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WHAT MAKES AN ENTREPRENEUR? THE ROLE OF FEELINGS

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Abstract: This study uses a sample of 678 observations from the Community Innovation Survey 6 (CIS6) plus the Leadership Module attached in Portugal wherein 55.93% of the respondents are business Owners. It focuses on recent literature on Entrepreneurship to understand how the perceived importance of Personality Traits and Social Ties influence the decision-making process of the Entrepreneur towards an Intuitive or an Analytical Approach. It gets statistical significant values for the Founder/Sample in the traits, and for strong ties in the Founder/Owner Model shows statistical significance.

Keywords: Entrepreneurship, Personality Traits, Cognitive Style, Decision Making

JEL CODE: D03 - Behaviour Economics, L26 - Entrepreneurship

1. Introduction

This study will assess relevant literature on Entrepreneurship considering both the Personality Traits and the cognitive style approaches in an attempt to explain what determines the choice between an analytical versus an intuitive decision-making process by the Entrepreneur. The underlying question behind this study is: how does the perceived importance of Personality Traits and Social Ties influence the Entrepreneur's decision towards a more intuitive or analytical approach to firm management?

This study uses the Community Innovation Survey 6 (CIS6) plus the Leadership Module attached in Portugal, with data from 2004 and 2006. It focuses particularly on the data related to the individuals and differentiates firm Founders from the whole sample of observations and, in a more restricted regression, from the firm Owners in the sample. A Self-Selection Probit regression is used to estimate the difference in influence that the perceived importance of Personality Traits, the perceived importance of Social Ties (or network) play in the decision-making process.

Entrepreneurs are seen as an important part of today's society. Mostly, they act as competitors of the previously incumbent firms, pressuring them to lower prices and/or enhancing consumer surplus, but they also play a part important role in economic development. They can start their business by innovating and introducing something new in the market, another way to produce the same good, a new good to substitute an older one, another way to sell a good or, even, a new good thus creating a new market.

The importance of the Entrepreneur in the economy led governments and academia to focus on producing mechanisms to encourage the Entrepreneurship process. But how is an Entrepreneur produced? The new theories rest on assumptions of consistent personality and cognitive mechanisms, which clearly show the Entrepreneur as someone

with characteristics that lead them to think and to act differently. They see their surroundings differently and therefore, rationalize their issues by thinking out of the box.

This text is organized according to the following structure: in the next section (2) we present the Literary Review where a path from the Classical View (Economic) is established towards the Personality Traits and the cognitive style approaches, clearly influenced by a psychological perspective. Section (3), presents a general statistical description of the variables included in the model. In the Methodology, the inclusion of the variables is justified with reasoning about their consistency, a Chi-Square Analysis and a Principal Component Analysis is performed on the data before being included in the model. Afterwards, the empirical results are presented in Section (5). Finally, in the Conclusion, reasonable explanations are given to the outcomes and there is a brief policy recommendation included.

2. Literary Review

2.1. The act of entrepreneurship

The Irish-French economist Richard Cantillon (1775: see Garavan 1997) first used the word Entrepreneur to define Entrepreneurship as self-employment. It argued that the core function of those who had their own business was to deal with risk. John Stuart Mill (1848:see Garavan, 1997) lately added direction, control and superintendence to the definition, but did not distinguish the Entrepreneur from the capitalist. Jean Baptist Say (1845: see Garavan, 1997) separated the entrepreneurial profits from those of the capitalists and, most important, defined the Entrepreneur as someone with the ability to organize the factors of production.

The definition that became popular in the XXth century was given by Schumpeter (1934: see Garavan, 1997), who adopted a dynamic approach to the field of Entrepreneurship. Firms that entered the market introduced innovation, and slowly gained market share from the incumbent ones producing older products those were then discontinued a giving place to the new ones. This was called Creative Destruction.

2.2. The actors of entrepreneurship

The practice of looking at entrepreneurs focusing on their personalities started when McClelland (1961: see Cromie, 2000) suggested that high need for achievement was of major importance in determining Entrepreneurial Behaviour. Later, John Hornaday (1982: see Cromie, 2000) presented a total of 42 personal characteristics that are commonly related to the act of Entrepreneurship.

Brandstatter (1997), using a sample of 255 small and medium firms, compared Founders and heirs in a 16 Personality-Adjective-Scale. He reached the conclusion that Founders have greater emotional stability and greater independence than heirs. Douglas and Shepherd Dean (2002), analysed the choice for self-employment of 300 Alumni with a Bachelor degree in Business from an Australian University and found statistical significant results indicating that the self-employment choice was higher for those with positive attitudes towards risk and independence.

Need for Achievement, Need for Autonomy, Calculated Risk-Taking, Internal Locus of Control and Creative Tendency were tested by Caird (1991), concluding that business Owners showed higher average results than of teachers, nurses, clerical trainees, British civil servants and lectures and trainers.

2.3. Cognitive Style

Shaver and Scott (1991) defended the use of the cognitive style approach to better understand how the individuals process and judge external effects. In their view, the search of self-employment could be better exploited by looking at the mental mechanisms that lead to opportunity recognition and the processes that allow a better understanding of how the Entrepreneur perceives its surroundings.

Palich and Bagby (1995) analysed the behaviour of 92 members of business organizations in a scenario approach to determine if Entrepreneurs exhibited a unique categorisation process. The results of this study suggested that Entrepreneurs see more strengths and opportunities in the same scenario than managers, thus discarding the possibility of Entrepreneurs as less averse to risk.

From a sample of 131 usable responses from Entrepreneurs during various stages of the firm development, Hird & Andrew (2009) reached the conclusion that there is no difference between short-term or long-term Entrepreneurs, and that the ability to create business ventures comes from individuals more intuitive than the average population.

The literature gives us a wide range of definitions of what an Entrepreneur is (see Cromie 2000 and Shane 2003). But even without a clear definition of what an Entrepreneur is, the field of Entrepreneurship flourishes and various studies collect each other's arguments as evidence to their own theory. As pointed out by Shaver and Scoot, (1991, p.24), "…it may be that we all know one [Entrepreneur] when we see one".

However, researchers always look for what makes the Entrepreneur different from the rest of the population (see Caravan, 2007). The essential idea of this analysis is to understand why an Entrepreneur sees the World from a different perspective, or why he/she takes different decisions when facing the same situation. The answer may be that the Entrepreneurs think differently from the Non-Entrepreneurs (Hisrich, 2010).

From the standpoint of the interaction between the Entrepreneur and the Market, it is suggested that the Entrepreneur's cognitive mechanism helps him to perceive opportunities in the market that others do not see. In Shane (2003), it is argued that on the basis of an imperfect Market the Entrepreneur perceives the possibility of profiting from a reorganization of the productivity factors, obtaining different values from those established in the price system, which leads him to create a business venture.

The hypotheses to be developed in the empirical study will be pointed out in the Methodology section and the related arguments will be exposed. A general and underlying hypothesis extracted from the literature is the following: the Entrepreneur is endowed with Personality Traits and makes use of cognitive processes that differ from the ones of other social groups. These features will lead him to take decisions following an intuitive decision-making process.

3. Data

3.1. The Community Innovation Survey (CIS)

The sample used in this study comes from the CIS6 and the optional Leadership Module attached to it for the Portuguese firms. This CIS survey is conducted by the Eurostat in order to collect information on firms' innovation activities and follows the guidelines of the Oslo Manual.

3.2. The leadership module

The Leadership module was created as a partnership between the Cabinet of Planing, Strategy, Evaluation and International Relations of the Ministry of Science, Technology and Academic Education and Socinova – Cabinet of Research of Applied Sociology of the Faculty of Social and Human Sciences of the Nova University, and occurred as a scientific-study named "Liderança e Innovação em Organizações

económicas", which had as main objective to identify organizational and socio-cultural factors associated to Leadership and Innovation.

3.3. The sample

The original sample consists of 678 observations with 237 variables and data for the period of 2004 and 2006. The data used for the current study comes from the Leadership module, which aimed to analyse specific characteristics of the individuals.

From the sample, 55.93% were Owners (or co-Owner) and from those Owners, 65.11% were Founders (or co-Founders). The average age of the individuals of in the sample was of 45.51, the Owners' average age being 47.04 and the Founders, having a slightly higher value of 48.7. Only 18.17% of the sample subjects were women. For the Owners this value falls to 17.07% and for the Founders it further decreases to 14.29%.

The dependent variable is assessed in the question of whether the individual uses analytical rational decision-making (=1) or uses intuition (=0) on important concerning the firm environment. The data classified for the whole sample shows that 95.05% answered they preferred an analytical approach. For the Owners this value is of 94.6% and for the Founders we find a similar value of 95,05%.

Most of the respondents (44%) had a Bachelor Degree and 19.32% had a pos-graduation, master degree or a PhD. From the Owners, 32.48% had a Bachelor Degree and only 12.22% pursued further education; 24.35% of the Founders had a Bachelor Degree and 10.36% pursued further education. The sample average for the number of children was quite low (1.62): both Owners and the Founders shared the value of 1.78.

The Personality Traits (Ambition, Caution, Risk taking, Independence and Pride) and the Social Ties (Family, Friends, Firm Directors and Organizations) were measured in a scale of four options (No Importance, Low Importance, Average Importance, High

Importance). For the purpose of our analysis, each of the personality values and Social Ties was transformed into four dummy variables (one for each level of importance) that assume value of one (1) or zero (0). From these dummies, due to the high answer concentration, only those related to the high and average importance variables were used.

Table 1: Descriptive Statistical Summary

Variables	Sample			Owner			Founder				
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Min	Max
Decision	566	0,951	0,217	315	0,946	0,226	202	0,950	0,217	0	1
Owner Decision	565	0,527	0,500	315	0,946	0,226	201	0,950	0,218	0	1
Founder Decision	305	0,630	0,484	304	0,628	0,484	202	0,950	0,217	0	1
Owner	674	0,559	0,497	377	1,000	0,000	235	1,000	0,000	0	1
Founder	364	0,651	0,477	361	0,651	0,477	237	1,000	0,000	0	1
Gender	589	0,182	0,386	334	0,171	0,377	210	0,143	0,351	0	1
Age	560	45,513	10,599	312	47,045	11,146	196	48,704	10,510	24	86
#Children	574	1,624	1,017	328	1,777	1,018	208	1,904	0,973	0	6
CautionHI	573	0,476	0,500	319	0,533	0,500	201	0,542	0,499	0	1
CautionAV	573	0,468	0,499	319	0,433	0,496	201	0,433	0,497	0	1
RiskHI	576	0,460	0,499	320	0,513	0,501	202	0,515	0,501	0	1
RiskAV	576	0,464	0,499	320	0,444	0,498	202	0,431	0,496	0	1
PrideHI	575	0,663	0,473	321	0,732	0,444	202	0,733	0,444	0	1
PrideAV	575	0,275	0,447	321	0,221	0,416	202	0,238	0,427	0	1
IndependenceHI	573	0,461	0,499	321	0,511	0,501	203	0,522	0,501	0	1
IndependenceAV	573	0,436	0,496	321	0,414	0,493	203	0,399	0,491	0	1
AmbitionHI	570	0,460	0,499	315	0,527	0,500	199	0,513	0,501	0	1
AmbitionAV	570	0,425	0,495	315	0,365	0,482	199	0,402	0,492	0	1
FirmDirectorsHI	678	0,378	0,485	377	0,334	0,472	237	0,354	0,479	0	1
FirmDirectorsAV	678	0,282	0,450	377	0,281	0,450	237	0,257	0,438	0	1
FriendsHI	678	0,201	0,401	377	0,244	0,430	237	0,266	0,443	0	1
FriendsAV	678	0,322	0,467	377	0,316	0,465	237	0,312	0,464	0	1
FamilyHI	678	0,168	0,374	377	0,239	0,427	237	0,207	0,406	0	1
FamilyAV	678	0,173	0,378	377	0,220	0,415	237	0,224	0,418	0	1
InstitutionsHI	678	0,031	0,173	377	0,045	0,208	237	0,055	0,228	0	1
InstitutionsAV	678	0,143	0,350	377	0,143	0,351	237	0,143	0,351	0	1
PHD	559	0,011	0,103	311	0,003	0,057	193	0,005	0,072	0	1
Masters	559	0,064	0,246	311	0,045	0,208	193	0,041	0,200	0	1
Pos-Grad	559	0,118	0,323	311	0,074	0,262	193	0,057	0,232	0	1
Bachelor	559	0,440	0,497	311	0,325	0,469	193	0,244	0,430	0	1
High-School	559	0,231	0,422	311	0,325	0,469	193	0,368	0,483	0	1
>Bachelor	559	0,193	0,395	311	0,122	0,328	193	0,104	0,306	0	1

4. Methodology

4.1. The Role of intuition

The maximising problem in economics has already been proven to be oversimplified by Herbert Simon (1976) who pointed out the limits of the rationality of the individual. Without the ability to process all the information, the human being relies heavily on artificial associations and indexing devices to make decisions. This said, it is easy to understand that each individual will maximise his utility by taking into context personal judgements and beliefs (Casson, 2003).

The Entrepreneur needs to deal with continuously complex information in a context of uncertainty, requiring his cognitive mechanisms to frame the issues and develop them according to his personal perspective. When comparing bankers and Entrepreneurs in situations of risk, Lave *et al.* (1998, p.216) noticed the existence of differences in the analysis of the problems and concluded: "Personal representations of the decision/problem are extremely important in understanding how decisions are made and how judgements are formed."

The concept of using mental short-cuts to process information is known as heuristics, and it is widely used in the study of Entrepreneurship (Baron & Shane, 2008). There are various studies that focus on decision bias made by Entrepreneurs when using heuristics to make complex decisions (Kraaijenbrink, 2010). However the use of heuristics, doesn't always translate into decision bias. In fact, heuristics don't have any reason to be less accurate then analytical thinking. It is just a question of using "appropriate (little) information" (Todd & Gigerenzer, 2003, p.153).

Decisions are affected by the subconscious reasoning process, which is intuition based (Blume & Covin, 2011). In this line of thought, intuition can be seen as a valid tool in the process of decision-making. The subconscious feelings or beliefs help the Entrepreneur identify the ideas that can translate into market opportunities (Shane,

2003). In fact, the ability to create a business venture is found more often in more intuitive individuals (Armstrong & Hird, 2009).

In order to understand how the Entrepreneur thinks, a regression analysis will be presented that differentiates Founders from the whole sample, taking into account how the perceived importance of personal beliefs and Social Ties influence their preference in the use of intuition or analytical rationality in decision-making.

4.2. Personality Traits importance

The study of Personality Traits became part of Entrepreneurship when McClelland introduced the Need for Achievement test. After that other tests appeared, and nowadays the literature displays a large number of them, namely tests about "Entrepreneurial Personality" (Cromie 2000) or "Enterprising Tendency" (Caird, 1991).

In general, the method used to evaluate someone's desire to become an Entrepreneur is to conduct a series of "yes or no", questions based on the mention of hypothetical situations or past experiences. These questions are then computed into indexes or treated statistically to give form to entrepreneurial tendency categories. In this case, as aforementioned, survey approach is used and the inquiries answer directly about the subject.

The study of Personality Traits is not exclusive of Entrepreneurship. In the recruitment process of the existing firms, personal values are taken into account, as it is believed that the employees will be happier if they share the values of the firm (Berings, 2004). This specific factor of the labour market justifies a certain need for compatibility, not only for those who plan getting hired, but also for those who prefer to engage on business venture creation.

Decision-making and Personality Traits are closely related. As already mentioned, Lave et al (1998) noticed that there were differences in how Entrepreneurs framed the problem. Namely, they incorporate more personal judgments than the bankers. A certain number of authors summarized the Traits associated with the Entrepreneur (see: Cromie, 2000; Caravan, 1997, Shane, 2003), but not all the empirical studies succeeded in doing the same association. However most of those studies had as the main dependent variable the choice of being self-employed or the desire to own a business.

In this specific study, the Personality Traits play a role in providing an answer to the different ways of thinking that a firm Founder may have when compared to an Owner and/or a manager. From the literature, the concepts that seemed to best fit the variables analysed in the survey were also some of the most popular: Need for Achievement; Autonomy or Independence; Risk Taking and Calculated Risk; Self-Esteem; Self-Efficacy; and Locus of Control.

4.2.1. Need for Achievement (Ambition)

Entrepreneurs are generally seen as having a high need for achievement; they are goal oriented so they can establish and deliver the complex objectives that are connected with Business Venture Creation. Regarding this issue, Cromie (2000, p.21) states that "High achievers set demanding targets for themselves and are proactive and bold about accomplishing objectives."

However, this kind of test has been severely criticised because it uses a psychological methodology that is claimed not to be appropriate to analyse the issue. Other studies that used the same kind of tests did not find statistical differences for Managers or University Professors, meaning that self-employment cannot be determined only by the need for achievement (Cromie, 2000).

One of the most successful studies produced was Caird's (1991). Using a sample of 262 individuals, statistical differences were found between business Owners, teachers (in enterprising education), nurses, clerical trainees, British civil servants and lecturers and trainers.

In our study, we will use the variable Ambition. We assume that individuals who attribute high importance to ambition will prefer to intuitive decisions. So hypothesis to be test hypothesis is:

H1*: Perceived high importance of Ambition will lead Founders to prefer an intuitive decision-making (Less Analytical <0).*

4.2.2. Independence/Autonomy

The reason most Entrepreneurs give to explain their decision to found a firm is Independence (Cromie, 2000). As mentioned one of the ideas easily associated with founding a firm, and taking decisions, is "to be our own boss". Self-employment was found to be higher in individuals with stronger positive attitudes towards independence in a study with 300 alumni with Bachelors in Business from an Australian University (Douglas & Sheperd 2002). Brandstatter (1997) also found that Owners that personally set up their firms (Founders) were more independent than Owners that had taken over their firm from parents, relatives or by marriage.

The idea of Entrepreneurship not being compatible with working for existent firms may be better expressed by Caird (1991), who underlines the dimension the lack of tolerance to authority present in some individuals and their shown preference for autonomy, i.e., their "need for autonomy". He also finds that Entrepreneurs have higher scores in this feature than Non-Entrepreneurs.

In our research the variable used to catch this effect is the perceived importance of Independence; as established in hypothesis 2:

H2: *Perceived high importance of Independence will lead Founders to prefer an intuitive decision-making (Less Analytical <0).*

4.2.3. Risk and Risk Assessment (Risk Taking and Caution)

The environment in which the Entrepreneur acts is riskier than the environment of a non-Entrepreneur. Although firms in growth stage have higher bankruptcy and so confirm the riskier environment they face, the Entrepreneur attitude towards risk is not the one of a risk lover, but instead of someone more tolerant to risk than the average. Douglas and Sheperd (2002) model portrayed the Entrepreneur as having lower disutility *vis-à-vis* a higher risk.

Caird (1991, p.179) proposes the notion of "calculated risk", "the ability to deal with incomplete information and act on a risk option". In her study, she also found differentiating results for business Owners and the other categories mentioned. In fact, the Entrepreneur seems to favour an approach to the worst-case scenario and only afterwards looks for the returns (Lave et al., 1998). The reason for an Entrepreneur to take more risk may be related to his/her ability to perceive more opportunities and strengths within the same scenario (Palish and Bagby, 1995).

Our proxies to risk and risk assessment are "risk taking" and "caution". The former is to measure how the individual perceives the importance of taking risk while the latter represents how the individual perceives the importance of dealing with or avoiding risk. Accordingly, the third hypothesis is:

H3: *Perceived high importance of Risk-Taking/Caution will lead Founders to prefer an intuitive decision-making (Less Analytical <0).*

4.2.4. Self-Esteem, Self-Efficacy and Internal Locus of Control

The Personality Traits Self-Esteem, Self-Efficacy and Internal Locus of Control have been used to define the Entrepreneur. Although they are not the same trait, their meaning suggest a certain level of interaction between them. Individuals of high self-efficacy prefer high personal control of situations (Vechio 2003). Kundu and Rani (2007) see these traits as "self-evaluation traits" and found differences in self-esteem between students, managers, entrepreneurs and trainers in a sample 1835 respondents.

The definition that Caird (1991, p.181) gave to Locus of Control suggests the same idea of connection between these concepts: "attributing outcomes to ability and effort" or "self-confidence". In her study, higher values of Locus of Control were found for business Owners than for others categories. Welsch and Young (1986) also found correlation between self-esteem and locus of control. In their study, one of the possible definitions for self-esteem was Pride, which will be our proxy for these concepts. Our according hypothesis:

H4: *Perceived high importance of Pride will lead Founders to prefer an intuitive decision-making process (Less Analytical <0).*

4.3. Social Ties and Networking

The Entrepreneur enters the market facing a huge gap towards the competition. The need to establish commercial relations, the need to finance a start and acquire knowledge about the economic and social mechanisms to reach success. Furthermore, the need to coup with everyday stress.

In the labour market, it is possible to see evidence of the importance of ties and personal network. In Italy, 38% of the respondents of the ISTAT Labour Force Survey

answered they obtained their jobs using personal ties. In the USA, the estimated value for this occurrence was even higher, reaching 50% (Paola & Scoppa, 2003).

The importance of Social Ties should also be taken into account in self-employment decisions. The Entrepreneur has limited resources, and will add value to the Entrepreneurship process by getting resources and information from others.

A study conducted by the Global Entrepreneurship Monitor, involving 118.519 respondents from 81 countries, with most of the data collected between 1999-2001, has shown that people who perceive opportunities and invest in weak ties had common attributes regardless of their national context (Kwon & Arenius, 2010).

4.3.1. Family and Friends (Strong Ties)

Family and Friends are regarded as Strong Ties. The Entrepreneur trusts in their support to face difficult problems and situations that might appear during the process of creating a new business venture. Thus, believing that these strong ties will have influence on decision-making is logical.

Some cultures, such as the Portuguese, rely heavily on friends and family to get resources and information. In fact, Kwon and Arenius (2010) found that the Portuguese, together with the Greek, have the lowest scores in the use of weak ties.

Furthermore, Strong Ties play an important role in the lonely Entrepreneur reality. They are sources of moral support, helping the Entrepreneur to deal with the pressure and stress generated by the responsibility and the risk of starting a new business venture (Kuratko & Hodgetts, 2007). The perceived importance of Strong Ties has also a deep implication on socio-cultural behaviour. Taking into account the nature of that variable, the judgment of the individual will be mainly intuitive. Following this reasoning the Hypothesis 5 is:

H5: *Perceived high importance of Strong Ties (Family and Friends) will lead Founders to follow an intuitive decision-making process (Less Analytical <0).*

4.3.2. Firm Directors and Organizations (Weak Ties)

The network outside the Strong Ties is referred to as Weak Ties. These are built aiming to reach at information and resources that are not found within the Strong Ties and, in this way, they take an instrumental role (Landston, 2000). Firm Founders face financial and know-how constraints, and they need to use Weak Ties to acquire the resources needed or in order to influence third-parties to get self-benefit, as "relationships can also have reputational or signalling content" (Hoang & Antoncic, 2003, p.166).

This way, the social relations kept will influence decision. There will be connections based on expectations that lead to economic exchange that provides mutual benefits for the Entrepreneur and his ties (Shane & Cable, 2002).

The information received by the Weak Ties may have a certain degree of strategic value related to business. Entrepreneurs, who perceive high importance in Weak Ties, prefer the use of information gathering and therefore prefer an analytic approach. As formulated in Hypothesis 6:

H6: *Perceived high importance of weak ties (Firm Directors and Organizations) will lead Founders to prefer an analytical decision-making process (More Analytical < 0).*

4.4. Pearson's Chi-Square Analysis

The Chi-Square test is intended to verify how likely the same frequency is found in two discrete variables. The null-hypothesis is a difference in occurrence of that frequency on data observed.

The high importance traits have a certain degree of correlation between them, as well as the Average Importance traits. The same happens with the ties variables. More specifically, the Chi-Square value from the association between Family and Friends has shown to be the highest value in both high and average perceived importance (see Tables 2 and 3, attached).

The variables traits and ties may have the same root in the way they affect the individual. Due to this, they can suffer from correlation. This would decrease the statistical values of the variables when tested in a regression form. Having this in mind, the Chi-Square was used to reveal what variables presented that problem in order to allow us to solve it.

4.5. Principal Component Analysis (PCA)

The results from the Chi-Square led us to the need of creating composed variables which contain the main variance of each variable to be tested though the PCA. This step will reduce the number of variables, avoiding possible problems when testing their explanatory value in a regression form. Doing this transformation, we can apply the test using variables not suffering from correlation (and from possible endogeneity), which would invalidate the results.

A PCA was performed on high importance Traits and average importance Traits. Using the Kaiser Criterion, which recommends the use of the component when the Eigenvalue is higher than 1, the variables high perceived importance traits and average perceived importance traits were reduced to two (2) components each. (See table 4, attached)

The perceived importance of Ties was divided for the PCA in strong high importance ties, strong average importance ties, weak high importance ties and weak

average importance ties. Using the same Kaiser Criterion, each of the mentioned PCAs resulted in the use of just one component (see table 4 and 5).

4.6. Heckman Probit Model

The variables studied will have different values depending on the group tested. In order to see the true values by which the Founder group decision-making process is influenced through the explanatory variables, it is necessary to apply a model that takes into account the self-selection process, i.e., differentiating the studied group that pursues venture creating (the Founders) from the rest of the sample.

The dependent variable, as previously defined, is the Founder's processing mental mechanism used when dealing with difficult situations: Founder Decision-Making (FounderDM). This variable only assumes the value of one (1) in case of analytical rational thinking. Otherwise, that is, in the case of intuitive thinking, it will assume the value of zero (0). Besides the self-selection effect, the model uses binary dependent variables. The model that best deals with these two obstacles is the Heckman Probit Model.

The explanatory variables imputed for the Founder Decision-Making dependent are the perceived high importance of Personality Traits (Ambition, Independence, Risk-taking, Caution and Pride) and the perceived high importance of strong ties (Family and Friends) and network/weak ties (Firm Directors and Organizations). From here we formulate Equation 1:

$$\textbf{(1)}\ Founder\ Decision\text{-}Making = \alpha TraitsHI + \alpha StrongTiesHI + \alpha WeakTiesHI$$

Those same variables will be computed in the second equation, which has as dependent variable the Sample Decision-Making (SampleDM). Furthermore, the second equation will also have the perceived average importance of traits, the perceived

average importance of strong ties, the perceived average importance of weak ties, age, number of children and gender, as control variables, thus producing Equation 2:

(2) *Sample/Owner Decision-Making = βTraitsHI + βStrongTiesHI + βWeakTiesHI +βTraitsAV+ βStrongTiesAV + βWeakTiesAV + βage + β#children + βgender*

An alternative second equation regards the Owner Decision-Making (OwnerDM) process, and it is estimated to assure (to test) the robustness of the results. Comparing the Founders Decision-Making process only against the Owners will decrease the number of observations taken but it allows us to achieve more useful information.

5. Results

5.1. Heckman Probit Regression

To test the hypotheses aforementioned, two models were regressed. A model Founder/Sample Decision-Making, where the Founder is differentiated from the whole sample, and a Founder/Owner Decision-Making, a robust version, where the Founder is differentiated from the Owner. Table 6 presents the coefficients for both models.

5.1.1 Founder/Sample Model

The results from the regression comparing Founders to the whole sample show that the perceived high importance of traits displayed mixed signals. The SampleDM regression presents a positive sign on the coefficient of the first component (traitsmi1) as the FounderDM but only the former is statistical significant .Both regressions present a negative sign on the second component of the perceived high importance of traits (traitsmi2) and are found statistical significant. In the case of the Founder, an increase of one unit in the second perceived high importance traits component, will lead to an increase (decrease) of 0,155 p.p. on the probability of a Founder choosing an Intuitive

Decision-Making approach (Analytical Decision-Making). This goes in accordance with H1, H2, H3 and H4.

Table 6: Heckman Probit Regression

	Decision-Making Founder/Sample		Decision-Making Founder/Owner	
	Prob(FounderDM)	**Std.Err**	**Prob(FounderDM)**	**Std.Err**
traitsmi1	0,018	0,061	-0,049	0,065
traitsmi2	-0,155**	0,079	-0,088	0,080
Strong	-0,081	0,064	-0,128*	0,067
Weak	0,036	0,066	0,041	0,066
_cons	0,277	0,091	0,733	0,190
	Prob(Sample DM)		**Prob(Owner DM)**	
gender	0,069	0,344	0,037	0,161
Age	-0,025**	0,012	0,008	0,007
#Children	-0,129	0,117	0,127**	0,063
traitsmi1	0,305*	0,173	0,293***	0,095
traitsmi2	-0,714***	0,274	-0,065	0,126
strong	-0,031	0,109	0,242***	0,058
weak	0,164	0,129	-0,078	0,061
traitsav1	0,269	0,180	0,220**	0,099
traitsav2	-0,404	0,253	-0,069	0,122
strongav	0,07	0,121	0,194***	0,062
weakav	0,147	0,135	-0,051	0,060
sup	-0,118	0,376	-0,659***	0,158
_cons	2,889	0,642	-0,464	0,305
/athrho	1,197	1,053	-0,55	0,386
rho	0,833	0,323	-0,5	0,289
N Observations	472		261	
Censored Obs	232		20	

Significant: P<0,01 ***; P<0,05**; P<0,1*

The perceived high importance of Strong ties and of Weak ties are not significant but the signs are the ones expected in accordance to the stated hypothesis H5 and H6 respectively. Age, a control variable on the Sample DM, is found statistical significant, meaning that older individuals have higher probability of using a intuitive decision-making approach.

5.1.2. Founder/Owner Model

The results of the Decision-Making Founder/Sample allowed us to observe some differences in the value of the coefficients. In order to verify our results we shrunk the number of observations from 472 to 261, i.e., excluding the managers and comparing only the Founders to the Owners. This second regression took us to some new interesting results: first, the OwnerDM regression has more statistical significant variables than the SampleDM regression; and, second, the signals changed.

The FounderDM regression presents both Personality Traits components with a negative signal, as stated by hypotheses H1, H2, H3 and H4, but loose statistical significance. Now, the perceived importance of strong ties keeps the same negative signal as before, meaning that a unit of increase in the Strong Ties component would increase (decrease) the probability of the Founder choosing an Intuitive (Analytical) Decision-Making approach by 0,128 p.p.. The perceived importance of Weak Ties stays with the positive sign in accordance with H6, but it is not statistical significant.

The OwnerDM regression produced opposite signals to the FounderDM, and they are both statistical significant, i.e., an increase of one unit in the components of perceived high importance Traits increases (decreases) the probability of an Owner following an Analytical (Intuitive) Decision-Making approach. This also happens with the first component of average perceived Traits, that it is now statistical significant.

The perceived importance of Strong Ties (high and average) obtained a positive signal and is now statistical significant. In fact, in case of the OwnerDM only education above a Bachelor's Degree (sup) gets a statistical significant value, with a negative sign.

6. Conclusion:

The study focused on how the Entrepreneur is influenced by the perceived importance of Personality Traits and Social Ties when choosing his/her approach to

decision making. The coefficients of the sample (Owners and managers) present the same signs, but when Founders were compared only to Owners in a robust regression, the opposite signs in the equations show that there is a different influence coming from their perceived importance in Traits and Ties towards decision-making. Although Entrepreneurs do not differ substantially from the Owners or the whole sample concerning the dependent variable, i.e., they have similar values in the use of analytical or intuitive thinking (see Table 1), they are influenced differently by these factors.

The Entrepreneurs (Founders) show a negative influence towards analytical thinking (in favour of intuitive thinking) from the perceived high importance of Strong Ties in the model FounderDM/OwnerDM, while the Owners show a positive influence towards analytical thinking (against intuitive thinking) from the perceived high importance characteristics, meaning they are influenced in the opposite way. The sample gets mixed signals in Personality Traits where both components are of statistical significance. Age is also a significant factor for the sample, probably a reflexion of an increase on intuitive decision-making by security gained in the day-to-day work.

The values of the coefficients are small, which could indicate that to take them into account would not be worth the effort, but one must have in mind the Entrepreneurs that did not answer the survey because their firms did not survive time enough. Furthermore, the data used was very concentrated, the dependent variable being very close to 95% for every category. The same happened with the explanatory variables used.

From common sense we can induce that different perceptions influence people to think differently. But from what is possible to see, the same perceptions act differently for each profile category studied. It is important to understand how the different groups interact with the environment when they have different information, but it may also be

important to understand behaviour of the different groups when they have the *same* information.

From the point of view of a society that wants to increase Entrepreneurial propensity, it becomes clear that this increase will not happen only because of knowledge. The socio-cultural structural differences in people will shape the way they think. When it comes to business support to business start-ups, it is important not only to focus on the difficult path that defines the early stages in the life of a firm, but also on the perceptions of the Entrepreneur.

For a future research it may be interesting to study how people are influenced by socio-cultural factors in their daily life. It may be that more people become Entrepreneurs in countries were culture in general is similar to the "Entrepreneurial Culture".

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8. Attachments:

Table 2: Pearson's Chi-Square test on High Importance variables

Chi Square	Caution	Risk taking	Pride	Independence	Ambition	Firm Dir.	Friends	Family	Institutions
Caution									
Risk taking	**15,82**								
Pride	**38,86**	**18,9**							
Independence	**36,11**	**20,47**	**47,24**						
Ambition	**10,12**	**60,28**	**9,21**	**23,82**					
Firm Dir.	0,245	5,99	1,02	2,22	5,63				
Friends	**15,13**	**13,92**	**19,06**	5,41	6,03	*16,68*			
Family	8,33	5,87	**13,51**	4,37	**14,63**	1,59	**85,85**		
Institutions	*9,69*	5,67	2,1	7,95	3,02	*17,2*	*29,35*	*31,05*	

Table 3: Pearson's Chi-Square test on Average Importance variables

Chi Square	Caution	Risk taking	Pride	Independence	Ambition	Firm Dir.	Friends	Family	Institutions
Caution									
Risk taking	**14,47**								
Pride	**25,55**	**7,97**							
Independence	**14,69**	**10,79**	**20,38**						
Ambition	**7,31**	**28,99**	**4,713**	**7,61**					
Firm Dir.	0,04	0,63	0,91	1,62	1,74				
Friends	**14,41**	1,03	5,05	2,88	1,16	*20,20*			
Family	0,001	0,43	1,41	0,13	0,21	4,17	**46,62**		
Institutions	1,75	0,62	0,009	1,90	0,02	8,10	9,05	*19,63*	

Table 4: Principal Component Analysis on Personality Traits

Component	Eigenvalue	Difference	Proportion	Cumulative
Perceived High Importance Traits				
Comp1	1,841	0,820	0,368	0,368
Comp2	1,021	0,270	0,204	0,572
Comp3	0,751	0,022	0,150	0,723
Comp4	0,729	0,071	0,146	0,868
Comp5	0,658	0,000	0,132	1,000
Perceived Average Importance traits				
Comp1	1,601	0,596	0,320	0,320
Comp2	1,005	0,162	0,201	0,521
Comp3	0,843	0,057	0,169	0,690
Comp4	0,786	0,021	0,157	0,847
Comp5	0,765	0,000	0,153	1,000

Table 5: Principal Component Analysis on Strong and Weak Ties

Component	Eigenvalue	Difference	Proportion	Cumulative
Strong High Importance				
Comp1	1,356	0,712	0,678	0,678
Comp2	0,644	0	0,322	1.000
Weak High Importance				
Comp1	1,159	0,319	0,579	0,579
Comp2	0,841	0	0,420	1.000
Strong Average Importance				
Comp1	1,262	0,524	0,631	0,631
Comp2	0,738	0	0,369	1.000
Weak Average Importance				
Comp1	1,109	0,219	0,555	0,555
Comp2	0,891	0	0,445	1.000