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Social Norms and Entrepreneurial Intention in University Researchers in Colombia

Normas sociales e intención emprendedora en investigadores universitarios en Colombia

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Abstract

Social or subjective norms (SN) can be defined as the guidelines that seek to shape the behavior of people within society based on the different beliefs and customs of the distinct groups that comprise it. Usually, SN are not written, but are known by people. Entrepreneurial intention (EI), on the other hand, is a previous step to the creation of a company that does not always take shape in the assembly of new businesses. The objectives of this work were to find associations between the SN and the other variables analyzed, and to identify the SN that determine EI among university researchers in Colombia. The research is descriptive and correlational, and has a non-experimental and cross-sectional design. A stratified random sample is taken from peer evaluators from the Colombian Administrative Department of Science, Technology, and Innovation (COLCIENCIAS) in the areas of science, technology, engineering, and mathematics. The results show that SN do determine the EI of university researchers and that these are related to guidelines that shape their behavior in three ways: a) the positive image of the entrepreneur from values, such as their dedication to work and their autonomy; b) social motivation to become an entrepreneur instead of being employed; and c) admiration for the entrepreneur and money as secondary elements that motivate EI.

Keywords: Creation of companies, Teachers, Entrepreneurship, Entrepreneurial intention, Social norms, Subjective. norms.

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Resumen

Las Normas Sociales o Subjetivas (NS), pueden definirse como las pautas que buscan moldear la conducta de las personas dentro de la sociedad a partir de las diferentes creencias y costumbres de los distintos grupos que la conforman. Por lo general, las NS no están escritas, pero son conocidas por las personas. La Intención Emprendedora (IE), por su parte, es un paso previo a la creación de una empresa que no siempre se concreta en el montaje de nuevos negocios. Los objetivos de este trabajo son: hallar asociaciones entre las NS y las demás variables analizadas, e identificar las NS que determinan la IE entre los investigadores universitarios en Colombia. La investigación es de tipo descriptivo y correlacional, y tiene un diseño no experimental y transversal. Se toma una muestra aleatoria estratificada de los evaluadores pares del Departamento Administrativo de Ciencia, Tecnología e Innovación de Colombia (Colciencias), en las áreas de ciencias, tecnología, ingeniería y matemáticas. Los resultados muestran que las NS sí determinan la IE de los investigadores universitarios y que éstas se relacionan con pautas que moldean su comportamiento en tres vertientes: a) la imagen positiva del empresario a partir de valores como su dedicación al trabajo y su autonomía, b) la motivación social para ser empresario en vez de ser empleado, y c) la admiración por el empresario y el dinero como elementos secundarios que motivan la IE.

Palabras clave: Creación de empresas, Docentes, Emprendimiento, Intención emprendedora, Normas sociales, Normas subjetivas.

1. Introduction

In spite of the difficulty to document clearly the contribution by university research to economic growth, it is clear that it can be an important motor to promote socioeconomic development. Thus, research in higher education institutions contributes to increasing industry R&D and productivity, given new knowledge and techniques, supply of human capital (professors and students), development of staff and instruments, and creation of concepts and prototypes for new products and processes (Roessner, Bond, Okubo, and Planting, 2013). Nevertheless, according with Naranjo (2011), in Colombia, these initiatives are still minimum compared to the United States and countries from Europe, more so when it is assumed that with higher educational level there is a higher rate of entrepreneurial activity (Laguía, Moriano, Molero and Gámez, 2017).

However, until 2017, researchers from public universities in Colombia could not obtain economic benefits from the results of their research given that, through legislation, double remuneration was prohibited by the State. The work by Huyghe and Knockaert (2015) finds that researchers who work in universities that compensate them economically for extension activities and knowledge transfer (third mission of the university) show higher levels of entrepreneurial intention (EI). In this sense, the Colombian Congress (2017) issued Legislation 1838, which seeks to "...promote innovative entrepreneurship and of high added value in Higher Education Institutions that promotes the use of research results and knowledge transfers to society as a factor of human, scientific, cultural, and economic development at local, regional, and national levels". Although this new legislation can generate an additional incentive for university researchers to feel more motivated to create *spin-offs* based on their research results, what their real effect will be is still unknown.

The term *spin-off* was coined in the late 1970s to identify the creation of new and independent companies that stemmed from others already existing or that emerged from universities in Silicon Valley in the United States. Spin-offs refer to companies created within another already in existence, normally, as the initiative of one of its collaborators. Particularly, academic spin-offs are companies that capitalize research and translate it into entrepreneurial value (Naranjo, 2011). In spite of this, each promotion model of these types of companies within universities requires its own model that adapts to existing conditions (Cáceres and Aceytuno, 2015) and to the organizational culture (Meoli and Vismara, 2016).

In this sense, it is worth highlighting that university researchers, as professors, specialize in pedagogical skills to perform as educators in areas of research and in themes related to their field of training. However, Grünhagen and Volkmann (2014), suggest some factors that act on three levels for university scientists to decide on starting their own company, namely: the university organization, the scientist's local work

environment (professors/research group), and each person's individual characteristics. Likewise, Naranjo (2011, p. 36) states that "research groups operate as companies, only lacking a motive of direct benefit for them [the professors], the company itself".

Hence, university researchers face great difficulty when organizing their work schedule, given that they divide it among diverse academic, research, and administrative activities. Thus, it is likely that universities are not constructing a favorable environment that motivates the creation of companies among its professors or that the lack of adequate support pressures researchers to create their ventures outside their institutions (Meoli and Vismara, 2016). Nonetheless, the findings by Jiménez and Calderón (2018) suggest three traits of the academic culture, which are determinants for the emergence of spin-offs: universality, trust and interdisciplinarity, and as principal inhibitor, the fear of risk.

Similarly, spin-offs promote technology transfer, given that researchers begin a project from the knowledge and intellectual property they receive or create in universities, and based on the skills they develop within their groups of technological interest that permit bringing forth innovation and development (Algieri, Aquino, and Succurro, 2013; Pedraza, León, and Betancur, 2015). In the works by Rajaeian, Cater, and Lane (2018) and Johnson, Monsen, and Mackenzie (2016), it is evidenced that researchers who seek to impact the real sector are significantly more effective than those with mentality focused on the publication of new knowledge. To support the first group of academics, universities have devised specific mechanisms, like offices of technology transfer to promote the dissemination of research results and stimulate their interrelation with industry and government (Algieri *et al.*, 2013).

In spite of the high potential university researchers have to create companies (high level of formation and capacity to generate new knowledge), the literature available does not mention which could be the social or subjective norms (SN) that could affect their EI. In this sense, SN may be defined as the guidelines that seek shape people's behavior

within society from the different beliefs and customs of the distinct groups that comprise it, which are known by people, although generally these are not written. The SN are formed little by little over time and are different according to social class, profession, and age, among other considerations, and can affect diverse interactions among individuals in distinct settings of their daily lives, although down deep they aim to guarantee harmonic coexistence (Tarapuez, Aristizábal, and Castellano, 2019).

In this sense, the SN are informal understandings that govern behavior within a society and are crucial for the sense of unity and social cohesion. In effect, these rules, as ideals that control and govern the behavior of people within society, manage to involve the different interactions while behaving differently depending on their conditions; thereby, in some groups, SN can trigger venture more than in others (Diefenbach and Ullrich, 2019).

For Ajzen (1991), the SN make up one of the three groups of variables that influence on the intention of performing certain behaviors. The other two groups are the attitudes toward the behavior and the control locus control. This author assumes that SN refer to the pressure or social control perceived to manifest or not a given behavior. These perceptions are associated with aspects the people closest to each individual can consider important. Thus, in this research, it is necessary to consider the conceptual model from Figure 1 in which SN influence upon the intention of creating a company, while this affects people's behavior (Ajzen, 1991).

Thus, Kilonzo and Nyambegera (2014) assume that SN related with the approval by friends to create a company constitutes the substantial relation of EI. Complementarily, the regional culture, as a conditioner of SN, is closely related with pressure from social, economic, and political environments for people to establish new companies (Souza and Silveira, 2018). For researchers, longitudinal results indicate that EI in researchers prognosticates entrepreneurial behavior, while certain barriers have a decreasing influence on this relation (Goethner, Obschonka, Silbereisen, and Cantner, 2012).

Figure 1. Conceptual model

Source: Author's own elaboration.

Moreover, regarding EI, Bird and Jelinek (1988) assume it as the bridge between the individual and the context, so that EI is one of the key factors that must be analyzed if we are to understand the entrepreneurial phenomenon as a whole (Bird, 1988). For Krueger (2017), intentions are defined as the temporal and causal cognitive state before action. In some cultures, EI tends to be greater when the entrepreneurial activity has a stronger degree of social legitimacy. Thus, a local cultural setting that promotes company creation results decisive to enhance the perception of people to feeling capable of developing an entrepreneurial career. According to Kallas (2019), greater satisfaction with the external environment and better preparation lead individuals to having greater EI; in spite of the aforementioned, social acceptance of the entrepreneurial initiative does not always lead to EI being translated into specific actions that drive to said purpose (Kibler, Kautonen, and Fink, 2014).

Findings from some works agree that the higher the level of perception of the venture's social value, higher will be the preference to being an entrepreneur (Goethner *et al.*, 2012; Shiri, Shinnar, Mirakzadeh, and Zarafshani, 2017; Ferreira, Fernandes, and Raposo, 2018; Gálvez, Guauña, and Pérez, 2018), while this value tends to be higher in the most developed regions, an aspect that affects positively the SN perceived (Liñán, Urbano, and Guerrero, 2011). In turn, studies by Roy, Akhtar, and Das (2017), Yaseen, Saleem, Zahra, and Israr (2018), Tran, Bui, Nguyen, and Mai (2018), Tarapuez, Guzmán, and Parra (2018) and Esfandiar, Sharifi, Pratt, and Altinay (2019), show no relationship of SN with EI or show

weak correspondence or moderately positive. However, SN have the possibility of changing from one moment to another due to the apparent social influence people experience through their behaviors. Notwithstanding, the influence of SN on EI must seek for more research efforts.

This problematic situation can have implicitly some negative consequences for the country's development, given that university researchers, as creators of new knowledge, are possibly limiting their potential almost exclusively to their performance within the university facilities. This can lead to the consequential loss of their contributions to the economic dynamics in terms of employment, income, added value, innovation, and profit, among other aspects. According to Johnson *et al.*, (2016), stronger the venture impulse is among academics, more dynamic will be their intentions to commercialize their research results.

Not acting over this context can strengthen the SN that prevent higher IE among the country's university researchers and, hence, enhance the pressure from the socioeconomic environment aimed at the search for employment as one of the closest and most desirable alternatives for citizens. Consequently, the SN present in the country's culture and within the universities do not experience substantial modifications that potentiate the researchers' entrepreneurial role.

In spite of the aforementioned and given that universities are increasingly involved in the promotion of ventures among the constituents of their academic communities, a considerable number of investigations

is not yet available to permit visualizing which SN influence on EI among university researchers. In this sense, this document has two objectives, on the one hand, it seeks to find associations between the SN and the sociodemographic variables analyzed and, on the other hand, it aims to identify the SN that determine the intention of creating companies among university researchers. Therein are derived the following research questions: what are the principal associations between the SN and the sociodemographic variables analyzed, and what are the SN that determine the intention of creating companies among university researchers in Colombia.

This document is organized in five parts. The first shows the introduction; the second part is the methodology; then, the results are presented. Thereafter, the conclusions are indicated, ending with a list of the bibliographic references used to develop this manuscript.

2. Methodology

This was a descriptive and correlational research, with quantitative approach. The research design is non-experimental and cross-sectional. A stratified random sample was taken from the COLCIENCIAS peer evaluators registered on its website in the areas of science, technology, engineering, and mathematics, which are internationally known as STEM and which have been used in the analysis of EI among academics (Johnson *et al.*, 2016). The sample was taken from these areas of knowledge because it is assumed that in them there are more possibilities of creating economically useful knowledge that can give way to a new venture.

The theoretical justification of the SN under study focuses on the need to complement theoretically the works on which this research is based, while the methodological justification of the SN selected is given by the importance of having an instrument for data collection and analysis related with the SN that determine EI among researchers from Colombian universities.

The format to collect information has 22 qualitative variables, divided thus: 16

SN with Thurstone scale (two response options: agree or disagree), a variable on entrepreneurial intention, and five multiple-choice sociodemographic variables that can influence upon the formation of SN (Grünhagen and Volkmann, 2014). In fact, the SN are closely linked with social and economic aspects (Souza and Silveira, 2018) and have an important positive effect on the confidence on opportunities, which increases the probability entrepreneurial activity (Emami and Khajeheian, 2019). According to Liñán and Fayolle (2015), the second theme of importance in the study of EI is constituted by the sociodemographic antecedents.

In total, the 22 study variables have 52 modalities. The questions were elaborated by bearing in mind the literature review and are shown in Table 1. Elaboration of the questions for the questionnaire considered the works by Naranjo (2011), Liñán *et al.*, (2011), Algieri *et al.* (2013), Tarapuez, García, and Castellano (2015), Marín, Rubio, and Sánchez (2015), Cáceres and Aceytuno (2015), Huyghe and Knockaert (2015), Meoli and Vismara (2016), Laguía *et al.* (2017), Gálvez *et al.* (2018) and Jiménez and Calderón (2018).

First, a pilot test was carried out with 25 professor researchers who were excluded from the population. By coding the results, reliability was tested with Cronbach's alpha of 0.90, a value that is ideal for such effect. Thereafter, the survey was delivered to the sample of university researchers through a link associated to the web page www.encuestafacil.com; obtaining 597 valid surveys. The information was gathered during the first quarter of 2019 and was processed with the Spad 5.6 and Statgraphics Stratus statistical programs.

Data analysis used a multivariate interdependence statistical technique (multiple correspondence analysis) and a dependency inferential statistics technique (logistic regression). The first method seeks to perform a descriptive analysis that permits finding associations among the study variables, while the second method seeks to corroborate the variables that define EI through probabilities. The use of these two statistical techniques is direct harmony with the two objectives posed in this work.

Table 1. Questions used in the survey

No.	Survey questions	Modalities
1	It is better to have my own company than to be employed in someone else's (A/D)*	2
2	In my country, we admire those who run their own companies (A/D)*	2
3	Having your own company generates power, respect, and high social status (A/D)*	2
4	Company creation is more a male than a female issue (A/D)*	2
5	The country's culture pressures people to create their own company (A/D)*	2
6	To create a company, it is important to have support from close friends (A/D)*	2
7	Entrepreneurs like to associate with other entrepreneurs and investors (A/D)*	2
8	Entrepreneurs show their creative and innovative mentality (A/D)*	2
9	Entrepreneurs assume calculated risks for the growth of their companies (A/D)*	2
10	Entrepreneurs are optimistic and visionaries (A/D)*	2
11	Entrepreneurs are autonomous to develop their initiatives (A/D)*	2
12	Entrepreneurs have great capacity of organization (A/D)*	2
13	The family plays a positive role in the creation and development of the company (A/D)*	2
14	Entrepreneurial courses and consultancy programs increase EI (A/D)*	2
15	Being an entrepreneur requires more dedication than being employed in a company (A/D)*	2
16	Making money is the only thing that interests entrepreneurs (A/D)*	2
17	Has close relatives (parents, siblings, or grandparents) who have their own business or company (Yes / No)	2
18	Has close friends who have their own company and who have influenced on their vision of business (Yes / No)	2
19	Gender (male/female)	2
20	University where they work (public/private)	2
21	Maximum formation level: Undergraduate / Technical or Technology / Specialization / Masters / Doctorate / Post-doctorate.	6
22	EI: I would not like to be an entrepreneur / I seek to commercialize my research results / I would very much like to become an entrepreneur / I am intent on creating a company / Currently, I am creating a company / I have a company or had one in the past.	6
	Total	52

*A: agree; D: disagree

Source: Author's own elaboration

3. Results and Discussion

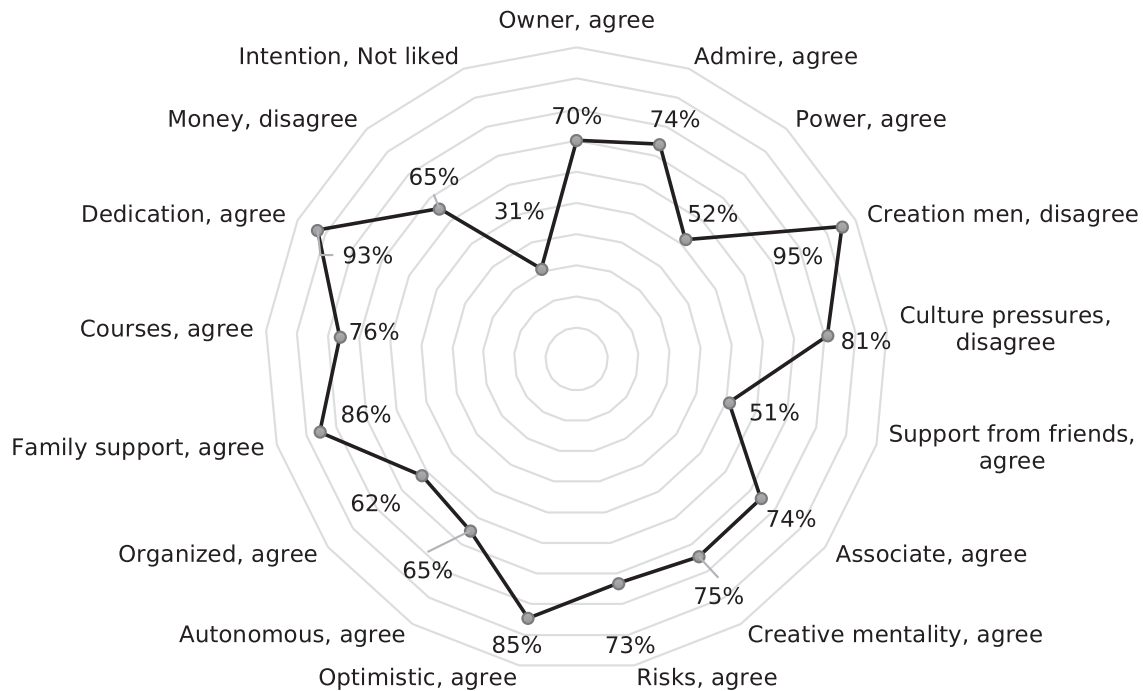
The results are presented in three parts: a mode-based profile, a descriptive analysis performed with multiple correspondence analysis (MCA), and an inferential analysis through logistic regression (LR).

3.1. Profile of university researchers

According with the information obtained in the sample, a radial graphic was elaborated with the mode of the 16 SN analyzed. Figure 2 shows that most of the university researchers in Colombia responded that

they are not interested nor would like to create a company; however, when joining the other response modalities, it was noted that most of those surveyed show some degree of EI, given that they selected one of the following modalities: I seek to commercialize my research results; I would very much like to become an entrepreneur; I am intent on creating a company; at this moment I am creating a company; or I have a company or had one in the past.

Furthermore, the results indicate that the researchers agree with the following: it is better to a Company owner; entrepreneurs are admired; being an entrepreneur generates power; entrepreneurs are capable

Figure 2. Radial graphic with the mode of variables analyzed

Source: Author's own elaboration

of associating; they have creative mentality; take calculated risks; are autonomous in their decisions; are optimistic; organized; take venture courses; are dedicated in their tasks and have support from friends and relatives to create companies. In this sense, the literature shows a causal relationship between EI and the positive role of the parents (Kilonzo and Nyambegera, 2014; Dehghanpour, 2015; Entrialgo and Iglesias, 2017), although other works find that having entrepreneurial parents seemingly does not stimulate EI (Hatak, Harms, and Fink, 2015).

University researchers, in turn, disagree with the following: only men engage in entrepreneurship; money is the only thing that matters to entrepreneurs; and the country's culture pressures people to create companies. In spite of the aforementioned, the work by Kibler *et al.*, (2014) assumes that cultural norms at individual level relate with different stages of the entrepreneurial process and at regional level regional, they relate with different sociodemographic contexts.

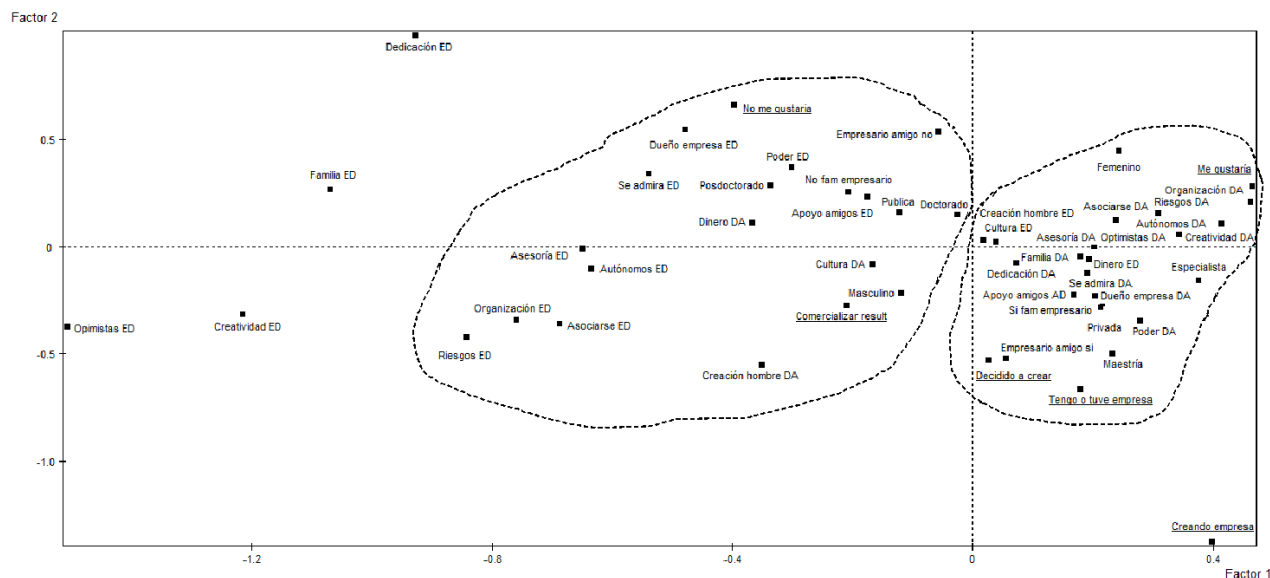
3.2. Multiple Correspondence Analysis (MCA)

The MCA Works with information from the 597 surveys and the 22 questions from the format to gather information (SN, EI, and sociodemographic aspects). Thus, it is possible to interpret each of both factor axes, taking the response modalities with the greatest influence on their formation, that is, those showing the highest test values in the MCA. In this case, the study works with 99% confidence interval and, thus, takes only absolute values above 2.575.

In the MCA, the global variability of the histogram has no statistical significance, given that it depends on the number of modalities and number of variables

$$\text{global inertia} = \frac{\# \text{modalities}}{\# \text{variables}} - 1$$

. In this case, it is sufficient to bear in mind the first two axes to have an adequate synthesis about the possible relations among the study variables. Both axes accumulate 16.34% of the point cloud variation (10.54% and 5.80%,

Figure 3. First factor plane of the MCA

Source: Author's own elaboration

respectively); additionally, to explain 100% of this phenomenon in particular, the 28 factors would have to be taken. According with the information available, factor 1 can be denominated as Society's perception regarding entrepreneurs, while axis two may be titled Influential agents on company creation.

Graphically, the formation of two groups is observed (Figure 3); the left side has those individuals of male gender, who work in a public university, have a doctorate and/or post-doctorate, would not like to create a company, have no entrepreneurial relatives or friends, agree that the country's culture pressures the creation of companies, and that entrepreneurs are only interested in money. In this regard, Schervish (2016) concludes that making money as entrepreneurs is a decisive motivator and it is what pushes them to the highest levels of wealth; in fact, first-level wealth holders are or were entrepreneurs.

Moreover, this group disagrees with: having a company generates power, admiration for entrepreneurs, support from friends to create companies, courses and consultancies motivate entrepreneurship, entrepreneurs are organized, associate with

others and take risks. Thus, for an idea to become successful, future entrepreneurs must undertake a cohesive process of planning, development of ideas, obtain resources, search for funding, research, and assume calculated risks (Schaper, 2016).

The second group on the right side includes the female gender, which works in private universities, has specialist and/or Masters studies, has or had a company, would like to create one, and is intent on establishing a business; has entrepreneurial relatives and friends, considers that entrepreneurship is not a gender theme, a situation contrary to the findings in current literature that establishes that gender differences do exist in EI (Bergmann, Geissler, Hundt, and Grave, 2018; Lechner, Sortheix, Oschonka, and Salmela, 2018). This group disagrees that money is what matters most to entrepreneurs and that the country's culture obligates company creation. They agree that entrepreneurs must be organized, take risks and associate, must be creative, autonomous, optimistic and visionary, dedicated, have support from family and friends, believe that it is better to have their own company, and admire entrepreneurs.

Table 2. Characterization of researchers according to the first factor plane of the MCA

Researchers with high levels of formation without interest in an entrepreneurial career	Researchers with entrepreneurial intention and good image of entrepreneurs
<ul style="list-style-type: none"> • Being an entrepreneur does not require great dedication. • The family does not interfere positively on company creation. • Would not like to create a company. • It is not better to be a company owner than an employee. • Company owners are not admired. • Do not consider courses and consultancies motivate company creation. • Does not have entrepreneurial friend or entrepreneurial relative. • Having a company does not generate power. • Researcher's level of study is doctorate or post-doctorate • Money is the only interest for entrepreneurs. • No support from friends on company creation. • Works in a public university. 	<ul style="list-style-type: none"> • Female gender. • Would like to create a company. • Entrepreneurs have the capacity to be organized. • Entrepreneurs like to associate. • Taking courses and consultancies motivate company creation. • Entrepreneurs assume calculated risks. • Entrepreneurs show creative mentality. • Company creation is not only a man's topic. • The country's culture does not pressure company creation. • Entrepreneurs are optimistic and visionaries. • Entrepreneurs are autonomous with their initiatives.
Commercializing researchers with negative image of entrepreneurs	Entrepreneurial researchers who admire entrepreneurs
<ul style="list-style-type: none"> • Male gender. • Entrepreneurs are not optimistic or visionaries. • Entrepreneurs do not show creative mentality. • Entrepreneurs do not assume calculated risks. • Entrepreneurs do not have the capacity to be organized. • Entrepreneurs do not like associating. • Entrepreneurs are not autonomous with their initiatives. • Company creation is only a man's topic. • Their entrepreneurial intention is toward the commercialization of research results. • The country's culture pressures company creation. 	<ul style="list-style-type: none"> • Being an entrepreneur requires great dedication. • The family interferes positively in company creation. • Money is not the only thing that matters to entrepreneurs. • Company owners are admired. • It is better to be a company owner than an employee. • The researcher's study level is specialization or Masters. • Support from friends for company creation. • Has entrepreneurial relatives and friends. • Works in a private university. • Having a company generates power. • Is dedicated to company creation. • Has or had a company or is creating a business.

Source: Author's own elaboration.

In addition, a characterization was also made of university researchers by considering the position of the modalities in the four quadrants in Figure 3. Based on such, four groups were comprised (Table 2), which were assigned a name that seeks to synthesize their state of relation with the study variables.

Thus, four types of university researchers are conformed, namely: a) Researchers to EI and good image of entrepreneurs, b) Researchers with high levels of formation with no interest in an entrepreneurial career, c) Commercializing researchers with negative image of entrepreneurs, and

d) Entrepreneurial researchers who admire entrepreneurs. This typology permits identifying two groups (a and d) with a clear orientation toward the creation of companies, and another two groups (b and c) with scarce or null EI.

Thereby, Robert, Shoubaki, Lasch, and Dana (2016) find that the profiles of groups of entrepreneurs vary in terms of survival and observe positive effects of the human capital on the duration of the companies and negative or not significant on industry and experience in management. They find no effects from capital and from the preparation of the entrepreneurial initiative.

Table 3. Estimated LR model with the SN determined by the EI

Parameter	Estimated	Standard error	Proportions ratio	p value
Constant	-0.656163	0.367189	-----	
Entrepreneurs are dedicated: agree	1.24804	0.341614	3.48351	0.02
It is better to a company owner: agree	0.913479	0.195802	2.49298	0.00
Entrepreneurs are autonomous: agree	0.471793	0.193275	1.60287	0.0148
Admires entrepreneurs: agree	-0.47669	0.224814	0.620835	0.0306
Money is not the only thing that interests entrepreneurs: agree	-0.642863	0.191097	0.525785	0.08

Source: Author's own elaboration

Further, perceptions on how desirable the entrepreneurial behavior is considered in a society can affect EI (Shirokova, Tsukanova, and Morris, 2018). In turn, Silveira, Santino, and Olivense (2017) highlight that the SN can be modified over time due to the social pressure social individuals experience. Some investigations (Shiri *et al.*, 2017; Ferreira *et al.*, 2018) assume that the preference to being entrepreneurs is higher with higher levels of perception of the social value of this figure, although in regions with lower development, the SN lose their capacity to explain EI (García, Gil, Ruiz, and Sene, 2015). Thus, the SN require attention due to being closely tied to the social and economic factors of the regions (Souza and Silveira, 2018).

3.3. Inferential analysis: Logistic regression (LR)

This analysis was performed with the information from the 597 Colombian university researchers surveyed and the 16 SN studied. The LR demonstrates that the SN that EI are: 1) Being entrepreneurial requires more dedication than being employed in a company, 2) It is better to be entrepreneurial than employed, 3) Entrepreneurs are autonomous to develop their initiatives, 4) In Colombia, we admire those who run their own companies, and 5) Making money is the only thing that interests entrepreneurs (Table 3).

About being an entrepreneur requiring more dedication than being an employee, the reference is constituted by the disagree modality. The proportions ratio reveals that there are nearly three and a half times more

probabilities of having EI when agreeing with this variable than when disagreeing with it.

Regarding it being better to own a company than being employed in someone else's is considered as reference of disagreement; the proportions ratio indicates that there are almost two and a half times more possibilities (2,49298) of having EI when agreeing than when disagreeing with this aspect.

In the variable about entrepreneurs being autonomous to develop their initiatives, the disagreement modality is taken as reference. The proportions ratio shows that there are 1.60287 times more probabilities of having EI when university researchers in Colombia agree with this affirmation than when they disagree with it.

With respect to the variable that in Colombia we admire those who run their own companies, the disagreement modality is assumed as reference, the proportions ratio shows that there are 1.6 times (1/0.620835) more possibilities of having EI when disagreeing with this affirmation than when agreeing.

On the variable of money being the most important thing for entrepreneurs, the reference modality is to disagree. The proportions ratio shows that there is almost two times (1/0.525785) more probabilities of having EI when disagreeing with this concept than when agreeing with it. In spite of the aforementioned, entrepreneurial success require more than mere energy and money, given that it emerge from blind faith, enthusiasm, or luck. These attributes are welcomed, but desire only achieves success

when it is allied with organizational and business development skills (Schaper, 2016).

As noted, of the 16 SN analyzed in this study, the LR identifies five that determine the EI of university researchers in Colombia.

4. Conclusions

According with the analysis performed based on the mode, it is evident that university researchers in Colombia highlight the qualities of entrepreneurs. Likewise, it is noted that those surveyed assume a proactive position regarding the SN analyzed, do not reveal preventions on the influence of gender on EI, and agree with the positive influx of friends and family in the entrepreneurial process, as suggested by the literature review. Although these aspects can strengthen the SN existing in the Colombian society regarding ventures, the results do not evidence that the country's culture obligates individuals to create their own business, as analyzed in the introduction herein.

The MCA indicates certain associations of modalities among the SN, sociodemographic variables, and EI. The most important have to do with the relation shown by researchers with higher formation levels, belonging to public universities, and lack of EI, while those with a Master's degree are associated with high EI or with current or past processes of company creation and labor ties with private institutions. Likewise, the positive interpretation of the SN is related with the most important modalities of EI (I would very much like to become an entrepreneur, I am intent on creating a company, Currently, I am creating a company, and I have or had a company). It is also worth highlighting that men are associated more with the exclusive intention of commercializing their research results and women are more associated with the desire of creating a company. These conclusions are in line with the investigations analyzed.

According with the LR results, the SN do determine the EI of university researchers and these are related with guidelines that shape their behavior on three sides: a) the positive image of entrepreneurs from values, like their dedication to work and

their autonomy, b) the social motivation to becoming an entrepreneur rather than being employed, and c) the admiration for entrepreneurs and money as secondary elements that motivate EI. In the sense of the bibliography analyzed, the factors mentioned can constitute triggers for higher levels of EI; in spite of this, it is interesting that the lack of admiration toward the entrepreneur's figure is a relevant aspect that motivates EI among the sample of researchers studied. This aspect becomes the principal theoretical contribution of the work undertaken.

It is recommended to bear in mind a higher number of SN specific of university researchers that can influence upon their EI. This implies conducting more sociological and cultural analyses that contribute to identify them and that are tested as a mechanism to guide with clarity new motivation processes toward the creation of more and better companies in the country. Moreover, we suggest carrying out longitudinal research that permits determining if university researchers have concretized their intentions into specific entrepreneurial behaviors.

5. Conflict of interest

The authors declare no conflict of interest.

6. Source of Financing

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