An Empirical Analysis of entrepreneurial opportunity identification and their decisive factors: The case of new Spanish firms

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Abstract

The main objective of the analysis used in this work is to classify the entrepreneur's business opportunities and determine the factors that could explain them. This work offers two relative novel aspects to take care: i) the consideration of the business opportunity and the factors that explain it as a relevant element for analysis, and so perhaps fill the gap that exists in the empirical literature and, ii) the global analysis carried out where the characteristics of the entrepreneurship, the company and their environment are considered. The results obtained show that the business opportunity identified and exploited by an entrepreneur depends initially on his work experience, his previous experience in activities related to the present business activity and his level of education.

1. Introduction

Researchers have shown that the willingness of people to pursue entrepreneurial opportunities depends on such things as opportunity cost (Amit et al., 1995), stocks of financial capital (Evans et al., 1989), social ties to investors (Aldrich et al., 1986), career experience (Carrol et al., 1987), and motivational differences (Shane et al., 2003).The identification of opportunities has been recognized as one of the most important abilities of successful entrepreneurs (Ardichvili, Cardozo, & Ray, 2003) and consequently has become an important element in the scholarly study of entrepreneurship. Not surprisingly there has been considerable interest in why, when, and how some people are able to identify opportunities, while others cannot or do not (Shane & Venkataraman, 2000). For an interesting and more complete review see (Shepherd & DeTienne, 2005).

According to (Shane et al., 2003 p.259), in order to isolate the effects of entrepreneurial motivation, other factors that could have a causal effect on the process and outcome of entrepreneurship need to be controlled.

In this respect, some of the most representative authors such as, (Ottati, 1994), (Markusen, 1996), (Rabellotti, 1998), (Lawson et al., 1999), (Thomas, 2000), or (Beugelsdijk et al. 2004), have incorporated into this area of knowledge aspects such as, the influence of innovation systems, entrepreneurial capacity and business culture, with the aim of evaluating whether these specific factors of the entrepreneurial phenomenon can be associated with regional and sectorial development. (Glaeser et al., 1992) and (Henderson et al., 1995) propose introducing the distinction between inter- or intra-industry effects.

(Shane et al., 2003, p. 259) argue that while it is clear that the above factors need to be controlled if we are to fully understand how motivation is related to entrepreneurship, it

is less clear how opportunities affect this relationship. (Ardichvili et al., 2003) build on existing theoretical and empirical studies in the area of entrepreneurial opportunity identification and development, and utilize (Dubin's 1978) theory building framework to propose a theory for the opportunity identification process.

Within this context, the objective of this current work is to explore the factors that influence the analysis of the entrepreneur's identification and development of an opportunity, incorporating an endogenous approach in which we attempt to evaluate the entrepreneur's profile (according to a typology elaborated on the basis of their personal characteristics and the way they manage the firm's resources), without ignoring other exogenous factors relating to the region or sector that have already been considered in the literature mentioned above.

With this objective in mind, our article is organised as follows: in the next section we develop the proposed theoretical framework for studying the factors that potentially condition the analysis of entrepreneurial opportunity identification and development. In section 3 we present the methodology and the description of the variables. In particular how opportunity is classified and the factors considered as explanatory are approached. In section 4 we present the main empirical results obtained. Section 5 includes a summary of the main conclusions and extensions.

2. Theoretical framework: Model and Hypotheses

In this section the concept of identified opportunity is approached and developed from some of the viewpoints contemplated in the literature. In this sense, it is possible to identify business opportunities based on three points; a) the identification of opportunities as creative retrospection (Long & McMullan, 1984) b) the identification of opportunities as a

motivated search (Herron & Sapienza, 1992) and c) the identification of opportunities as alert management (Kirzner, 1985, 1979).

For (Long & McMullan, 1984) the identification of opportunities is a process that takes place over time rather than as a simple inspirational process, it assumes a process of creative retrospection. The identification of opportunities being the result of one's position of personal power, which depends on social, cultural and technological aspects together with the perception of a particular market opportunity (vision). The vision may be a good idea for a future project and a managerial project is then needed to exploit it. In this sense the opportunity has been identified, and the outstanding question is one of materializing it.

Psychologists who analyse the creation process suggest that, at least two types of creativity are necessary to conceptualise the process of identification of opportunities: the discovery and the resolution (Stevenson, Roberts & Grousbeck, 1994). From the empiric point of view, (Long & McMullan, 1984), find that analysed founders of companies view their businesses as a development of their intuition. They observe that the knowledge derived from education or work has a bigger influence when creating a business than the degree of innovation of the opportunity. In this sense, the knowledge acquired from experience or education and even information are important factors in the creation of companies.

In the works of (Vesper, 1980) or (Koller, 1988) most of the founders attribute their initial idea for the business to luck, though work experience is also present. The systematic search for opportunities is linked to those managers looking to be self employed, whilst those managers that had not thought of self employment are more likely to have discovered a business opportunity by chance.

The second focus, related to the identification of opportunities as a motivated search, is included in the work of (Herron & Sapienza, 1992), who argue that a person who is sufficiently motivated will undertake a search of business opportunities. This motivation will increase as the level of dissatisfaction felt by the person grows.

Finally the third focus, looks at the position of (Kirzner, 1979, 1985) on the identification of opportunities. The central idea is that a person who is alert will, under certain circumstances, be able to identify business opportunities. Few people have the ability to identify business opportunities that have not been discovered by others without the need for a prior systematic search. For this author, it is not a matter of managers generating innovative ideas, but of somebody being alert to opportunities that already exist and waiting to be discovered. From this point of view, being a manager depends on two components: the ability to detect opportunities and gain possibility, not only in a monetary sense, but in a motivational one as well.

2.1 Opportunities and Entrepreneurship

Following (Casson, 1982), and (Shane et al., 2000), we have defined entrepreneurial opportunities as situations in which new goods, raw materials, markets and organizational methods can be introduced through the formation of new means, ends, or means-ends relationships. In this study, we adopt (Shane et al., 2000, p. 218) definition of entrepreneurship as the process by which "opportunities for creating future goods and services are discovered, evaluated and exploited.

In this context, (Eckhardt et al., 2003), believe that the earlier literature offers three ways of categorizing opportunities: by focusing on the changes that generate the

opportunity, by the source of the opportunities themselves, and by the initiator of the change.

(Shane et al., 2003, p. 261-262) present two versions of the relationship between opportunities and entrepreneurship motivation:

- Shane and Collin's version. Opportunities are aspects of the environment that represent potentialities for profit making. "Since potentialities are not yet actual, measuring them objectively and prospectively at the level of an individual entrepreneur poses daunting challenges" (Shane et al., 2003, p. 261).

- Locke's version. Opportunities are aspects of the environment viewed from a certain perspective. "Since potentialities are not yet actual, we would argue that they could not be measured except in the negative sense, that is, as terms of metaphysical limitations or upper limits" (Shane et al. 2003, p. 262).

The theoretical framework offered by (Shane et al., 2003), is particularly interesting as a means of explaining the discovery and development of opportunities, based on different assumptions borrowed from a range of disciplines (ranging from Australian Economics to Cognitive Psychology).

2.2 Model

Over the last few years, numerous models of opportunity recognition and development have been presented (Bhave, 1994; Schwart et al., 1999; Singh et al., 1999; De Koning, 1999; Sigrist, 1999).

These attempts (argues Ardichvili et al. 2003, p.107) have contributed greatly to our understanding of opportunity identification, though they fall short of offering a comprehensive understanding of the process.

In the Ardichvili-Cardozo-Ray model, major factors that influence the core process of opportunity recognition and development leading to business formation include:

- Entrepreneurial alertness. Ray et al. (1996) argue that any recognition of opportunity by a prospective entrepreneur is preceded by a state of heightened alertness to information.

- Information asymmetry and prior knowledge. (Von Hippel, 1994) argues that people tend to notice information that is related to information they already know. Therefore, (Shane, 1999) postulated that entrepreneurs will discover opportunities because prior knowledge triggers recognition of the value of the new information.

- Social networks. (Granovetter, 1973) argues that weak ties are "bridges" to information sources not necessarily contained within an individual's strong-tie network. In this context (Hills et al., 1997) indicate that an entrepreneur's networks are important to opportunity recognition.

- Personality traits. According to (Ardichvili et al., 2003) some cognitive studies have focused on the personality traits of entrepreneurs and their contribution to the success of entrepreneurial ventures.

- Type of opportunity itself. (Ardichvili et al., 2003) believe that the process of opportunity development may differ between four types of "opportunities"

Dreams, Problem Solving, Technology Transfer and Business Formation. They will be analysed in the following section.

After analysing the literature, figure 1 presents the pattern for the identified opportunity. The type of opportunity begins when the entrepreneur has an above-threshold level of entrepreneurial alertness. The level of entrepreneurial alertness is likely to be heightened when several factors coincide: certain personality traits associated with the motivation factors that have prompted the entrepreneurs to create their firms are vital determining factors of this alertness; as are the domains of knowledge: specific knowledge of the activity, that is to say, previous experience in the activity exists prior to the creation of the company, managerial experience in the activity or formal education. The nature of social networks and environment also determine the level of entrepreneurial alertness. Finally, the type of opportunity plays an important role in understanding the process.

[INSERT FIGURE 1] model

As indicated by (Ardichvili et al., 2003), the development process may differ between individuals or entrepreneurial teams. Some individuals excel at invention; others, at creating business models and a rare few excel at both.

All that has been expounded so far helps us to consider the following hypothesis group from the opportunity identification model:

- H1a: The type of identified and developed opportunity varies in accordance with prior knowledge and formal education:

- H1b: Higher levels of prior knowledge and formal education are associated with the identification of more innovative opportunities.

- H2: The type of identified and developed opportunity varies in accordance with personality traits in terms of motivating factors.

- H3: Different types of firms exist depending on business opportunities. These differences are associated with organizational variables; the age of the company, the number of partners there are, start up capital and the formalization of a business plan that allows the activity to be planned.

- H4: The type of identified and developed opportunity varies in accordance with social networks and environment. That is to say, important links exist between the type of identified opportunity and the sector and region or area in which the company is located.

3. Methodology

At the theoretical level the concept of entrepreneurial opportunity identification and development has been approached from various disciplines. Similarly, its empirical treatment has been approached using different methods, ranging from Dubins's methodology, as in the work of (Ardichvili et al., 2003), to the use of questionnaires to analyse the entrepreneur's behaviour (e.g. Curran et al., 2001, Smallbone et al., 2002).

In short, to contrast the hypotheses a model of discreet election, *logit multinomial* has been used.

$$Y = \alpha + \beta' X + \varepsilon \qquad\qquad [1]$$

where Y^* is an unobservable index; α the independent term; β the vector of coefficients associated with the independent variables (defined later); and ε the random disturbance term. The observations are limited to assigning each firm to a category on the interval scale (1 to 4), so that each category corresponds to a specific rank of Y^*. Thus, we have $Y = 1$ if $Y^* < 1$; $Y = 2$ if $1 < Y^* < \mu_1$; $Y = 3$ if $\mu_1 < Y^* < \mu_2$; $Y = 4$ if $\mu_4 < Y^*$, where the μ_i are unknown parameters that determine the boundary values of each rank.

To estimate the coefficients one of the identified opportunities, which is considered as omitted, is used as a normalization (reference alternative) value. In this way, the parameters of the other alternatives should be interpreted in reference to the omitted category. The statistical pattern to estimate would be the following.

$Pr_{j=1..4}$ *(Opportunity) = f(personality traits, Social networks and environment, Prior knowledge)*

3.1 Data

The data used in this investigation were obtained by means of a survey carried out in the year 2004 on a total of 701 firms located in the city of Madrid (Spain). Table 1 shows the main characteristics of the study.

[INSERT TABLE 1] Technical specifications of the study

The questionnaire used, gathered information about the manager's characteristics, of the managerial project, the research and development activity, the factors leading to success and problems found in the creation of the company, and the valuation of managerial spirit.

3.2 Measures

3.2.1.- Dependent variable

According to (Getzels, 1962), and (Archiving et al., 2003), we believe that the process of opportunity development differs between four types of "opportunities" defined by the matrix in Figure 2.

[INSERT FIGURE 2]

This matrix, differentiates between "opportunities" based on their origin and degree of development. The value sought may be identified (known) or unidentified (unknown), and value creation capability may be defined or undefined.

I) Dreams: represents the kind of creativity we associate with artists, some designers, and inventors who are interested in moving proprietary knowledge in a new direction or pushing technology past its current limits. (Problems and solutions both unknown)

II) Technology Transfer: opportunity development here emphasizes search for applications more than product/service development. (Problems are unknown but solutions are available)

III) Business Formation: opportunity development involves matching known resources and needs to form businesses that can create and deliver value. (Both problems and solutions are known)

IV) Problem Solving: the aim of opportunity development in this situation is usually the design of a specific product/service to address an expressed market need. (Problems are known but solutions are not)

To obtain the necessary information on the opportunity identified by the manager. The entrepreneurs were asked about the business idea behind the creation of their company or managerial project. The answers given by them and their classification of the proposed opportunities can be seen in table 2:

[INSERT TABLE 2] Classification of opportunity types

Figure 3 shows the distribution by districts or areas of the different types of the analysed entrepreneurship opportunities. As can be appreciated, the four different business opportunities are present in all the districts of the City of Madrid.

[INSERT FIGURE 3]

3.2.2.- Independent variables

As mentioned previously, the independent variables of the pattern have been placed in three categories

1) Personality traits: From motivation theories we know that people act to satisfy their needs and that before undertaking any action they consider what the remunerations or compensations will be.

From the previous reasoning we are justified in using reward as an important influence on behaviour, and ultimately for classifying entrepreneurs in accordance with the type that of reward that guides their behaviour.

According to (Robbins, 1998), a distinction can be made between intrinsic rewards, those that individuals receive for themselves, (in great measure the result of the

person's satisfaction with their work) and extrinsic reward which includes direct and indirect compensation, and non economic bonuses.

Within this context, in order to analyse the motivations of managers in the Municipality of Madrid, they were asked to rate the degree of importance the different rewards, which the literature considers as more outstanding,[1] had for them. The possible answers were placed in two groups, in the main following the approach used by (Robbins, 1998). Table 3 shows the entrepreneurship motivation variables used by Patchell (1991) and a contrast of mean values for a sample of companies that were also analysed using entrepreneurship motivation variables, at a national level in Spain. (De Jorge, Garcia & Pablo, 2004).

The objective was to evaluate whether the variables chosen to analyse the aspects that characterize entrepreneurship motivation in the city of Madrid differ from those in the rest of Spain[2]

[INSERT TABLE 3] mean values and contrasts

As can be observed, the variables belonging to the group of extrinsic motivations present significant differences between the two samples, warning us of the need to be cautious when extrapolating the results obtained for the venturesome of the city of Madrid to the rest of Spain. (Something similar happens with intrinsic rewards, with the exception of motivations related to "Desire to do work of one's own interest", Achieve self realization", "Desire to be master of one's own business", and "To achieve social recognition").

Later a factorial analysis of the main components[3] was carried out following the methodology used by (Hair et al., 1999). As shown in table 4, the factor analysis allowed us to move from 15 items to 6 factors[4]. This analysis accounted for a total of over 62% of the variance, and the rotation required nine iterations to converge. The six factors produced showed truly remarkable similarity to the theoretical dimensions-perhaps only localization items were out of place.

[INSERT TABLE 4]

The interpretation of each factor that we carry out next, has taken as a reference the classification chosen by (Robbins, 1998) to categorize the different types of benefits that people usually consider when becoming part of a group to achieve particular objectives. A review of the literature has also been used for the itemized identification of the extracted factors. In this context, see (Carter, Gartner, Shaver & Gatewood, 2003) where an interesting reviews of this topic is made.

The first factor, which accounts for 25% of the variance, presents a high positive association with the items "Desire to earn a decent living," "Earn a larger personal income" and "Desire to earn amount of money commensurate with effort." Thus, this factor is associated with money motivations, so it can be labelled *Financial success*.

The second factor is mainly related to the items "Desire to do work of one's own interest" with a saturation level of 0.86, being supplemented with "Desire to be master of one's own business" and "Free to adapt my approach to work." This factor includes the autonomy or independence that managerial activity implies, so it can be labelled *Independence.*

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The third factor has a high association with the variables related to personal satisfaction. In short with "Desire to exhibit one's abilities at work" and "To achieve social recognition" and to a smaller degree with "Desire to take on management challenge." The name assigned to this factor is *Recognition.*

The fourth factor is related to the items "Achieve self-realization" and "Desire to contribute to society." This dimension is therefore associated with the idea that people fight for personal realization, they are accepted by themselves and others and as a result increase their problems solving ability. The name assigned to this factor is *Self-realization.*

Factor five includes the items "Obtain greater flexibility in ones personal life" and "Desire to give priority to family." This factor suggests the importance of free time and the problems of coordinating professional and family life. Thus, it can be labelled *Quality of life.*

The sixth and final factor is only related to the choice of location. Its saturation level is very high 0,948. The interpretation of this factor seems to be related to the importance that the location of the establishment and the family residence have for the managers that were interviewed. Which could be related to their business and family home being in close proximity. On the other hand, the choice of the City of Madrid could be related to the importance of the location to the managerial activity (only 18% of the entrepreneurs interviewed had considered alternative locations). The location factors were valued more highly by managers within the context of agglomeration of

economies they chose "Proximity of the clients" and current and future "Accessibility to the establishment."   Thus, it can be labelled *"Localization"*

With the aim of linking the motivating factors to the entrepreneurs, the sample was divided into groups depending on the factors they considered to be the most relevant when it came to motivation. The method chosen for the analysis was agglomerative hierarchical clustering, as it does not cause overlapping between clusters and is considered the predominant method by (Chenhall & Langfield-Smith, 1998). The technique employed was the Ward algorithm, widely used in the literature (Everit, 1993), with the Euclidean distance metric chosen to measure the proximity between two cases so we could analyse the groups. The cluster number was determined by analysing the dendrogram and the mahalanobis distance values. Authors such as (Meyer, 1991; Thomas & Venkatraman, 1998 ; Korunka, Frank, Lueger & Mugler 2003) have used this method.

After the clusters were obtained, a discriminant analysis was applied to determine the percentage of correctly identified cases, with a classification level of 89.7%. Finally, as shown in table 5, the analysis (ANOVA) was used to check the differences between the groups.

[INSERT TABLE 5]

Turning to the classification of the different entrepreneurial theories used in the literature, the interpretation is the following:

I) ***Cluster 1: Entrepreneurship leadership (vocational).*** (Bennis & Schein, 1965) introduce the concept of the manager as visionary, motivated and in charge of

uniting the group, being creative and looking for new openings, and developing an entrepreneurial culture within which objectives can be attained. These vocational managers belong negatively to the groups in which the most relevant factors are those identified as *Financial success* and *Quality of life*. They are related positively to those factors concerned with the choice of location, and the need to achieve self realisation. This group can therefore be identified as one that is not motivated by money and is aware that the running of a business requires dedication and continuous effort. This group consists of 128 businessmen (18.26%).

II) ***Cluster 2: Entrepreneurship risk (not well established).*** (Knight, 1921) introduces the concept of the manager as the figure that assumes the economic risks, anticipating the national product, creating and ensuring income, the company profit being the reward for that risk. This group of "unestablished" managers are negatively related to the *Localization* factor. As such, they are managers for whom the location of the business is not important, and who are either more interested in possible opportunities for the business or are forced by the activity of the business to locate in a certain area. To sum up, location is not a relevant factor. This group consists of 79 managers (11.27%).

III) ***Cluster 3: Entrepreneurship agents (typical).*** (Cantillon, 1730) and (Say, 1830), introduce the concept of manager as agent or businessman who buys the means of production at a certain price, which he then combines in a product that he later sells at an unfixed price depending on his cost commitments. This group of "typical" managers is positively linked to the *Financial success,*

Independence and *Self-realization* factors. As such we can identify them as "standard" managers. This group consists of 317 managers (45.22%), the largest group in the sample.

IV) ***Cluster 4: Entrepreneurship by necessity.*** (Galbraith, 1967), introduces the concept of manager as the leadership function, normally consisting of expert decision makers. This group of managers by necessity or obligation is, in the main, negatively linked to the *Independence* factor and to a lesser degree, positively linked to the *Quality of life* and *Localization* factors. It is a group that does not place a great deal of importance on independence or working for them selves. They do however; consider quality of life and location to be important. This group consists of 90 managers (12.84%).

V) ***Cluster 5: Aseptic Entrepreneurship.*** This group of "aseptic" managers is negatively linked to the *Recognition* factor (with a strong saturation level of -1.22). To a lesser extent they also negatively saturate the *Self-realization* factor. Finally, they are linked to the *Quality of life* factor to the same degree as to the *Self-realization* factor, but in a positive sense. This group has been named the aseptic group as they seek neither autonomy nor self-realization. Nor for that matter are they particularly linked to quality of life factors. It consists of 87 managers (12.41%).

2) Prior knowledge: <u>Entrepreneurial characteristics:</u>

The characteristics of the entrepreneur have been analysed using variables related to gender, age and experience.

The entrepreneur's human resource has been classified in "theory," measured by variables that evaluate professional training, practical studies, university, degree and post graduate studies and complemented by evaluating variables that take into account any previous business experience or experience in the business in question.

3.- <u>Social networks and environment</u>

The environment control variables included in the model have been grouped into three categories.

1) Firm effect.

The firm effect has been controlled by variables related to its size (measured by the number of employees), the number of partners and its resources.

2) Sector effect.

The sector has been controlled by means of a dummy variable that incorporates six sectors of activity (the industrial sector, commerce and hotel and catering, financial institutions, health and education services, construction and energy services, transport and water).

3) Region effect.

In order to include the region effect in a survey of this size, the 21 municipal districts of Madrid have been grouped together. To achieve this a hierarchical cluster has been applied (the Ward method) to the variables: population density, income level and unemployment rate for each district based on available information. Once the groups had been identified a new variable was created

that allowed us to determine the localization effect. Using the results obtained from the hierarchical cluster, 3 regions have been selected.

a) Region 1: The centre, Latina, Carabanchel, Usera, P. de Vallecas, Villaverde, Villa de Vallecas, Vicalvaro and San Blas. This region is defined as having an average population density, low disposable income level and a high unemployment rate.

b) Región 2: Arganzuela, Retiro, Salamanca, Tetuán, Chamberí, Moratalaz, Ciudad Lineal. This region is defined as having the highest population density, below average unemployment rate, close to group 3 and an average disposable income level also closer to group 3 than to 1.

c) Región 3: Chamartín, Fuencarral, Moncloa, Hortaleza, Barajas. This region has the lowest population density, highest disposable income level and lowest unemployment rate.

To sum up, group 3 presents the best socio-economic characteristics whilst group 1 the worst.

Table 6 summarises the explanatory variables used in the analysis and provides basic descriptive statistics for each one(jointly and for each of the identified opportunities).

[INSERT TABLE 6]

21 percent of the opportunities identified are Dreams (D), 20 percent Technology Transfer (TT), 30 percent Business Formation (BF) and the remaining 29 percent are Problem Solving (PS). The older managers with an average age of 37 are related to (BF), whilst the younger ones with an average age of 33 are linked to (TT and D). In all the opportunities identified more than 60% are men, rising to 70% in (TT). The entrepreneurs with most experience are to be found in (TT) with an average of 7 years as opposed to 3 for those in (D). However, the number of entrepreneurs that create a business with some relation to their previous work experience is greatest amongst those in (BF) at 54 percent in contrast to those in (D) at 30 percent. The highest education level amongst the entrepreneurs corresponds to the opportunity identified as (D) with 56% having a university degree and 0.9% with post graduate studies in contrast to (BF) with 33% having a university degree and 0.5% with post graduate studies.

As far as the type of entrepreneur is concerned, Type I (vocational) are found in (D) and (TT). Type II (risk) are found in (PS). Type III (typical) in (TT) and (BF). And finally type IV entrepreneurs (necessity) are to be found distributed equally among the four identified opportunities, as are type V (aseptics) except in (TT) which contains a smaller proportion.

The companies of each identified opportunity, are of a similar age, around five years. However, the size of company, in terms of the number of initial employees is clearly greater in the case of opportunity (D) with an average of 6.5 employees. In the same way, those with greater initial capital are (D) and (TT). The companies with least initial capital are those related to (PS) and in particular with (BF). Finally, for the sectors and regions the opportunities are represented alternately. For example, type (D) are more relevant in financial institutions, health and education, whilst (TT) is equally well represented in

industry and services and (BF) in construction. At a regional level (D) is represented to a greater extend in regions 1 and 3 with lower and higher socio economic levels respectively and (TT) at a medium level in region 2.

4. Analysis and results

Table 7 contains the results of the logit multinomial model. Interesting differences exist between the groups of identified opportunities. The omitted opportunity is Business Formation.

As regards the characteristics of the entrepreneur, the coefficient associated with their age is negative and statistically significant up to 99% of the confidence level for opportunities D and TT. This result shows a lower age for the entrepreneurs in the opportunities just mentioned compared to a higher age for those in BF. On the other hand, the coefficient for the variable related to the entrepreneur having previous experience in the activity in which the company is presently engaged is positive and statistically significant for those entrepreneurs in D and PS, being larger in the former. As regards professional experience, those entrepreneurs in opportunity TT have more years of experience than those in BF. The entrepreneurs' level of formal education indicates that a university education to degree or engineering level is significant and positive for the three groups of opportunities in relation to the omitted opportunity. This relation is more pronounced for those entrepreneurs related to opportunity D than for the others. Furthermore, post graduate education level indicates once again that those entrepreneurs associated with D and to a lesser extent with PS have a higher level of education. As regards gender, women are less likely than men to create a company in TT and PS compared to BF.

[INSERT TABLE 7]

Therefore, as a consequence of the results mentioned, hypotheses (1a) could be accepted. To summarize, opportunity *Dreams* (D) consists of those entrepreneurs with a higher education level and more previous experience in the activity in which the company is engaged. The managers in opportunity *Technology Transfer* (TT) have more professional experience, and together with *Problem Solving* (PS) the probability of a woman creating a company is less than in the case of *Business Formation* (BF). The managers associated with BF are older and have a lower level of education. Hypotheses (1b) could equally well be accepted as, although the entrepreneurs associated with D are younger it is possible to positively relate their higher level of education and greater previous experience in the present business activity with the opportunity identified as innovative.

The results obtained about the motivation of the entrepreneur/type of entrepreneur and the opportunity or business idea, suggest less probability of identifying standard entrepreneurs in opportunity D than the omitted category of vocational entrepreneur. In the same way, there is less probability of associating aseptic entrepreneurs as opposed to vocational ones to opportunity TT. To sum up, taking into consideration opportunity BF, those entrepreneurs characterised as vocational are more likely to be associated with D or TT than the standard or aseptic entrepreneurs respectively. As regards hypotheses (2) in which we set out to check the relation between the identified opportunity and the motivation of the entrepreneur, they are equally acceptable.

The variables that associate the company characteristics with the entrepreneur show some interesting results. The respective positively and negatively significant coefficients for the age of the company variable and its quadratic component indicate an inverted U relationship in opportunities D and TT regarding BF. This trajectory could indicate that

those companies associated with opportunities D and TT are initially older than those related to BF. From the trajectory's maximum the companies related to BF are older than those associated with D and TT. Taking into account the number of partners involved when the company is set up, those that form part of opportunities TT and PS have a U structure in relation to those of BF. It is therefore more probable that at the out set there were a small number of partners involved in the company in opportunities TT and PS. From the trajectory's minimum the tendency changes, the companies belonging to BF have more partners.

The companies with more initial capital at the out set are related to opportunity D in contrast to those linked to BF. As far as the planning of the original business idea, before the company is set up or the activity initiated is concerned, the negative and statistically significant sign of the dummy variable for drawing up formal business plans, shows that the probability of not elaborating a plan is less in the case of entrepreneurs belonging to opportunity D than for those belonging to BF. This leaves Hypotheses (3) to be tested, thus demonstrating that different types of company exist in relation to the business opportunities.

Finally, it appears that the environment variable has not had a great influence. The importances of the region and sector variable coefficients have not been very significant. This could be due to the fact that the characteristics that have already been analysed go a long way towards explaining these effects. This result leads us to reject hypotheses (4).

5. Conclusions and extensions

The reason behind the birth of any company is related to the realisation of an activity that generates value for the consumer of the product or service. As such the

creation of the firm requires the identification of an opportunity and the decision to exploit it. The object of this work has been to try and increase our knowledge of which factors have the greatest influence on the identification and development of the business opportunity. In most of the literature on the subject, the studies concentrate on the characteristics of the business manager (background, education, motivation) and on the characteristics of the environment, considering each factor independently. In the last few years the implications that identifying the business opportunity could have, or the possibility of identifying them as an aspect to be taken into account, has emerged as an interesting line of analysis.

The main objective of the analysis used in this work is to classify the entrepreneur's business opportunities and determine the factors that could explain them. This work offers two novel aspects to take care; i) the consideration of the business opportunity and the factors that explain it as a relevant element for analysis, and so perhaps fill the gap that exists in the empirical literature and ii) the global analysis carried out where the characteristics of the entrepreneurship, the company and their environment are considered.

The results obtained show that the business opportunity identified and exploited by an entrepreneur depends initially on his work experience, his previous experience in activities related to the present business activity and his level of education. The level of human capital is one of the main determining factors of business opportunity, with considerable differences existing between the types of opportunity. Entrepreneurs with a higher level of education and more experience are associated with more creative business opportunities. Entrepreneurial motivation shows that the more motivated the entrepreneurs are, the more likely they are to be involved in creative activities.

The results derived from decisions taken by the entrepreneur about resources show that differences exist in the organisational characteristics of the companies at their inception and the opportunity or business idea. For example, companies that exploit creative opportunities have more initial capital or a better level of planning. Finally, the results obtained for the environmental characteristics in terms of the activity sector or region, although of a lower explanatory level, demonstrate some relevant facts, such as the location of the companies in relation to the socio-economic level or the activity sector.

We believe that the analysis carried out in this work proposes an interesting line of empirical investigation which also contains theoretical support that can be of great assistance, such as the works of (Kizner, 1973, 1979, 1997); (Ardichvili et al., 2003); (Eckhardt & Shane, 2003); (Choi & Sheperd, 2004) amongst others. Some areas for future work are related to the proposals made by (Ardichvili et al., 2003 p.120) and with the possibility of working with longitudinal panel data in which it is possible to analyse the entrepreneur over time. We hope that these results, although preliminary, encourage future efforts to obtain data with which to verify its solidity. The implications of these types of studies, for the theory of entrepreneurship and for the design of policies towards the creation of new firms, are derived.

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Notes.

[1] As will be seen in the following section this contrast is important as it constitutes the basis for identifying the type of entrepreneur, which serves as one of the necessary variables of the model proposed in this work.

[2] To determine the managers' motivation a five point Likert scale has been used, in which the value 1 is regarded as "unimportant" whilst value 5 reflects a level of "extremely important" for the evaluated reward. With the aim of checking the reliability of the scale, the Cronbach coefficient α has been used (all the values exceed 0.6).

[3] The examination of the correlation matrix amongst all the variables allows us to check that the attributes of the entry are highly correlated and as such, their characteristics are adequate for a factorial analysis to be undertaken. The measure of the adjustment sample KMO = 0.793 and the Barlett test (0.0000) just as the results of the anti-image matrix justified the application of the factorial analysis.

[4] Note that the eigenvalue of factors 5 (Roles) and 6 (Localization) have values inferior to the unit. This is due to the consideration of the *contrast of fall* method rather than the latent root in the choice of the number of factors to be determined (see figure I in appendix). According to (Hair et al. 1999: p.118) when the eigenvalue are close to the unit in the falling slope (see graph 1 in the appendix) it is possible to maintain the number of factors found under both conditions

[5] The application of the analysis cluster using the Ward method gave place to the creation of five groups (from a total of 701 managers surveyed) in relation to the six factors mentioned previously.

Tables and figures.

Figure 1. The opportunity identification and development theory model.
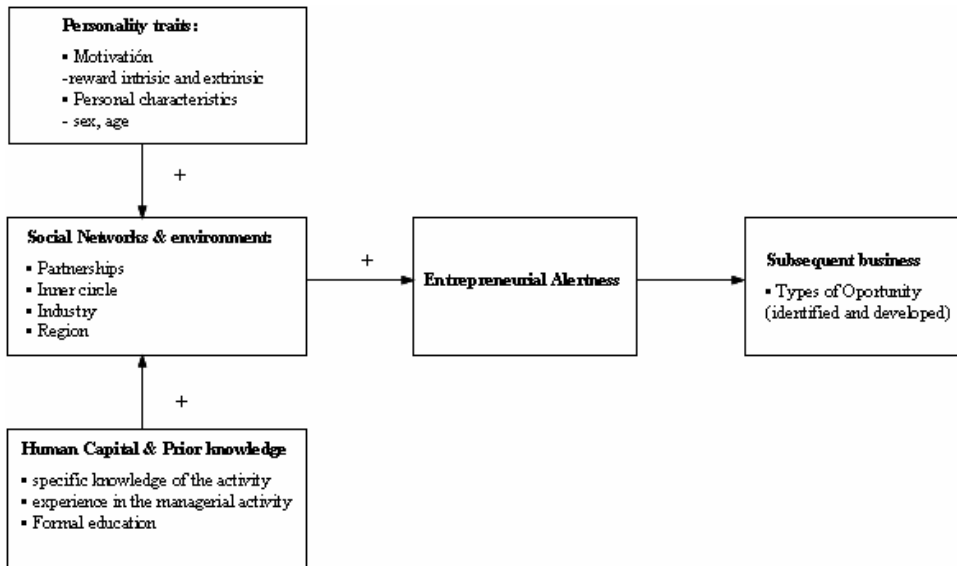
Table 1. Technical specifications of the study

Universe	Firms created in Madrid starting from 1998. This universe contained a total of 54.283 firms.
Environment	The city of Madrid (21 districts).
Methodology	Quantitative study, using a structured questionnaire and collecting the information by telephone contact with informants in the companies.
Unit sample	Entrepreneurship or person for this designated.
Design sample	Aleatory stratified sampling, using as stratification approaches the geographical variable location of the company (municipal district), main activity of the company and size, in function of the number of employees.
Size sample	701 interviews.
Fieldwork	from May to June of 2004
Simple error	For the global data the error is of +3.75%, calculated in the case of possible (p=q=50) bigger uncertainty, to 95,5% of trust and taking as universe the 54.283 companies contained in the City council of Madrid's company directory database

Figure 2.- Types of opportunity.

		VALUE SOUGHT	
		Unidentified	Identified
	Undefined	"Dreams" I	Problem Solving IV
VALUE CREATION CAPABILITY	Defined	Technology Transfer II	Business Formation III

Table 2

On which of the following ideas was their managerial project based?	Types of opportunity			
	Dreams	Technology Transfer	Business Formation	Problem Solving
An invention	X			
Observation of new necessities				X
Appearance of a technological advance(process)	X			
To carry out an existing idea in another country, region, etc.		X		
Possibility of improving a product or service		X		
an idea based on experience (in own business or as employee)			X	
Others (specify)			X^a	X^b

X^a = relationship with family tradition ; X^b = relationship with knowledge of the sector, relationship with an idea that is applicable to my knowledge

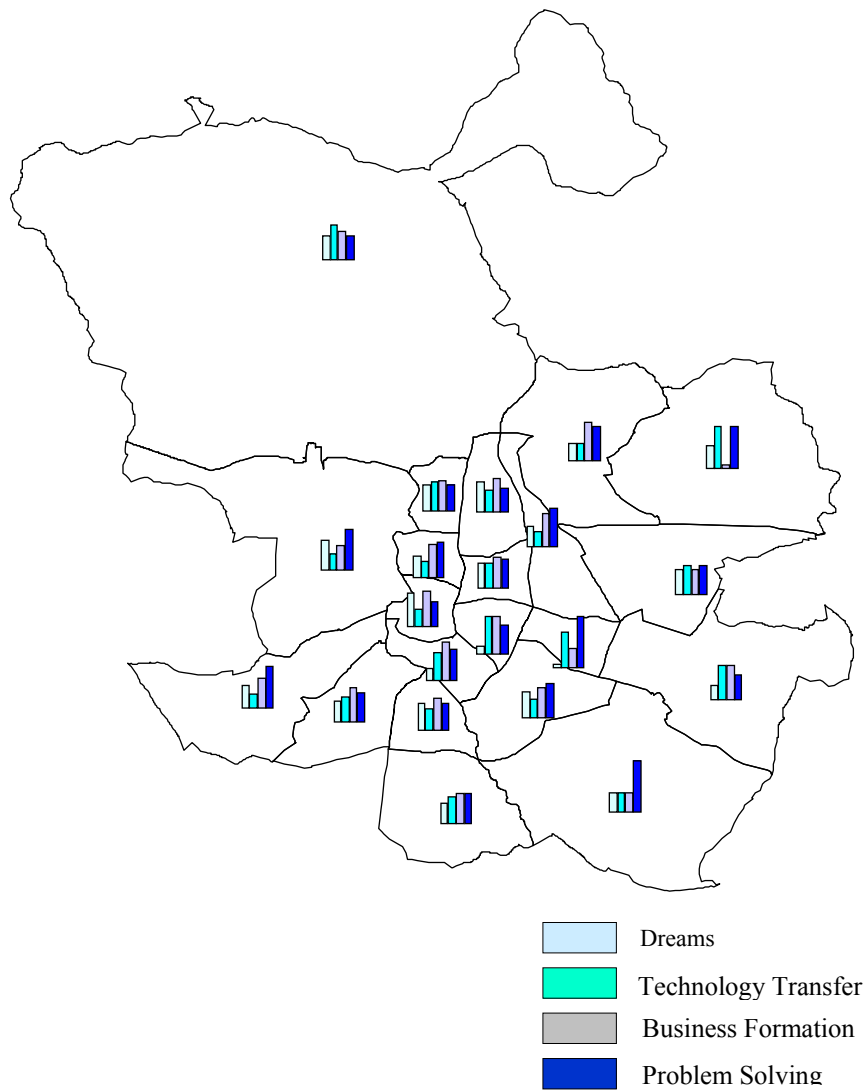Figure 3.- Distribution by district of the entrepreneurs business opportunity.

Dreams

Technology Transfer

Business Formation

Problem Solving

Table 3- Differences in mean variables of entrepreneurship motivation

	Madrid firms mean (n=701)	Spain firms mean (n=458)	P-value[1]
Intrinsic reward			
Desire to do work of one's own interest	4.28	4.35	0.272
Desire to give priority to family	4.52	4.01	0.000
Achieve self-realization	4.40	4.36	0.464
Free to adapt my approach to work	4.45	4.09	0.000
Desire to contribute to society	3.99	3.83	0.010
Desire to be master of one's own business	4.13	4.10	0.654
Desire to take on management challenge	4.20	3.97	0.000
Desire to exhibit one's abilities at work	3.56	3.22	0.000
To achieve social recognition	3.45	3.33	0.141
Extrinsic reward			
Gain greater flexibility for personal life	4.32	3.44	0.000
Desire to work in town of one's choice	4.23	3.63	0.000
Desire to earn a decent living	4.33	4.13	0.000
Earn a larger personal income	3.87	3.53	0.000
Desire to earn amount of money commensurate with effort	4.37	4.18	0.000
[1]Note: significance levels *p<0.10, **p<0.05, ***p<0.01			

Table 4: Factor loading for motivation items: Varimax rotation

Factor:	1 Financial success	2 Independence	3 Recognition	4 Self-realization	5 Quality of life	6 Localisation
Intrinsic reward						
Desire to do work of one's own interest		0.864				
Desire to give priority to family					0.744	
Achieve self-realization				0.787		
Free to adapt my approach to work		0.531				
For professional success	a					
Desire to contribute to society				0.686		
Desire to be master of one's own business		0.684				
Desire to take on management challenge				0.514		
Desire to exhibit one's abilities at work			0.836			
To achieve social recognition			0.780			
Extrinsic reward						
Get greater flexibility for personal life					0.760	
Desire to work in town of one's choice						0.948
Desire to earn a decent living	0.800					
Earn a larger personal income	0.752					
Desire to earn amount of Money commensurate with effort	0.682					
Eigenvalue	3.50	1.44	1.29	1.22	0.95	0.90
Percentage variant accounted for:	23.35	9.60	8.63	8.17	6.33	6.02
Accumulate percentage variance	23.51	32.95	41.59	49.76	56.09	**62.12**

a Factor loading smaller than .50 have been suppressed

Table 5: Entrepreneur clusters: mean scores

	Mean differences					Analysis of the variance	
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Coef-F	P_Value
Financial success	-1.13	0.04	0.31	0.22	0.25	73.44	0.0000
Independence	-0.02	-0.43	0.47	-1.67	0.42	179.52	0.0000
Recognition	0.17	-0.41	0.30	0.24	-1.22	61.80	0.0000
Self-realization	0.19	-0.06	0.18	-0.19	-0.68	16.28	0.0000
Quality of life	-0.59	-0.14	0.01	0.39	0.55	25.05	0.0000
Localization	0.29	-1.97	0.08	0.53	0.48	192.4	0.0000

Table 6.- Specifications of the analysed sample by opportunities and global.

Variables	Dreams (D)		Technology Transfer (TT)		Business Formation (BF)		Problem Solving (PS)		Total	
	mean	s.t	mean	s.t	mean	s.t	mean	s.t	mean	s.t
Entrepreneur										
Age	33.85	(9.85)	32.93	(9.66)	36.83	(10.32)	35.96	(9.09)	35.16	(9.84)
Gender (1 if male; 0 if female)	0.64	(0.47)	0.70	(0.46)	0.62	(0.48)	0.62	(0.48)	0.64	(0.47)
Experience	3.34	(5.27)	7.10	(9.73)	4.84	(8.38)	4.44	(7.34)	4.85	(7.85)
Relationship experience[1]	0.30	(0.46)	0.38	(0.48)	0.54	(0.59)	0.41	(0.49)	0.43	(0.49)
Education degree: (1 if degree #; 0 otherwise)										
i) elemental	0.24	(0.43)	0.35	(0.47)	0.45	(0.49)	0.36	(0.48)	0.36	(0.48)
ii) professional formation	0.10	(0.31)	0.11	(0.32)	0.15	(0.36)	0.12	(0.33)	0.12	(0.33)
iii) university degree	0.56	(0.49)	0.47	(0.50)	0.33	(0.47)	0.44	(0.49)	0.44	(0.49)
iv) post graduate degree	0.08	(0.04)	0.04	(0.21)	0.05	(0.22)	0.05	(0.23)	0.05	(0.23)
Entrepreneur type: (1 if type #; 0 otherwise)										
i) Vocational	0.20	(0.40)	0.20	(0.40)	0.16	(0.37)	0.16	(0.37)	0.18	(0.38)
ii) Risk	0.09	(0.29)	0.08	(0.27)	0.09	(0.28)	0.16	(0.37)	0.11	(0.31)
iii) Agents	0.42	(0.49)	0.50	(0.50)	0.47	(0.50)	0.41	(0.49)	0.45	(0.49)
iv) By necessity	0.12	(0.33)	0.11	(0.32)	0.13	(0.34)	0.12	(0.33)	0.12	(0.33)
v) Aseptic	0.14	(0.47)	0.09	(0.28)	0.13	(0.34)	0.11	(0.32)	0.12	(0.32)
Firm										
Age of firm	4.78	(1.53)	4.80	(1.41)	4.97	(1.51)	4.64	(1.66)	4.80	(1.54)
Start-up employees	6.49	(28.4)	3.92	(8.53)	5.19	(19.46)	3.62	(4.97)	4.75	(17.44)
Start-up partners	2.87	(1.84)	3.13	(8.29)	2.45	(1.28)	2.19	(1.26)	2.60	(3.95)
Start-up capital (m€)	1.76	(3.74)	1.43	(3.37)	0.98	(2.88)	1.00	(2.90)	1.24	(3.20)
Formal business plan[2]	0.61	(0.49)	0.46	(0.49)	0.46	(0.49)	0.48	(0.50)	0.49	(0.50)
Sectors[3]										
Manufacturing	0.04	(0.21)	0.09	(0.28)	0.05	(0.23)	0.06	(0.24)	0.06	(0.24)
Retail and hotel and catering	0.26	(0.44)	0.32	(0.46)	0.24	(0.43)	0.30	(0.46)	0.28	(0.45)
Financial institutions	0.38	(0.48)	0.27	(0.44)	0.36	(0.48)	0.30	(0.46)	0.33	(0.47)
Health and education	0.21	(0.40)	0.16	(0.37)	0.17	(0.38)	0.21	(0.41)	0.19	(0.39)
Construction	0.05	(0.22)	0.09	(0.28)	0.11	(0.32)	0.05	(0.22)	0.08	(0.27)
Energy and transport	0.04	(0.19)	0.04	(0.21)	0.03	(0.19)	0.04	(0.21)	0.04	(0.20)
Region[4]										
i) regional area #1	0.42	(0.49)	0.35	(0.48)	0.38	(0.48)	0.37	(0.48)	0.38	(0.48)
ii) regional area #2	0.31	(0.46)	0.42	(0.49)	0.40	(0.49)	0.41	(0.49)	0.39	(0.48)
iii) regional area #2	0.25	(0.43)	0.21	(0.41)	0.21	(0.41)	0.21	(0.41)	0.22	(0.41)
# observations	147		142		210		202		701	

[1] relationship current previous experience (1 if relationship; 0 otherwise); [2] (1 if founder had a formal plan written business plan prior to starting the business; 0 otherwise). [3, 4] (1 if firm is in sectors or regional area; 0 otherwise)

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Table 6

multinomial logit (category of reference opportunity type: *Business Formation*)

	Dreams		*Technology Transfer*		*Problem Solving*	
	coefficients	t-ratios	coefficients	t-ratios	coefficients	t-ratios
Entrepreneur						
constant	-0.073	1.107	1.660	1.42	0.987	1.07
Age	-0.041***	-2.80	-0.082***	-4.99	-0.012	-0.92
Gender (1 if male; 0 if female)	-0.422	0.272	-0.788***	-2.72	-0.602**	-2.39
Experience	-0.016	0.020	0.070***	3.95	-0.005	-0.31
Relationship experience[a]	1.141***	4.21	0.371	1.39	0.612***	2.61
Education degree:						
(1 if degree #; 0 otherwise)						
ii) professional formation	0.309	0.73	0.324	0.80	0.436	1.23
iii) university degree	1.155***	3.61	1.123***	3.46	0.966***	3.38
iv) post graduate degree	1.580***	2.83	0.967	1.54	1.079**	1.96
Entrepreneur type:						
(1 if type #; 0 otherwise)						
ii) Risk	-0.227	-0.45	-0.598	-1.11	0.399	0.87
iii) Agents	-0.682**	-1.95	-0.468	-1.33	-0.325	-0.99
iv) By necessity	-0.501	-1.05	-0.824	-1.63	0.115	0.27
v) Aseptic	-0.238	-0.53	-0.968**	-1.95	-0.155	-0.36
Firm						
Age of firm	0.906***	2.31	1.325***	2.91	0.151	0.47
Age of firm^2	-0.132***	-2.62	-0.177***	-3.13	-0.044	-1.05
Start-up employees	-0.007	-0.76	-0.008	-0.69	-0.019	-1.31
Start-up partners	-0.241	-1.11	-0.590***	-2.73	-0.570***	-2.69
Start-up partners^2	0.037	1.53	0.060***	2.52	0.043*	1.70
Start-up capital (m€)	7.28 10^6*	1.87	4.96 10^6	1.21	1.68 10^9	0.04
Formal business plan[a]	-0.770***	-2.93	-0.070	-0.26	-0.038	-0.16
Sectors[a]						
Retail and Hotel and catering	0.574	0.92	-0.092	-0.17	0.819	1.51
Financial institutions	0.070	0.12	-0.977*	-1.78	0.193	0.36
Construction	0.786	1.23	-0.388	-0.66	0.937*	1.68
Health and education	0.077	-0.11	-0.789	-1.22	-0.800	-1.17
Energy and transport	0.445	0.50	-0.347	-0.42	1.160	1.58
Region[a]						
ii) regional area #2	-0.516*	-1.73	0.054	0.19	0.115	0.44
iii) regional area #2	0.082	0.25	0.125	0.36	-0.097	-0.31
Statistics						
# observations			605			
Log likelihood			-729.459			
Chi2			201.78***			
significance levels *p<0.10, **p<0.05, ***p<0.01						

[a] omitted variables: male; first degree; 1 he/she has related experience; entrepreneurship had a formal written business plan ; entrepreneurship vocational; regional area #1 socio-economic worse characteristics; manufacturing sector

APPENDIX:

Figure I