mathematics

MDPI

Article

A Non-Parametric Analysis of the Relationship between Business Experience and Entrepreneurial Intention of Final-Year University Students

Oana Simona Hudea, Sorin-George Toma * and Marin Burcea

Faculty of Business and Administration, University of Bucharest, 030018 Bucharest, Romania; oana.hudea@faa.unibuc.ro (O.S.H.); marin.burcea@faa.unibuc.ro (M.B.)
* Correspondence: sorin.toma@faa.unibuc.ro

Abstract: Last decades have witnessed that exposure to business activities, through family and direct experience, positively influences students' entrepreneurial intention (EI). The paper aims to present and analyze the relationship between business experience (BE) and EI in the case of final-year university students, specialized in business administration and marketing, resorting to this end to a standardized questionnaire, developed by the authors and finalized following a pilot survey. The hypotheses considered, centered on the study of the existence of any contingency or correlational relationship between the BE of students, and their EI, based on related coefficients applicable in such case, have been confirmed, in line with similar studies. Theoretically, this paper contributes to the enrichment of the literature on students' EI in higher education institutions (HEIs). Practically, students' EI can be stimulated and encouraged by a deeper involvement of HEIs in entrepreneurship education, thereby creating a challenging entrepreneurial academic environment through a plethora of measures, such as establishing university spin-offs and closer relationships with their specific external stakeholders (e.g., entrepreneurs, businessmen).

Keywords: entrepreneurial intention; business experience; students; higher education institution; non-parametric analysis; entrepreneurship

Citation: Hudea, O.S.; Toma, S.-G.; Burcea, M. A Non-Parametric Analysis of the Relationship between Business Experience and Entrepreneurial Intention of Final-Year University Students. *Mathematics* **2021**, *9*, 1955. https://doi.org/10.3390/math9161955

Academic Editor: Mihaela Paun

Received: 21 July 2021
Accepted: 11 August 2021
Published: 16 August 2021

1. Introduction

Entrepreneurship represents both a multi-faceted, universal and eclectic concept and complex process and a dynamic phenomenon. It can be applied both in private and public sectors [1] and in numerous types of organizations (e.g., small and medium enterprises, multinational corporations, higher education institutions (HEIs), and social ventures). As one of the drivers of competitiveness and sustainable wealth creation, entrepreneurship was recognized as a wellspring of economic growth and development [2,3]. In a business world increasingly dominated by hyper-competition, change and uncertainty, the design and development of entrepreneurial activities and processes have become an important objective of governments around the world. Recent decades have witnessed a growing interest in promoting an entrepreneurial culture, encouraging start-ups creation, and expanding entrepreneurship. These key measures aim to counteract the loss of jobs, reduce poverty, combat social exclusion, and represent means to ensure economic development and growth. In this respect, several European countries (e.g., Finland, United Kingdom) have created stimulative and innovative entrepreneurial ecosystems and carried out entrepreneurial policies in the last decades [4]. In 2003, the European Commission (EC) launched a vast public debate related to the need to fully exploit the entrepreneurial potential and boost entrepreneurship in the European Union (EU). The EC published and spread its Green Paper on Entrepreneurship, followed by its Entrepreneurship Action Plan in 2004 [5,6]. After ten years, the EC established and implemented the Entrepreneurship

2020 Action Plan that was based on the principles of subsidiarity, proportionality and better regulation [7]. This plan is built on the following three pillars [8]:

- Providing entrepreneurial education and training to support growth and business creation.
- Creating an environment where entrepreneurs can flourish and grow.
- Ensuring role models and reaching out to specific groups.

Later, new approaches to supporting entrepreneurship have been implemented such as smart specialization and its relationship with entrepreneurship [9]. In addition, the EC has launched the European Entrepreneurship Competence Framework (EntreComp), aiming to create a shared understanding of the knowledge and skills needed to improve the entrepreneurial capacity of people and organizations throughout the EU [10]. As a policy instrument intended to support European entrepreneurship, the framework recognizes the possibility to behave entrepreneurially in any context and promotes the idea of bridging the worlds of education and work [11].

As providers of a highly skilled workforce and agents of change, HEIs have to meet the various needs of society, such as social, economic or environmental needs. A third academic mission of the HEIs entitled technology transfer has emerged alongside the traditional missions of teaching and research [12]. In this way, they contribute to local and regional development through knowledge production and dissemination, creativity and innovation and interaction with the business community. Therefore, HEIs may stimulate and enhance students' entrepreneurial intention (EI) and behavior [13] by providing them with the knowledge needed for start-up creation [14,15]. In fact, from an entrepreneurial point of view, HEIs fulfil multiple roles as follows: facilitators of entrepreneurial culture, mediators of entrepreneurial skills, providers of entrepreneurial courses and engines of business development [16]. They may create a galvanizing entrepreneurial academic environment in which the potential university student entrepreneurs can [17–19]:

- Acquire and test entrepreneurial knowledge and skills in various competitions, workshops and seminars;
- Meet successful business people, managers and start-up founders;
- Pursue internships within entrepreneurial firms;
- Adhere to entrepreneurial networks;
- Participate in entrepreneurial classroom experiments;
- Put in practice their entrepreneurial ideas within business incubators;
- Participate in the establishment of university spinoffs, etc.

Thus, HEIs represent some of the main actors in fostering entrepreneurship at local, regional, national, and global levels. Since the beginning of the 1980s, entrepreneurship as a field of research and academic enquiry has grown significantly and spread all over the world [20,21]. This is why entrepreneurship education has become a priority of numerous HEIs worldwide and a topic of interest in their curricula. Entrepreneurship education aims to prepare students for launching their start-ups, facilitate the creation of new ventures and develop entrepreneurial intention (EI), behavior, knowledge and skills [22].

Starting from the fact that intentions not only impact on, but also determine behaviors, the literature on EI has rapidly grown since the beginning of the 1980s. Consequently, several models of entrepreneurial intentionality have emerged as follows: Shapero's theory of entrepreneurial event [23], Bird's behavioral model [24], Ajzen's theory of planned behavior [25] and Sarasvathy's bird-in-hand principle [26]. Aimed at launching a new enterprise or creating new values within an existing one, EI represents a predictor of one's decision to become an entrepreneur, expresses his/her desire to pursue an entrepreneurial path or career, shows his/her determination to behave entrepreneurially and indicates his/her start-up intention. Despite its wide range of meanings, EI can be defined as a "state of mind that directs and guides the actions of the entrepreneur toward the development and implementation of the business concept" [27] (p. 64), a "self-acknowledged conviction by a person that they intend to set up a new business venture and consciously plan to do

so at some point in the future" [28] (p. 676) or a "cognitive representation of the actions to be implemented by individuals to either establish new independent ventures or to create new value within existing companies" [29] (p. 5).

Higher educated people have various choices regarding their life-work such as becoming an employee in an organization (e.g., public institutions, private companies, non-governmental organizations), running their family businesses, or launching their businesses. On the one hand, HEIs provides "graduates for employment" and, on the other hand, they allow their students to obtain enough knowledge and skills to develop an entrepreneurial mind-set and pursue an entrepreneurial path [15,30]. Identifying, analyzing and foreseeing the option of a future entrepreneurial career for a university student/graduate constitutes an interesting and provocative research issue. Moreover, knowing, understanding and assessing students' EI allows HEIs to better predict, enhance and promote entrepreneurship inside and outside the academic environment.

There are several important drivers of students' EI such as culture (e.g., individualism/collectivism), exposure to role models (e.g., a family member/close relative who owns/owned a business), family support (e.g., positive reactions), perception of motives (e.g., higher earnings) and barriers (e.g., insufficient/lack of financial resources), entrepreneurship education and training (e.g., entrepreneurship and business administration courses) or entrepreneurial disposition (e.g., a well-developed sense of confidence) [31]. EI is a function of entrepreneurial exposure which encompasses two dimensions: first, the student runs or not his/her own business; and second, the student is or not the son/daughter of an entrepreneur who runs a business [32]. Both dimensions emphasize the students' need of acquiring business experience (BE). Thus, several studies have recently shown that exposure to business activities, through family and direct experience, positively influences students' EI [33].

Against this background, the paper aims to present and analyze the relationship between BE and EI in the case of final-year university students. In order to accomplish this purpose, the authors resorted to a quantitative research method, applied within a Romanian HEI. The remainder of the paper is structured as follows: Section 2 describes the materials and methods. Results and discussions are illustrated in Section 3. Section 4 presents the conclusions of the paper and its limitations.

2. Materials and Methods

2.1. Data Collection and Validation

The research at the basis of this paper is exploratory by nature. In their scientific investigation, the authors resorted to a standardized questionnaire, developed by the authors and tested on 15 subjects, this one being finalized following a pilot survey. The interviews based on the questionnaire have been conducted by self-completion, at the headquarters of the Faculty of Administration and Business (FAB), University of Bucharest, in a dedicated location, during the second academic semester of year 2020, in the period 24 February–10 March 2020. Before the completion of the questionnaire, students were informed about the scientific nature of this study and agreed to participate in it.

Given the small number of students, specialized in economic sciences, being in the final year of study at FAB (considered to be a benchmark for our analysis in terms of acquirement of the necessary knowledge laying the premises for initiating an entrepreneurial process), the authors conducted a thorough research, inviting all students undergoing their third year of study (final-year) within the business administration (159) and marketing (105) bachelor programs to respond to the related questions. Following the checking of the questionnaires, in terms of clarity and consistency of answers, subsequent to their completion, a number of the 257 have been validated, 7 being, instead, invalidated. The data were gathered from the entire studied population. As a sampling technique, the authors used a convenience sample relative to the entire population of students within Romanian economic faculties. The reasons for using this technique were the limited research resources (e.g., financial, human) and the type of research (exploratory).

In the analysis of quantitative data, "the statistical significance should not be computed for the observed relationships based on statistical data collected from the entire populations. Remember that the statistical significance measure the probability for the relationships between variables to be only the result of sampling errors; if there are no samples, there are no sampling errors" [34] (p. 620). For this reason, the significance tests are conventionally applied in this paper, considering the respondents (interviewed students) as a sample for the entire population of students in the economic field, undergoing the final year of study in Romania. By analyzing the collected data based on the statistical software SPSS 17.0, the authors intend to develop hypotheses for a broader research on the entire population of students within Romanian economic faculties.

2.2. Objectives of the Study and Deriving Hypotheses to Be Tested

Before effectively starting the non-parametric analysis of our data the authors should firmly set the study main objective and sub-objectives, opening the road for the formulation of the research hypotheses. The key objective of the paper is the identification, based on a mainly symmetric, no cause-effect, analysis, of the existence of any contingency relationship between the BE of individuals, represented herein by students, and their EI.

Sub-Objective 1: the identification of any possible contingency relationship between students' EI and their family entrepreneurial background (Question 1–Question 2).

Hypothesis 1 (H1). *There is certain level of association between the EI of students and their family entrepreneurial background.*

Sub-Objective 2: the identification of any possible contingency relationship between students' EI in a given field of activity and their family entrepreneurial background in that specific field (Question 1.1–Question 2.1).

Hypothesis 2 (H2). *There is certain level of association between the EI of students in a given field of activity and their family entrepreneurial background in that specific field.*

Sub-Objective 3: the identification of any possible contingency relationship between students' EI and their level of BE in the matter (Question 2–Question 3).

Hypothesis 3 (H3). *There is certain level of association between the EI of students and their level of BE.*

In order to clearly understand the designed associations between variables, the authors briefly render below the six selected questions of the questionnaire, involved in the above-mentioned correlational approach:

- Q1. Do you have a family business? 1. yes/2. no, but I had in the past/3. no and I never had
- Q1.1. Which was/is the field of activity of the business?
  1. industry/2. trade/3. tourism/4. financial/banking/5. education/6. agriculture/7. other . . .
- Q2. Do you intend to initiate yourself a business during the next 3 years?
  1. yes/2. no/3. I do not know
- Q2.1. What field of activity would you be interested in?
  1. industry/2. trade/3. tourism/4. financial/banking/5. education/6. agriculture/7. other . . .
- Q3. How would you appreciate, on a 1 to 5 scale, your BE?
  1. at all/very low/2. low/3. neither low, nor high 4. high/5. very high
- D1. Biological gender of the respondent:
  1. male/2. female/3. non-binary

2.3. Preliminary Representation of Associative Data

In order to have a preliminary perspective on the way data are associated with one another, considering the sub-objectives established for the purpose of the present research, resulting in the above-identified hypotheses of the paper, the authors decided to make an incursion into the representation of the same, highly suggestive not only for the attitude, manner of thinking and intention of respondents in relation to a given issue, with the distinction male–female–non-binary (no one in this case), but also for the their analysis in relation to other possibly contingent issues.

To be more specific, the authors undertook to represent, for each and every sub-objective, separately for men and women, via the use of a control variable—the biological gender of respondents, the supposed correlation of the related pair variables considered.

Therefore, for Sub-Objective 1, the authors got the results rendered in Figure 1. A first aspect revealed by it is that most respondents, both males and females, with no significant difference, are positive as for starting their own business, irrespective of their family background in entrepreneurial activities. This is not so surprising, given that a large part of the respondents are students in the business administration specialization, a field of study highly correlated with entrepreneurship.

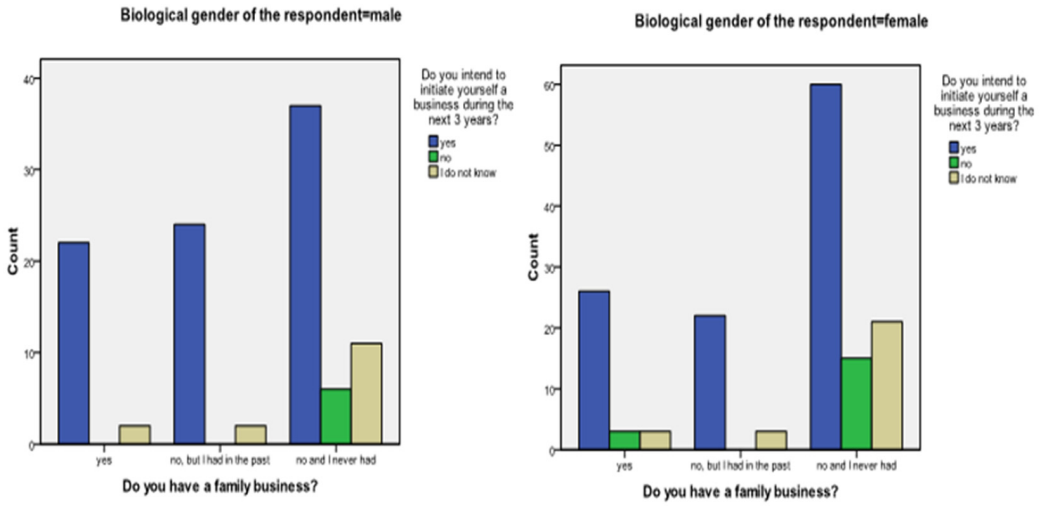

Figure 1. Association, by biological gender, of Q1 and Q2. Source: authors' own data contingency representation.

What might look somehow surprising, at first sight, is that the number of the ones not having or not having had a family business, both males and females, are the most tempted in setting up a business of their own in the near future (the next three years), while the ones having a family business at the questionnaire launching date, as concerns males, the less interested. This is, certainly, clarified when analyzing the number of respondents for each category of family business background or lack of background. In order to bring more evidence to our graphical representation, we decided to use Figure 2, helping us in identifying the ratio of each category of experienced versus non-experienced respondents, in terms of their family business history, manifesting their EI. Figure 2 outlines the fact that there are students, in all three categories, being uncertain as for their near future position as entrepreneurs on their own. This might be grounded on different reasons: either they dealt with specific problems, risks and uncertainties involved by a family business and they became more precautious and reserved in establishing a personal business, for the first two categories, or they are not experienced in setting up an individual business and they are afraid of entering this unknown world for them.

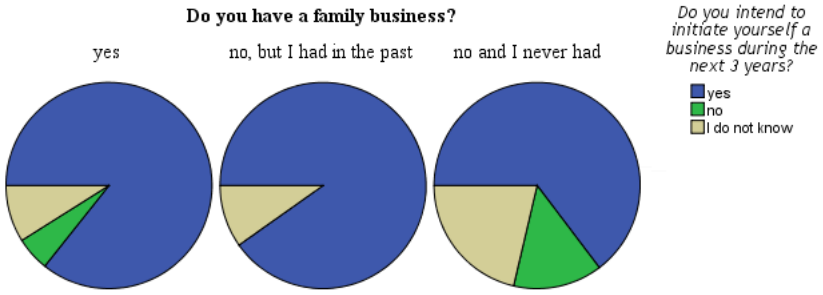

Figure 2. Association, per sample, of Q1 and Q2. Source: authors' own data contingency representation.

As concerns the reasons for rejecting the idea of establishing their own business, the supposition of total involvement in the family business can be largely considered, for the first category, this one being declined when discussing about those having had in the past a family business, who do not reject at all the idea of initiating a business, for the second category, and being indubitably mainly related, among other, to financial, bureaucracy-related issues or to the lack of experience in the matter, for the last category. Therefore, seeing that more experienced the individuals, more likely to initiate a business of their own, we can draw a brief preliminary conclusion concerning the contingency between the family BE and students' EI.

Given Sub-Objective 2, the authors decided to consider the association reflected by Figure 3.Two issues are clearly arising from it: on one hand, the fact that most of those having had some family BE in trade, both males and females, are interested in establishing a business also in the trade area, while for the remainder field-related family BE the decision to act as an entrepreneur mainly in the same area is not so obvious and, on the other hand, the fact that women are rather interested than men in considering a personal business environment close to the family business pattern. As for this last statement, we see how men will mainly resort to family business known fields, in their intention to set up an individual business, just as concerns trade and tourism and, at a lower extent, industry, being more prepared to be fully on their own, while women, save for the financial and banking area, will consider the family business area, more than other options (for trade) or close to parity with other alternatives (for the rest of them), when making such decision, being, obviously, more conservative.

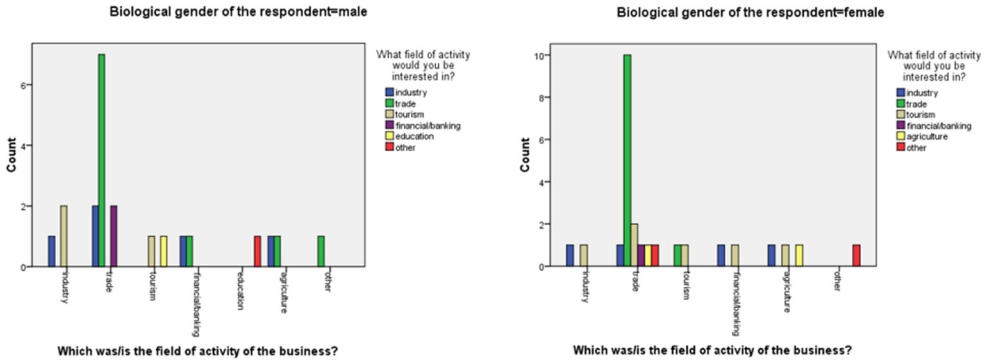

Figure 3. Association, by biological gender, of Q1.1 and Q2.1. Source: authors' own data contingency representation.

Given the above-mentioned, we could anticipate some association of the related items for the given sample as a whole, however raising some questions as for their separate association in terms of males and females. Going forward to the achievement of Sub-Objective 3, we obtained the output revealed in Figure 4. By analyzing it, we are tempted to say not only that women are more uncertain than men when coming about setting up their own business, but also, less interested than the latter in becoming entrepreneurs at all.

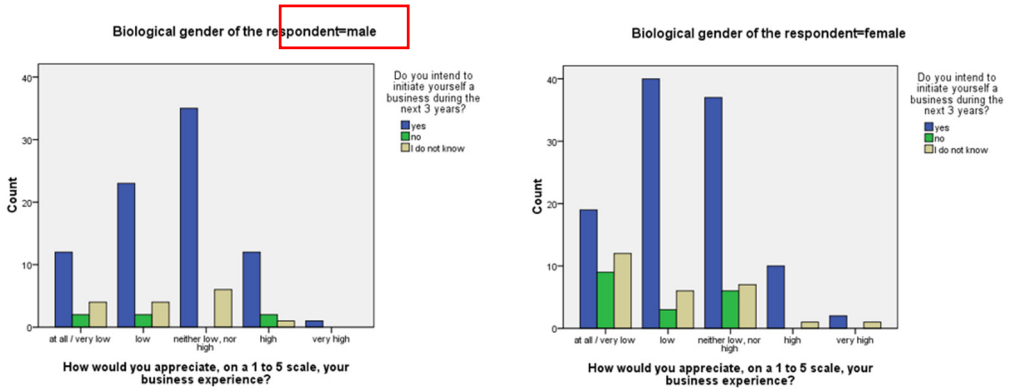

Figure 4. Association, by biological gender, of Q2 and Q3. Source: authors' own data contingency representation.

In order not to fall in the same trap as when having analyzed the graphical associative representation related to the first sub-objective, the authors undertook to reflect, both at the level of the entire sample (Figure 5) and separately for males and females (Figure 6), how many respondents, for each category of BE, would be ready to initiate a business of their own. Overall, we could state that, irrespective of the experience gathered in time by the respondents to the questionnaires, the intention to initiate a business of their own prevails over the refusal to do so or over the related uncertainties in the matter.

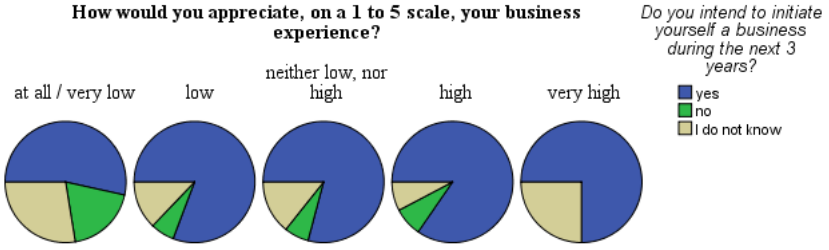

Figure 5. Association, per sample, of Q2 and Q3. Source: authors' own data contingency representation.

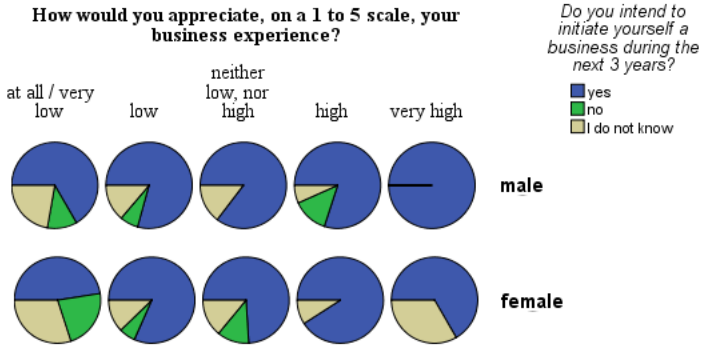

Figure 6. Association, by biological gender, of Q2 and Q3. Source: authors' own data contingency representation.

Surprisingly, however, is the fact that, at the level of the entire sample, students are more decided to establish their own affair when their experience ranges between low and high, it decreasing, as expected, when the experience is quite absent and, not at all as expected, when the experience is very high. Before going on with our interpretation of such representation, let us first take a look at Figure 6, allowing us to clearly differentiate this aspect by their separate analysis for men and women.

The surprise ceases to remain valid in the case of men, the latter being fully convinced that a personal business will be a success due to their related experience, therefore being

highly tempted to proceed in that direction, the women being, in exchange, more uncertain about their near future entrepreneurship-related actions, even if highly experienced in the business area. In the case of women, this behavior might be due, once again, beside the financial-related issues, either to the satisfaction with the current/expected position/job or to the fear of facing new challenges. As for business inexperienced males and females, the latter are also more uncertain than the former when coming about establishing a personal business, as well as more convinced of not establishing the same, aspect specific to women, considering their rather precautious nature. Based on visual clues, we could figure out a low association of such items for the given sample as a whole, while questioning, as for the previous sub-objective, its individual approach.

2.4. Overview on the Appropriate Non-Parametric Instruments

Given that, according to the type of answers corresponding to the questions addressed to our respondents, we mainly deal with nominal data or with a mix of nominal and ordinal data in terms of correlational analysis, we should definitely consider the contingency coefficient χ^2. Such a coefficient, also known as the Pearson Chi-square test [35], useful in all cases when we study two nominal variables (including dichotomous variables) or a nominal variable and an ordinal or a scalar one, allows us to identify the contingency existing among the related variables or, otherwise said, their association, however without indicating the intensity of the same, if any.

This dimensional and non-directional coefficient, highly sensitive to the sample sizing, can be made full use by resorting also to other non-directional coefficients, revealing the contingency magnitude, such as Phi association coefficient (φ), Pearson contingency coefficient (cc) or Cramer association coefficient (v), derived from χ^2, or to Goodman and Kruskal association coefficient (λ), the latter rather used for specific prediction purposes (given the information incorporated in one variable, how much of the other one we can predict).

In terms of formulas and framework for interpretation of coefficients, the non-standardized contingency coefficient χ^2 is determined based on the computation of the squared difference between the observed frequency (O_{freq}) and the estimated frequency (E_{freq}), divided to the estimated frequency, ratio summed up for all cells arising from the intersection of z lines (i) and h columns (j) of the cross tabs. It is to be mentioned that the estimated frequency for the cross tab cells is got by dividing the total of each line (L_t), multiplied by the total of each column (C_t), to the overall total (O_t), as follows:

$$\chi^2 = \sum_{i=1}^{z}\sum_{j=1}^{h}\frac{\left(O_{freq_{ij}} - E_{freq_{ij}}\right)^2}{E_{freq_{ij}}} = \sum_{i=1}^{z}\sum_{j=1}^{h}\frac{\left(O_{freq_{ij}} - \frac{L_{t_i}\times C_{t_j}}{O_{t_{ij}}}\right)^2}{\frac{L_{t_i}\times C_{t_j}}{O_{t_{ij}}}} \quad (1)$$

Once the value of χ^2 computed, we determine, based on the degrees of freedom, the level of significance of the coefficient in relation to a given significance threshold ($p < 0.05$). However, as before-mentioned, other coefficients are provided to be used in more specific cases and for bringing additional knowledge and added value to a non-parametric research focused on at least one nominal variable.

The standardized Phi association coefficient is nothing else than the square root of the ratio between χ^2 and the number of cases (n), being also independently computable for two dichotomous variables (x and y) characterized by the presence of an individual feature (P_x or P_y) or of both features (P_{xy}) or by the absence of the same, as rendered below:

$$\varphi = \sqrt{\frac{\chi^2}{n}} \quad (2)$$

$$\varphi = \frac{P_{xy} - P_x \times P_y}{\sqrt{P_x(1-P_x) \times P_y(1-P_y)}} \tag{3}$$

The cc contingency coefficient, in fact the Sakoda adjusted variant of the φ association coefficient, applicable even if the variables are not dichotomous, is computed based on the formula:

$$cc = \sqrt{\frac{\chi^2}{\chi^2 + n}} \tag{4}$$

In the same line, the v Cramer association coefficient, useful for multi-categorical, polychotomous variables, is determined in relation to χ^2, considering also the number of cases and the minimum between the number of lines (no_l) and the number of columns (no_c) of the cross tabs:

$$\nu = \sqrt{\frac{\chi^2}{n[min(no_l, no_c) - 1]}} \tag{5}$$

All these coefficients which, beside others, originate in χ^2, are basically used for determining, after having identified the χ^2-based statistical significance of the association, the intensity of the latter, if, indeed, such association does exist.

Before going forward, we would like to mention one more coefficient, also recommended when dealing with the analysis of a dichotomous to dichotomous variable association, dichotomous to nominal variable association, dichotomous to ordinal variable association, dichotomous to scalar variable association, nominal to nominal variable association, nominal to ordinal variable association or nominal to scalar variable association, especially when our intention is to see how much of a variable we can be predicted by using another one. We talk about the Goodman and Kruskal association coefficient, computed as the ratio between the cross tab maximum total frequency per column j ($freq_j$) subtracted from the summed up maximum frequency per line i ($freq_i$) and the same maximum total frequency per column j subtracted from the number of cases:

$$\lambda = \frac{[\sum_{i=1}^{z} max(freq_i)] - max(freq_j)}{n - max(freq_j)} \tag{6}$$

This non-directional coefficient, taking values ranging from zero to one, is analyzed from the perspective of its significance, based on the z statistics, considering all the above-depicted elements plus the reference lambda (λ_r), selected in compliance with the purpose of the research and the intention and beliefs of the authors, such statistics being determined as:

$$z_\lambda = \frac{(\lambda - \lambda_r)[n - max(freq_j)]\sqrt{[n - max(freq_j)]}}{\sqrt{[n - \sum_{i=1}^{z} max(freq_i)]\{[\sum_{i=1}^{z} max(freq_i)] + max(freq_j) - 2[\sum_{i=1}^{z} max(freq_i)]\}}} \tag{7}$$

It is to be mentioned that we have specifically resorted to these coefficients considering their implementation in SPSS 17.0, the parametric and non-parametric analysis software used for carrying out this particular research.

3. Results and Discussions

As result of the implementation of the above-depicted non-parametric instruments in the statistical software SPSS 17.0, we obtained related outputs for each and every established objective, as rendered and construed hereafter. Looking backwards, at Point 2.3 of this paper (Preliminary Representation of Associative Data), we can make a comparative analysis as for what the graphical representation has suggested us, at first sight, and what the non-parametric techniques, more incontestable by their nature, in case of an appropriate use of the same, provide us with.

Taking one by one the sub-objectives initially set in order to reach the main objective of the paper, we succeeded in outlining a clear image of the real state of affairs. It is

important to mention, from the very beginning, the fact that we decided, for the purpose of increasing the accuracy of results, to use for Q2 (*Do you intend to initiate yourself a business during the next three years?*), when analyzing the possible association with Q1 (*Do you have a family business?*), with Q3 (*How would you appreciate, on a one to five scale, your BE?*) and with Q4.1–10 (*How much experience do you have in planning a business/legal issues/managing the staff/accounting/financial management/marketing/sales/supplies/getting finances for a business/technical issues?*), only the *yes/no* answers, therefore ignoring the *I do not know* variant and reducing, as a consequence, the studied valid cases.

Thus, as concerns the first sub-objective (associating Q1–Q2), we got the results rendered in Tables 1–5. Table 1 represents, as indicated by its title, the case processing summary, revealing the initial sample size of 257 respondents, reduced by 16.3% mainly due to the previously mentioned elimination of the third variant of answer to Q2, therefore arising in a validated sample of 215 students.

Table 1. Case processing summary, per sample, for Q1 and Q2.

Cases					
Valid		**Missing**		**Total**	
N	**Percent**	**N**	**Percent**	**N**	**Percent**
215	83.7%	42	16.3%	257	100.0%

Source: authors' own output generated by SPSS.

Table 2. Cross tabulation, per sample and by biological gender, for Q1 and Q2.

	D1			**Q2**		**Total**
				Yes	**No**	
sample	Q1	yes	Count	48	3	51
			Expected Count	45.3	5.7	51.0
			Residual	2.7	−2.7	
			Std. Residual	0.4	−1.1	
		no, but I had in the past	Count	46	0	46
			Expected Count	40.9	5.1	46.0
			Residual	5.1	−5.1	
			Std. Residual	0.8	−2.3	
		no and I never had	Count	97	21	118
			Expected Count	104.8	13.2	118.0
			Residual	−7.8	7.8	
			Std. Residual	−0.8	2.2	
	Total		Count	191	24	215
			Expected Count	191.0	24.0	215.0
male	Q1	yes	Count	22	0	22
			Expected Count	20.5	1.5	22.0
			Residual	1.5	−1.5	
			Std. Residual	0.3	−1.2	
		no, but I had in the past	Count	24	0	24
			Expected Count	22.4	1.6	24.0
			Residual	1.6	−1.6	
			Std. Residual	0.3	−1.3	
		no and I never had	Count	37	6	43
			Expected Count	40.1	2.9	43.0
			Residual	−3.1	3.1	
			Std. Residual	−0.5	1.8	
	Total		Count	83	6	89
			Expected Count	83.0	6.0	89.0

Table 2. *Cont.*

D1				Q2		Total
				Yes	No	
female	Q1	yes	Count	26	3	29
			Expected Count	24.9	4.1	29.0
			Residual	1.1	−1.1	
			Std. Residual	0.2	−0.6	
		no, but I had in the past	Count	22	0	22
			Expected Count	18.9	3.1	22.0
			Residual	3.1	−3.1	
			Std. Residual	0.7	−1.8	
		no and I never had	Count	60	15	75
			Expected Count	64.3	10.7	75.0
			Residual	−4.3	4.3	
			Std. Residual	−0.5	1.3	
	Total		Count	108	18	126
			Expected Count	108.0	18.0	126.0

Table 3. Chi-square tests, per sample and by biological gender, for Q1 and Q2.

D1		Value	df	Asymp. Sig. (2-Sided)
sample	Pearson Chi-Square	12.451 [a]	2	0.002
	Likelihood Ratio	17.122	2	0.000
	Linear-by-Linear Association	7.501	1	0.006
	Number of Valid Cases	215		
male	Pearson Chi-Square	6.883 [b]	2	0.032
	Likelihood Ratio	9.194	2	0.010
	Linear-by-Linear Association	5.504	1	0.019
	Number of Valid Cases	89		
female	Pearson Chi-Square	6.034 [c]	2	0.049
	Likelihood Ratio	8.998	2	0.011
	Linear-by-Linear Association	2.738	1	0.098
	Number of Valid Cases	126		

[a] 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.13. [b] Further, 3 cells (50.0%) have expected count less than 5. The minimum expected count is 1.48. [c] A total of 2 cells (33.3%) have expected count less than 5. The minimum expected count is 3.14. Source: authors' own output generated by SPSS.

Table 4. Symmetric measures, per sample and by biological gender, for Q1 and Q2.

D1			Value	Approx. Sig.
sample	Nominal by Nominal	Phi	0.241	0.002
		Cramer's V	0.241	0.002
		Contingency Coefficient	0.234	0.002
	Number of Valid Cases		215	
male	Nominal by Nominal	Phi	0.278	0.032
		Cramer's V	0.278	0.032
		Contingency Coefficient	0.268	0.032
	Number of Valid Cases		89	
female	Nominal by Nominal	Phi	0.219	0.049
		Cramer's V	0.219	0.049
		Contingency Coefficient	0.214	0.049
	Number of Valid Cases		126	

Source: authors' own output generated by SPSS.

Table 5. Directional measures, per sample and by biological gender, for Q1 and Q2.

D1				Value	Asymp. Std. Error [a]	Approx. T	Approx. Sig.
sample	Nominal by Nominal	Lambda	Symmetric	0.000	0.000	.[b]	.[b]
			Q1 Dependent	0.000	0.000	.[b]	.[b]
			Q2 Dependent	0.000	0.000	.[b]	.[b]
male	Nominal by Nominal	Lambda	Symmetric	0.000	0.000	.[b]	.[b]
			Q1 Dependent	0.000	0.000	.[b]	.[b]
			Q2 Dependent	0.000	0.000	.[b]	.[b]
female	Nominal by Nominal	Lambda	Symmetric	0.000	0.000	.[b]	.[b]
			Q1 Dependent	0.000	0.000	.[b]	.[b]
			Q2 Dependent	0.000	0.000	.[b]	.[b]

[a] Not assuming the null hypothesis. [b] Cannot be computed because the asymptotic standard error equals zero. Source: authors' own output generated by SPSS.

The first interesting results, rendering the internal analysis structure, are outlined in Table 2, reflecting some residuals, namely differences between the observed number of cases and the estimated number of the same, the latter indicating the number of cases expected if there was no association between the variables concerned, therefore suggesting a certain level of contingency between Q1 and Q2. However, the standardized form of residuals, computed as ratio between the gross residual value and its standard deviation, ranges between 0.2 and 2.3, thus restraining our belief as for a strong association between the studied items.

Analyzing from a statistical perspective, via the χ^2 contingency coefficient, the association relationship between the above-mentioned two variables, we could state that this is statistically significant, for two degrees of freedom, both for the entire selected sample, at a significance level $p < 0.01$, and, individually, for males and females, at a significance level $p < 0.01$, for the former, and $p < 0.05$, for the latter, as clearly revealed by Table 3, such results being also supported by the likelihood ratio and linear-by-linear association tests.

Table 4 is intended to render the results related to Phi association coefficient (φ), Cramer association coefficient (v) and Pearson contingency coefficient (cc), all these coefficients, as depicted above, originating in Pearson Chi-squared test (χ^2) and being mainly destined for the identification of the intensity of the association, if any, such intensity not being available when computing χ^2. As expected, the results provided by Table 3 are confirmed by Table 4, indicating a statistically significant low contingency as for the association between the studied variables, ranging between 0.214 and 0.219, for females, 0.268 to 0.278, for males, and 0.234 to 0.241, for the entire selected sample.

Although we could figure out the slightly forced use, in the present case, of Goodman and Kruskal association coefficient (λ), destined for making predictions related to how much of a variable can be explained by having information incorporated in another variable, potentially associated with the former, we decided, however, to take a look at the arising results, rendered in Table 5. Being a directional coefficient, the output reflects both cases when Q1 and Q2 would be the dependent variable. Normally, we are interested in how much of the EI of students in the near future can be predicted when being acquainted with their family entrepreneurial background, in such case our dependent variable being Q2. However, this becomes subsidiary information given that, as the related output suggests, no prediction can be made in relation to our variables.

Therefore, as indicated also in Point 2.3 of the paper, the authors certify their conclusion concerning the existence of a contingency relationship between the family BE and the EI of students, with the additional information that such contingency has a low intensity, of about 0.241 at the level of the entire selected sample, however being a significant association from a statistical perspective, at a threshold of 99%. The result is in line with other researchers, which confirm that the family entrepreneurial background increases the students' EI [36–38].

The second sub-objective (associating Q1.1–Q2.1) was also approached with specific non-parametric instruments, resulting in Tables 6–10. The results revealed by Table 6 might look somehow strange, the initial sample size, of 257 respondents, being decreased with more than 81%, up to 48 respondents. However, this is justifiable, mainly given the automatically elimination of the answers of those not having or not having ever had a family business, to be in the position to talk about it in terms of family business filed of activity.

Table 6. Case processing summary, per sample, for Q1.1 and Q2.1.

Cases					
Valid		**Missing**		**Total**	
N	**Percent**	**N**	**Percent**	**N**	**Percent**
48	18.7%	209	81.3%	257	100.0%

Source: authors' own output generated by SPSS.

Table 7. Cross tabulation, per sample and by biological gender, for Q1.1 and Q2.1.

				Q2.1							
		D1		**Industry**	**Trade**	**Tourism**	**Financial/Banking**	**Education**	**Agriculture**	**Other**	**Total**
sample	Q1.1	industry	Count	2	0	3	0	0	0	0	5
			Expected Count	0.9	2.2	0.9	0.3	0.1	0.2	0.3	5.0
			Residual	1.1	−2.2	2.1	−0.3	−0.1	−0.2	−0.3	
			Std. Residual	1.1	−1.5	2.1	−0.6	−0.3	−0.5	−0.6	
		trade	Count	3	17	2	3	0	1	1	27
			Expected Count	5.1	11.8	5.1	1.7	0.6	1.1	1.7	27.0
			Residual	−2.1	5.2	−3.1	1.3	−0.6	−0.1	−0.7	
			Std. Residual	−0.9	1.5	−1.4	1.0	−0.8	−0.1	−0.5	
		tourism	Count	0	1	2	0	1	0	0	4
			Expected Count	0.8	1.8	0.8	0.3	0.1	0.2	0.3	4.0
			Residual	−0.8	−0.8	1.3	−0.3	0.9	−0.2	−0.3	
			Std. Residual	−0.9	−0.6	1.4	−0.5	3.2	−0.4	−0.5	
		financial/banking	Count	2	1	1	0	0	0	0	4
			Expected Count	0.8	1.8	0.8	0.3	0.1	0.2	0.3	4.0
			Residual	1.3	−0.8	0.3	−0.3	−0.1	−0.2	−0.3	
			Std. Residual	1.4	−0.6	0.3	−0.5	−0.3	−0.4	−0.5	
		education	Count	0	0	0	0	0	0	1	1
			Expected Count	0.2	0.4	0.2	0.1	0.0	0.0	0.1	1.0
			Residual	−0.2	−0.4	−0.2	−0.1	0.0	0.0	0.9	
			Std. Residual	−0.4	−0.7	−0.4	−0.3	−0.1	−0.2	3.8	
		agriculture	Count	2	1	1	0	0	1	0	5
			Expected Count	0.9	2.2	0.9	0.3	0.1	0.2	0.3	5.0
			Residual	1.1	−1.2	0.1	−0.3	−0.1	0.8	−0.3	
			Std. Residual	1.1	−0.8	0.1	−0.6	−0.3	1.7	−0.6	
		other	Count	0	1	0	0	0	0	1	2
			Expected Count	0.4	0.9	0.4	0.1	0.0	0.1	0.1	2.0
			Residual	−0.4	0.1	−0.4	−0.1	0.0	−0.1	0.9	
			Std. Residual	−0.6	0.1	−0.6	−0.4	−0.2	−0.3	2.5	
	Total		Count	9	21	9	3	1	2	3	48
			Expected Count	9.0	21.0	9.0	3.0	1.0	2.0	3.0	48.0

Table 7. *Cont.*

		D1		Q2.1 Industry	Trade	Tourism	Financial/Banking	Education	Agriculture	Other	Total
male	Q1.1	industry	Count	1	0	2	0	0		0	3
			Expected Count	0.7	1.4	0.4	0.3	0.1		0.1	3.0
			Residual	0.3	−1.4	1.6	−0.3	−0.1		−0.1	
			Std. Residual	0.4	-1.2	2.5	−0.5	−0.4		−0.4	
		trade	Count	2	7	0	2	0		0	11
			Expected Count	2.5	5.0	1.5	1.0	0.5		0.5	11.0
			Residual	−0.5	2.0	−1.5	1.0	−0.5		−0.5	
			Std. Residual	−0.3	0.9	−1.2	1.0	−0.7		−0.7	
		tourism	Count	0	0	1	0	1		0	2
			Expected Count	0.5	0.9	0.3	0.2	0.1		0.1	2.0
			Residual	−0.5	−0.9	0.7	−0.2	0.9		−0.1	
			Std. Residual	−0.7	−1.0	1.4	−0.4	3.0		−0.3	
		financial/banking	Count	1	1	0	0	0		0	2
			Expected Count	0.5	0.9	0.3	0.2	0.1		0.1	2.0
			Residual	0.5	0.1	−0.3	−0.2	−0.1		−0.1	
			Std. Residual	0.8	0.1	−0.5	−0.4	−0.3		−0.3	
		education	Count	0	0	0	0	0		1	1
			Expected Count	0.2	0.5	0.1	0.1	0.0		0.0	1.0
			Residual	−0.2	−0.5	−0.1	−0.1	0.0		1.0	
			Std. Residual	−0.5	−0.7	−0.4	−0.3	−0.2		4.5	
		agriculture	Count	1	1	0	0	0		0	2
			Expected Count	0.5	0.9	0.3	0.2	0.1		0.1	2.0
			Residual	0.5	0.1	−0.3	−0.2	−0.1		−0.1	
			Std. Residual	0.8	0.1	−0.5	−0.4	−0.3		−0.3	
		other	Count	0	1	0	0	0		0	1
			Expected Count	0.2	0.5	0.1	0.1	0.0		0.0	1.0
			Residual	−0.2	0.5	−0.1	−0.1	0.0		0.0	
			Std. Residual	−0.5	0.8	−0.4	−0.3	−0.2		−0.2	
		Total	Count	5	0	1	0	0	0		0
			Expected Count	5.0	0.2	0.5	0.1	0.1	0.0		0.0
female	Q1.1	industry	Count	1	0	1	0		0	0	2
			Expected Count	0.3	0.8	0.5	0.1		0.2	0.2	2.0
			Residual	0.7	−0.8	0.5	−0.1		−0.2	−0.2	
			Std. Residual	1.2	−0.9	0.8	−0.3		−0.4	−0.4	
		trade	Count	1	10	2	1		1	1	16
			Expected Count	2.5	6.8	3.7	0.6		1.2	1.2	16.0
			Residual	−1.5	3.2	−1.7	0.4		−0.2	−0.2	
			Std. Residual	−0.9	1.2	−0.9	0.5		−0.2	−0.2	
		tourism	Count	0	1	1	0		0	0	2
			Expected Count	0.3	0.8	0.5	0.1		0.2	0.2	2.0
			Residual	−0.3	0.2	0.5	−0.1		−0.2	−0.2	
			Std. Residual	−0.6	0.2	0.8	−0.3		−0.4	−0.4	
		financial/banking	Count	1	0	1	0		0	0	2
			Expected Count	0.3	0.8	0.5	0.1		0.2	0.2	2.0
			Residual	0.7	−0.8	0.5	−0.1		−0.2	−0.2	
			Std. Residual	1.2	−0.9	0.8	−0.3		−0.4	−0.4	
		agriculture	Count	1	0	1	0		1	0	3
			Expected Count	0.5	1.3	0.7	0.1		0.2	0.2	3.0
			Residual	0.5	−1.3	0.3	−0.1		0.8	−0.2	
			Std. Residual	0.8	−1.1	0.4	−0.3		1.6	−0.5	
		other	Count	0	0	0	0		0	1	1
			Expected Count	0.2	0.4	0.2	0.0		0.1	0.1	1.0
			Residual	−0.2	−0.4	−0.2	0.0		−0.1	0.9	
			Std. Residual	−0.4	−0.7	−0.5	−0.2		−0.3	3.3	
		Total	Count	4	11	6	1		2	2	26
			Expected Count	4.0	11.0	6.0	1.0		2.0	2.0	26.0

Source: authors' own output generated by SPSS.

Table 8. Chi-square tests, per sample and by biological gender, for Q1.1 and Q2.1.

D1		Value	df	Asymp. Sig. (2-Sided)
sample	Pearson Chi-Square	60.591 [a]	36	0.006
	Likelihood Ratio	43.559	36	0.181
	Linear-by-Linear Association	2.156	1	0.142
	Number of Valid Cases	48		
male	Pearson Chi-Square	50.111 [b]	30	0.012
	Likelihood Ratio	32.393	30	0.349
	Linear-by-Linear Association	0.084	1	0.773
	Number of Valid Cases	22		
female	Pearson Chi-Square	28.639 [c]	25	0.279
	Likelihood Ratio	23.723	25	0.535
	Linear-by-Linear Association	2.788	1	0.095
	Number of Valid Cases	26		

[a] A total of 46 cells (93.9%) have expected count less than 5. The minimum expected count is 0.02. [b] A total of 41 cells (97.6%) have expected count less than 5. The minimum expected count is 0.05. [c] Further, 35 cells (97.2%) have expected count less than 5. The minimum expected count is 0.04. Source: authors´ own output generated by SPSS.

Table 9. Symmetric measures, per sample and by biological gender, for Q1.1 and Q2.1.

D1			Value	Approx. Sig.
sample	Nominal by Nominal	Phi	1.124	0.006
		Cramer's V	0.459	0.006
		Contingency Coefficient	0.747	0.006
	Number of Valid Cases		48	
male	Nominal by Nominal	Phi	1.509	0.012
		Cramer's V	0.675	0.012
		Contingency Coefficient	0.834	0.012
	Number of Valid Cases		22	
female	Nominal by Nominal	Phi	1.050	0.279
		Cramer's V	0.469	0.279
		Contingency Coefficient	0.724	0.279
	Number of Valid Cases		26	

Source: authors' own output generated by SPSS.

Table 10. Directional measures, per sample and by biological gender, for Q1.1 and Q2.1.

D1				Value	Asymp. Std. Error [a]	Approx. T	Approx. Sig.
sample	Nominal by Nominal	Lambda	Symmetric	0.188	0.091	1.864	0.062
			Q1.1 Dependent	0.095	0.111	0.822	0.411
			Q2.1 Dependent	0.259	0.115	2.022	0.043
male	Nominal by Nominal	Lambda	Symmetric	0.348	0.139	2.059	0.039
			Q1.1 Dependent	0.364	0.145	2.211	0.027
			Q2.1 Dependent	0.333	0.192	1.483	0.138
female	Nominal by Nominal	Lambda	Symmetric	0.160	0.100	1.472	0.141
			Q1.1 Dependent	0.000	0.141	0.000	1.000
			Q2.1 Dependent	0.267	0.114	2.174	0.030

[a] Not assuming the null hypothesis. Source: authors' own output generated by SPSS.

The cross tabulation, per sample and by biological gender—Table 7, that should be analyzed having in mind the quite low number of respondents, indicates, as in the previous case, the existence of certain residuals and, hence, the manifestation of some degree of contingency between Q1.1 and Q2.1 Once again, the standardized form of residuals,

that, overall, oscillates somewhere around the unitary value, announces some association between our variables.

The approach of χ^2 contingency coefficient, in Table 8, indicates, without revealing its intensity, a relationship of association between the above-mentioned two variables, statistically significant for the entire selected sample, at a significance level $p < 0.01$, and, individually, for males, at a significance level $p < 0.05$. Instead, such discussed association relationship loses its statistical significance when dealing with females. However, what raises some doubts is the lack of support, in terms of statistical significance, provided, for all three cases, by the likelihood ratio and linear-by-linear association tests.

In Table 9, we encounter the results generated for φ association coefficient, v association coefficient and cc contingency coefficient, all of them revealing both the intensity of the supposed association and the significance level. With the same levels of statistical significance as in Table 8, previously logically assumed given the fact that such coefficients are nothing else but "descendants" of χ^2, deriving from the latter, Table 9 brings us additional knowledge, indicating also the intensity of the association, if any, intensity not captured by χ^2.

Ignoring the φ coefficient, given its irrelevance when not dealing with dichotomous data, resulting herein in aberrant values, we ascertain a moderate to strong contingency of the studied variables, of 0.459, respectively 0.747, for the entire selected sample, and of 0.675, respectively 0.834, for males, the female case being let aside, due to statistically insignificance-related reasons.

As previously mentioned, when having approached the first sub-objective, we resort also to Goodman and Kruskal predictable association coefficient (λ), getting the results rendered in Table 10. This time too, the authors consider, given the fact that lambda is a directional coefficient, only one case of dependency of the two, for each section: entire selected sample, males and females, as we are interested in finding out how much of the EI of students in a given field of activity, in the near future, can be predicted when being acquainted with their family entrepreneurial background in that specific field, in such situation our dependent variable being Q2.1.

We remark, as concerns the entire selected sample, a statistically significant λ, at a significance level $p < 0.05$, suggesting that we can state, with less than a 5% chance to be wrong, that 25.9% of the EI of students in a given field of activity in the near future can be predicted when knowing their family entrepreneurial background in that specific field, a similar result being identified also for females, for males it being, in exchange, ignored, due to its statistical insignificance. Once again, the conclusion the authors have drawn at Point 2.3 of the present paper, that there would be some association of the related items for the given sample as a whole, however raising some questions as for their separate association, for males and females, is confirmed by the related non-parametric study, therefore making us outline the existence of a moderate to strong contingency relationship between the family entrepreneurial background in a specific field and the EI of students in that specific field, of 0.459 to.747, at a significance level $p < 0.01$. This is in line with other related studies [30,33].

The third sub-objective (associating Q2–Q3) was dealt with so as to converge towards the main objective of the paper, the arising output covering Tables 11–15. Table 11 shows us the number of valid cases, namely 215 respondents out of a total of 257, the difference between the two being due to both the previously mentioned elimination of the third variant of answer to Q2 and to the impossibility of the respondents to appreciate the state of affairs as for their level of experience. The residuals displayed by Table 12, reaching, in their standardized form, values between 0.1 and 2.9, make us reflect to some contingency between Q2 and Q3, such results being subject to a subsequent confirmation or information based on the association coefficient-based analysis.

Table 11. Case processing summary, per sample, for Q2 and Q3.

Cases					
Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
215	83.7%	42	16.3%	257	100.0%

Source: authors' own output generated by SPSS.

Statistically speaking, as revealed, in Table 13, by χ^2 contingency coefficient, the association relationship between the concerned variables is significant, for four degrees of freedom, both for the entire selected sample and, individually, for females, at a significance level $p < 0.05$, the case of men not being, instead, significant, from such perspective. Likelihood ratio and linear-by-linear association tests come to strengthen the statistical significance, for the entire selected sample and for women, and the related statistical insignificance, for men. The Phi association coefficient (φ), Cramer association coefficient (v) and Pearson contingency coefficient (cc) are displayed in Table 14, giving us some precious pieces of information about the intensity of the statistically significant associations. Considering the above-mentioned statistically significant results, we determine, as rendered in Table 14, the degree of contingency manifested at the level of the studied variables, this one being quite low, ranging between 0.231 and 0.237, for the entire selected sample, the case of women recording similar scores, around 0.285–0.298.

Table 12. Cross tabulation, per sample and by biological gender, for Q2 and Q3.

		D1		Q2		Total
				Yes	No	
sample	Q3	al all/very low	Count	31	11	42
			Expected Count	37.3	4.7	42.0
			Residual	−6.3	6.3	
			Std. Residual	−1.0	2.9	
		low	Count	63	5	68
			Expected Count	60.4	7.6	68.0
			Residual	2.6	−2.6	
			Std. Residual	0.3	−0.9	
		neither low, nor high	Count	72	6	78
			Expected Count	69.3	8.7	78.0
			Residual	2.7	−2.7	
			Std. Residual	0.3	−0.9	
		high	Count	22	2	24
			Expected Count	21.3	2.7	24.0
			Residual	0.7	−0.7	
			Std. Residual	0.1	−0.4	
		very high	Count	3	0	3
			Expected Count	2.7	0.3	3.0
			Residual	0.3	−0.3	
			Std. Residual	0.2	−0.6	
		Total	Count	191	24	215
			Expected Count	191.0	24.0	215.0
male	Q3	al all/very low	Count	12	2	14
			Expected Count	13.1	0.9	14.0
			Residual	−1.1	1.1	
			Std. Residual	−0.3	1.1	
		low	Count	23	2	25
			Expected Count	23.3	1.7	25.0
			Residual	−0.3	0.3	
			Std. Residual	−0.1	0.2	
		neither low, nor high	Count	35	0	35
			Expected Count	32.6	2.4	35.0
			Residual	2.4	−2.4	
			Std. Residual	0.4	−1.5	
		high	Count	12	2	14
			Expected Count	13.1	0.9	14.0
			Residual	−1.1	1.1	
			Std. Residual	−0.3	1.1	
		very high	Count	1	0	1
			Expected Count	0.9	0.1	1.0
			Residual	0.1	−0.1	
			Std. Residual	0.1	−0.3	

Table 12. *Cont.*

D1				Q2		Total
				Yes	No	
		Total	Count	83	6	89
			Expected Count	83.0	6.0	89.0
female	Q3	al all/very low	Count	19	9	28
			Expected Count	24.0	4.0	28.0
			Residual	−5.0	5.0	
			Std. Residual	−1.0	2.5	
		low	Count	40	3	43
			Expected Count	36.9	6.1	43.0
			Residual	3.1	−3.1	
			Std. Residual	0.5	−1.3	
		neither low, nor high	Count	37	6	43
			Expected Count	36.9	6.1	43.0
			Residual	0.1	−0.1	
			Std. Residual	0.0	−0.1	
		high	Count	10	0	10
			Expected Count	8.6	1.4	10.0
			Residual	1.4	−1.4	
			Std. Residual	0.5	−1.2	
		very high	Count	2	0	2
			Expected Count	1.7	0.3	2.0
			Residual	0.3	−0.3	
			Std. Residual	0.2	−0.5	
		Total	Count	108	18	126
			Expected Count	108.0	18.0	126.0

Source: authors' own output generated by SPSS.

Table 13. Chi-square tests, per sample and by biological gender, for Q2 and Q3.

D1		Value	df	Asymp. Sig. (2-Sided)
sample	Pearson Chi-Square	12.078 [a]	4	0.017
	Likelihood Ratio	10.359	4	0.035
	Linear-by-Linear Association	6.412	1	0.011
	Number of Valid Cases	215		
male	Pearson Chi-Square	5.200 [b]	4	0.267
	Likelihood Ratio	7.044	4	0.134
	Linear-by-Linear Association	0.426	1	0.514
	Number of Valid Cases	89		
female	Pearson Chi-Square	11.172 [c]	4	0.025
	Likelihood Ratio	11.669	4	0.020
	Linear-by-Linear Association	5.495	1	0.019
	Number of Valid Cases	126		

[a] A total of 4 cells (40.0%) have expected count less than 5. The minimum expected count is 0.33. [b] Further, 6 cells (60.0%) have expected count less than 5. The minimum expected count is 0.07. [c] A total of 4 cells (40.0%) have expected count less than 5. The minimum expected count is 0.29. Source: authors' own output generated by SPSS.

Goodman and Kruskal association coefficient (λ), meant, as before-mentioned, for bi-directionally predicting how much of a variable can be explained via another one, shows us, as indicated by Table 15, that such prediction is not statistically significant for any of the three sections considered, therefore any additional comments in this regard being useless.

Going back to Point 2.3 of the paper, when the authors have advanced the idea of the existence of a low association between Q2 and Q3, the non-parametric analysis-related results certainly support it, via the level of contingency of about 0.237 encountered for the entire selected sample, such value being statistically significant, at a threshold of 95%. Therefore, we confirm some association relationship between the EI of students and their level of BE in the matter.

Table 14. Symmetric measures, per sample and by biological gender, for Q2 and Q3.

D1			Value	Approx. Sig.
sample	Nominal by Nominal	Phi	0.237	0.017
		Cramer's V	0.237	0.017
		Contingency Coefficient	0.231	0.017
	Number of Valid Cases		215	
male	Nominal by Nominal	Phi	0.242	0.267
		Cramer's V	0.242	0.267
		Contingency Coefficient	0.235	0.267
	Number of Valid Cases		89	
female	Nominal by Nominal	Phi	0.298	0.025
		Cramer's V	0.298	0.025
		Contingency Coefficient	0.285	0.025
	Number of Valid Cases		126	

Source: authors' own output generated by SPSS.

Table 15. Directional measures, per sample and by biological gender, for Q2 and Q3.

D1				Value	Asymp. Std. Error [a]	Approx. T	Approx. Sig.
sample	Nominal by Nominal	Lambda	Symmetric	0.031	0.025	1.217	0.224
			Q3 Dependent	0.036	0.030	1.217	0.224
			Q2 Dependent	0.000	0.000	. [b]	. [b]
male	Nominal by Nominal	Lambda	Symmetric	0.033	0.022	1.430	0.153
			Q3 Dependent	0.037	0.026	1.430	0.153
			Q2 Dependent	0.000	0.000	. [b]	. [b]
female	Nominal by Nominal	Lambda	Symmetric	0.059	0.032	1.753	0.080
			Q3 Dependent	0.072	0.040	1.753	0.080
			Q2 Dependent	0.000	0.000	. [b]	. [b]

[a] Not assuming the null hypothesis. [b] Cannot be computed because the asymptotic standard error equals zero. Source: authors' own output generated by SPSS.

Considering the results obtained for the three sub-objectives depicted above, namely the not so high but statistically significant contingency relationship between the EI of students and their family entrepreneurial background (Q1–Q2), the medium to high contingency relationship between the intention of students to establish a business of their own in a given field of activity and their family entrepreneurial background in that specific field (Q1.1–Q2.1), respectively the existing contingency relationship between the EI of students and their level of BE in the matter (Q2–Q3), the last two also statistically significant at levels not exceeding $p < 0.05$, we could certainly reject, for all three cases, the statistical null hypothesis saying that there is no association between the target variables, admitting the alternative hypotheses, identified by us as H1–H3, therefore, converging towards the achievement of the main objective of the paper: the identification, based on a mainly symmetric, no cause-effect, analysis, of the existence of a contingency relationship between students' BE and their EI, in line with previously carried out research [15,30,33,39–44].

This study leads to several practical implications for HEIs. Firstly, HEIs should increase their support and promotion of entrepreneurship inside and outside their academic environment, through investments in new teaching methods, up-to-date business and entrepreneurship courses and case studies and modern technologies. Secondly, HEIs may establish campus-based hubs and incubators from which university students can launch their start-ups. Thirdly, HEIs should strengthen their relationships with various stakeholders, such as businessmen, entrepreneurs or companies, which can assist university students to expand their BE and EI through seminars, trainings and internships. In this respect, the University of Bucharest has founded and developed its own entrepreneurial

hub (UNIHUB) that has delivered and is delivering entrepreneurial projects, internships, mentorships, consultancy, trainings and summer schools for all of its students [45]. Its teachers, especially from FAB, have updated case studies related to entrepreneurial activity. In addition, UNIHUB has organized several entrepreneurial events that provided its students the opportunity to meet successful businessmen and entrepreneurs, such as: "The Entrepreneurship Week".

4. Conclusions

Since entrepreneurship has become an engine of economic growth and development, the interest that surrounds it has increased exponentially in the literature. Numerous researchers considered EI as a predictor of start-ups creation, and therefore, an important indicator of entrepreneurship.

From a theoretical point of view, this paper contributes to the enrichment of the literature on students' EI in HEIs. It presents the concept of EI of final-year university students by taking into consideration that their BE can be obtained both as employees and entrepreneurs. In this respect, the paper highlights the existence of a contingency relationship between BE and EI of final-year university students. The novelty, in econometric modeling terms, consists in testing the contingency/correlational relationships at the level of some variables that have not been quantitatively studied by other authors in such form (this arising also from the fact that the data have been obtained based on a questionnaire created by the authors for attaining the purpose of this paper). In addition, given the restrictions specified in the paper, imposed by the impossibility of using any type of related coefficients, the authors resorted to a mix of the ones acceptable in such context, therefore, reinforcing the stability of the results obtained and the representativeness of the associative analysis performed.

From a practical point of view, students' EI can be stimulated and encouraged by a deeper involvement of HEIs in entrepreneurship education. Thus, HEIs may create a challenging entrepreneurial academic environment through a plethora of measures, such as establishing university spin-offs and entrepreneurial hubs delivering new case studies from the entrepreneurial activity or creating closer relationships with their specific external stakeholders (e.g., entrepreneurs, businessmen). As shown in our study, these measures may strengthen students' EI and, therefore, lead to start-ups creation.

Since this study was grounded on the hypothesis that BE influences the EI of final-year university students, there are some certain limitations. This study shows that there is a relative small number of students which acquired BE during their studies. It might be relevant to expand the research on students enrolled in all years of study, as it has been based exclusively on final-year university students. In addition, other authors may identify and analyze other factors that influence the EI of university students and their possible correlations, such as the measurement of the influence of HEIs incubators and hubs on the students' willingness to start a business. Another limitation of this study is given by the fact that it was carried out before the current pandemic context. Thus, the deployment of a research during or after the COVID-19 pandemic might be beneficial. Last, but not least, the size and the structure of the sample are representative only for two specializations within the FAB, University of Bucharest. A larger and more representative sample should be analyzed in future research.

Author Contributions: Conceptualization, S.-G.T.; methodology, M.B.; software, O.S.H.; validation, O.S.H. and M.B.; formal analysis, O.S.H.; investigation, S.-G.T. and M.B.; resources, S.-G.T.; data curation, O.S.H. and S.-G.T.; writing—original draft preparation, O.S.H. and S.-G.T.; writing—review and editing, O.S.H., M.B. and S.-G.T.; visualization, O.S.H.; supervision, S.-G.T.; project administration, S.-G.T. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data sets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Hisrich, R.D.; Ramadani, V. *Effective Entrepreneurial Management: Strategy, Planning, Risk Management, and Organization*; Springer International Publishing: Cham, Switzerland, 2017.
2. Toma, S.-G.; Grigore, A.-M.; Marinescu, P. Economic development and entrepreneurship. *Procedia Econ. Financ.* **2014**, *8*, 436–443. [CrossRef]
3. Frederick, H.; O'Connor, A.; Kuratko, D.F. *Entrepreneurship*, 4th ed.; Cengage Learning Australia: Victoria, Australia, 2016.
4. Leitão, J.; Baptista, R. *Public Policies for Fostering Entrepreneurship*; Springer: New York, NY, USA, 2009.
5. European Commission. *Green Paper on Entrepreneurship*; European Commission: Brussels, Belgium, 2003.
6. European Commission. *Action Plan: The European Agenda for Entrepreneurship*; European Commission: Brussels, Belgium, 2004.
7. Sanders, M.; Marx, A.; Stenkula, M. (Eds.) *The Entrepreneurial Society*; Springer: Berlin/Heidelberg, Germany, 2020.
8. European Commission. *Entrepreneurship 2020 Action Plan: Reigniting the Entrepreneurial Spirit in Europe*; European Commission: Brussels, Belgium, 2013.
9. Carayannis, E.; Jones, P.; Liargovas, P.; Apostolopoulos, N. Entrepreneurship and the European Union policies after 60 years of common European vision: Regional and spatial perspectives. *J. Small Bus. Entrep.* **2020**, *32*, 517–522. [CrossRef]
10. European Commission. *EntreComp: The Entrepreneurship Competence Framework*; European Commission: Brussels, Belgium, 2016.
11. Bacigalupo, M.; Kampylis, P.; Punie, Y.; Van den Brande, G. *EntreComp: The Entrepreneurship Competence Framework*; Publication Office of the European Union: Luxembourg, 2016.
12. Carlsson, B. Universities, entrepreneurship and public policy: Lessons from abroad. In *Economic Development Through Entrepreneurship: Government, University and Business Linkages*; Shane, S., Ed.; Edward Elgar: Cheltenham, UK, 2005; pp. 198–218.
13. Sharma, L. A review of the role of HEI's in developing academic entrepreneurship: An evaluate study of Uttarakhand, India. *J. Entrep. Emerg. Econ.* **2015**, *7*, 168–188. [CrossRef]
14. Piperopoulos, P. Could higher education programmes, culture and structure stifle the entrepreneurial intentions of students? *J. Small Bus. Enterp. Dev.* **2012**, *3*, 461–483. [CrossRef]
15. Birch, C.; Lichy, J.; Mulholland, G.; Kachour, M. An enquiry into potential graduate entrepreneurship: Is higher education turning off the pipeline of graduate entrepreneurs? *J. Manag. Dev.* **2017**, *36*, 743–760. [CrossRef]
16. Urban, B. *Frontiers in Entrepreneurship*; Springer: Berlin/Heidelberg, Germany, 2010.
17. Shane, S. *Academic Entrepreneurship: University Spinoffs and Wealth Creation*; Edward Elgar: Cheltenham, UK, 2004.
18. Schwarzkopf, C. *Fostering Innovation and Entrepreneurship: Entrepreneurial Ecosystem and Entrepreneurial Fundamentals in the USA and Germany*; Springer Fachmedien: Wiesbaden, Germany, 2016.
19. Peris-Ortiz, M.; Gómez, J.A.; Vélez-Torres, F.; Rueda-Armengot, C. (Eds.) *Education Tools for Entrepreneurship: Creating an Action-Learning Environment through Educational Learning Tools*; Springer International Publishing: Cham, Switzerland, 2016.
20. Aldrich, H.E. The emergence of entrepreneurship as an academic field: A personal essay on institutional entrepreneurship. *Res. Policy* **2012**, *41*, 1240–1248. [CrossRef]
21. Landström, H.; Harirchi, G.; Åström, F. Entrepreneurship: Exploring the knowledge base. *Res. Policy* **2012**, *41*, 1154–1181. [CrossRef]
22. Manimala, M.J.; Thomas, P. (Eds.) *Entrepreneurship Education: Experiments with Curriculum, Pedagogy, and Target. Groups*; Springer Nature: Singapore, 2017.
23. Shapero, A. The entrepreneurial event. In *The Environment for Entrepreneurship*; Kent, C.A., Ed.; Lexington Books: Lexington, MA, USA, 1984; pp. 72–90.
24. Bird, B. Implementing entrepreneurial ideas: The case for intention. *Acad. Manag. Rev.* **1988**, *13*, 442–453. [CrossRef]
25. Ajzen, I. The theory of planned behavior. *Organ. Behav. Hum. Decis. Process.* **1991**, *50*, 179–211. [CrossRef]
26. Sarasvathy, S.D. *The Bird-In-Hand Principle: Who I Am, What I Know, and Whom I Know*; Darden Case No. UVA-ENT-0090; Darden Business Publishing: Charlottesville, VA, USA, 2006.
27. Boyd, N.G.; Vozikis, G.S. The influence of self-efficacy on the development of entrepreneurial intentions and actions. *Entrep. Theory Pract.* **1994**, *18*, 63–77. [CrossRef]
28. Thompson, E.R. Individual entrepreneurial intent: Construct clarification and development of an internationally reliable metric. *Entrep. Theory Pract.* **2009**, *33*, 669–694. [CrossRef]
29. Fini, R.; Grimaldi, R.; Marzocchi, G.L.; Sobrero, M. The foundation of entrepreneurial intention. In Proceedings of the DRUID Summer Conference, Copenhagen, Denmark, 17–19 June 2009; pp. 1–47.
30. Joensuu-Salo, S.; Varamaki, E.; Viljamaa, A. Beyond intentions-what makes a student start a firm? *Educ. Train.* **2015**, *57*, 853–873. [CrossRef]
31. Pruett, M.; Shinar, R.; Toney, B.; Llopis, F.; Fox, J. Explaining entrepreneurial intentions of university students: A cross-cultural study. *Int. J. Entrep. Behav. Res.* **2009**, *15*, 571–594. [CrossRef]
32. Cieślik, J.; van Stel, A. Explaining university students' career path intentions from their current entrepreneurial exposure. *J. Small Bus. Enterp. Dev.* **2017**, *24*, 313–332. [CrossRef]

33. Basu, A.; Virick, M. *Assessing Entrepreneurial Intentions amongst Students: A Comparative Study*, 12th ed.; National Collegiate Inventors & Innovators Alliance: Dallas, TX, USA, 2008; pp. 79–86.
34. Babbie, E.R. *The Practice of Social Research*, 12th ed.; Cengage Learning: Belmont, CA, USA, 2010.
35. Pearson, K. On the criterion that a given system of deviations from the probable in the case of a correlated system of variables is such that it can be reasonably supposed to have arisen from random sampling. *Philos. Mag.* **2009**, *50*, 157–175. [CrossRef]
36. Matthews, C.H.; Moser, S.B. A longitudinal investigation of the impact of family background and gender on interest in small firm ownership. *J. Small Bus. Manag.* **1996**, *34*, 29–43.
37. Morrison, A. Entrepreneurship: What triggers it? *Int. J. Entrep. Behav. Res.* **2000**, *6*, 59–71. [CrossRef]
38. Aldrich, H.E.; Cliff, J.E. The pervasive effects of family on entrepreneurship: Toward a family embeddedness perspective. *J. Bus. Ventur.* **2003**, *18*, 573–596. [CrossRef]
39. Krueger, N. The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrep. Theory Pract.* **1993**, *18*, 5–21. [CrossRef]
40. Carr, J.C.; Sequeira, J.M. Prior family business exposure as intergenerational influence and entrepreneurial intent: A Theory of Planned Behavior approach. *J. Bus. Res.* **2007**, *60*, 1090–1098. [CrossRef]
41. Gird, A.; Bagraim, J.J. The theory of planned behavior as predictor of entrepreneurial intent amongst final-year university students. *S. Afr. J. Psychol.* **2008**, *38*, 711–724. [CrossRef]
42. BarNir, A.; Watson, W.E.; Hutchins, H.M. Mediation and moderated mediation in the relationship among role models, self-efficacy, entrepreneurial career intention and gender. *J. Appl. Soc. Psychol.* **2011**, *41*, 270–297. [CrossRef]
43. Piperopoulos, P.; Dimov, D. Burst bubbles or build steam? Entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intentions. *J. Small Bus. Manag.* **2015**, *53*, 970–985. [CrossRef]
44. Tomy, S.; Pardede, E. An entrepreneurial intention model focusing on higher education. *Int. J. Entrep. Behav. Res.* **2020**, *26*, 1423–1447. [CrossRef]
45. University of Bucharest. UNIHUB. Available online: Hub.unibuc.ro (accessed on 1 August 2021).