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## **The relationship between entrepreneurship education and entrepreneurial intention: Evidence from a transition country**

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**Abstract:** Finding ways that foster entrepreneurship is a constant concern for policymakers. Education is seen as a key factor that may contribute in this regard. This study seeks to assess the relationship between entrepreneurship education and entrepreneurial intention in the context of a transition country. Using a dataset of 528 respondents, two groups (treated and controlled) were created following a quasi-experimental research design. To ensure the comparability of these two groups, propensity score matching and coarsened exact matching were performed. The study found a positive relationship between entrepreneurship education and entrepreneurial intention, which is consistent with previous studies. This research provides useful insights for policymakers and universities who are responsible for designing policies or curricula to encourage students to engage in entrepreneurial activities.

**Keywords:** entrepreneurship education; entrepreneurial intention; propensity score matching; coarsened exact matching; transition country; Albania

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## 1 Introduction

### *Research problem*

Universities are considered as critical institutions that provide critical learning and knowledge transfer services to the society which assists in fostering entrepreneurship (Audretsch 2017). It is also commonly acknowledged that economic growth is positively correlated with entrepreneurship (Bosma *et al.* 2018) and it is an ongoing policy commitment within the European Union towards the formation of an entrepreneurial culture (Packham *et al.* 2010). The European Commission (2012), requires member states to pay attention to the development of entrepreneurial skills, because they contribute both to the growth of start-up firms and improves the employability of young people. This is consistent with the findings of a global report on entrepreneurship which states that policies aimed at boosting entrepreneurship lead to both the reduction of unemployment and economic prosperity (Herrington and Penny 2017). Consequently, the interest of policymakers concerning the role of education in fostering entrepreneurship has fuelled the resulting proliferation of education programmers and initiatives aimed at promoting entrepreneurship (Fayolle *et al.* 2006). A study conducted across Europe shows that alumni of higher education institutions who received entrepreneurship education displayed more entrepreneurial attitudes and intentions (Kok *et al.* 2012).

Albania is a country that aspires to join the European Union. However, there are many issues and challenges ahead. One of the most problematic issues is that of competitiveness of Albanian companies. Products from Albanian enterprises are not well positioned to compete with products that are being imported from member state of the European Union. Businesses in Albania are considered to be weak in term of overall competitiveness. According to the World Economic Forum report on Global Competitiveness, Albania scored 58.1 points out of 100, ranking the 36<sup>th</sup> country in Europe, whereas the European Union achieved 71.8 on average, with Germany leading

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the ranking in the union by achieving 82.8 points (Schwab 2018). The report indicates that business competitiveness in Albania is low. There are many determinants of business' performance such as the economic environment, market structure, regulations, professionalism of the employees, technology, the ability of the entrepreneur etc.

This research focuses on the relationship between entrepreneurship education and entrepreneurial intention in the context of a transition country such as Albania. The question is how to encourage individuals to start a business? In this regard, scholars emphasise the importance of education on entrepreneurial activity (Fereidouni and Masron 2012; Martin *et al.* 2013). Thus, policymakers that focus their policies on stimulating a higher level of business start-ups should consider instruments which lead to a better-educated population (Aouni and Surlemont 2009).

Although many students graduate each year (about 4% of the total population attends the university) from institutions of higher education in Albania, very few of them are inclined towards running a business of their own. Hence, official data in Albania show that the low rate of entrepreneurship has further reduced in the last three years (INSTAT 2018a). Currently, about 80% of students in public universities do not attend any program aimed at entrepreneurship. Albania records a much higher unemployment rate among its young population when compared with older job seekers. The official statistics reported that the unemployment rate among those 15-29 years old is about 23%, whilst for 30-64 years old 9% for 2018. Entrepreneurship education in schools can lead to better chances for self-employment thus playing a key role in reducing the unemployment rate for graduate students. As a result, entrepreneurship education should be a major focus for policymakers and university administrations.

Much of the research on entrepreneurial intention have been focused on developed economies rather than developing economies (Krueger *et al.* 2000). Albania is a transition and developing country that is putting much effort into its quest to join the European Union. There are limited number of studies conducted in this field of study that covers Balkan countries, such as Dabic *et al.* (2012), Garo *et al.* (2015) and Misoska *et al.* (2016), which did not test the relationship between entrepreneurship education and entrepreneurial intention. Thus, there is a dearth of studies which have tested the limits of this relationship in the Balkan region. Therefore, there is a need to shed light on the relationship between the individual's entrepreneurial intention and entrepreneurship education covering Albania.

A quasi-experimental research design (with a control group and a treatment group) was used to measure the impact of entrepreneurship education on entrepreneurial intention, following Fayolle and Liñán's (2014) suggestion. Although this type of design is used in the literature (Souitaris *et al.* 2007; Oosterbeek *et al.* 2010; Sánchez 2011, 2013; Kok *et al.* 2012; Johansen 2013; Iglesias-Sánchez *et al.* 2016), we fail to find any study that has used a rigorous procedure to ensure similarity between treatment and control groups. The basic assumption of the quasi-experimental design is that control and treated groups should be as similar as possible (Stuart and Rubin 2008; Trochim *et al.* 2016). In previous studies this assumption is not reported. Concerning this issue, our paper fills this gap by using two matching methods that ensure the comparison of two groups: propensity score matching (PSM) and coarsened exact matching (CEM).

### *Albanian context*

The context is relevant for understanding entrepreneurship (Dana and Dana 2005), it is also important in terms of external validity – generalizing the research findings in other similar contexts. Many substantial changes have taken place in Albania since transition date back in the 1990s. Expecting a fast transition from controlled to market-oriented economy, Balkan countries opted for the privatisation of state-owned firms and liberalization of prices, hoping that businesses would get involved in capitalism mindset (Ramadani and Dana 2013). Early stages of that were characterized by entrepreneurs without having any clear answers on how to behave in a prevailing chaos (Dana 1996). Western models which were adopted and applied as such, were not giving the expected results. The whole institutional system was in transition, not only its individuals. The lack of knowledge about how to act in a market economy was a consequence of the practice of a command economy (Dana 2011; Ramadani and Dana 2013). Therefore, the entrepreneurial cultures are still young and fragile among Balkan countries.

Similar to Baltic countries, Balkan ones like Albania, which have transitional economies, face new challenges to equip individuals with proper skills, abilities, behaviour and knowledge (Aaltio 2008) to succeed in a competitive environment and in times of rapid changes. Compared to earlier times of controlled economy, the public sector approaches applied to influence entrepreneurial activity are completely different (Dana 2011). Nevertheless, the educational system still have links with the old style of transferring knowledge to the society (Aaltio 2008) and it is not easy to adapt to the entrepreneurial mindset, as different educational approaches are required to be implemented. While job insecurity is increasing, education system should provide students with adequate knowhow, skills and abilities needed to find work and to succeed in their future career. Skills and abilities, which are not considered necessary in developed countries, may be worthwhile in transition economies, including Balkans countries (Ramadani and Schneider 2013).

Entrepreneurship is one of the main driving factors in the readjustment of Albanian economy. Figures show that small and medium-sized enterprises generate 67% of the value added and just above 80% of employment (European Commission 2017). These figures are very significantly when compared to the average of EU shares: 57% value added and 67% of employment. Thus, fostering entrepreneurship is crucial for the Albanian economy.

In contemporary times, Balkans are struggling with problems arising from unemployment among youths and their emigration to more advanced countries. To address these problems, the formation of SMEs which would reduce the unemployment rate and boosting the economy (Palalić *et al.* 2017; Ramadani *et al.* 2019). On the other hand, to increase the self-employed rates among young individuals, their intention to become entrepreneur need to be increased.

The remaining part of this paper is structured as follows: the second part is dedicated to the literature review, developing the research hypothesis and clarifying the covariates which make two groups comparable; the third part deals with methods and procedures, including measurement of variables, sampling and data collection, the statistical tests and matching methods; the results are presented in section four; and the discussion and concluding remarks are dealt with in section five.

## **2 Literature review**

Entrepreneurial intention is defined as the “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” (Thompson 2009, p.676). In the literature, it is intensely debated for and against if the intention is a good predictor of an individual’s action or behaviour (Krueger *et al.* 2000; Fayolle and Liñán 2014). Armitage and Conner (2001) conducted a meta-analysis using the theory of planned behaviour and found that, on average, less than 30% of the variance in behaviour is explained by behavioural intentions. However, later studies confirmed that an individual’s entrepreneurial intention predict entrepreneurial action (Ajzen *et al.* 2009; Kautonen *et al.* 2015; Shirokova *et al.* 2016).

Research investigating the role of entrepreneurship education program in the formation of individual’s entrepreneurial intention, is mainly based on the theory of planned behaviour (Ajzen 1991), human capital theory (Becker 1994), and entrepreneurial self-efficacy perspective (Chen *et al.* 1998). The theory of planned behaviour posits that an individual’s intention precedes his/her action, which in turn, intention is a result of three cognitive antecedents (attitude toward behaviour, subjective norms, and perceived behavioural control). The human capital theory advocates that an entrepreneurship education program lead to the stimulation of an individual’s attitudes and intentions, including entrepreneurial intention. The entrepreneurial self-efficacy perspective refers to a belief in the ability of an individual to do numerous roles and tasks dealing with entrepreneurship. Consequently, an individual’s entrepreneurial intention is determined by the entrepreneurship education program.

One of the main drivers of entrepreneurship is human capital gained through education (Van Der Sluis *et al.* 2008; Unger *et al.* 2011; Martin *et al.* 2013). Beyond finding useful instruments or suggesting certain policies aimed at stimulating firm entry, as Brixiova and Égert’s (2017) study stressed, it is of particular importance developing entrepreneurial attitudes through the educational system. These results are in line with previous studies (Lafuente and Vaillant 2013; Millán *et al.* 2014), which noticed a positive correlation between an individual’s schooling years and new ventures in an economy. Moreover, Estrin *et al.* (2013) found empirical evidence of the positive effect of tertiary education on entrepreneur’s growth aspiration. Chances to start a firm are increased if an individual has a vocational or double degree (Joensuu-Salo *et al.* 2015) or completed his/her studies (Johansen 2013). Therefore, education and training for individuals should be considered as a key driver of entrepreneurial intention.

In contemporary times, to stay competitive, higher education institutions are trying to find new ways of earning money, through the provision of extra services such as licensing or contract research, or by shaping their strategy in accordance with governments’ policy or market needs. Universities can contribute to boosting entrepreneurship by focusing on their powerful resource: students (Jansen *et al.* 2015). Based on some case studies, Jansen *et al.* (2015) provided insights into the linkages existing between entrepreneurship encouragement offered by universities and the intention of students to become entrepreneurs in the near future. Hence, universities which have applied special policies aimed at encouraging their students to become entrepreneur have recorded successful results in terms of new ventures in an economy. Furthermore, it is not only the study program that has influence on the student’s intention, the university environment also contributes to it, by affecting the antecedents of entrepreneurial intention such as attitude, self-confidence and motivation (Blenker *et al.*

2008; Shirokova *et al.* 2016; García-Rodríguez *et al.* 2017). From a wider perspective, students' climate perceptions of the entrepreneurship is positively affected by the university entrepreneurship components (Bergmann *et al.* 2016, 2018). Offering a program study in entrepreneurship is considered by universities not only a way to attract students (Navratilova 2013), but rather as a mean of a fostering context for entrepreneurship, thereby enhancing students' skills, capability and motivation and for students' engagement in new venture creation activity (Walter *et al.* 2013; Shirokova *et al.* 2018).

A section of the literatures reviewed emphasizes that entrepreneurship education improves students' entrepreneurial skills. An entrepreneurship education program should provoke not only the start-up intention, but also to an individual's ability to convert ideas into certain actions, so individuals will be more confident in their future actions. This is consistent with what European Commission (2012) aims to achieve by investing in young people's skills for better socio-economic outcomes. Considering this, Hahn *et al.* (2017) confirmed the hypothesis that entrepreneurship education contributes to the entrepreneurial learning, they conducted a cross-country study consisting of almost 90 thousand students. By using a quasi-experimental design, Sánchez (2011, 2013) found that, compared to students who did not receive any entrepreneurship education, students who received that increased their competencies and intention to venture into entrepreneurship. According to Stamboulis and Barlas (2014), students change their perception towards entrepreneurship after they received entrepreneurship education seeing it as a real option for their future career. This change is noticed in terms of the impact of entrepreneurship education on student's attitudes, in particular, student's self-confidence. In addition, according to Marques *et al.* (2018), entrepreneurship education program positively affects proactivity, which means the student's predisposition to compete with others. Contrary, Kassean *et al.* (2015) found that entrepreneurship education organized as standard or ordinary classes negatively impact student's self-efficacy. On the other hand, a meta-analysis of 98 studies reveals a positive and significant correlation between entrepreneurial intention and perceived desirability, perceived feasibility, and propensity to act (Schlaegel and Koenig 2014).

Another strand of the literature focused directly on the relation between entrepreneurship education program and an individual's entrepreneurial intention (Wilson *et al.* 2007; Martin *et al.* 2013; Welsh *et al.* 2016; Barba-Sánchez and Atienza-Sahuquillo 2018). A meta-analysis of 73 studies detects a significant and positive association between entrepreneurship education programs and entrepreneurial intention (Bae *et al.* 2014). Moreover, by performing a hierarchical regression analysis, Westhead and Solesvik (2016) revealed that entrepreneurship education positively influences students' entrepreneurial intention. Similarly, a study anchored on the theory of planned behaviour found a significant and positive impact of entrepreneurship education programs on entrepreneurial intention, and this relation is stronger among business students than science and engineering ones (Maresch *et al.* 2016; Zaryab and Saeed 2018). Furthermore, this effect is found to be stronger among students who were less exposed to entrepreneurship (Fayolle and Gailly 2015). However, there are some evidence that suggests that entrepreneurship education does not directly lead to the encouragement of university students to become entrepreneurs (Entrialgo and Iglesias 2016). Farhangmehr *et al.* (2016) claimed that to increase the student's motivation to become an entrepreneur (Welsh *et al.* 2016), universities should find the way to redesign their curricula to cover critical thinking and emotional dimension by developing students' social skills and

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entrepreneurial psychological (Mwasalwiba 2010). In this line, to get successful results from an entrepreneurship education program, Neck and Greene (2011) went far in depth by introducing a set of practice-based pedagogies, consisting of start-ups as coursework, simulations and games, reflective practice, and critical thinking. Vanevenhoven and Liguori (2013) studied the relationship between starting a business and entrepreneurship courses offered by universities in a huge dataset (over 18 000 student respondents and 400 universities in 70 countries), and surprisingly, revealed a negative correlation between them. Nevertheless, they found a positive correlation between the number of those courses and entrepreneurial intention, which is consistent with the expectations. Based on the above discussion, the following hypothesis were formulated: *individual's entrepreneurial intention is positively impacted by entrepreneurship education*, which can be rephrased as *individuals who attend a study program in entrepreneurship have higher intention toward start-ups than those who do not*.

Considering that a quasi-experimental research design consisting of comparison of treatment group (individuals who have received entrepreneurship education) and control group (those who did not) is used in this research, a discussion on covariates that makes these groups comparable should take place (Trochim *et al.* 2016). The included covariates should be related to the outcome and not affected by treatment assignment (Stuart and Rubin 2008). In the following paragraphs, it is argued the inclusion of four covariates contributing to this issue, which are: age, gender, personal income (similar to the control variables used by Urbano *et al.* (2017)) and employment status.

Age is a covariate widely used as a control variable of the relationship of either entrepreneurship education or attitudes and entrepreneurial intention. Individuals at certain ages have higher attitudes to entrepreneurial intention (Kibler 2013; Goktan and Gupta 2015) and to start-up activity (Mondragón-Vélez 2009; Lafuente and Vaillant 2013; Urbano and Alvarez 2014; Shirokova *et al.* 2016, 2018; Urbano *et al.* 2017).

Concerning the gender analysis, the literature in the field emphasizes that males are more prone to initiate start-up activity (Cañizares and García 2010; Díaz-García and Jiménez-Moreno 2010; Engle *et al.* 2011; Dabic *et al.* 2012; Johansen and Foss 2013; Johansen *et al.* 2013; Batsakis 2014; Goktan and Gupta 2015; Çera *et al.* 2018). A meta-analysis drew on the theory of planned behaviour shows that gender impacts attitude towards starting a business, subjective norms and perceived behavioural control (Haus *et al.* 2013). Furthermore, according to Dawson and Henley (2015), this difference appears to be linked with attitude to risk because, compared to females, males are more risk-takers (Kozubíková *et al.* 2017).

By focusing on the individual level, it is relevant to include the income level to the start-up decision because it is expected that higher income level drives firm entry rate. Evidence shows that the individual's income level is positively associated with the entrepreneurial activity (Urbano *et al.* 2017). However, even the negative association between them is evidenced (Lee *et al.* 2011). Additionally, household income strengthens the positive impact on an individual's entrepreneurial intention (Kibler 2013; Pathak *et al.* 2015). This could be very relevant for cases in which individuals have strong relationships with their family, relatives or friends. This type of relations are more present among transitions countries (Pathak *et al.* 2015). This is consistent with Abebe and Alvarado's (2018) result, that emphasizes a lack of support for the relationship between household income and self-employment intentions among American residents.

Individual's occupation should be considered during the scale development of entrepreneurial intention because it ensures broader applicability (Thompson 2009). What an individual is currently doing affect entrepreneurial intention (Bhandari 2012; Haus *et al.* 2013). Work experience may act as a moderator of the relationships between motivational factors and entrepreneurial intention. Students acts based on what parents, relatives or friends suggest (van Gelderen *et al.* 2008; Gohmann 2012; Doğan 2015), whereas non-students, like managers, are more independent from their relatives' opinions because they can take actions based on their experience (Haus *et al.* 2013; Jaén and Liñán 2013). However, contrary to Kibler's (2013) results, surprisingly, according to Kassean *et al.* (2015) individual's prior exposure to entrepreneurship does not affect entrepreneurial intention. In addition, to evaluate the impact of entrepreneurship education on entrepreneurial intention, individual's family background, whether one' parents were government employees, worked for someone else, or were self-employed, was considered as control variable by (Wilson *et al.* 2007; Sánchez 2011, 2013; Gohmann 2012; Jaén and Liñán 2013; Pauceanu *et al.* 2018).

Taking all together, regarding the above discussion, age, gender, individual's income level and employment status are factors that affect entrepreneurial intention. Therefore, these may be considered as "proper" covariates that can contribute to the balance of two groups: treated and control.

### 3 Methods and procedures

Entrepreneurship education is considered any study program or process of education which contributes to entrepreneurial attitudes and skills (Bae *et al.* 2014). The question that covered entrepreneurship education was formulated as follow: *Have you ever attended a subject in entrepreneurship?* Respondents had two options: *No*, or *Yes*. For the purposes of our research design, two groups were created: treatment group, if the answer of the above question was *Yes*, and control group, if that answer was *No*.

Entrepreneurial intention was measured by one item, an approach used in several recent studies (Veciana *et al.* 2005; Díaz-García and Jiménez-Moreno 2010; Sánchez-Escobedo *et al.* 2011; Shinnar *et al.* 2012; Maresch *et al.* 2016; Barba-Sánchez and Atienza-Sahuquillo 2018). People were asked to answer the following question: *Have you ever thought of starting a business?* Responses were measured on a four-point Likert scale: [1] *No, never*; [2] *Yes, vaguely*; [3] *Yes, seriously*; [4] *Yes, I have a definite plan to start my own business*. For the purpose of our analysis, people were asked to answer to this question twice: once by recalling their entrepreneurial intention before introducing a study program in entrepreneurship (Pre\_EI), and a second time, after finishing the program (Post\_EI).

Chi-square test of independence was used to explore the relationship between two our categorical variables: entrepreneurship education and entrepreneurial intention. This test compares the observed frequencies of cases that occur in each of the categories, with the values that would be expected if there was no association between the two variables being measured. This test was employed in both cases: before attending the program and after finishing it. To find how strong these associations were, it was calculated the effect size associated with the Chi-square test of independence. Since the categories of our variables were larger than 2 by 2 (entrepreneurship education and entrepreneurial intention have 2 and 4 categories, respectively), the effect size of Cramér's V was

calculated per each case (for more details refer to Gravetter and Wallnau (2017)). To judge the size of the effect the Cohen's (1988) recommendations were considered. In our case, the degree of freedom of Cramér's V was 1 (subtracting 1 from the smallest number of categories between variables) implying small, medium and large effect to be 0.01, 0.30 and 0.50, respectively.

To test whether is a positive difference in the scores on the entrepreneurial intention from before introducing a study program in entrepreneurship to after finishing it, Wilcoxon test was used. This test is designed to test the difference between two moments over time, using the data from a repeated-measures experiment. It is the non-parametric alternative to the repeated measures *t*-test, but instead of comparing means the Wilcoxon converts scores to ranks and compares them at two points over time (in our case, before introducing a program and after it). The strength of the effect associated with this test (*r*) can be calculated by dividing the *z* value by the square root of sum of members in two groups. It can be judged by using the same criteria as shown for Cramér's V.

The research design of the non-equivalent groups design (NEGD) was adopted, since the sample that we draw to different groups in our study was assigned (random assignment). This design is the most common used by scholars in quasi-experimental research design (Trochim *et al.* 2016). The NEGD requires a pre-test (Pre\_EI) and post-test (Post\_EI) for a treated and control groups. As mentioned above, two groups were created: people who have attended a study program in entrepreneurship (treatment group) and those who have not (control or comparison group).

To measure the effect of our study program, a comparison of treated and control groups should be done. But, as one can imagine, these two groups are not similar. Therefore, an extra method should be used that ensure that. Both propensity score matching (PSM) and coarsened exact matching (CEM) methods were used to ensure this comparison. Matching term is used by scholars in the context of any method that aims to "balance" the distribution of covariates in the treated and control groups. A covariate is a variable that might affect the outcome, dependent variable. As suggested by the literature, in both matching methods, the same set of covariates was used, which are gender, age, personal income and employment status.

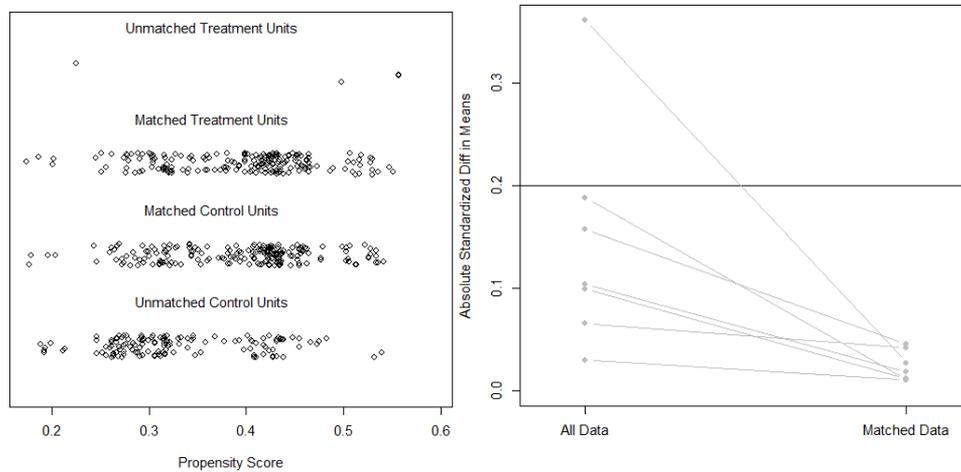
Applying PSM and CEM is in the light of using a solid and rigour methodological approach and lead to the triangulation of our results in terms of employing different matching methods. PSM, developed by Rosenbaum and Rubin (1983), is a procedure to adjust a treatment effect for measured covariates in NEGD. According to PSM method, the balance on observed covariates is achieved through matching on the estimated propensity of being treated. The propensity score is the probability of being treated based on measured covariates (Stuart 2010). Logistic regression was performed to calculate this probability. One-to-one nearest neighbour matching was selected, indicating that one member from the treatment group is matched to one member from the control group which has the most similar estimated propensity score. A caliper (the maximum allowed difference between two units, expressed as the number of standard deviations of the distance) equal to 0.15 was applied.

**Table 1** provides basics information about the results after applying the PSM method. Only 392 out of 528 participants from our sample were matched (each group has 196 matched participants). The left graph in **Figure 1** illustrates the distribution of the propensity score for four groups. It shows that the distributions of the propensity score of matched treatment members and matched control members are quite similar. The output

of the PSM method can be judged by looking at the absolute standardized difference in means of used covariates (see the right graph in **Figure 1**). Before matching the average of this means were 0.129 and after applying the PSM method, it was reduced to 0.022 (see **Table 1**). This is a considerable improvement referring to the issue of achieving similar groups.

CEM, developed by Iacus *et al.* (2012), is another nonparametric matching method applicable in a quasi-experimental design to ensure the comparison of an outcome between two groups over time. CEM matches treated members with control members by categorizing each of the covariates. Continuous covariates need to be grouped into broader categories for matching. In CEM, this categorization process is called coarsening. In this research, only age was a continuous covariate that needed to be coarsened. In Table 1 are shown basic statistics of CEM method results. The number of unmatched treatment members resulted in 19, while in PSM case it was 4, but the total number of matched members was 61 members more than in case of PSM because CEM method does not require a one-to-one matching of members from treatment and control groups.

**Figure 1** Distribution of propensity score (left) and standardized mean difference before and after applying PSM (right)



**Table 1** Matching summary according to PSM and CEM methods

	PSM					CEM				
	Control	Treated	Total	$d^a$	$L_1^b$	Control	Treated	Total	$LCS^c$	$L_1^b$
All	328	200	528	.129		328	200	528		
Matched	196	196	392	.022	.311	272	181	453	79.688	.068
Unmatched	132	4	136			56	19	75		

*Note:* a.  $d$  is the average of the absolute standardized difference in means for used covariates, b.  $L_1$  represents the multivariate imbalance measure statistic, and c.  $LCS$  is the percentage of local common support (Iacus *et al.* 2011).

Iacus *et al.* (2011) introduced the multivariate imbalance measure  $L_1$ . It takes value from 0 to 1. If it results close to 0, then the multivariate empirical distribution of the treated and control units of pre-treatment covariates are similar suggesting that two groups are similar.  $L_1$  is smaller when CEM is used (0.068), compared to PSM case (0.311), which makes CEM a more accurate matching method (see **Table 1**). Therefore, according to CEM's results, 93.2% of the density of the histograms of treatment and control groups overlapped. On the other hand, in the PSM sample, this percentage was just 68.9%. Again, these figures demonstrate the similarities between treatment and control groups.

The data used in this article were gathered by a face-to-face interview survey which was administered during spring 2018 in eight main regions in Albania. Random route and last birthday method were applied to select the respondent. The survey covered a much larger scope, but here were filtered only those cases which met article's focus. Our respondent is an individual who either is currently attending the university or recently graduated. Only 528 respondents out of all successful interviews of the survey are considered for the data processing.

Data analysis was performed by using computer statistical packing SPSS version 23. To deal with the matching issue of two groups (treated and control), R-gui software was installed and MatchIt package was loaded. To facilitate the matching procedures in SPSS, the PS Matching and CEM add-ins were activated.

#### 4 Results

A positive difference between pre-test and post-test scores of entrepreneurial intention is found. Table 2 presents the results of Wilcoxon signed rank test for both PSM and CEM cases. Referring to the PSM sample, Wilcoxon test revealed a statistically significant difference in entrepreneurial intention before introducing the study program and after finishing it, with medium effect size,  $z = 8.818$ ,  $p < .001$ ,  $r = .315$ . Thus, there were 117 members that scored Post\_EI higher than Pre\_EI and only 14 members scored Post\_EI lower than Pre\_EI. Almost the same results are found even in case of applying the CEM method. Again, the results of the test showed a statistically significant difference in entrepreneurial intention, with a medium effect size,  $z = 9.225$ ,  $p < .001$ ,  $r = .306$ . There were 126 cases where the Post\_EI score was higher than Pre\_EI score, whereas 14 members resulted to score Pre\_EI higher than Post\_EI. When considering means and medians it can become obvious that EI was improved from before introducing the study program to after finishing it.

**Table 2** Summary of Wilcoxon signed ranks test

Matching	EI	<i>n</i>	Mean	Median	Count <sup>c</sup>	Mean rank	Z	Sig.	<i>r</i>
PSM	Pre	392	1.65	1	14 <sup>a</sup>	49.50	-8.818 <sup>d</sup>	.000	.315
	Post	392	2.01	2	117 <sup>b</sup>	67.97			
CEM	Pre	453	1.61	1	14 <sup>a</sup>	52.50	-9.225 <sup>d</sup>	.000	.306
	Post	453	1.96	2	126 <sup>b</sup>	72.50			

*Note:* EI is entrepreneurial intention, a. number of negative ranks (Post\_EI < Pre\_EI), b. number of positive ranks (Post\_EI > Pre\_EI), c. no. of ties (Post\_EI = Pre\_EI) PSM = 261 and CEM = 313, d. based on negative ranks.

While the entrepreneurial intention was improved from the first to the second moment of the evaluation, we are interested to know whether this difference was attributed to the study program in entrepreneurship or not. To investigate whether individuals who have attended a study program in entrepreneurship (treated group) and those who have not (control group) differ in entrepreneurial intention or not, a chi-square test of independence was performed. Applying a matching method in NEGD tends to balance treatment and control groups making them as similar as possible. Performing matching methods ensured that two groups were similar, considering used covariates. Consequently, a comparison of entrepreneurial intention can be done between those who have attended a study program in entrepreneurship and those who have not. This means that we can compare the results of the chi-square test of independence for Pre\_EI and Post\_EI.

Pearson chi-square revealed that individuals who attend a study program in entrepreneurship have higher intention toward start-ups than those who do not. **Table 3** provides the results of Pearson chi-square test for the association of entrepreneurship education and entrepreneurial intention before the study program was introduced (Pre\_EI) and after it was finished (Post\_EI) in case of the PSM method, considering only members that were matched ( $n = 392$ , see **Table 1**). In case of before introducing the study program, chi-square test showed that control and treated groups are not significantly different on entrepreneurial intention,  $\chi^2(3, n = 392) = 3.196, p = .362, V = .090$ . Thus, referring to entrepreneurial intention, two groups are similar before introducing the program, so the assumption of NEGD that groups before program should not perform statistically different results was not violated (Trochim et al. 2016).

**Table 3** Results of chi-square test after applying PSM

EI	Categories of EI	Program = No		Program = Yes		$\chi^2(3)$	Sig.	Cramer's V
		$n = 196$	%	$n = 196$	%			
Pre	No, never	119	61	104	53	3.196 <sup>a</sup>	.362	.090
	Yes, vaguely	46	23	54	27			
	Yes, seriously	25	13	27	14			
	Yes, I have a definite plan	6	3	11	6			
Post	No, never	92	47	65	33	12.628 <sup>b</sup>	.006	.179
	Yes, vaguely	55	28	51	26			
	Yes, seriously	38	19	58	30			
	Yes, I have a definite plan	11	6	22	11			

Note. EI is entrepreneurial intention. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.50. b. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 16.50.

The same statistical test was conducted after the study program (Post\_EI) and its results are presented in the second part of **Table 3**. It showed that individuals from treated group and individuals from control group are significantly different on entrepreneurial intention,  $\chi^2(3, n = 392) = 12.628, p < .01, V = .179$ . Those who have attended the study program are more likely to score higher on entrepreneurial intention than those who have

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not. Cramér's V was .179 and, so, the effect size of this association is considered to be small to medium.

The Pearson chi-square test of independence was performed again for the sample received in case of applying CEM method ( $n = 453$ , see **Table 1**) and its results are shown in **Table 4**. In case of before introducing the study program, chi-square test showed that people who have attended the program and those who have not are not significantly different on entrepreneurial intention,  $\chi^2(3, n = 453) = 5.227, p = .156, V = .107$ . Again, the assumption of NEGD was not violated. The same statistical test was performed after the study program. According to it, there is a significant association between program and entrepreneurial intention,  $\chi^2(3, n = 453) = 19.343, p < .001, V = .207$ . Those who have attended the study program are more likely to score higher on entrepreneurial intention than those who have not. So, we fail to reject our hypothesis, by finding evidence that supports it. The size of the effect is considered to be small to medium since Cramér's V resulted in .207.

**Table 4** Results of chi-square test after applying CEM

EI	Categories of EI	Program = No		Program = Yes		$\chi^2(3)$	Sig.	Cramer's V
		$n = 272$	%	$n = 181$	%			
Pre	No, never	172	63	96	53	5.227 <sup>a</sup>	.156	.107
	Yes, vaguely	59	22	51	28			
	Yes, seriously	33	12	25	14			
	Yes, I have a definite plan	8	3	9	5			
Post	No, never	135	50	59	33	19.343 <sup>b</sup>	.000	.207
	Yes, vaguely	74	27	47	26			
	Yes, seriously	46	17	55	30			
	Yes, I have a definite plan	17	6	20	11			

*Note.* EI is entrepreneurial intention. a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.79. b. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 14.78.

In both PSM and CEM samples, the degree of the effect of the association between entrepreneurship education and entrepreneurial intention was stronger after the program than before introducing it. This strength was increased by .089 ( $= .179 - .109$ ) and .1 ( $= .207 - .107$ ), respectively. Consequently, attending a program in entrepreneurship increased the strength of the association between entrepreneurship education and entrepreneurial intention. This argument supports the fact that this relationship is stronger after attending the study program in entrepreneurship. Compared to the PSM method, CEM has performed better results in terms of chi-square test of independence and its effect size. Both the significance and strength of the association between entrepreneurship education and entrepreneurial intention resulted to be a bit clearer and stronger in the sample of CEM than that of PSM (refer to **Table 3** and **Table 4**).

## 5 Discussion and conclusions

Our analyses found that entrepreneurship education programs offered by universities positively affects an individual's entrepreneurial intention. Our finding is consistent with previous studies conducted in this field in developed countries (Sánchez 2011, 2013; Iglesias-Sánchez *et al.* 2016; Hahn *et al.* 2017). Although there is a dearth in previous research work that studied this relationship covering Balkan region, Misoska *et al.*'s (2016) research conducted in Macedonia support our findings. This can be considered as another argument that Albania and Macedonia share almost the same standards in terms of fostering entrepreneurship.

This paper contributes in the stock of knowledge in two ways: firstly, by testing the limit of entrepreneurship education-entrepreneurship intention in Albania, a transition country from centralized to a market economy, and, secondly, by using a solid methodological approach which combines two matching methods: PSM and CEM.

This study highlights that the system of education significantly affects students' intention towards entrepreneurship through enhanced motivation, and obtained skills and knowledge. This is of particular importance since entrepreneurship education can result in more positive attitudes towards entrepreneurial activity (Misoska *et al.* 2016).

The study has also practical implications for education institutions (both government and universities) and employers. Given that entrepreneurship resources in Albania are rather scarce, university study programmes may consider the introduction of entrepreneurship courses in their study programmes both in economic and non-economic study programmes. Scholars have found empirical evidences emphasizing that entrepreneurship education program raises the individual's intention to engage with start-up activity who study engineering or science (Souitaris *et al.* 2007; Vij and Ball 2010; Åstebro *et al.* 2012; Maresch *et al.* 2016; Westhead and Solesvik 2016; Barba-Sánchez and Atienza-Sahuquillo 2018) and even of those in secondary schools (Johansen and Clausen 2011; Johansen *et al.* 2012; Rodrigues *et al.* 2012). Additionally, efforts are needed in terms of developing "liaison with employers, continuous curriculum development and integrated work-based learning schemes" (European Commission 2016, p.77). As discussed in the introduction section, state members in European Union are paying attention to the development of entrepreneurial skills, because they contribute both to start up activity and thereby to the employability of young people (European Commission 2012). Nevertheless, the Albanian government has adopted and will start implementing an action plan based on a model for cooperation between universities, business and government (European Commission 2017).

In a wider perspective, policymakers should focus on creating a well-functioning education system and a friendly business environment (Brixiova and Égert 2017) that would increase the supply of educated individuals in entrepreneurship (La Porta and Shleifer 2014). Thus, designing policies and developing curricula that enhance student's ability and skills toward entrepreneurial activity should be considered by Albanian authorities and universities. Employers may also consider 'nurturing entrepreneurship' by creating a more open and friendly climate for students by participating in internship programmes in cooperation with educational institutions and government. This means that along with knowledge, the educational system should offer practical experiences for students that will form their abilities and skills for firm start-up.

Inclusion of higher education institution type (public vs private) in the analysis may be an issue for further research. Even though in developed countries such as Germany

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was not found any significant impact of private higher education institutions on nascent entrepreneurship (Bergmann *et al.* 2016), a study that controls for the type of university on entrepreneurial intention in transition and post-communist countries it is expected to be of interests. Based on statistics, only 7% of the students study in private universities in Germany (Bergmann *et al.* 2018), whereas in Albania this percentage is almost 20% (INSTAT 2018b). Private universities are believed to be more market-orientated than public ones. Therefore, the entrepreneurial intention among students studying in private universities is expected to be higher compared to those who study in a public university. This suggestion for further research goes in line with what Kassean *et al.* (2015) claim to address the generalizability of our findings in a border context.

Our findings are limited to one country. Though Albania may have similar conditions in terms of regional, economic, institutional and political environments with countries in transition from centralized to a market economy, research external validity (generalizability) may be limited and some precaution is advised when transferring the results to another context; this may be considered as a limitation of the current study. Secondly, a more complete set of covariates in the matching methods can be considered in further research. For example, family background may affect an individual's intention to become an entrepreneur. Thus, one's parents occupation (self-employed, work for someone else, or government employees) is expected to influence the individual's intention and action (Gohmann 2012; Pauceanu *et al.* 2018). Nevertheless, there is no consensus among scholars about the effect of parents' education and occupation on an individual's behaviour (Kibler 2013; Kassean *et al.* 2015). And finally, though entrepreneurship education is considered as an important determinant of entrepreneurship intention, one may however consider that entrepreneurship is a scarce resource in Albania given the country's history, culture and current institutional set up. Hence understanding "Albanian entrepreneur" in his own "habitat", using inductive qualitative approaches, as rightly pointed out by Dana and Dana (2005) and extended by Dana and Dumez (2015), will contribute to develop a complete "puzzle" where entrepreneurship education is only a piece of it.

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