

Charismatic leadership and entrepreneurial activity: An empirical analysis

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LIDERAZGO CARISMÁTICO Y ACTIVIDAD EMPRESARIAL: UN ANÁLISIS EMPÍRICO.

RESUMEN: La literatura sobre emprendimiento con frecuencia define, al empresario emprendedor como portador de una personalidad carismática. El carisma se define mayormente, como una combinación del talento para visualizar oportunidades de mercado y la habilidad de motivar a otros a materializar tales oportunidades. Las empresas, por su parte, proporcionan el contexto para el desarrollo de habilidades y del conocimiento, lo cual es particularmente importante para empresarios en potencia, a la hora de detectar oportunidades de negocio. Mediante el uso de una muestra de 41 países, se muestra que altas tasas de liderazgo carismático a nivel de cada país se asocian positivamente con la actividad emprendedora. Este resultado propone que organizaciones empresariales y educativas que promueven un liderazgo acompañado de carisma, juegan un papel importante en el desarrollo de incubadoras de emprendimiento.

PALABRAS CLAVE: dimensiones globales de liderazgo, liderazgo carismático, actividad emprendedora, emprendimiento, GEM)

LEADERSHIP CHARISMATIQUE ET ACTIVITÉ ENTREPRENEURIALE : UNE ANALYSE EMPIRIQUE.

RÉSUMÉ: Les textes sur la prise d'initiatives définissent souvent l'entrepreneur comme une personne entreprenante possédant une personnalité charismatique. Le charisme se définit majoritairement comme une combinaison du talent pour visualiser les opportunités du marché et la capacité de motiver d'autres personnes pour matérialiser de telles opportunités. Les entreprises, en ce qui les concerne, fournissent le contexte pour le développement d'aptitudes et de la connaissance, ce qui est particulièrement important pour des entrepreneurs potentiels, dans la détection d'opportunités de négoce. Par l'utilisation d'un échantillonnage de 45 pays, il est montré que les plus forts taux de leadership charismatique au niveau de chaque pays sont positivement associés à l'activité entrepreneuriale. Ce résultat propose que des organisations entrepreneuriales et éducatives qui promeuvent un leadership accompagné de charisme jouent un rôle important dans le développement d'incubateurs de l'entreprise.

MOTS-CLÉS : Dimensions globales de leadership, leadership charismatique, activité entrepreneuriale, esprit d'entreprise, GEM.

LIDERANÇA CARISMÁTICA E ATIVIDADE EMPRESARIAL: UMA ANÁLISE EMPÍRICA

RESUMO: A literatura sobre empreendimento com frequência define empresário empreendedor como portador de uma personalidade carismática. O carisma define-se principalmente, como uma combinação do talento para visualizar oportunidades de mercado, e a habilidade de motivar a outros para materializar tais oportunidades. As empresas, por sua parte, proporcionam o contexto para o desenvolvimento de habilidades e do conhecimento, o qual é particularmente importante para empresários potenciais, na detenção de oportunidades de negócio. Mediante o uso de uma mostra de 41 países, mostra-se que maiores taxas de liderança carismática no nível de cada país, associam-se positivamente com a atividade empreendedora. Este resultado propõe que organizações empresariais e educativas que promovem uma liderança acompanhada de carisma, desempenham um papel importante no desenvolvimento de incubadoras de empreendimento.

PALAVRAS -CHAVE: dimensões globais de liderança, liderança carismática, atividade empreendedora, empreendimento, GEM.

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ABSTRACT: Entrepreneurship literature frequently identifies entrepreneurs as possessing a charismatic personality. Charisma is broadly defined as a combination of the talent to foresee market opportunities and the ability to motivate other people in the materialization of these opportunities. Business organizations also provide the context for developing skills and knowledge, which is particularly valuable for potential entrepreneurs who identify business opportunities. Using a sample of 41 countries, we show that higher rates of charismatic leadership at the country level are positively associated with entrepreneurial activity. This outcome suggests that both business-oriented and educational organizations that promote charismatic leadership play a significant role in the development of entrepreneurial incubators.

KEYWORDS: Global leadership dimensions, charismatic leadership, entrepreneurial activity, entrepreneurship, GEM.

Introduction

The importance of entrepreneurship for the improvement of societies in terms of both economic and social aims is generally accepted (Birch, 1979; Carree & Thurik, 2003; Parker, 2004; Reynolds, Bygrave, Autio, Cox, & Hay, 2002; Stephen, Urbano, & van Hemmen, 2009; Storey, 1994; Thornton, Ribeiro-Soriano, & Urbano, 2011; Wennekers & Thurik, 1999; among others). In addition, leadership is considered a core component of entrepreneurial processes (Czarniawaska-Joerges & Wolff, 1991; Gupta, MacMillan, & Surie, 2004; Vecchio, 2003). New ventures need the leadership of founders who initially define the mission of their organizations, set specific goals, and organize and motivate the efforts of their employees (Ensley, Pearce, & Hmieleski, 2006).

The fields of leadership and entrepreneurship have undergone similar development in many ways (Baron, 2002; Cogliser & Brigham, 2004; Ensley *et al.*, 2006; Gartner, Bird, & Starr, 1992; Perren & Burgoyne, 2002; Vecchio,

2003). However, existing research largely analyzes leadership and entrepreneurship separately. On the one hand, social psychology focuses on leadership dimensions (Brower, Schoorman, & Tan, 2000; Eagly & Johnson, 1990; Kaiser, Hogan, & Craig, 2008; Steinberg, 2005; Son, Leanne, Bobocel, Zanna, & McBride, 2007; Walumbwa, 2008), and on the other, entrepreneurship literature investigates factors that condition new firm creation (Freitag & Thurik, 2007; Gnyawali & Fogel, 1994). There are few authors who specifically deal with the relationship between leadership and entrepreneurship (Cogliser & Brigham, 2004; Ensley *et al.*, 2006; Ensley, Pearson & Pearce, 2003; Gupta *et al.*, 2004; Perren & Burgoyne, 2002; Vecchio, 2003).

Furthermore, studies dealing with the relevance of charismatic leadership in entrepreneurship are practically nonexistent. This scarcity of studies is surprising if we consider the coincidences between the traits of leaders and those of entrepreneurs, especially in the case of charismatic leadership. According to the literature on leadership (House, Hanges, Javidan, Dorfman, & Gupta, 2004), charismatic leadership is defined by several attributes (vision, inspiration, self-sacrifice, integrity, decisiveness and being performance-oriented). Interestingly, these attributes also happen to identify entrepreneurs, as suggested by the extensive literature on entrepreneurship.

The present research attempts to empirically examine the relationship between global leadership dimensions and new firm formation at the country level. By using a sample of 41 countries, it is statistically demonstrated through regression analysis that higher rates of charismatic leadership have a significant and positive impact on the number of entrepreneurs by opportunity. In this study, "entrepreneurship by opportunity" refers to an active choice to start a new enterprise based on the perception that an unexploited, or underexploited, business opportunity exists (this is opposite to "entrepreneurship by necessity", which refers to starting a new firm because other employment options are either absent or unsatisfactory). We also show that the impact of charismatic leadership is complemented by another source that generates new entrepreneurs by opportunity: the role model provided by business owners. Our results suggest that the impact of the presence of business owners in the social environment and of charismatic leadership complement each other in producing more entrepreneurial societies.

A possible policy implication is that, by supporting learning programs that promote charismatic leadership (through universities and business schools), governments may help to generate future entrepreneurs. From the perspective of organizations, choosing or promoting charismatic leaders may have the unintended consequence of managers

leaving the organization and becoming entrepreneurs by opportunity (i.e. potential competitors).

Following this brief introduction, the paper is structured in four sections. First, the conceptual framework of the research is developed, distinguishing leadership and entrepreneurship literature and proposing an integrative model. Second, the methodology used is presented. Third, the main empirical results are discussed. Finally, the conclusions and future research lines of the study are formulated.

Conceptual framework

Leadership and entrepreneurship

As previously stated, a small number of studies have analyzed the relationship between leadership and entrepreneurship.

Perren and Burgoyne (2002) investigated the connection between leadership and entrepreneurship from a semantic perspective. Ensley *et al.* (2003) and Ensley *et al.* (2006) focused on the impact of entrepreneurial leadership behavior on new venture performance. Vecchio (2003) proposed a model that integrates both leadership and entrepreneurship in explaining differential effectiveness in launching and managing a new firm. Gupta *et al.* (2004) developed the construct of entrepreneurial leadership, concluding that its effectiveness may vary across cultures. And finally, from an global point of view, Cogliser and Brigham (2004) also examined the intersection between the fields of leadership and entrepreneurship, focusing on the coincidence of attributes that characterize both leaders and entrepreneurs.

With respect to the studies that analyze leadership dimensions and leaders' attributes (Barker, 2001; Burns, 1978; House *et al.*, 2004; Morrisson, 2000; Yukl, 2002; Zaccaro & Banks, 2004; among others), it is important to highlight the research carried out by House *et al.* (2004) in which 6 global leadership dimensions are identified: team-oriented (ability to build a common purpose), self-protective (ensuring the safety and security of self and group), participative (degree to which others are involved in decisions), humane (includes compassion and generosity), autonomous (individualistic, independent attributes) and charismatic (visionary and inspirational). These dimensions of reported leadership attributes and behaviors are dimensions of the culturally-endorsed theories of leadership in each country studied (House *et al.*, 2004).

On the other hand, with regard to the area of entrepreneurship, although many traits define the character of the



entrepreneur (vision, intuition, self-sacrifice, performance-oriented, etc.), one of the more remarkable aspects is that there is no consensus on the definition of the entrepreneur (see Brockhaus & Howitz, 1986; Timmons & Stevenson, 1985; among others). Nevertheless, if we combine leadership and entrepreneurship literature, we see that the most important attributes that identify the entrepreneurial pattern coincide with the characteristics of the different global Leadership Dimensions (team-oriented, self-protective, participative, humane, autonomous and charismatic).

The importance of the influence of these dimensions on entrepreneurial activity is also a major theme.

We therefore suggest the following hypothesis:

Hypothesis 1: *Global leadership dimensions have a significant impact on entrepreneurial activity, specifically on the number of entrepreneurs by opportunity.*

Among leadership attributes, charismatic leadership (Conger & Kanungo, 1987; Den Hartog, House, Hanges, Ruiz-Quintanilla, & Dorfman, 1999; House *et al.*, 2004; Shamir, House, & Arthur, 1993; Yukl, 1994) is mainly defined by 6 attributes: vision, inspiration, self-sacrifice, integrity, decisiveness and being performance oriented. Each of these attributes has received specific attention in entrepreneurship literature:

i) The attribute of vision has been considered critical by Bass (1988), Baum, Conger and Karungo (1987),

Deakins (1999), Gupta *et al.* (2004), House and Howell (1992), Locke and Kirkpatrick (1998), McClelland (1961), Thompson (1999), Venkatamaran and Van de Ven (1998). Entrepreneurs anticipate future possibilities, scenarios and opportunities. They have the capacity to plan long-term.

- ii) Deakins (1999), Lessem (1986), Venkatamaran and van de Ven (1998), stress the inspirational side of entrepreneurs, the capacity to inspire and influence followers. They are enthusiastic and positive, motivating people to act.
- iii) Bass (1990), Gardener (1961), Javidan (1991), Javidan and Carl (2004), Timmons and Stevenson (1985), Yukl (1989), Shamir *et al.* (1993) highlight self-sacrifice, perseverance and tenacity;
- iv) Also, Bennis (1989), Collins *et al.* (1964), Drouillard and Kleiner (1996), McClelland (1961), and Timmons and Stevenson (1985) emphasize integrity and honesty;
- v) Allinson, Chell and Hayes (2000), Becherer and Maurer (1999), Carland (1982), Drouillard and Kleiner (1996), Lessem (1986), Morden (1997), Olsen (1995), and Peters and Waterman (1982), stress the decisiveness and intuition of the entrepreneur.
- vi) Performance-oriented, orientation to goals, and the need to know the results and feedback of actions are stressed by Becherer and Maurer (1999), Bird (1988), Lessem (1986) and Timmons and Stevenson (1985),

Therefore, according to both leadership and entrepreneurship literature, it could be argued that vision, inspiration and the capacity to motivate followers are traits associated with charismatic leaders. Additionally, charismatic leadership is also related to transformational leadership (Baum, Locke & Kirkpatrick, 1998; Berson, Shamir, Avolio, & Popper, 2001; Hinkin & Tracey, 1999; House, 1971; Martin & Epitropaki, 2001; Venkatamaran & Van de Ven, 1998). Gupta *et al.* (2004: 245) pointed out that "entrepreneurial leadership has much in common with transformational leadership in the sense that the leader evokes superior performance by appealing to the higher needs of followers". Transformational leadership, as opposed to management or transactional leadership, uses empowering rather than controlling strategies (Javidan & Carl, 2004). More precisely, transformational leadership has been defined as superior leadership performance that occurs when leaders "broaden and elevate the interests of their employees, when they generate awareness and acceptance of the purposes and mission of the group, and when they stir their employees to look beyond their own self-interest for the good of the group" (Bass, 1990: 21). As charisma is viewed as a factor of transformational leadership, some authors have used the terms transformational leadership and charismatic leadership interchangeably.

As previously stated, the most important attributes that identify the entrepreneurial pattern coincide with the characteristics of the different global leadership dimensions, precisely with the charismatic or transformational dimension, in terms of both common traits and impact on new firm creation.

The following hypothesis can therefore be proposed:

Hypothesis 2: *Charismatic leadership has a more strongly positive relationship on entrepreneurial activity, specifically on the number of entrepreneurs by opportunity, than the other global leadership dimensions.*

Role models and new venture creation

As stated in the introduction, along with the importance of charismatic leadership, the presence of business owners in the social environment has a significant impact on entrepreneurial activity. As suggested by earlier literature (Stephen, Urbano, & van Hemmen, 2005; van Stel, Carree & Thurik, 2005), business owners act as role models for future entrepreneurs. A relevant issue is to analyze whether the nature of the relationship between both sources of entrepreneurship (charismatic leadership and business owners) is complementary or one of substitution.

The literature on role models highlights a positive relationship between the presence of business owners in society, and specifically entrepreneurs among relatives, and the emergence of entrepreneurship. Collins, Moore and Unwalla (1964) demonstrated the first results on the influence of family background on new venture creation. Scherer, Adams, Carley and Wiebe (1989) have shown that a high percentage of entrepreneurs had entrepreneurial role models. Van Auken, Fry and Stephens (2006) demonstrated that many business owners include their children and other young people in their businesses. Scott and Twomey (1988) proposed that parental role models and experience led to the perception of oneself as an entrepreneur. Carroll and Mosakowski (1987) asserted that children with self-employed parents were likely to have worked in the family firm at an early age and, later, started their own business. Van Auken *et al.* (2006) found that the interaction and involvement of individuals in a business have the greatest impact on intentions. Also, in the literature focusing on intentions, Kolvereid (1996), Krueger (1993), Matthews and Moser (1995), Scherer *et al.* (1989), among others, suggested that family background affects entrepreneurial intentions.

Furthermore, role models are connected to other factors that have been highlighted in literature as antecedent factors underlying the entrepreneurial decision (see Figure 1):

- a) Human capital and organizational knowledge: several studies have noted the importance of human capital for new venture creation and economic growth (Madsen, Neergaard, & Ulhøi, 2003; Penrose, 1959; Psacharopoulos & Woodhall, 1985; Roberts, 1991; among others). Human capital has generally been characterized by level of education as well as business experience. Therefore, a key part of human capital consists of a person's acculturation process in the form of education and acquired work experience. Both, education and experience may influence the likelihood of entrepreneurial activity, productivity and the relative success of entrepreneurial ventures (Honig, 1998). Moreover, and from an organizational perspective, the link between human capital and the application of entrepreneurial and management knowledge configured as resource has been stressed (Churchill & Lewis, 1983; Goffe & Scase, 1995; Greiner, 1972, 1998; Macpherson & Holt, 2007; Madsen *et al.*, 2003; Scott & Bruce, 1987). In this sense, entrepreneurial role models would be achieved through relatives (family business) or work experience (incubator organization), and a charismatic dimension of leadership could be developed in the socialization process.

- b) Opportunity identification and opportunity exploitation: Venkataraman (1997) refers to the field of entrepreneurship as the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited. Consequently, the field involves the study of sources of opportunities; the processes of discovery, evaluation and exploitation of opportunities; and the set of individuals who discover, evaluate, and exploit them (Shane & Venkataraman, 2000: 218). This process occurs more easily when people are in frequent contact with business owners and are thus exposed to entrepreneurial role models. Charismatic characteristics could also help entrepreneurs to identify and exploit a new venture opportunity.
- c) Triggering effect: Krueger (1993), Krueger and Carsrud (1993), Krueger, Reilly and Carsrud (2000), emphasize the triggering effect on the entrepreneurial process, considering entrepreneurial activity to be intentionally planned behavior. Moreover, the authors

consider intentionality to be typical of emerging organizations, although the timing of the launch of a new venture might be relatively unplanned, such as when a sudden new opportunity arises. Nevertheless, as stated above, role models have a great impact on entrepreneurial intentions and therefore constitute an important triggering effect for new business creation. In this case, the charismatic traits of the entrepreneur could also come together to bring about the triggering effect.

In line with the above discussion, the following hypothesis is suggested:

Hypothesis 3: *Role models have a positive impact on entrepreneurial activity (entrepreneurship by opportunity).*

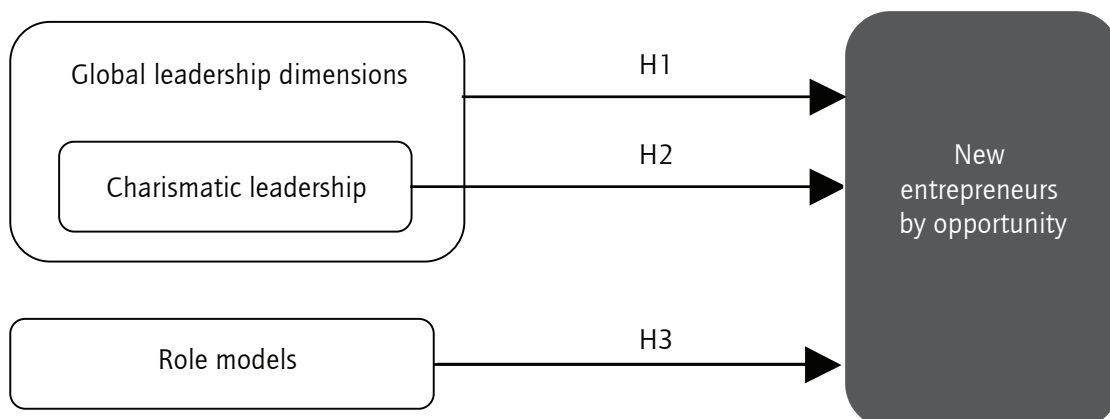
Linking leadership and entrepreneurial activity, Figure 2 presents the proposed model of this study, where the solid arrows in the chart represent relations directly tested in our empirical research.

FIGURE 1. Role Models and Entrepreneurial Activity



Source: the authors

FIGURE 2. Proposed Model



Source: the authors

Methodology

In order to test the hypotheses presented in the previous section, we built a model that includes global leadership dimensions and entrepreneurial activity, plus a number of control variables:

$$TEA_Op_i = \alpha + \beta_1 CV_i + \beta_2 BO_i + \beta_3 LEAD_i + u_i,$$

Where:

TEA_Op_i : Total Entrepreneurial Activity by Opportunity

CV_i : Control Variables

BO_i : Business Ownership

$LEAD_i$: Global leadership dimensions

i : 1, 2, ..., 41

H : $\beta_{1,2,3} \neq 0$

Our data set contains cross-section information at the national level. The total number of observations in the multivariate OLS estimation is limited by the information that is currently available in two different data sources: the Global Entrepreneurship Monitor (GEM) and the Global Leadership and Organizational Behavior Effectiveness (GLOBE). In the 2006 report, GEM covered a total of 42 countries; the intersection with available GLOBE data produces a final sample of 32 observations. In order to increase the degrees of freedom, we have also included the latest available year for 9 additional countries which were covered by GEM in 2005 (4 countries) and 2004 (5 countries). We have verified that running the models with the smaller sample (i.e. unreported one-year samples) did not produce any significant change in our results (i.e., the results are constant for different sample sizes).

With a resulting sample of 41 countries, we regressed TEA by opportunity on a control group and selected explanatory variables (as displayed in table 1). Although the main contribution of this paper consists of stressing the importance of global leadership dimensions for the level of entrepreneurial activity by opportunity, the existing Business Owners variable also receives special attention due to its relevance as role models for future entrepreneurs (as empirically shown by Stephen *et al.*, 2005, among others).

Concerning the data sources, Global Entrepreneurship Monitor (GEM) data is used as a source of information for the dependent variables in this research (many authors used GEM data in the field of entrepreneurship; for example: Acs & Amoros, 2008; Alvarez and Urbano, 2011;

¹ See the list of countries and the latest available year in note 1, table 2.

Alvarez, Urbano, Coduras, & Ruiz, 2011; Coduras, Urbano, Rojas & Martínez, 2008; Wennekers, van Stel, Thurik, & Reynolds, 2005; among others). The Adult Population Survey (APS), which are interviews randomly collected among the adult population ages 18-64, is used to obtain information on specifically entrepreneurship associated with the level of entrepreneurial activity (TEA, total early stage entrepreneurial activity). The TEA index shows the percentage of adults setting up a business or owning-managing a young firm (0-42 months old).

It is worth noting that we focus on opportunity entrepreneurs, because our concern is on choices made by individuals who consider entrepreneurship as an alternative to being employees (rather than as the result of unemployment). We see the option of becoming an opportunity entrepreneur as a choice strongly influenced by learning processes that the individual undergoes in his formative and professional life.

Regarding the 6 global leadership dimension variables, they stem from a two-stage factorial exercise derived from an initial large set of questions addressed to 17,300 middle managers in 951 organizations in 62 countries (see House *et al.*, 2004, for a detailed methodological description).

The impact of the main model explanatory variables (Entrepreneurial Activity by Opportunity and Leadership Dimensions) is measured after correcting for the effect of other variables that have shown a potential influence on the level of entrepreneurial activity. In our model, these control variables include the level of per capita income, the six-year average growth in the gross domestic product, a proxy for the characteristics of the legal framework (English legal origin), and two measures that have been mentioned by other authors as imposing barriers to entry for new entrepreneurs: control of corruption (Kaufmann, Kraay, & Mastruzzi, 2004, 2007) and the number of officially-required entry procedures (Klapper, Laeven, & Rajan, 2006).²

² A large number of additional controls previously suggested in the literature have also been tested, such as the level of secondary and tertiary education, the proportion of Small and Medium-sized firms, minimum capital required to register a business, time and cost of registering a business, quality of contract enforcement, tax burden, global quality of regulatory and legal environment (as measured by the Ease of Doing Business Ranking, generated by the World Bank Doing Business Project), the availability of financial resources (Credit to the Private sector to GDP). However, none of these variables improved the fitness of the estimated models significantly, nor did they change the significance of the relevant variables we focus on in this study.

TABLE 1. Description of the Variables

Type	Name	Description	Source
Dependent variable	TEA opportunity (latest available year)	Entrepreneurs responding they are currently pursuing a business opportunity.	Global Entrepreneurship Monitor
Control variables	Ln (GNI/Capita ₂₀₀₅)	Ln of Gross National Income per capita in 2005 (Atlas Methodology)	World Bank Development Indicators
	GDP Growth (Average 2000-05)	Average growth in Gross Domestic Product in 2000-2005	World Bank Development Indicators
	English legal origin	A dummy variable that identifies the adoption of English legal institutions	CIA factbook
	Control of Corruption index ₂₀₀₅	Aggregate index built on several individual indexes based on perceptions of control of corruption (see Kaufmann <i>et al</i> , 2004, and 2007)	Worldwide Governance Indicators, the World Bank
	Start-up procedures ₂₀₀₆	Number of official procedures officially required for an entrepreneur to start up an industrial or commercial business	World Bank Doing Business database
Role model	B. Ownership (Average 2003-06)	Measure of the established businesses that have been in operation for more than 42 months (2003-06 average)	Global Entrepreneurship Monitor
Global leadership dimensions	Charisma	Ability to inspire and motivate	Global Leadership and Organizational Behavior Effectiveness (GLOBE)
	Team	Ability to build common purposes	
	Self-Protective	Ensures safety and security of self and group	
	Participative	Degree to which others are involved in decisions	
	Humane	Includes compassion and generosity	
	Autonomous	Individualistic and independent attributes	

Source: Own elaboration

Results and discussion

The hypotheses previously presented in the above section are tested in Table 2, where we report the estimated OLS coefficients for different models. In the final rows, we also report the coefficient of determination (R-squared) and the Log Likelihood as measures for assessing the fitness of the model.

Column 1 in Table 2 gives the OLS estimated coefficients obtained in a model where all control and explanatory variables are included. This model explains almost 65.9% of the TEA opportunity variation across countries. Column 2 shows that dropping all leadership variables reduces the R-squared by 18.86%. A log likelihood ratio test (reported in the last row of the table) confirms that ignoring the explanatory potential of Leadership variables reduces the fitness of the model significantly. In model 3 we omit control variables that are not significant in the two previous columns (i.e. average GDP growth, English legal origin, Corruption Index and Start-Up procedures). Compared to model 1 (first column), both R-squared and Log Likelihood measures show little reduction, suggesting that their contribution is irrelevant, as statistically confirmed by a non-significant log likelihood test shown in the last row of column 3.

The previous models show that global leadership dimensions have a significant impact on the number of

entrepreneurs by opportunity, thus supporting Hypothesis 1. After acknowledging the substantial contribution of the leadership dimensions, in models 4 to 9 we examine the explanatory potential of each individual Leadership factor once the impact of per capita income and business ownership is controlled for. Column 4 shows that, along with these two controls, the measure of charismatic leadership accounts for 53.29% of the variation in entrepreneurial activity by opportunity across countries. A non-significant log likelihood ratio test (bottom row, column 4) suggests that we can impose the restriction that the coefficients of omitted control and other leadership variables are equal to zero. In all models where the measure of charismatic leadership appears, its coefficient is different from zero at levels of significance ranging from 96.7% (column 4) to more than 99% (columns 1, 3 and 10). Also, the coefficient for charismatic leadership is higher than the coefficient for the other global leadership dimensions. This evidence clearly supports Hypothesis 2.

It is important to stress that the log-likelihood test (last row in column 4) reveals that the information content of the explanatory variables in model 4 is similar to that of the full unrestricted model in column 1. This implies that model 4 explains the variation in entrepreneurship by opportunity in a more parsimonious manner than any other model in which a larger number of variables are allowed to vary.

TABLE 2. Explaining TEA Opportunity (latest available year)⁽¹⁾

Model ⁽²⁾	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Ln (GNI / Capita ₂₀₀₅)	-1.44653 (0.183)	-1.97837 (0.07)	-1.67041 (0.006)	-1.57846 (0.000)	-1.5818 (0.001)	-1.62072 (0.012)	-1.61118 (0.003)	-1.30349 (0.006)	-1.56949 0.001	-1.736825 (0.000)
GDP Growth (Average 2000-05)	-0.27914 (0.5)	-0.51194 (0.213)								
English legal origin	-0.01641 (0.992)	1.489801 (0.282)								
Corruption index ₂₀₀₅	-0.71132 (0.641)	-0.4112 (0.749)								
Start-up procedures ₂₀₀₆	-0.02945 (0.917)	-0.11691 (0.618)								
B. Ownership (Average 2003-06)	0.533452 (0.005)	0.66574 (0.000)	0.518927 (0.003)	0.511678 (0.003)	0.621347 (0.001)	0.621315 (0.001)	0.617565 (0.001)	0.517369 (0.005)	0.620725 0.001	
Charisma	10.79658 (0.006)		11.30531 (0.001)	4.04978 (0.033)						5.823063 (0.005)
Team	-11.007 (0.012)		-10.7189 (0.005)		0.063152 (0.979)					
Self-Protective	1.137095 (0.776)		2.220446 (0.41)			-0.16475 (0.936)				
Participative	-0.35073 (0.889)		0.119891 (0.948)				0.145219 (0.921)			
Humane	0.259055 (0.917)		-0.77351 (0.676)					2.592816 (0.118)		
Autonomous	-1.57736 (0.195)		-1.86247 (0.089)						-0.90867 (0.422)	
Constant	21.9793 (0.407)	23.86821 (0.029)	17.6097 (0.43)	-5.42452 (0.631)	17.41205 (0.265)	18.69534 (0.125)	17.28814 (0.013)	3.283981 (0.743)	21.19156 (0.001)	-11.30401 (0.363)
N. Obs.	41	41	41	41	41	41	41	41	41	41
R-squared	0.6590	0.4704	0.6500	0.5329	0.4709	0.4709	0.4710	0.5052	0.4801	0.4073
Adj. R-squared	0.5128	0.4221	0.5624	0.495	0.4279	0.428	0.428	0.465	0.438	0.3761
Log Likelihood (3) Prob > Chi	-95.24776	-102.7298 (0.0205)	-95.78368 (0.8987)	-101.6995 (0.167)	-104.2546 (0.0350)	-104.2514 (0.0351)	-104.2494 (0.0351)	-102.8801 (0.0839)	-103.8922 (0.0444)	-106.58 (0.0121)

Notes: (1) 2006: Argentina, Australia, Brazil, Canada, China, Colombia, Czech Rep., Denmark, Finland, France, Germany, Greece, Hungary, India, Indonesia, Ireland, Italy, Japan, Malaysia, Mexico, Netherlands, Philippines, Russia, Singapore, Slovenia, S. Africa, Spain, Sweden, Thailand, Turkey, United Kingdom, United States. Latest available year 2005: Austria, New Zealand, Switzerland, Venezuela. Latest available year 2004: Ecuador, Hong Kong, Israel, Poland, Portugal. (2) Ordinary least-squares of the cross section of 41 countries. *P-values* in brackets. (3) Full unconstrained model for the Log Likelihood ratio test: Model 1

TABLE 3. Hypothesis and Empirical Test

Hypothesis	Regression #	Explanation
Hypothesis 1	1, 2	In regression (1) we observe that adj-R2 is 0.51. Regression (2) reveals that by removing leadership dimensions the model loses a significant part of its ability to explain the variance of entrepreneurship by opportunity (adj-R2=0.42). The significance of a log likelihood test that compares models (2) to (1) confirms the relevance of leadership dimensions
Hypothesis 2	1, 3, 4, 10	In all models (1), (3), (4), and (10), the charismatic leadership coefficient is shown to be positive and statistically different from zero. The inclusion of all sorts of control variables does not reject its significance (model 1). Furthermore, compared to other dimensions, charismatic leadership stands out as the most significant (see models 1 and 3), and it is also shown to be relevant when placed alongside business ownership (model 4), which has been shown to have a powerful impact in earlier empirical studies.
Hypothesis 3	4, 9, 10	The decline in the Charismatic leadership coefficient produced by the inclusion of Business Ownership (from 5.82 in model 10 to around 4.05 in model 4) is shown to be non-significant through an <i>F test</i> (reported in footnote number 3). Also, the Business Ownership coefficient does not undergo any significant change when charismatic leadership is included in the model. We thus conclude that the processes that motivate the impact of Charismatic Leadership and Business Ownership on entrepreneurship by opportunity are complementary.

Source: Own elaboration

On the other hand, compared to alternative specifications that include fewer variables, the set of variables included in model 4 also shows more information content (as far as the explanation of entrepreneurial activity is concerned). For instance, we run a further regression in column 10, showing that the fitness of the model decreases significantly when business ownership is removed. This suggests that both charismatic leadership and the role model provided by business owners in the social environment are relevant factors for generating entrepreneurs by opportunity.

Once the importance of these two variables is recognized, we can now discuss the nature of their relationship by examining the estimated coefficients obtained in models 4, 9 and 10. In particular, we observe that the inclusion of business ownership produces a decline in the coefficient for charismatic leadership from 5.82 (model 10) to around 4.05 (model 4). After estimating regression 4, an *F test* does not reject the hypothesis that the coefficient is equal to 4.05.³ On the other hand, the business ownership coefficient does not undergo any significant change when other variables are included or excluded. For instance, in regression 9, the coefficient is 0.62, while the addition of charismatic leadership produces a non-significant reduction of the coefficient to 0.51. The stability shown by business ownership and charismatic leadership coefficients implies that the marginal impact of these two dimensions on opportunity entrepreneurship does not affect one or the other. Further analysis has been carried out (not reported) by adding the interaction between these two variables

into the model. However, no significant improvement in the fitness of the model was observed.

Thus, as proposed in Hypothesis 3, we conclude that role models have a positive and significant impact on the number of entrepreneurs by opportunity. The fact that processes underlying both variables, charismatic leadership and business ownership, are independent is relevant for policy purposes: encouraging leaders to be charismatic through management education programs should not diminish the positive role modeling impact caused by the presence of business owners.

A final consideration is the possibility that endogeneity produces biased results. We have carried out an extensive search among the instruments that have generally been used in the long-term economic development literature: colonial settlers' mortality (see Albouy, 2006), legal origins (La Porta, Lopez-de-Silanes, Shleifer & Vishny, 1998) and countries' latitude and religions (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1999). None of these variables provided any valid instrument for testing the direction of causality.⁴ Basically these endowments showed low correlation with both Business Ownership and Charismatic Leadership (i.e. no endowment or group of endowments provided a suitable instrument).

In order to more clearly connect the hypotheses with the various empirical tests shown in Table 2, Table 3 sums up how each hypothesis is tested.

³ $F(1, 38) = 0,84$; $\text{Prob} > F = 0,3646$. Note that the higher value obtained for the Charismatic Leadership coefficient in regressions 1 and 3 is due to the high correlation of this variable with other Leadership variables such as Team Leadership (which shows a correlation coefficient of 0,8419 with Charismatic leadership).

⁴ We have also tested the relationship suggested in Wennekens, Thurik, van Stel and Noorderhaven (2007) that Business Ownership is strongly determined by Uncertainty Avoidance as measured by Hofstede (2001). This did not provide a good instrument either.

Conclusions

This paper examines the relationship between global leadership dimensions and entrepreneurial activity. By using a sample of 41 countries, it is statistically demonstrated through regression analysis that charismatic leadership has a significant and positive impact on the number of entrepreneurs by opportunity. We have fundamentally focused attention on opportunity entrepreneurs, because our concern is on choices made by individuals who consider entrepreneurship as an alternative to being employees (rather than as a result of unemployment). Charismatic leadership is defined by several attributes (vision, inspiration, self-sacrifice, integrity, decisiveness and being performance-oriented). Interestingly, these attributes also happen to identify entrepreneurs, as suggested by the extensive literature on entrepreneurship. Our study suggests that, among leadership dimensions, the differences observed in charismatic leadership across countries represent the strongest explanatory factor in the variance of current rates for entrepreneurship by opportunity. Our results also suggest that the impact of the presence of business owners in the social environment and higher charismatic leadership rates complement each other in producing more entrepreneurial societies. Thus, encouraging leaders to be charismatic through management education programs does not reduce the positive role modeling impact caused by the presence of business owners.

As a step towards understanding the interplay between leadership dimensions and entrepreneurial activity, the article points out that charismatic leadership plays a significant role in promoting entrepreneurship. Charismatic leadership may result basically from specific learning processes through socialization (Berger & Luckman, 1966). A non-uniform distribution of learning processes across individuals would imply that the production of charismatic leaders relies on a variety of filtering mechanisms.

One filter would come from government support programs aimed at promoting new firm creation. It would be interesting to discover to what extent candidates showing charismatic attributes are more or less likely to be offered government support in the process of starting up a firm.

The promotion of entrepreneurship may also depend on how charismatic students are allocated within the educational system, with management schools playing a critical role. A selection of students that relies on factors other than talent (i.e. income level, sex or race) may reduce the likelihood that the education system contributes to the production of future entrepreneurs.

In a similar vein, another filtering mechanism is found in existing organizations. Whether organizations allow people

with charismatic attributes to be recruited (and promoted through their hierarchies) may be critical to allow future entrepreneurs to acquire needed experience and skills.

This investigation into the analysis of charismatic leadership and entrepreneurial activity has several limitations, the most important of which is the limited databases for measuring both dependent and independent variables. Another limitation is the inability to establish the causal relationships in cross-sectional data. Hence, a possible extension to our article would be to analyze whether these filtering mechanisms enable the placement of individuals with attributes associated with charismatic leadership in appropriate contexts. Additionally, there is a potential for research in analyzing the learning processes offered by specific institutions once these filters are passed. Such a study would reveal which support bodies, academic institutions and organizational training programs contribute most to the development of charismatic leadership with the potential to be converted into entrepreneurship. Finally, filtering and learning processes that promote charismatic leadership are also likely to produce innovation in terms of organizational intrapreneurs ("internal" entrepreneurs as generators of new ideas within organizations) or entrepreneurs ("externals") as creators of new firms. In this context, future research may use multilevel modeling to address the issues of unobserved heterogeneity within the context of a cross-country and cross-individual study. Further research would also be needed to understand the extent to which intrapreneurship generates the knowledge necessary for a charismatic leader to visualize him or herself as a future entrepreneur.

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