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Incidence of the behavioral attitude in the entrepreneurial intentions in undergraduate students

Incidencia de la actitud conductual en las intenciones emprendedoras en estudiantes universitarios

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Abstract

Entrepreneurial intentions have been a subject frequently studied by the scientific community. Entrepreneurial intentions have been a subject frequently studied by the scientific community. The existing literature expresses varied arguments, in which the central theme is how entrepreneurial intention is determined. The study presented three specific purposes. The first was to explain the incidence of attitudes toward behavior in entrepreneurial intentions in undergraduate students; the second was to explain the incidence of subjective norms on entrepreneurial intentions in undergraduate students and the third was to explain the incidence of perceived control in entrepreneurial intentions in undergraduate students. The data collection was carried out in 8 universities located in the three provinces with the largest population, economic importance and numbers of university students in Ecuador. Through the analysis using structural equation models, it was demonstrated that self-efficacy as a second-order reflective factor and proactivity as a one-dimensional reflective factor, have a significant influence on the entrepreneurial intention of university students in Ecuador.

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Resumen

Las intenciones emprendedoras han sido un tema estudiado con frecuencia por la comunidad científica. La literatura existente expresa argumentos variados, en el cual el tema central es como se determina la intención emprendedora. El presente estudio incluyó tres propósitos específicos. El primero fue explicar la incidencia de la proactividad en las intenciones emprendedoras en los estudiantes de pregrado; el segundo fue explicar la incidencia de la propensión al riesgo en las intenciones emprendedoras en los estudiantes de pregrado y el tercero fue explicar la incidencia de la autoeficacia en las intenciones emprendedoras en los estudiantes de pregrado. La recolección de datos fue realizada en ocho universidades ubicadas en las tres provincias de mayor población, importancia económica y número de estudiantes universitarios en el Ecuador. Mediante el análisis usando modelos de ecuaciones estructurales se demostró que la autoeficacia como factor reflectivo de segundo orden y la proactividad como factor reflectivo unidimensional, tienen una influencia significativa en la intención emprendedora de los estudiantes universitarios de Ecuador.

Código JEL: M10, M13, M16
Palabras clave: Proactividad; Autoeficacia; Propensión al riesgo; Emprendimiento; Intención emprendedora

Introduction

There is a considerable body of literature that has addressed the concept of entrepreneurial intentions since the late 1980s, seeing much entrepreneurial activity as intentional behavior and the formation of an intention to start a business as a step in the process of creating an organization (Bird, 1988; Krueger, Reilly, & Carsrud, 2000; Van Gelderen et al., 2008). The theoretical framework commonly used in this research stream (Schlaegel & Koenig, 2012; 2014) is the theory of planned behavior (TPB), which conceptualizes the force of intention as an immediate antecedent to behavior (Ajzen, 1991; 2011). In the following years, some models were developed, among which are the Entrepreneurial Event Model (Shapero & Sokol, 1982), the Entrepreneurial Orientation Model (Covin & Slevin, 1989), and the Entrepreneurial Potential Model (Krueger & Brazeal, 1994).

Since the 12th century, some authors have studied the impact and role of the entrepreneur in the development of societies, and because of the importance of this role, its characteristics and background have been investigated. Moreover, entrepreneurial behavior is a line of re-

search to consider in order to analyze variables that can influence entrepreneurial intentions in university students. However, at present, there is no consensus on the factors that influence the creation of an enterprise, which makes it possible to establish academic guidelines to reduce the shortage of this type of entrepreneurial activity (Diez, 2016).

At a global level, a low level of influence of behavioral attitudes that generate entrepreneurial intentions in academic development and its evolution through the training of entrepreneurs in university students in different fields of education has been detected (Arasteh, Enayati, Zameni, & Khademloo, 2012; Verheul et al., 2015; Zhang, Wang, & Owen, 2015). Because of the complexity of measuring the motivational levels of "behavioral attitudes" in entrepreneurial intentions, as well as the perception of problems in their development, it is imperative to devise an academic precedent of the guidelines applicable in entrepreneurial intentions in university students (Al Mamun, Binti Che Nawi, Dewiendren, & Fazira Binti, 2016; Frese & Gielnik, 2014; Lanero, Vázquez, & Muñoz-Adánez, 2015; Shirokova, Osiyevskyy, & Bogatyreva, 2015; Soria-Barreto, Zuniga-Jara, & Ruiz-Campo, 2016; Zhang et al., 2015)Brown and Hackett (1994, 2000.

This study was planned and executed based on the Theory of Planned Behavior (1991) by Ajzen, which was explicitly developed for research on intentions. For this reason, this research explains the effect of attitude on behavior, the subjective norm, and the control of perceived behavior on entrepreneurial intentions, focusing on undergraduate university students. The aim was to expand existing knowledge of this issue and, by derivation, provide knowledge to future entrepreneurs and the government about young entrepreneurs and their initiatives to generate wealth and well-being through new ventures. This study collected information on the behavioral attitudes of undergraduate university students through a voluntary non-probabilistic sampling in order to determine the existence of entrepreneurial intentions in young university students.

This research used techniques of multivariate analysis of causal interrelationships between observable and non-observable variables. This work focused on three specific purposes. The first was to explain the incidence of proactivity on entrepreneurial intentions in undergraduate students; the second was to explain the incidence of risk propensity on entrepreneurial intentions in undergraduate students; the third was to explain the incidence of self-efficacy on entrepreneurial intentions in undergraduate students. As a result of the specific purposes described above, the existence of entrepreneurial intentions was determined, generating a resource for academia, researchers, and public policymakers related to new ventures.

Theoretical Framework

Since the late 1980s, the literature has addressed the concept of entrepreneurial intentions, seeing much business activity as intentional behavior and the formation of an intention to start a business as a step in the process of creating and launching a new venture (Bird, 1988; Krueger, Reilly, & Carsrud, 2000; Van Gelderen *et al*., 2008). The most commonly-used theoretical framework since the early 1990s in this line of research (Schlaegel & Koenig, 2012; 2014) is the Theory of Planned Behavior (TPB), which conceptualizes the force of intention as an immediate antecedent of behavior (Ajzen, 1991; 2011). This theory stipulates that three factors determine the intentions that precede any planned behavior: (a) the attitude toward the behavior, (b) the subjective norm, and (c) the control of perceived behavior. It is important to note that the TPB (Ajzen, 1991) is an extension of the Theory of Reasoned Action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), which was modified by its creator due to the limitations of the original model in the interpretation of the behaviors of individuals (Ajzen, 1991, 2011; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975).

As in the original Theory of Reasoned Action, a central factor in the TPB is the intention of the individual to behave in a certain way (Ajzen, 1991, 2011; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). The intentions in both theories are assumed to capture the motivational factors that influence behavior. They are indications of how people are willing to try, the amount of effort they are planning to put into the behavior, and the purpose of the behavior. Both theories indicate that an intention can reflect on behavior only if the behavior in question is under the desired control (Ajzen, 1991, 2011; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975).

According to Ajzen (1991), the TPB provides a useful conceptual framework for dealing with the complexities of human social behavior. Ajzen indicated that the theory incorporates some of the concepts of the social and behavioral sciences and defines these concepts in a way that makes it possible to predict and understand particular behaviors in specified contexts. He added that attitudes toward behavior, subjective norms regarding behavior, and perceived control over behavior are some of the variables found to predict behavioral intentions with a high degree of accuracy.

This research refers to the intention of behavior, so it is essential to define the behavior criterion. According to Ajzen and Fishbeinus (1980), general attitudes do not allow for the prediction of specific behaviors due to a lack of compatibility in the elements of (a) action, (b) context, and (c) time. That is, general attitudes identify only the target element, while

specific behavior implies a particular action directed at the target in a given context and at a point in time. Lack of compatibility is usually not a serious problem when it comes to predicting intentional behavior because intentional measures are not directed at a general objective but at a behavior of interest (Israr & Hashim, 2015; Schlaegel & Koenig, 2014). In fact, in the existing literature, meta-analyses of the intention-behavior relationship have generally revealed high correlations and that the application of action, context, and time is explicit (Israr & Hashim, 2015; Liñán & Fayolle, 2015; Schlaegel & Koenig, 2014). The above is why the TPB has become one of the most influential predictive models in the existing literature (Ajzen, 2011). The three factors on which this theory is based are:

- Behavioral beliefs: this factor represents the personal evaluation of acceptance or rejection of a specific action; this factor is called attitude toward the behavior.
- Normative beliefs: this factor represents the reflection of the external influence and is expressed through the perception that the individual has of the exogenous factors to carry out or not a behavior; it includes the beliefs of acceptance or rejection of individual or group standards with regard to a particular behavior. This factor is called subjective norms.
- Control beliefs: this factor represents the past experiences related to the behavior. It also includes all the information that the individual has before acting. This factor is called perceived behavioral control.

According to the TPB (Ajzen, 1991, 2011), the three factors interact with each other to shape the intention to act. Furthermore, the theory indicates that individuals process the available information conceptualized by background variables so that the intention to act can be predicted from the relationship between attitudes to behavior, subjective norms, and perceived behavioral control. Finally, most models of entrepreneurial intentions use the TPB (1991) as a reference. Along these lines, several researchers have developed models of entrepreneurial intentions (Al Mamun *et al*., 2016; Ambad & Damit, 2016; Fayolle & Liñán, 2014; Ferreira *et al*., 2012; Hussain & Hashim, 2015; Mustafa *et al*., 2016; Zhang *et al*., 2015). Some models indicate that the decision to start an entrepreneurial activity requires a pre-existing belief that such activity is desirable and feasible (self-efficacy), coupled with some personal propensity to act on opportunities (proactivity) and some precipitating factor (risk propensity) (Kakouris, 2016; Küttim, Kallaste, Venesaar, & Kiis, 2014; Liñán & Fayolle, 2015; Sánchez, 2011; Sánchez, Lanero, & Yurrebaso, 2005; Schlaegel & Koenig, 2014).

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Taking these results into account, Figure 1 details the model proposed in this research

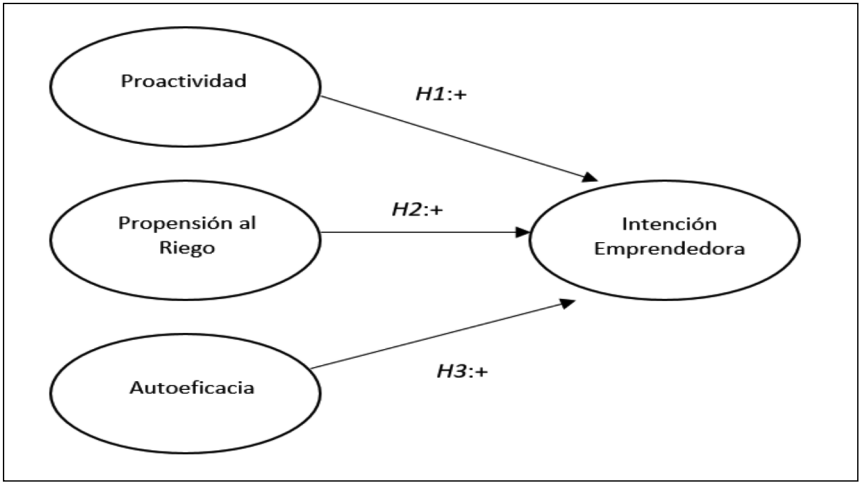

Figure 1. Proposed model based on the Theory of Planned Behavior (1991) by Ajzen

Below are the most important theoretical contributions of the variables studied in this research.

Entrepreneurial intentions state that the decision to start an entrepreneurial activity requires a pre-existing belief that such activity is desired and achievable, coupled with some personal propensity to act on opportunities and some predominant factors. In the psychological field related to the entrepreneurial phenomenon, there are some variables focused on the behavioral attitude towards entrepreneurship such as self-efficacy, proactivity, and risk propensity (Frese & Gielnik, 2014; Scherer, Adams, Carley, & Wiebe, 1989; Prabhu, McGuire, Drost, & Kwong, 2012; Sánchez, 2011; Sánchez *et al*., 2005; Zhao, Seibert, & Hills, 2005). Moreover, other variables influence entrepreneurship due to their effect, which is why sociodemographic factors were considered for this research as control variables, such as (a) gender, (b) age, (c) marital status, (d) income level, and (e) field of education.

According to Bateman & Crant (1993), proactive personality refers to the tendency to initiate and maintain actions that directly alter the surrounding context. The action involves creating change, not merely anticipating it. These are not just important attributes of flexibility and adaptability to an uncertain future. To be proactive is to take the initiative in improving the business. At the other extreme, non-proactive behavior includes sitting back, letting others make things happen, and passively waiting for externally imposed change to work well

(Bateman & Crant, 1999). Sanchez (2011) stated that proactive people identify opportunities and act on them, show initiative, and take direct action until they have made a significant change. Conversely, non-proactive people do not identify and act on opportunities to change things. Proactivity emphasizes anticipation and prevention of problems before they occur and proclivity to action that includes creative interpretation of rules and a level of persistence and patience to achieve change (Sanchez, 2011; Sanchez *et al*., 2005).

Shapero and Sokol (1982) suggested that this personal inclination to act on opportunities is one of the factors that can affect the relationship between intention and behavior by precipitating or facilitating the realization of intentions. In the specific context of entrepreneurship, Crant (1996) found that entrepreneurial intentions were positively associated with having a proactive personality.

According to Covin and Slevin (1989), the concept of risk used in the risk propensity factor has been linked to entrepreneurship. It is evident that entrepreneurial activity, by definition, involves some risk. In this framework, risk-taking refers to the willingness of the subject to commit to sources of opportunity with the possibility of failure (Sánchez, 2011). Risk propensity has been related to the individual who wants to be an entrepreneur, so it can be said that all entrepreneurial activity has as its primary condition, the assumption of some risk (Nieß & Biemann, 2014).

According to Bandura (1986), self-efficacy assessments seem to be objective for understanding planned and intentional behavior, given their influence on the formation of entrepreneurial intentions in university students. The above makes the analysis of self-efficacy the most appropriate in the research on entrepreneurial intentions. On the other hand, Ajzen (1991) argued that self-efficacy has a place in the patterns of planned behavior intentions in general and in the intentions of entrepreneurial planned behavior in particular and is often related to the control of perceived behavior. Thus, the perception of self-efficacy appears to be critical in planned understanding and intentional behavior, given its influence on the formation of intentions through the perception of the feasibility situation (Sanchez *et al*., 2005; Zhao *et al*., 2005). This premise makes the study of self-efficacy particularly important regarding entrepreneurial intentions in university students. Furthermore, given that self-efficacy predicts the recognition of opportunities, it is not surprising that the perception of self-efficacy appears as a central element in entrepreneurial intentions (Prabhu *et al*., 2012; Scherer *et al*., 1989). Research carried out in recent years has successfully demonstrated the predictive power of the perception of self-efficacy in the formation of entrepreneurial intentions, due to its direct influence and its association with other variables of interest in explaining entrepreneurial

intentions in university students (Prabhu *et al*., 2012; Sánchez, 2011; Sánchez *et al*., 2005; Zhao *et al*. 2005).

The following research hypotheses were put forward to test the factors influencing entrepreneurial intentions in undergraduate university students. These hypotheses are based on the TPB by Ajzen (1991):

H1: Proactivity has a positive impact on the entrepreneurial intentions of undergraduate students.

H2: Risk propensity positively affects undergraduate entrepreneurial intentions.

H3: Self-efficacy has a positive impact on the entrepreneurial intentions of undergraduate students.

Method

This research studies the influence of self-efficacy (SELF-EFF), risk propensity (RISK), and proactivity (PROACT) on the entrepreneurial intention (ENTR_INT) of university students. The proposal was a model based on the TPB by Ajzen (1991, 2011), taking as a unit of analysis a voluntary non-probabilistic sample of university students from the higher education institutions of Ecuador. The sample used was 603 students from public and private universities in the provinces of Guayas, Pichincha, and Azuay.

The population under research were students from eight universities in the provinces of Guayas, Pichincha, and Azuay. The universities which participated in the data collection are (a) *Universidad Politécnica Salesiana–UPS*, (b) *Universidad Católica de Cuenca–UCACUE*, (c) *Escuela Superior Politécnica del Litoral–ESPOL*, (d) *Universidad Católica Santiago de Guayaquil–UCSG*, (e) *Universidad de Guayaquil–UG*, (f) *Universidad Central de Ecuador–UCE*, (g) *Escuela Politécnica Nacional–EPN*, and (h) *Pontificia Universidad Católica del Ecuador–PUCE*. The type of sampling used in this research is voluntary non-probabilistic, using the self-selection technique (Saunders, Lewis, & Thornhill, 2012). 603 valid surveys were obtained from students who participated voluntarily in the application of the survey.

The instrument in this research relied on a questionnaire addressed to the members of the sample indicated above. The study used a measurement instrument adjusted for the context of university students in Ecuador for the collection of data. In order to ensure the validity of the translated measurement instrument, a reverse translation from Spanish to English was done to confirm the original meaning of the questions (Murray, Yong, & Kotabe, 2011). A pilot test was conducted to assess the understanding and structure of the questions for each

factor before the implementation of the survey. The use of the booklet for each variable is specified below.

Entrepreneurial intentions: measured using a Likert scale from 1 to 5, an item measures the ability of the student to create their own business.

Proactivity: measured according to the Proactive Personality scale by Seibert *et al*. (1999, 2001) divided into ten items which measure the propensity of the individual for proactive behavior using a Likert-type scale from 1 to 5 from "strongly disagree" (1) to "strongly agree" (5).

Risk propensity: measured according to Rohrmann (1997) utilizing the Risk Orientation Questionnaire (ROQ) divided into 12 items that evaluate the general tendency of individuals to assume risk employing a Likert-type scale from 1 to 5 from "strongly disagree" (1) to "strongly agree" (5).

Self-Efficacy: measured using a Likert-type scale of 1 to 5 from "completely incapable" (1) to "completely capable" (5), according to the Entrepreneurial Self-Efficacy (ESE) scale divided by 23 items by De Noble *et al*. (1999), which measures the belief of the individual in their abilities to perform the tasks required for business creation.

In order to ensure the reliability of the questionnaire included in the research instrument, its internal consistency was analyzed using the Cronbach alpha coefficient and the composite reliability coefficient. Because the PROACT and SELF-EFF factors have more than ten items each, the Cronbach alpha coefficients may be underestimated. Therefore, a joint reliability analysis was done using the Cronbach alpha coefficient and composite reliability (Hair, Hult, Ringle, & Sarstedt, 2014).

A refinement of constructions was carried out to ensure the representativeness of the scales in the context of university students in Ecuador. For this purpose, a confirmatory factor analysis (CFA) was performed to evaluate the individual contribution of the observable variables in the construction of the factors (Lattin, Carroll, & Green, 2003). The application of the CFA made it possible to reduce the dimensionality of the factors and adjust the scales for the study of the determinants of the entrepreneurial intention of university students in Ecuador. To this end, a model based on the TPB by Ajzen (1991, 2011) was proposed, through which the influence of self-efficacy (SELF-EFF), risk propensity (RISK), and proactivity (PROACT) on the entrepreneurial intention (ENTR_INT) of university students were studied. In order to test the hypotheses of the model, a structural equation model was estimated. Through the estimation of the structural model, this study aimed to test the positive and significant influence of self-efficacy, risk propensity, and proactivity on the entrepreneurial intention of university students in Ecuador.

Before the estimation of the CFA measurement model and the structural equation model, it was necessary to know the behavior of the data for the selection of the estimation method (Shumacker & Lomax, 2016). To prove whether the data of the observable variables obtained from the survey were distributed normally, a visual analysis and the Kolmogorov-Smirnov (K-S) test were performed. A visual analysis revealed that the data of the observable variables had a leptokurtic distribution with negative asymmetry, which constituted the first evidence of the non-normal distribution of the data (Ghasemi & Zahediasl, 2012). Furthermore, to perform a more reliable analysis of univariate normality, the K-S test was applied, which is the best alternative in situations where there are more than 30 records (Long, Kara, & Splillan, 2016). Employing the K-S test, *p-values* <.05 were obtained, thus rejecting the hypotheses of normal distribution of the variables.

Given the evidence of the non-normality of the data of the observable variables, the outliers that could affect the normal behavior of the data were identified (Penny, 1996). The Mahalanobis distance test was used to identify outliers, taking *p-values* <.001 as outliers. It was identified that 13.9% of the records corresponded to outliers. After identifying the outliers, they were removed from the original base, and there was no improvement in the non-normal distribution of the data.

In order to know the intensity of the non-normality of the data, the multivariate normality of the data was evaluated utilizing the Mardia test. Using the Real Statistics add-on for Excel, severe multivariate non-normality was found by analyzing kurtosis and multivariate asymmetry (Zaiontz, 2017). In this situation, partial least-squares is a variance-based method that allows the estimation of structural equation models in situations where the distribution of the data is non-normal, and there are outliers in the result (Ringle, Sarstedt, & Straub, 2012).

To confirm that the data allowed for a factorial analysis, the sample adequacy of Kaiser-Meyer-Olkin (KMO) was analyzed, and the Bartlett sphericity test was performed (Montoya, 2007). A KMO value of .857 was obtained, exceeding the recommended critical value of .8. Furthermore, a *p-value* < .05 was obtained in the Bartlett test, which suggests that the correlation matrix of the observable variables does not correspond to an identity matrix. Thus, the suitability of the data for a factorial analysis is justified. Before performing the CFA, the reliability of the scales was evaluated with the Cronbach alpha test, finding values below the critical value of .7 for the confirmation of scales tested in previous investigations. Following this analysis, the relations with investors (F3), challenge (F5), and human resource development (F6) factors, which are second-order self-efficacy dimensions, were found to have internal consistency below .7 (see Table 1). Acceptable composite reliability values above .7 were

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obtained. However, since there were mean extracted variance values below the critical value of .5, it was necessary to refine the constructs by evaluating the factorial loads.

Table 1
Scale Reliability Analysis – Original Constructs

		Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Self-Efficacy (SELF-EFF)		0.929	0.938	0.415
SELF-EFF	Development of new products (F1)	0.865	0.897	0.558
	Innovative Environment (F2)	0,714	0.818	0.546
	Relations with Investors (F3)	0.627	0.798	0.585
	Definition of Objectives (F4)	0.758	0.861	0.674
	Challenges (F5)	0.510	0.733	0.498
	Development of Human Resources (F6)	0.412	0.719	0.487
Proactivity (PROACT)		0.849	0.810	0.327
Risk Propensity (RISK)		0.735	0.761	0.283

The estimation of the measurement model employing the PLS algorithm identified the observable variables that have a low contribution to the construction of the proactivity, self-efficacy, and risk propensity factors. The value .7 was taken as a critical value for the factorial loads; this made it possible to refine the constructs for the case of university students in Ecuador. Annex A presents the questions corresponding to (a) the observable variables A1 to A23 corresponding to self-efficacy; (b) variables R1 to R12 corresponding to risk propensity, for which in the cases of R2, R4, R6, and R12 the sense of the scales was inverted to maintain the same connotation of the questions; (c) variables PRO1 to PRO10 corresponding to proactivity.

After eliminating the variables with low factorial loads, scales with better internal consistency and with a higher level of parsimony were obtained. As shown in Table 2, among the six dimensions of self-efficacy proposed by De Noble *et al*. (1999), the challenges factor (F5) had an internal consistency of .579, while the development of the human resources

factor (F6) had an internal inconsistency of .632. Although .7 is a commonly acceptable critical level of internal consistency, when the factor structures proposed by the literature are confirmed, it is valid to accept .6 as a critical level when a study is conducted in poorly researched environments (Kline, 2011). In the discriminant validity analysis using the Fornell-Larcker and cross-load criteria, the challenges factor (F5) was eliminated because it has a low internal consistency, and its items have high loads on other Self-Efficacy factors (Lloret, Ferreres-Travers, Hernández-Baeza, & Tomá-Miguel, 2014).

Table 2
Scale Reliability Analysis - Reduced Measurement Model

		Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Self-Efficacy (SELF-EFF)		0.935	0.944	0.533
SELF-EFF	Development of new products (F1)	0.863	0.901	0.647
	Innovative Environment (F2)	0.780	0.868	0.688
	Relations with Investors (F3)	0.758	0.892	0.805
	Definition of Objectives (F4)	0.758	0.861	0.674
	Challenges (F5)	0.579	0815	0.691
	Development of Human Resources (F6)	0.632	0.844	0.730
Proactivity (PROACT)		0.830	0.898	0.747
Risk Propensity (RISK)		0.883	0.919	0.740

The discriminant validity analysis by Fornell and Larcker (1981) was done to complement the reliability analysis of the model factor scales, and for the convergent validity, the mean extracted variance (AVE) was carried out. Table 2 displays the composite reliability values above .815 and extracted variances above .533. AVE values greater than .5 indicate the factor variables that explain more than half of the factor variance (Hair *et al*., 2014). Table 3 presents the results of the discriminant validity analysis according to the criteria of Fornell and Larcker (1981), in which it is shown that the square root of the variances extracted from latent variables is greater than their correlation with other factors in the model. The above confirms the reliability and validity of the scales that will be used in the estimation of the structural model.

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Table 3
Discriminant Validity –Fornell-Larcker criterion (1981)

	SELF-EFF	F1	F2	F3	F4	F6	ENTR_INT	PRO-ACT	RISK
SELF-EFF	0.730								
F1	0.946	0.804							
F2	0.767	0.723	0.829						
F3	0.878	0.776	0.536	0.897					
F4	0.919	0.793	0.658	0.783	0.821				
F6	0.829	0.725	0.405	0.769	0.786	0.854			
ENTR_INT	0.642	0.529	0.378	0.731	0.605	0.621	1.000		
PROACT	0.772	0.684	0.537	0.785	0.722	0.663	0.763	0.864	
RISK	0.740	0.635	0.512	0.679	0.767	0.654	0.569	0.707	0.860

Note: data corresponding to the square root of the variances extracted and correlations between factors of the structural model

Once the reliable and valid scales were obtained through the CFA refinement process, a PLS-SEM structural equation model was estimated. PLS-SEM is a method for analysis used in management information systems, which has been widely used and accepted by the scientific community since the release of the statistical package SmartPLS (Hair, Hult, Ringle, & Sarstedt, 2014; Ringle, Sarstedt, & Straub, 2012).

Figure 2 presents the path coefficients obtained from the estimation of the structural equation model employing the PLS algorithm. Lattin *et al*. (2003) suggest accepting routing coefficients at values greater than .20. However, in the presence of data with a multivariate non-normal distribution, Type I error can be committed by generating unreliable estimators (Brown, 2015). However, in the case of having data with multivariate non-normal distribution, Ringle *et al*. (2012) and Kwong and Kay (2013) suggest that the contrast of influence hypotheses, using estimates of structural equations by PLS, be carried out by *bootstrapping* with five thousand subsamples for the contrast of hypotheses employing the analysis of *p-values* generated by *t*-test.

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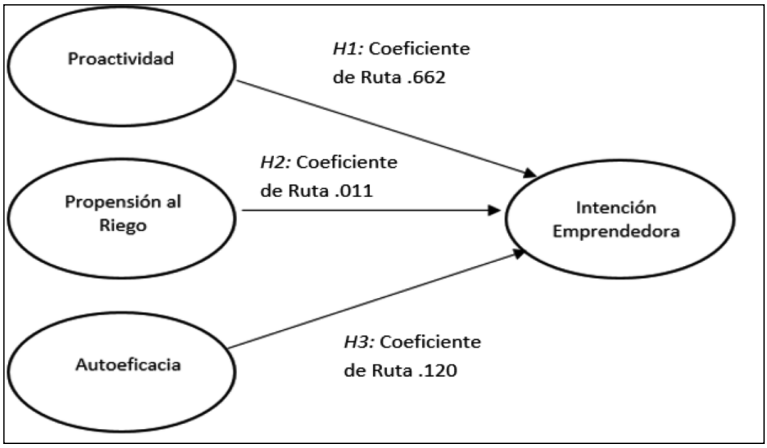

Figure 2. Estimation results through PLS Algorithm

Table 4 presents the result of the *bootstrapping* estimation with five thousand subsamples.

Table 4
Bootstrapping Results

	Original sample (O)	Mean (M) of the sample	Standard Deviation (STDEV)	t-statistic (| O/STDEV|)	P-Values
H1: PROACT -> ENTR_INT	0.657	0.659	0.053	12.361	.000**
H2: RISK -> ENTR_INT	0.011	0.013	0.046	0.232	.816 NS
H3: SELF-EFF -> ENTR_INT	0.127	0.122	0.063	2.023	.043*
SELF-EFF -> F1	0.946	0.946	0.003	301.372	.000**
SELF-EFF -> F2	0.767	0.768	0.015	50.225	.000**
SELF-EFF -> F3	0.878	0.878	0.013	65.451	.000**
SELF-EFF -> F4	0.919	0.918	0.009	104.801	.000**
SELF-EFF -> F6	0.829	0.829	0.018	45.101	.000**

Note: ** significant at .01; * significant at .05; NS not significant

Utilizing the estimation of the model through the PLS algorithm and bootstrapping, it was possible to verify hypothesis 1 and hypothesis 3 of this work. In other words, that proactivity () as a one-dimensional reflective factor and that self-efficacy () as a reflective factor

of second-order, have a positive and significant influence on the entrepreneurial intention of university students in Ecuador. On the other hand, with a coefficient of .011 and a significance level higher than the critical value of .05, hypothesis () of positive and significant influence of risk propensity on the entrepreneurial intention of university students in Ecuador was rejected.

In order to evaluate the quality of the structural model estimation, the determination coefficient was evaluated and was found to have a value of .589. Although there is no critical value for , the level of predictability of the model is considered to be very good. Even if the objective of PLS estimation is to maximize the , the quality of the model must also be evaluated using the size effect, which measures the variation of the coefficient of determination upon elimination of an exogenous factor (Ringle *et al*., 2012). The value of the proactivity (PROACT) factor was .382, which represents a high predictive capacity in the entrepreneurial intention of university students in Ecuador. On the other hand, the self-efficacy factor (SELF-EFF) despite having a significant influence on the entrepreneurial intention, has a low predictive capacity with an value of .013.

Furthermore, the analysis of the variance inflation factor (VIF) was carried out to evaluate the collinearity of the variables of the measurement model and the VIF values for the structural model (Garson, 2016). A critical VIF value of five was taken, finding no collinearity problem in the structural model, but resulting in a VIF value of 5.092 for the observable variable A3. Considering the evidence of collinearity, the proposal is to group or eliminate observable variables (Garson, 2016). However, because it is so close to the critical value of five, the New Product Development factor (F1) was maintained, since after estimating the model without the variable corresponding to the capacity to recognize new opportunities (A3), it did not improve the predictive quality of the model.

Although the model has an important predictive capacity in the entrepreneurial intention of undergraduate university students in Ecuador, an analysis of the heterogeneity of the model was done to deepen the intensity of the relationships. For this purpose, a moderation analysis was carried out, including variables of characteristics of the unit of analysis. Age and gender were used to perform the moderation analysis using the statistical package SmartPLS version 3. The moderation analysis revealed that the intensity in the relationship between the perception of self-efficacy and entrepreneurial intention is not moderated by age or gender. Moreover, the results proved that the intensity of the relationship between proactivity and entrepreneurial intent is not different for men and women or university students of different ages.

Discussion

This work studies the influence of planned behavior on the entrepreneurial intentions of undergraduate university students. To this end, the dimensions of planned behavior proposed by Ajzen (1991, 2011) were studied. Considering that the culture of Ecuador is extremely varied, and although this theory has been used to predict the behavior of individuals, these studies have focused on developed economies using individuals with a university education as the population of analysis (Ambad & Damit, 2016; Goethner *et al*., 2012; Kakouris, 2016; Shirokova *et al*., 2015). The TPB has been used in different contexts, so it has been suggested that its external consistency be evaluated in less researched contexts.

Using confirmatory factor analysis, it was possible to validate the scales for the context of Ecuadorian undergraduate university students. To deepen the results, the self-efficacy factor was utilized as a second-order construct constructed by the six dimensions of self-efficacy proposed by De Noble *et al*. (1999): (a) development of new products, (b) innovative environment, (c) relations with investors, (d) definition of objectives, (e) challenges, and (f) human resource development. This analysis revealed that for university students in Ecuador, self-efficacy does not imply the posing of challenges.

On the other hand, this study was able to demonstrate that it is possible to explain entrepreneurial intention by the self-efficacy and proactive behavior of university students in Ecuador. The dimensions of planned behavior by Ajzen explain the .589 variation in the results of entrepreneurial intention for the case of Ecuadorian university students, according to the analysis of the coefficient of determination. The current literature (Brooke, Mohd, & Abu, 2017; Bullough, Renko & Myatt, 2014; Kaczmarek & Kaczmarek-Kurczak, 2016; Prabhu *et al*., 2012; Shinnar *et al*., 2014) utilizes other variables that have a more significant impact on entrepreneurial intentions in university students, such as self-efficacy and proactivity, which have a place in models of planned behavior intentions.

According to Figure 2, H1 and H3 could be verified for the case of university students in Ecuador and are consistent with previous studies (Drnovšek, Wincent, & Cardon, 2010; Frese & Gielnik, 2014; Prabhu *et al*., 2012; Sánchez, 2011; Sánchez *et al*., 2005; Zhao *et al*., 2005). The above validates the relevance of entrepreneurial intention in the research. On the other hand, H2 could not be verified for the case of university students in Ecuador, even when a heterogeneity analysis of the model was carried out to determine if the relationship could be confirmed in students according to their gender and age, which would correspond to a novel result since it is not consistent with previous studies (Busenitz, 1999; Larson,

Bussom, Vicars, & Jauch, 1986; Nieß & Biemann, 2014; Sánchez, 2011; Soria-Barreto *et al*., 2016). The results of the estimation of the heterogeneity of the model by gender and age may be due to the characteristics of the sample corresponding to students from eight different universities and different fields of study. Therefore, the scientific contribution to academia would be that the TPB manages to explain entrepreneurial intention in university students through two of its three dimensions.

Another contribution of this research is the inclusion of gender as a moderating variable in the intensity of the relationships between the dimensions of planned behavior and entrepreneurial intent. The above was made possible by the use of PLS as an estimation method, which allows the inclusion of binary variables in the analysis of model heterogeneity (Hair *et al*., 2014).

Conclusions

This research studied the entrepreneurial intention of Ecuadorian undergraduate university students using the TPB by Ajzen (1991, 2011). For the study of entrepreneurial intention, behavioral, normative, and control beliefs were analyzed. For the development of the research, three hypotheses were proposed, which are detailed below.

The hypothesis that proactivity has a positive and significant influence on the entrepreneurial intention of undergraduate students in Ecuador is accepted. The CFA refinement of constructs revealed that for university students in Ecuador, proactivity implies behavior directed toward problem-solving from ideas and actions that could even go against what is established. With this, students with greater entrepreneurial intention show confidence in themselves and have the ability to defend the ideas that they believe will lead them to achieve their objectives.

The hypothesis that risk propensity has a positive and significant influence on the entrepreneurial intention of undergraduate university students in Ecuador is rejected. In the case of undergraduate students in Ecuador, risk propensity, as measured by the inverse scale of the original construct, implies unwillingness to take uncalculated risks and a tendency to evaluate the most unfavorable scenarios of their actions. Therefore, adverse risk-taking behavior does not influence the intention to become an entrepreneur in the case of undergraduate students from Ecuadorian universities.

In the case of Ecuadorian undergraduate students, the hypothesis that self-efficacy has a positive and significant influence on entrepreneurial intention is accepted. In this study, self-efficacy is a second-order reflective construct formed by the dimensions of new product

development, innovative environment, relations with investors, definition of objectives, and the development of human resources.

The results of the research contribute to the study of entrepreneurial intention from the perspective of the TPB since it has barely been studied in the context of university students in undeveloped economies. Furthermore, the results obtained have a practical implication because they make it possible to understand the complexity of the mission of Ecuadorian universities concerning the training of entrepreneurs.

From the results obtained, self-efficacy is the conviction of each individual to organize and carry out actions for the fulfillment of challenging objectives related to the development of new products, innovation, development of human resources, and the promotion of interpersonal relationships. Self-efficacy in this research is measured as the belief of a student in their abilities to create a business. For university authorities, it is interesting to know that, for students, self-efficacy does not imply self-perception of skills for teamwork, adaptation to changes in the environment, and resilience; that is?, that they should focus on the fulfillment of entrepreneurial objectives.

For university students in Ecuador, proactivity implies an individual propensity for problem-solving, defense of ideas, and tenacity in fulfilling objectives. On the other hand, university students who show a conservative attitude to risk propensity, through safe decision-making with calculated risks, do not intend to become entrepreneurs, that is, they focus on getting a job. According to the results obtained, proactivity is the factor that most contributes to the intention of starting a business in the short term. On the other hand, entrepreneurial intent is also influenced in a positive and significant way by the self-perception of skills necessary for the creation of new businesses. However, this perception of skills is not a great predictor of entrepreneurial intent. Finally, entrepreneurial intent in the near future does not depend on the attitude to risks related to decision-making and actions taken for the creation of a new business.

In conclusion, the entrepreneurial intent in university students depends mainly on proactivity in problem solving and persistence in achieving objectives for the development of a business idea. The moderation analysis revealed that the importance of proactivity and self-efficacy for entrepreneurship does not make a significant difference in entrepreneurial intent for university students of any age.

One of the main limitations of this study is the type of sampling used for the implementation of the survey. The data were collected through the application of surveys with perception measurements to students from different fields of study and types of universities, considering that the sample maintains the same composition of the population. On the other hand, with regard to temporality, the data were collected at a single moment in time, so that there are no

causal relationships between variables. One of the limitations of cross-sectional studies is that the variables of planned behavior and entrepreneurial intention are collected at the same time.

In order to expand the knowledge of entrepreneurial intention, the proposal is to compare the results of this research with the results of master's and doctoral students to evaluate if there is a significant difference in the dimensions of planned behavior and its influence on entrepreneurial intention. Furthermore, another suggestion is to carry out a cross-sectional study to determine whether the academic training received by students influences the relationship between planned behavior and entrepreneurial intention. Likewise, to contribute to the knowledge of entrepreneurial intention, another recommendation is to study the effect of the type of degree on the relationship between planned behavior and entrepreneurial intention. The last suggestion is to analyze the entrepreneurial intention of university students through personal variables such as leadership styles and personality traits using the cross-sectional non-experimental design.

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Annex

Proposed Questionnaire

PROACTIVITY Measures the propensity of the individual for proactive behavior					
SCALE	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
	1	2	3	4	5
I am continually looking for new ways to improve my life.					
I have been part of a force for constructive change at my workplace.					
There is nothing more exciting than watching my ideas come to fruition.					
If I see something I do not like I fix it.					
No matter what the odds are, if I believe in something, I will make it happen.					
I love to defend my ideas, even against ?the opposition of others.					
I excel at identifying opportunities.					
I am always looking for better ways to do things.					
If I believe in an idea, nothing will stop me from making it happen.					
I can spot a good opportunity before others do.					
RISK-TAKING PROPENSITY The general tendency of individuals to take risks will be assessed					
I am very careful when I make plans and when I act on them.					
I follow the motto, "nothing ventured, nothing gained."					
I am not generally inclined to adventurous decisions.					

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If a task seems interesting, I might choose to do it, even if I am not sure I can handle it.	
I do not like to put anything on the line; I would rather be on the safe side.	
Even though I know my possibilities are limited, I would try my luck.	
In my work, I only set limited goals so that I can achieve them without difficulty.	
I express my opinion, even though most people have opposing views.	
My decisions are always made with care and precision.	
I would like to work with my boss a little more in order to demonstrate my competence, despite the risk of making mistakes.	
Tendency to imagine the unfavorable results of my actions	
Success makes me take greater risks	

SELF-EFFICACY
Measures the belief of the individual in their abilities to perform the tasks demanded for the creation of a business
Working effectively under pressure
Favorable relations
Recognizing new opportunities
Core Employee
Organizational Vision and Values
Improving existing products
Relationships with important people
Areas of personal growth
Personnel Planning
Inspiration to others
Tolerance for unexpected changes
Ability to solve common problems

Identifying potential resources
Let people be their own boss
Persisting in the face of adversity
Satisfy unmet customer needs
Quick actions to pursue opportunities
Letting people try doing things
Using old concepts in new ways
Determining if business is going well
Encouraging people to make decisions
Identifying and building management teams
Forming partnerships or alliances
ENTREPRENEURIAL INTENTION
Intention to set up their own business within four years