<td>-0.001***</td>
<td>-0.003***</td>
</tr>
<tr>
<td></td>
<td>[0.001]</td>
<td>[0.023]</td>
<td>[0.001]</td>
<td>[0.000]</td>
<td>[0.001]</td>
</tr>
<tr>
<td>I if the individual is 65 or more years old</td>
<td>0.022***</td>
<td>0.589***</td>
<td>0.012***</td>
<td>0.007***</td>
<td>0.005***</td>
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<tr>
<td></td>
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<td>[0.021]</td>
<td>[0.001]</td>
<td>[0.000]</td>
<td>[0.001]</td>
</tr>
<tr>
<td>Years of experience as a non-employed</td>
<td>-0.001***</td>
<td>-0.053***</td>
<td>0.000***</td>
<td>-0.002***</td>
<td>-0.003***</td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td>[0.006]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>Squared years of experience as a non-employed (divided by 1000)</td>
<td>0.675***</td>
<td>9.220***</td>
<td>0.711***</td>
<td>0.108***</td>
<td>0.410***</td>
</tr>
<tr>
<td></td>
<td>[0.037]</td>
<td>[0.718]</td>
<td>[0.030]</td>
<td>[0.010]</td>
<td>[0.028]</td>
</tr>
<tr>
<td>Years of experience as a paid-employee</td>
<td>-0.016***</td>
<td>-0.286***</td>
<td>-0.013***</td>
<td>-0.002***</td>
<td>-0.005***</td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td>[0.002]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>Squared years of experience as a paid-employee (divided by 1000)</td>
<td>0.374***</td>
<td>6.827***</td>
<td>0.278***</td>
<td>0.044***</td>
<td>0.100***</td>
</tr>
<tr>
<td></td>
<td>[0.003]</td>
<td>[0.064]</td>
<td>[0.002]</td>
<td>[0.001]</td>
<td>[0.002]</td>
</tr>
<tr>
<td>Years of experience as a business owner</td>
<td>-0.001***</td>
<td>0.033***</td>
<td>-0.000***</td>
<td>0.000***</td>
<td>0.000***</td>
</tr>
<tr>
<td></td>
<td>[0.001]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>Squared years of experience as a business owner (divided by 1000)</td>
<td>-0.009***</td>
<td>-2.030***</td>
<td>0.008***</td>
<td>-0.003***</td>
<td>0.000***</td>
</tr>
<tr>
<td></td>
<td>[0.001]</td>
<td>[0.039]</td>
<td>[0.001]</td>
<td>[0.000]</td>
<td>[0.001]</td>
</tr>
<tr>
<td>I if the individual has university education</td>
<td>0.014***</td>
<td>0.233***</td>
<td>0.006***</td>
<td>0.003***</td>
<td>0.002***</td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td>[0.011]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>Logarithm of firm age (in years)</td>
<td>-0.016***</td>
<td>-0.182***</td>
<td>-0.007***</td>
<td>-0.001***</td>
<td>-0.002***</td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td>[0.005]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>Logarithm of Firm Size (people employed in the firm)</td>
<td>-0.022***</td>
<td>-0.597***</td>
<td>-0.012***</td>
<td>0.003***</td>
<td>-0.006***</td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td>[0.004]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>Logarithm of firm productivity (sales volume per worker)</td>
<td>-0.008***</td>
<td>-0.101***</td>
<td>-0.005***</td>
<td>0.005***</td>
<td>-0.001***</td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td>[0.003]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>Average sales’ variation in the sector</td>
<td>0.003***</td>
<td>-0.009***</td>
<td>0.000***</td>
<td>0.005***</td>
<td>-0.006***</td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td>[0.001]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>Unemployment rate variation</td>
<td>0.037***</td>
<td>0.772***</td>
<td>0.026***</td>
<td>0.001***</td>
<td>0.013***</td>
</tr>
<tr>
<td></td>
<td>[0.001]</td>
<td>[0.019]</td>
<td>[0.001]</td>
<td>[0.000]</td>
<td>[0.001]</td>
</tr>
</tbody>
</table>

Significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors in brackets. In Models III-V ‘Non-exiters’ (0) is the base outcome. All results are presented in marginal effects, with the exception of Model II. See notes at the end of the table.
Table 1: Logistic Regressions on Entrepreneurial Exit (continued)

<table>
<thead>
<tr>
<th>Description of the Variables</th>
<th>Mode I</th>
<th>Mode II</th>
<th>Mode III</th>
<th>Mode IV</th>
<th>Mode V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exit (fixed effects)</td>
<td>Exit (fixed effects)</td>
<td>Modes of Exit</td>
<td>Modes of Exit with High-performance</td>
<td>Modes of Exit with Low-performance</td>
<td></td>
</tr>
<tr>
<td>Number of business owners in the firm</td>
<td>0.064***</td>
<td>0.134***</td>
<td>0.040***</td>
<td>-0.008***</td>
<td>0.001***</td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td>[0.002]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>1 if the individual is the founder of the firm</td>
<td>-0.025***</td>
<td>-0.206***</td>
<td>-0.029***</td>
<td>0.033***</td>
<td>-0.013***</td>
</tr>
<tr>
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<td>[0.001]</td>
<td>[0.012]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.001]</td>
</tr>
<tr>
<td>Logarithm of the individual’s earnings per hour</td>
<td>0.005***</td>
<td>0.200***</td>
<td>0.013***</td>
<td>0.001***</td>
<td>0.008***</td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td>[0.005]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>1 if the individual has experience in two firms</td>
<td>0.014***</td>
<td>0.128***</td>
<td>0.009***</td>
<td>0.003***</td>
<td>0.002***</td>
</tr>
<tr>
<td></td>
<td>[0.001]</td>
<td>[0.013]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>1 if the individual has experience in three or more firms</td>
<td>0.039***</td>
<td>0.431***</td>
<td>0.022***</td>
<td>-0.003***</td>
<td>0.007***</td>
</tr>
<tr>
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<td>[0.001]</td>
<td>[0.020]</td>
<td>[0.001]</td>
<td>[0.000]</td>
<td>[0.001]</td>
</tr>
<tr>
<td>1 if the individual has experience as a business owner in two firms</td>
<td>-0.037***</td>
<td>-0.754***</td>
<td>-0.030***</td>
<td>-0.003***</td>
<td>-0.011***</td>
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<tr>
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<td>[0.018]</td>
<td>[0.001]</td>
<td>[0.001]</td>
<td>[0.001]</td>
</tr>
<tr>
<td>1 if the individual has experience as a business owner in three or more firms</td>
<td>-0.054***</td>
<td>-1.051***</td>
<td>-0.039***</td>
<td>-0.002***</td>
<td>-0.015***</td>
</tr>
<tr>
<td></td>
<td>[0.002]</td>
<td>[0.052]</td>
<td>[0.002]</td>
<td>[0.000]</td>
<td>[0.002]</td>
</tr>
<tr>
<td>1 if the individual has experience in two sectors of activity</td>
<td>0.001***</td>
<td>0.164***</td>
<td>-0.002***</td>
<td>-0.002***</td>
<td>-0.003***</td>
</tr>
<tr>
<td></td>
<td>[0.001]</td>
<td>[0.012]</td>
<td>[0.000]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>1 if the individual has experience in three or more sectors of activity</td>
<td>0.004***</td>
<td>0.194***</td>
<td>0.000</td>
<td>-0.001***</td>
<td>-0.002***</td>
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<td>[0.001]</td>
<td>[0.023]</td>
<td>[0.001]</td>
<td>[0.001]</td>
<td>[0.001]</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.059***</td>
<td>-1.765***</td>
<td>-0.061***</td>
<td>2160477</td>
<td>-0.047***</td>
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<tr>
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<td>[0.002]</td>
<td>[0.055]</td>
<td>[0.002]</td>
<td>[0.1591]</td>
<td>[0.002]</td>
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<tr>
<td>Number of observations</td>
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<td>2047877</td>
<td>2047877</td>
<td>-725007</td>
<td>690120</td>
</tr>
<tr>
<td>Number of groups (individuals)</td>
<td>462958</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pseudo R2</td>
<td>0.1145</td>
<td>-</td>
<td>0.1180</td>
<td>0.1719</td>
<td>0.0925</td>
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<tr>
<td>Log Likelihood</td>
<td>-634002</td>
<td>-616985</td>
<td>-755754</td>
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<td>-637379</td>
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<tr>
<td>Chi2</td>
<td>2.1e+05</td>
<td>80428.06</td>
<td>2.3e+05</td>
<td>29581</td>
<td>1.5e+05</td>
</tr>
</tbody>
</table>

Significant at 10%; ** significant at 5%; *** significant at 1%. Standard errors in brackets. In Models III-V ‘Non-exiters’ (0) is the base outcome. All results are presented in marginal effects, with the exception of Model II. See notes at the end of the table.

Notes: We use the highest wage paid within the firm as a proxy for business owners’ earnings. Hourly earnings is calculated by dividing base wage plus regular payments by the number of hours worked per month and deflated with the Consumer Price Index. Overtime payments are not included. Age, experience as business owner, experience as paid employee, and experience as ‘non-employed’ are measured in years. University education is defined as a dummy variable. In variables accounting for ‘firm-level experience’, the first class was discarded from each analysis to avoid collinearity (i.e. experience in one firm, one firm as business owner or one sector). A dummy variable accounting for the individual being the founder of the firm is included since the analysis follows a broad concept of entrepreneurship where individuals can start-up or acquire/inherit a firm. All specifications control for the business cycle by using dummy variables for industry, as well as national unemployment rate variations in 1986-2000.