Perceptual Variables and Nascent Entrepreneurship in Selected Latin American Countries. Evidence from the GEM 2018 APS

Variables de percepción y emprendimiento naciente en países seleccionados de América Latina. Evidencia obtenida de la GEM 2018 APS

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Abstract

The purpose is to provide empirical evidence of the impact of perceptual variables on a person's decision to join or not to join a group of nascent entrepreneurs. The method followed is a logistic regression, which is applied to the most recent data from nine Latin American countries available in the Global Entrepreneurship Monitor 2018, Adult Population Service, or GEM 2018 APS. Following the existing literature, we interconnect perceptual variables with control variables in the form of sociodemographic characteristics. New entrepreneurs tend to depend more on subjective perceptions than on sociodemographic variables. Evidence suggests that having the mentoring of a role model and the confidence in possessing the necessary knowledge and skills are inseparable variables with the most significant impact on the decision to become an entrepreneur. Our results also suggest that entrepreneurial knowledge does not necessarily originate from formal classroom education, as this variable was not significant in the model. The foregoing supports the hypothesis that confidence in one's knowledge and abilities results from contact with other entrepreneurs who serve as role models, instructors, and mentors, which is consistent with the social learning theory.

Keywords: *entrepreneurship; theory of planned behavior; Latin America; entrepreneurial intention.*
JEL Classification: *D91, J68, L26.*

Resumen

El objetivo es aportar pruebas empíricas de los efectos de las variables de percepción en la decisión de una persona de unirse o no a un grupo de nuevos emprendedores. El método que se siguió es el de la regresión logística aplicada a los datos más recientes de nueve países latinoamericanos, disponibles en la encuesta del Global Entrepreneurship Monitor, GEM 2018 APS. De acuerdo con la bibliografía actual, interconectamos variables de percepción con variables de control en forma de características sociodemográficas. Los nuevos emprendedores tienden a depender más de percepciones subjetivas que de variables sociodemográficas. Las pruebas sugieren que tener la confianza de poseer los conocimientos y las habilidades necesarias, además de conocer a un emprendedor modelo, son variables inseparables que ejercen mayor impacto en la decisión de convertirse en emprendedor. Nuestros resultados también sugieren que el conocimiento que hace falta para emprender no necesariamente se origina en la educación formal, ya que esta variable resultó no significativa en el modelo. Esto respalda la hipótesis de que la confianza en los propios conocimientos y habilidades es resultado del contacto con emprendedores que hacen las veces de modelos, instructores y mentores, lo cual es congruente con la teoría del aprendizaje social.

Palabras clave: *emprendimiento; teoría de la conducta planificada; América Latina; intención de emprendimiento.*
Clasificación JEL: *D91, J68, L26.*

1. Introduction

Most established entrepreneurs once faced the dilemma of crossing the borderline into nascent entrepreneur territory with the purpose and expectation of transforming ideas into profitable endeavors. This decision required unique talents, including the ability to innovate, introduce new products, and explore new markets, as well as an economic and institutional environment that allowed profit expectations to be solid enough to assume the risks that any business venture entails.

Among other key factors influencing the decision to become an entrepreneur are attitudes and self-perceptions, which constantly change in response to the motivations generated by different variables, such as meeting a model entrepreneur, visualizing business opportunities, and self-confidence in one's knowledge and skills. These favorable tailwinds can, however, be tempered by risk aversion, reflected as the fear of failure. For a potential entrepreneur, the net result of the mix of both "internal" and "external" variables can translate into a favorable attitude to start a new business. Therefore, attitude, which is the net result of a series of incentives generated through one's perceptions and beliefs, combined with the discernment of the existing external environment, determines behavior, the outcome of which is the decision to join or not join the group of nascent entrepreneurs. Understanding and quantifying how perceptual variables influence the formation of entrepreneurial intentions is essential because intentions are the best "predictor of an individual's [future] behavior," which, in this context, results in the creation of new businesses. (Fishbein & Ajzen, 1975, 369). Quantifying the impact of perceptual variables on a person's behavior, reflected by their decision to join or not join the group of nascent entrepreneurs, is the main objective of this study.

A logistic regression model is applied to the nine Latin American countries included in the GEM 2018 APS to achieve this objective. In addition to the perceptual variables, control variables are also included in the form of sociodemographic characteristics of the respondents.

Section One presents a survey of the literature identifying both perceptual and sociodemographic variables common to the regression models in this area of research. Section Two describes the data from the Global Entrepreneurship Monitor 2018, Adult Population Service, or GEM 2018 APS, used to estimate the regression model. The data for the nine Latin American countries includes 20,194 respondents,

of which 4218 stated that they belonged to the group of nascent entrepreneurs. The number of respondents per country ranges from a minimum of 724 in Argentina to 7677 in Chile. Section Three describes the research methodology. Section Four presents the empirical results and a discussion of their implications. The final part contains the conclusions and recommendations.

The dynamics of the entry of new companies into markets promote competition, job creation, economic growth, and development (Acs et al., 2012), therefore, facilitating the transition from a potential entrepreneur to a nascent entrepreneur must be part of the public policy objectives in any country.

2. Theoretical Framework

The theory of planned behavior (Fishbein & Ajzen, 1975) represents the conceptual framework that supports the inclusion of the attitudinal and perceptual variables as predictors of the individual's intention to perform a behavior, which consists of whether or not to join the group of nascent entrepreneurs. This intention, in turn, is influenced by three key factors: (1) the individual's attitude toward the behavior, (2) the subjective norm regarding the behavior, and (3) the perceived behavioral control, which are explained below.

- Attitude toward the behavior: This component reflects the individual's overall evaluation or favorability toward the behavior. It includes beliefs about the consequences of the behavior and the subjective evaluation of these consequences.
- Subjective norm: This component represents the perceived social pressure or normative expectations regarding the behavior. It involves the individual's perception of the views and expectations of other members of society.
- Perceived behavioral control. This component reflects the individual's perception of the behavior's ease or difficulty. It considers factors such as resources, skills, and obstacles that may influence the individual's ability to perform the behavior.

In this context, intended behavior results from a combination of attitudes and perceptions. In terms of the predictor variables in the model, self-confidence is an attitude defined by the American Psychological Association (APA) as the "trust in

one's abilities, capacities and judgment. Because it is typically viewed as a positive attitude…" (APA, n.d.). Visualizing business opportunities and the fear of failure are encompassed as perceptions since perception is defined as "the process or result of becoming aware of objects… by means of the senses… [it] enable[s] organisms to organize and interpret the stimuli received into meaningful knowledge and to act in a coordinated manner". Finally, a role model is defined as "a person or group serving as an exemplar for the goals, attitudes, or behavior of an individual, who identifies with and seeks to imitate the role model" (APA, n.d.). This definition suggests the importance of having a role model to emulate and aspire to become. In a nutshell, theory suggests that behavior is motivated by self-confidence, the visualization of business opportunities, and the presence of role models, and it is unmotivated by the fear of failure.

3. Literature Review

A wealth of empirical research establishes a connection between perceptual variables and nascent entrepreneurship. On average, the findings have demonstrated a positive and statistically significant correlation between mentoring role models, possessing the necessary knowledge and skills to start a new business (self-efficacy), and visualizing favorable business opportunities. A negative correlation has been found with the fear of failure.

Concerning role models, there is a consensus among researchers that observing role models empowers individuals to discover and learn specific skills and gain the knowledge required to be an entrepreneur (Scherer et al., 1989; Lent et al., 1994; Bosma et al., 2012; Newman et al., 2019). The positive effect depends on by whom, when, and in which context the exposure occurs (Abbasianchavari & Moritz, 2020). For example, on the one hand, having entrepreneurial parents affects the likelihood of entrepreneurial intentions (Geldhof et al., 2014; Chlosta et al., 2012). On the other hand, entrepreneurial intentions can also be strengthened by contact with peers (Kacperczyk, 2013). In addition, interaction with co-workers who offer training that motivates innovative behavior can positively affect entrepreneurial intentions (Miao et al., 2018), and educators with previous entrepreneurial involvement can also have this effect (Bueckmann et al., 2018).

Self-efficacy, i.e., a person's belief that they can be successful when carrying out a particular task, is also a key determinant of the intention to engage

in entrepreneurial behavior (Chen et al., 1998; Krueger et al., 2000; Schlaegel & Koenig, 2014). Research has also found a positive direct link between entrepreneurial self-efficacy and the entrepreneurial intentions of working people in both developed and developing countries (Biraglia & Kadile, 2017; Bullough et al., 2014; Dehghanpour Farashah, 2015). Self-efficacy has also been found to be a significant mediator in the influence of entrepreneurship education on entrepreneurial intentions (Amani et al., 2024; Al-Qadasi et al., 2024).

On the topic of fear of failure, it is crucial to note that fear can have a detrimental effect and a significant impact on entrepreneurial activity, as evidenced by several studies (Arenius & Minniti, 2005; Minniti & Nardone, 2007; Welpe et al. 2012). Ng and Jenkins (2018) find that a dispositional fear of the social consequences of failure dampens the otherwise positive relationship between entrepreneurial self-efficacy and entrepreneurial intentions. Their findings suggest that the fear of failure might override the self-confident, nascent entrepreneurs from acting on their entrepreneurial intentions. Sousa-Filho, Souza Lessa, Garcia-Salirrosas and Carvalho Castro (2023) apply different definitions of fear of failure to a sample of Latin American countries, including Brazil, Colombia, Mexico, and Peru. Their findings demonstrate that in Latin America, respondents were more impacted by the fear of being judged by important members of society than by other fears, such as those connected with bankruptcy or uncertainty. On the other hand, some studies have asserted that fear of failure can also motivate entrepreneurial behavior; in this case, fear cannot be considered an inhibiting factor (Cacciotti et al., 2016).

The ability of entrepreneurs to perceive positive business opportunities is also an essential factor in creating and running a business (Shane et al., 2003; Shane & Venkataraman, 2000). Entrepreneurs often identify gaps in the market or novel ways to address existing needs and use their mental skills to explore and develop high-quality entrepreneurial opportunities, thus creating a positive perception of entrepreneurship (De Clercq et al., 2013). Otache et al. (2024) show that opportunity recognition positively impacts entrepreneurial intentions and that this type of recognition serially mediates the relationship between entrepreneurial education and entrepreneurial intentions.

4. Methodology

4.1 The Data

The data for this study was obtained from the Adult Population Survey (APS), which targets adults aged 18-64 residing permanently in the country on the survey date. The GEP is a consortium of national teams that conducts survey-based research on entrepreneurship worldwide and is the only global research source collecting data on entrepreneurship directly from individual entrepreneurs. The goal of the surveys is to explore the role of the individual in the lifecycle of the entrepreneurial process. One of the unique characteristics of the survey is the focus on people's motivation for starting a new business, the actions taken to start and run a new business, and entrepreneurship-related attitudes.[1] The most recent GEM APS includes 48 countries, nine from Latin America. These countries are Argentina (AR), Brazil (BR), Chile (CH), Colombia (CO), Guatemala (GT), Panama (PN), Peru (PE), Puerto Rico (PR) and Uruguay (UY), which comprise the sample of interest for this study.[2] Although each country has its unique features, they can be grouped because they share the same socio-cultural and historical background, allowing for a more precise comparability of results. These nine countries have 20,194 respondents, of which 4218 belong to the group of nascent entrepreneurs, none of which were involved in other ongoing business activities at the time of the survey.

We will use the following variables in the model in Table 1 (see Table 1).[3]

4.1.1 The Dependent Variable

The dependent variable will be Total Entrepreneurial Activity (TEA) in the initial stage. This variable includes the following two concepts: (1) nascent entrepreneurs: entrepreneurs who actively participate in the creation of a company of which they

1 A full description of the methodology of GEM's APS questionnaire is available at the GEM website (GEM. *Methodology*, n.d.). GEM annual reports present a summary of the results of the year's APS. However, disaggregated data at the individual level becomes available three years after the report's publication date. Therefore, this article uses the GEM 2018 APS, the latest available when this article was written.

2 Puerto Rico is classified as part of the Latin American Group in the GEM reports because of the Spanish speaking similarity with the rest of the countries.

3 A description of the variables was obtained from Bosma and Kelley (2019, pp.138-139).

will be owners or co-owners; this business has not paid salaries, wages, or any other payments to the owners for more than three months, and (2) entrepreneurs who are currently owner-managers of a new business: own and manage an operating business that has paid salaries, wages or any other payments to owners for more than three months, but not more than 42 months. This variable includes two categories: (1) entrepreneurs driven by the perception of favorable business opportunities and (2) those driven by necessity, as there are no other work alternatives.

4.1.2. The Independent Variables

Perceptual variables:

- Know an entrepreneur: A population that personally knows someone who started a business in the last two years and who represents a role model.
- Business opportunities: A population that sees good opportunities to start a business in the area where they live.
- Own knowledge and skills capabilities: A population with the confidence to possess the skills and knowledge necessary to start a business.
- Fear of Failure: A population that indicates fear of failure would prevent them from starting a business.

Control Variables:

- Gender, age, employment status, income and education levels.

4.2 The Model

A logistic regression model measures the impact of the independent variables on the likelihood of joining the group of nascent entrepreneurs. First, the parameters associated with the independent variables were estimated with the maximum likelihood method, as shown in equation (1), where the dependent variable is the natural logarithm of the ratio of the probability of being part of the group of entrepreneurs between the probability of not being part of this group (odds ratio) (see equation 1).

Equation (1) $\ln(p /1-p) = \beta_0 + \beta_{1x1} + \beta_{2x2} \ldots + \beta_{nxn}$

Once the parameters are estimated, the odds ratio of being part of the group of nascent entrepreneurs is equal to the exponential function of the estimated regression (see equation 2).

Equation (2) $(p/1-p) = e^{(\beta 0 + \beta 1x1 + \beta 2x2... + \beta nxn)}$

If $\beta i > 0$, there will be an expansionary effect on the odds ratio. If $\beta i < 0$, the impact will be contractionary.

Finally, the probability that a person starts his or her own business is obtained from equation (3), where different probability scenarios may be put together depending on the selected independent variables (see equation 3).

Equation (3) $P = [e^{(\beta 0 + \beta 1x1 + \beta 2x2+ ... + \beta nxn)}] / [1+ e^{(\beta 0 + \beta 1x1 + \beta 2x2+ ... + \beta nxn)}]$

Table 1. Coding of the Variables Used in the Model

Variable	**Coding**
Dependent (TEA)	Binary (1, 0) where: 1= Becomes a nascent entrepreneur 0= Does not become a nascent entrepreneur
Independent perceptual variables • Know a model entrepreneur • Visualize favorable business opportunities • Possess the required knowledge and skills • Fear of failure	Binary (1,0) Where: 1= Yes 0= No

Variable	**Coding**
Independent control variables 1. Age	Continuous variable
2. Work Status: • Full-time (0) • Part-time (1) • Retired (2) • Home (3) • Student (4) • Currently not working (5) • Independent (6)	Categorical (0...6) with full-time work status as reference variable = 0
3. Income Level • Lowest 33% (0) • Middle 33% (1) • Highest 33% (2)	Categorical (0...2) with lowest 33% as reference variable = 0
4. Education • No formal education (0) • Primary School (1) • Middle School (2) • High School (3) • Technical Education-first level (4) • Technical Education-second level (5) • Bachelor´s Degree (6) • Graduate Degree (7)	Categorical (0...7) with no formal education as reference variable = 0
5. Gender	Binary: (1) Male (0) Female

Source: Prepared by the authors.

The estimated regression for each of the nine countries in the sample is as follows:

*Nascent entrepreneurship = β0 + β1*know entrepreneur model + β2* business opportunity+ β3* knowledge and skills + β4* fear of failure + β5* age + β6* employment status + β7* income +β8* education + β9* gender*

The following three hypotheses are formulated in the following hypothesis (1), (2) and (3) (see hypotheses 1, 2, and 3):

(1) β1; β2; β3; > 0

(2) β4; β5; < 0

(3) β6; β7; β8; β9; ≥ or ≤ 0

5. Results

The model results are presented in Tables 2 and 3, where the coefficients of the perceptual and control variables are shown along with their significance level (see Table 2 and Table 3). According to equation (1), the coefficients show the change in the logit in response to the presence of the attributes reflected by the binary and categorical variables and by a one-unit change in the continuous variable (see equation 1). The model's goodness of fit was evaluated by calculating the area under the ROC curve (AUC) and the precision and recall metrics obtained through the confusion matrix. The significance of individual independent variables was tested using the likelihood ratio test.

Table 2. Coefficients — Logistic Regression Model

Perceptual Variables	**Argentina**	**Brazil**	**Chile**	**Colombia**	**Guatemala**
To know an entrepreneur	1.060 ***	0.435 **	0.745 ***	0.542***	0.311 **
Favorable business opportunities	0.556 **	0.344 *	0.102	0.377 **	0.201 *
Possessing knowledge and skills	0.436	0.188	1.143 ***	0.989 ***	0.873 ***
Fear of failure	-0.134	-0.313 *	-0.285 ***	-0.415 **	-0.253 *
Control Variables					
Employment Status					
Part-time	-0.104	0.516	-0.245	-0.151	-0.492 **
Retired	-15.005	-2.102 *	-1.310 ***	-0.848	-1.307
Home	-0.832	-2.870 *	-0.481 *	-2.159 *	-0.441 *
Student	-0.391	-0.728	-1.665 ***	-1.353	-0.400
Currently not working	0.061	-1.195 ***	-0.582 ***	-0.343	-0.761 ***
Independent	1.828 ***	1.688 ***	1.365 ***	0.992 ***	1.487 ***
Income Level					
Middle 33%	0.642	-0.302	0.278 ***	-0.022	0.064
Upper 33%	-0.644 **	-0.450 *	0.283 **	0.284	0.201
Education					
Primary — Lower School	Reference	-0.622	0.306	0.404	-0.009
Secondary – Middle School	1.190	-0.463	0.001	0.016	0.236
High School	1.308	-0.430	0.075	0.278	0.336
Technical–first level	1.361	NA	0.169	-0.159	NA
Technical–second level	1.553	-0.211	0.176	0.290	NA
Bachelor's degree	1.350	-0.901	0.186	0.173	0.282
Graduate School	2.193 **	-14.168	0.281	0.355	NA
Gender	0.159	0.018	0.003	-0.019	0.160
Age	-0.023 *	-0.030 ***	-0.024 ***	-0.0145 *	-0.025 ***
Regression constant term	-4.303 ***	-0.386	-1.954	-2.308	-1.495 ***
Number of observations	764	1615	7677	1496	2556

Source: Model estimates.

Rho significance level: *** < 0.001; ** < 0.01; *< 0.05.

Table 3. Coefficients — Logistic Regression Model (continued)

Perceptual Variables	**Panama**	**Peru**	**Puerto Rico**	**Uruguay**
Know an entrepreneur	0.732 ***	0.505***	0.963 ***	0.384 *
Favorable business opportunities	0.208	0.452 **	0.761 ***	0.602 **
Possessing knowledge and skills	1.161 ***	0.711 ***	2.091 ***	1.609 ***
Fear of failure	-0.353	-0.178	-0.297	-0.174
Control Variables				
Employment Status				
Part-time	1.080 ***	0.387	-0.569	-0.334
Retired	0.077	0.270	-0.734	-1.673 *
Home	0.408	-0.584	-1.061	-1.038
Student	0.177	-1.168 **	-0.399	-0.893
Currently not working	0.441	-0.370	-0.465	0.011
Independent	2.881 ***	1.1200 ***	1.401 ***	1.462 ***
Income Level				
Middle 33%	0.337	0.609 **	0.013	-0.090
Upper 33%	0.178	1.011 ***	0.202	0.049
Education				
Primary — Lower school	-0.735	-0.429	NA	-0.087
Secondary — Middle school	-0.885	-0.471	-0.151	-0.54
High School	-0.743	0.158	0.152	-0.501
Technical 1st level	NA	0.044	0.276	-0.58
Technical 2nd level	0.040	NA	NA	-0.143
Bachelor's degree	-0.020	-0.280	0.289	0.074
Graduate School	-0.540	-0.961	-0.574	-0.584
Gender	0.115	0.266	-0.361	-0.121
Age	-0.022 **	-0.011	-0.040 ***	-0.043 ***
Regression constant term	-2.594 ***	-2.894 ***	-2.740 **	-1.362
Number of observations	1939	1253	1415	1479

Source: Model estimates.

Rho significance level: *** < 0.001; ** < 0.01; *< 0.05.

Although the model does not establish causality between the independent variables and the probability of TEA = 1, it does suggest that new entrepreneurs tend to depend relatively more on subjective perceptions than on sociodemographic variables.

The coefficients of the four perceptual variables show the expected signs according to the hypotheses proposed and are statistically significant in most countries. The attribute of knowing a model entrepreneur stands out, where the coefficient was positive and significant for all nine countries. The coefficients associated with possessing the necessary knowledge and skills and visualizing favorable business opportunities were positive and significant in seven of the nine countries. Fear of failure has a negative sign, with a significant coefficient in only four countries.

Concerning the sociodemographic variables, the employment status of independent workers dominates with a positive sign and a high significance level for the nine countries. Medium and high-income levels were positive and significant in Chile and Peru. At the same time, in the remaining seven countries, the coefficients were either negative or not significant, implying that middle-and-high-income levels were irrelevant in explaining people's decisions to join the group of nascent entrepreneurs.

Regarding formal education, the coefficients were not significant at all levels. Three possible explanations could justify this result: (1) the business training model in formal education institutions does not provide practical tools that are useful to start new businesses; (2) new entrepreneurs who come from the lower class did not have access to higher education, and (3) the knowledge and skills necessary to generate self-confidence to start a new business comes from another source, this being the mentoring of a model entrepreneur.

Without income and education as "wealth advantages," potential entrepreneurs must rely on "less materialistic variables" such as knowing and learning from a role model, trusting one's abilities and perception of a good business opportunity.

Table 4 shows the exponential function of the statistically significant coefficients as indicated by equation (2). Values greater than one show an incremental multiplicative impact on the odds of joining the group of nascent entrepreneurs, while values less than one show a contractionary effect (see Table 4) (see equation 2).

Table 4. Exponential Function of Statistically Significant Coefficients

Perceptual Variables	**Argentina**	**Brazil**	**Chile**	**Colombia**	**Guatemala**	**Panama**	**Peru**	**Puerto Rico**	**Uruguay**
Know an entrepreneur	2.886	1.546	2.106	1.720	1.366	2.078	1.657	2.619	1.468
Favorable business opportunities	1.744	1.411		1.458	1.220		1.572	2.141	1.826
Possessing knowledge and skills			3.137	2.689	2.395	3.192	2.037	8.097	5.0
Fear of failure		0.731	0.752	0.660	0.776				
Control Variables									
Employment Status									
Part-time					0.224	2.945			
Retired		0.122	0.270						0.188
Home		0.057	0.618	0.115	0.643				
Student			0.189				0.311		
Currently not working		0.303	0.559		0.467				
Independent	6.221	5.409	3.914	2.697	4.424	17.825	3.064	4.061	4.313
Income Level									
Middle 33%			1.321				1.839		
Upper 33%	0.525	0.638	1.328				2.749		
Education									
Graduate School	8.962								
Age	0.977	0.970	0.977	0.986	0.975	0.979		0.960	0.958
Regression constant term	0.014	0.679	0.142	0.091	0.224	0.075	0.055	0.065	0.256

Source: Tables 2 and 3.

Note: In all cases, the regression constant is included even if the coefficient was not significant since it is necessary for the subsequent calculation of joint probabilities.

Considering the size of the coefficients associated with the four perceptual variables, possessing the knowledge and skills required to start a new business shows the most significant impact. For example, in the case of Puerto Rico and Uruguay, for individuals who perceive to possess this attribute, the odds of joining the group of nascent entrepreneurs are eight and five times greater than those who lack it. In Chile and Panama, the odds are three times greater. Due to the size of the coefficients, this perception becomes the most important individual component in the decision to join the group of nascent entrepreneurs. This perception, however, is only relevant in seven of the nine countries in the sample.

On the other hand, having the support of a model entrepreneur presents slightly smaller coefficients but is statistically significant across all countries. For example, in the case of Argentina and Puerto Rico, for individuals with role model support, the odds of joining the group of nascent entrepreneurs are 2.9 and 2.6 times greater than those without role model support. The positive impact of a role model can be explained by direct observation of his or her activity, which reduces ambiguity and uncertainty associated with entrepreneurial activity and, therefore, encourages it.[4]

Next is the perception of visualizing favorable business opportunities relevant in seven of the nine countries. For example, in the cases of Colombia and Brazil, for individuals who perceive favorable opportunities, the odds of joining the group of nascent entrepreneurs are 1.4 times greater than those who do not. The positive impact of this attribute is easily reconciled with the economic theory of entrepreneurship, which states that being attentive to untapped opportunities is a necessary condition for entrepreneurial action (Casson, 1982).

Concerning the sociodemographic variables, the independent worker represents the only employment status with a significant incremental impact on the odds of joining the group of nascent entrepreneurs. For example, being an independent worker in Panama and Argentina increases the odds of joining this group by 18 and six times compared to the odds of the full-time workers, which are the reference category in the logistic regression.

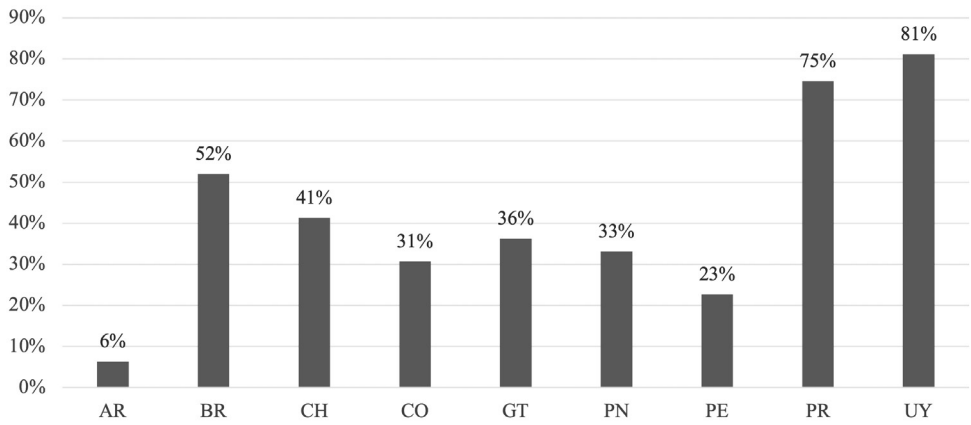
Concerning the significance of the income levels, evidence suggests that for Chile and Peru, the middle and upper classes are the possible cradles of nascent entrepreneurs, with the odds of joining the group of nascent entrepreneurs for

4 Abbasianchavari & Moritz (2020), Bosma et al. (2012). These results are also consistent with Bandura's work (Bandura, 1977), which emphasizes the relevance of role-model perception in social learning.

individuals who belong to the upper class are respectively 1.3 and 2.7 times greater compared to the possibilities of an individual who belongs to the lower class.[5] On the other hand, in Argentina and Brazil, a member of the upper-class is 53% and 63% less likely (respectively) to start a new business compared to a lower-class member.

Complementing equation (2), which calculates the impact of the individual variables on the relative probability of joining the group of nascent entrepreneurs (odds ratio), is equation (3), which provides the absolute probability that TEA= 1. To determine this probability, we first consider a baseline scenario only with the subset of statistically significant perceptual variables for each country, thus isolating the effect of the purely subjective variables that result from the cognitive process of each of the respondents (see equations 2 and 3). The results are shown in Figure 1, with countries listed alphabetically (see Figure 1).

Figure 1. Probability of an Individual Joining the Group of Nascent Entrepreneurs Based on Statistically Significant Perceptual Variables



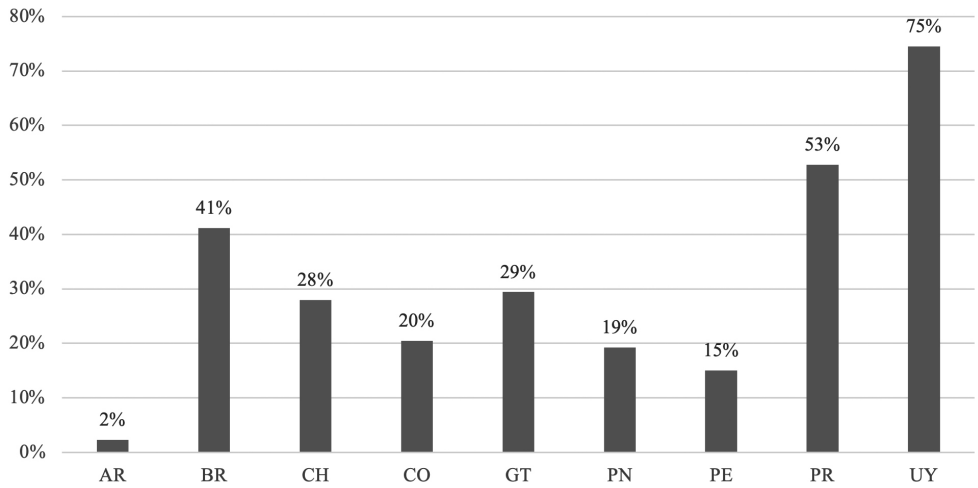
Source: Tables 2 and 3.

5 Which could be the heirs of businesses already established by family members.

The combined impact is relatively high in Uruguay (81%) and Puerto Rico (75%). Brazil, Chile, and Guatemala are on the intermediate scale, where the impact is 52, 41, and 36%, respectively. Panama (33%), Colombia (31%) and Peru (23%) are on the lower scale. Except for Argentina (6%), these results prove that perceptual variables are essential to an individual's probability of joining a group of nascent entrepreneurs.

As part of the individual's attributes, knowing a model entrepreneur deserves special attention because of its relevance across all countries of the sample. Its importance is highlighted by comparing Figure 1 and Figure 2, where the second presents the alternative scenario, which excludes this attribute as an impact factor on the probability of joining the group of nascent entrepreneurs. Figure 2 shows, for example, that the probability drops across all nine countries, especially in Brazil, Chile, and Colombia, where it drops from 52% to 41%, 41% to 28%, and 31% to 20%, respectively (see Figure 1 and Figure 2).

Figure 2. Probability of an Individual Joining the Group of Nascent Entrepreneurs Based on the Statistically Significant Perceptual Variables, Excluding Knowing a Model Entrepreneur



Source: Tables 2 and 3.

The role of a model entrepreneur becomes critical as a trainer and source of empowerment for young entrepreneurs. This "practical training" or "field experience" gained from the mentorship of a role model must ideally be complemented with entrepreneurial business teaching provided by formal classroom education. However, the regression results suggest that the motivation to become a nascent entrepreneur is not necessarily developed in a classroom since, in the nine Latin American countries used in the sample, the level of formal education turned out to be a non-significant variable. This allows us to hypothesize that knowledge and, therefore, confidence in one's abilities to start a new business come directly from contact with entrepreneurs who serve as role models, instructors, mentors, and sources of information. The hypothesis mentioned is strengthened by the social learning theory (Bandura, 1977) and by the consensus among researchers that observing role models in person or through social networks empowers people to discover and learn specific skills and acquire the necessary knowledge to become an entrepreneur (Abbasianchavari & Moritz, 2020; Bosma et al., 2012). Other empirical evidence supports this hypothesis. For example, based on a survey of 292 entrepreneurs who started businesses in the retail, hospitality, and other services sectors in three large Dutch cities, Bosma et al. (2012) found that 54% of the surveyed entrepreneurs had a role model during the pre- and/or post-startup stages of their businesses. Of these entrepreneurs, 81% had a role model before starting their venture. Hence, it is essential to know that a model entrepreneur is a significant variable in all the countries in the sample.

6. Conclusions

The purpose of this paper was to contribute to a better understanding of the impact of perceptual variables on an individual's decision to start a business in nine Latin American countries that participated in the GEM 2018 APS.

In most previous works where Latin American countries were present in the sample, single regression models were estimated with stacked country data. This approach has the disadvantage that the coefficients are the same for all countries. In these models, data from high, middle, and low-income countries are grouped to estimate a single regression equation, making the coefficients "global estimates," which hide the specifics of each country. To avoid this critical shortcoming, we estimate individual logistic regression models for each country in this paper.

In terms of the sign and significance of the estimated coefficients, our results are consistent with the general empirical evidence from the reviewed literature, namely, positive effects from role models (Arenius & Minniti, 2005; Bosma et al., 2012; Bueckmann et al., 2018; Abbasianchavari & Moritz, 2020), confidence in one's knowledge and skills (Biraglia & Kadile, 2017; Amani et al., 2024; Al-Quadasi et al., 2024;) favorable business opportunities (Shane & Venkataraman, 2000; Shane et al., 2003; Otache et al., 2024) along with a negative effect associated with the fear of failure (Arenius & Minniti, 2005; Minniti & Nardone, 2007; Ng & Jenkins, 2018; Sousa-Filho et al., 2023). Logistic regression results confirm the predictive power of perceptual variables on the decision to start a new business, consistent with the fundamental postulates of the theory of planned behavior. As far as we know, our results represent the first documented evidence from the GEM 2018 APS, confirming that the theory of planned behavior remains a solid theoretical framework explaining nascent entrepreneurship in Latin America.

In addition to the strengthening and further understanding of previously documented results, our findings allow us to go a step further and rank the importance of the four perceptual variables, where the presence of role models combined with the confidence of possessing the necessary knowledge and skills represent inseparable predictors with the most significant impact on the decision to become an entrepreneur. The impact of these two variables is greater than the impact of viewing favorable business opportunities, and their combined tailwinds clearly override the headwinds of fear of failure. Our results also suggest that entrepreneurial knowledge does not necessarily originate from formal classroom education, as this variable was not significant in the model. This evidence supports the hypothesis that confidence in one's knowledge and skills results from contact with other entrepreneurs who serve as role models, instructors, and mentors, which is consistent with the social learning theory.

Our results clearly guide the specific direction for public and private sector policy efforts. First, both sectors should support entrepreneurial networks as sources of ideas, information, advice, mentoring, business partnerships, and strengthening the ties between peers. Thriving entrepreneurial communities rely on adequate infrastructure, a stable micro and macro business environment, and people-based assets such as burgeoning connectivity between entrepreneurs at all stages of the entrepreneurial cycle. The most efficient way to strengthen this connectivity is through entrepreneurial networks such as local chambers of commerce, associations of ethnically similar business owners, industry associations, or local

business clubs. Second, government agencies responsible for supporting micro and small businesses should be assigned sufficient budgetary support to sponsor networking activities such as fairs, forums, conferences, and events directly linked to entrepreneurs and companies. The bond between nascent entrepreneurs and established entrepreneurs who serve as advisors and mentors is the driving force for new business creation and, thus, the most crucial incentive to cross the border into nascent entrepreneur territory.

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