Journal of Business Economics and Management
ISSN 1611-1699 print / ISSN 2029-4433 online
2011 Volume 12(3): 529–545
doi:10.3846/16111699.2011.599409

HOW ENTREPRENEURIAL CHARACTERISTICS INFLUENCE COMPANY CREATION: A CROSS-NATIONAL STUDY OF 22 COUNTRIESTESTED WITH PANEL DATA METHODOLOGY

Agustín Álvarez-Herranz[1], Pilar Valencia-De-Lara[2], María Pilar Martínez-Ruiz[3]

[1]University of Castilla-La Mancha, Área de Econometría, Facultad de Ciencias Económicas y Empresariales, Plaza de la Universidad, s/n, 02071 Albacete, Spain
[2]University of Castilla-La Mancha, Área de Organización de Empresas, Facultad de Ciencias Sociales de Cuenca, Avenida de los Alfares, 44, 16071 Cuenca, Spain
[3]University of Castilla-La Mancha, Área de Comercialización e Investigación de Mercados, Facultad de Ciencias Sociales de Cuenca, Avenida de los Alfares, 44, 16071 Cuenca, Spain
E-mails: [1]Agustin.Alvarez@uclm.es; [2]Pilar.Valencia@uclm.es;
[3]MariaPilar.Martinez@uclm.es (corresponding author)

Received 27 January 2011; accepted 6 April 2011

Abstract. This study analyzes, from a multicountry perspective, the influence of the sociodemographic profiles of nascent and new entrepreneurs on their behavior. The panel data-based research approach combines temporal series and cross-sectional data to assess entrepreneurial activities across 22 countries with varying income levels. The results show that entrepreneurs' characteristics influence entrepreneurial behavior significantly and positively, in the following order: previous experience of the founder, age, and education. These findings suggest valid recommendations for stimulating entrepreneurship, both for enterprising business founders and for the institutions responsible for designing economic and regional development policies.

Keywords: nascent and new entrepreneurs, sociodemographic characteristics, entrepreneurial behavior, panel data methodology.

Reference to this paper should be made as follows: Álvarez-Herranz, A.; Valencia-De-Lara, P; Martínez-Ruiz, M. P. 2011. How entrepreneurial characteristics influence company creation: a cross-national study of 22 countriestested with panel data methodology, *Journal of Business Economics and Management* 12(3): 529–545.

JEL Classification: L26, O12, R11.

1. Introduction

Research into entrepreneurs is critical for understanding the creation of enterprises (e.g., Frederking 2004; Grüner 2006; Shirokova, Knatko 2008; Uhlaner, Thurik 2007; Westhead *et al*. 2005), especially in contexts marked by a large number of small and medium-sized enterprises (SMEs). In these scenarios, the type of employment often determines the evolution of the productive unit (Grüner 2006; Johnson *et al*. 2006;

Nikolaus, Christian 2004; Van Praag, Versloot 2007), and therefore, extensive research focuses on assessing the figure of the entrepreneur (e.g., Arenius, Minniti 2005; De Jorge Moreno, Laborda Castillo, De Zuani Masere 2010; Shirokova, Knatko 2008; Wagner 2007), including how the entrepreneur's profile affects the recognition and exploitations of business opportunities (e.g., Zhao *et al*. 2009).

This line of research encompassess different theoretical approaches (e.g., economic, sociological, psychological, managerial) but still is not exempt from certain disadvantages, especially pertaining to the methodology and type of sample used to study the associated phenomena (Reynolds 1997; Van Praag, Versloot 2007; Volkman 2004). Most prior work considers relatively small samples from a single country, without noting their gender or socioeconomic environment. Yet the entrepreneur's attitudes, approaches, values, and satisfaction with the status quo have remarkable impacts on the creation of the company (e.g., Arenius, Minniti 2005; Frank *et al*. 2007; Frederking 2004; Furkukawa *et al*. 2007; McCline *et al*. 2000; Uhlaner, Thurik 2007).

Moreover, prior research has not clearly defined the various stages of entrepreneurship, combining nascent, new, and consolidated entrepreneurs within the same category, which may generate biases in the results. The lack of distinction between the previous stages of the entrepeneurial activity likely creates bias, and previous research (e.g., Reynolds *et al*. 2005) notes the need to consider different types of entrepreneurs according to the time passed since the creation of the business. First, nascent entrepreneurs have completed the first process of entrepreneurship, moving from the conception of the business into the gestation or start-up process. They generally have paid salaries and wages for less than three months. Second, new entrepreneurs have been in business (i.e., paid salaries and wages) for at least three months but less than 3.5 years. Third, established entrepreneurs have been in business for a while, that is, at least 3.5 years.

This study therefore identifies the sociodemographic profiles of entrepreneur to determine how they affect enterpreneurial behavior. Furthermore, it employs and extends the scheme proposed by Arenius and Minniti (2005) and incorporates contextual variables related to the environment. In particular, this study includes nascent and new entrepreneurs, that is, those whose companies' duration does not exceed 42 months. The sample of entrepreneurs spans 22 diverse countries, located on four continents, and therefore can identify cross-national differences according to the gender of the entrepreneurs and their income levels (measured as each country's gross domestic product [GDP]). Finally, to analyze these data, this study uses a panel methodology, which provides added interest by combining temporal series and cross-sectional data.

This article consists of five further sections. The next section reviews theory related to entrepreneurship and related hypotheses for this investigation. After a description of the methodology, the following section details and discusses the main results. Finally, the conclusion synthesizes the principal implications and proposes a series of recommendations for both entrepreneurs and the agents in charge of developing economic policies.

2. Conceptual framework and hypotheses development

2.1. The influence of the entrepreneur's age

Entrepreneurship literature highlights the important impact of the age of the entrepreneur with regard to his or her experience and vitality (De Jorge Moreno *et al*. 2010; Sandberg, Hofer 1987). In general, older people likely enjoy an advantage derived from accumulated experience, such that the likelihood of creating a new company increases among older entrepreneurs (Hesselset *et al*. 2008; Levesque, Minniti 2006). Yet other research shows that younger people tend to possess more energy, vigor, and enthusiasm, which in combination with knowledge and open mental attitudes enables them to seek, recognize, and develop more innovative business opportunities with economic growth potential (Grilo, Irigoyen 2006; Hessels *et al*. 2008). Therefore, this study posits that over the course of time, a person accumulates experience but also loses aptitude for recognizing opportunities (e.g., possesses less updated knowledge, prefers to avoid risk, suffers personal and psychological limitations). In turn, this study offers a nondirectional hypothesis regarding the influence of the age of an entrepreneur:

H1: *The age of the entrepreneur influences in the creation of a business.*

2.2. The influence of the entrepreneur's education and experience

Education also appears associated with entrepreneurship, especially with regard to the benefits of education for the level of managerial action and the profitability of the company, among other indicators (Arenius, De Clercq 2005; De Jorge Moreno *et al*. 2010; Naude *et al*. 2008; Sapienza, Grimm 1997). Education or training generally is associated with the development of capacities (e.g., analytical skills, information processing aptitude, idea association) that contribute to the recognition and development of innovative business opportunities. People with an advanced degree are more inclined to introduce innovations into the market (e.g., Klandt 2004), develop intentions to create their own companies (e.g., Oosterbeek *et al*. 2009; Peterman, Kennedy 2003; Raguseo 2009; Župerka 2010), and detect business opportunities with innovative potential (e.g., Arenius, De Clercq 2005; Souitaris *et al*. 2007).

Because, as some authors indicate, entrepreneurial success depends on both the entrepreneur's personal characteristics and professional aptitude acquired through education (Naude *et al*. 2008), most entrepreneurs possess a high level of education. Roberts (1970) finds that the founders of high-tech companies tend to possess at least a master's degree, and Cooper and Dunkelberg (1987) note that entrepreneurs' education level is higher than that of the population in general. Gelderen *et al*. (2001) and Naude *et al*. (2008) also suggest that most entrepreneurs possess a high education level.

Noting these concepts, and considering the expansion of education in recent years, which has demonstrated the positive effects of higher education on the ability to start a company, especially in competitive environments, we propose:

H2: *The younger the entrepreneur, the greater his or her consciousness of the benefits for higher education for creating a new business.*

Likewise, previous experience has great relevance for the emergence of new companies (De Jorge Moreno *et al*. 2010; Hyytinen, Ilmakunnas 2007; Kolvereid, Isaksen 2006; Stam *et al*. 2008). Businesspeople, like anyone, learn from their successes and failures, which then mold their knowledge, cognitive processes, and successive options (Baron 2004; Mitchell *et al*. 2004; Ucbasaran, Westhead 2002).

Some findings reveal that a founder's education, experience, and previous knowledge relate positively to both the emergence of companies and managerial consolidation (Davidsson 2006; Hyytinen, Ilmakunnas 2007; Lee, Tsang 2001; Naude *et al*. 2008; Sapienza, Grimm 1997; Stam *et al*. 2008; Ucbasaran, Westhead 2002). Specifically, businesspeople with experience (both managerial and labor) should recognize more innovative business opportunities (Ucbasaran, Westhead 2002) and be more inclined to undertake related work activities (Cooper, Dunkelberg 1987; Kolvereid, Isaken 2006; Stam *et al*. 2008), often in response to an interaction with the environment that generates an impulse to explore an idea (Alas 2004; Zander 2004). For example, preexisting and ongoing relations with important clients might provide valuable opportunities for the entrepreneur to join a commercial network and attract loyal clients in the long term (Ripollés, Blesa 2006; Shrader *et al*. 2000). In this case, experience provides a valuable human capital resource for company creation and consolidation (Peter, Vertinsky 2008). Therefore,

H3: *The degree of previous experience of the entrepreneur (entrepreneurial, technical, or managerial) positively influences business startup.*

3. Methodology

To confirm the proposed hypotheses empirically, this study employs the Global Entrepreneurship Monitor (GEM) database and gathers a sample of 22 countries. This database and the associated project enjoy a strong reputation, especially for entrepreneurship studies, and provides nearly innumerable possibilities for obtaining information partitioned and differentiated according to diverse variables.

This study focuses on the period between 2002 and 2006, during which time all 22 sampled countries took part constantly in the GEM project. According to the GEM classification by income (i.e., levels of GDP per capita), this sample includes high, medium, and low income countries, as follows:

- ***High income*:** United States, Canada, United Kingdom, Denmark, Finland, France, Belgium, Germany, Ireland, Italy, Japan, The Netherlands, Norway, Singapore, Slovenia, Spain, Sweden.
- ***Medium and low income*:** Argentina, Brazil, China, Croatia, South Africa.

The variables in the empirical model reflect information obtained in 589,377 surveys of persons between the ages of 18 and 64 years who declared their involvement in an entrepreneurial project. Table 1 outlines these variables.

Table 1. Variables included in the general model

Variable name	Type	Scale	Description
TEA_{it}	Endogenous	Metric	Percentage of population aged 18–64 years involved in launching a company (nascent entrepreneur) or owning a young company (new entrepreneurs) in country i at time t
$\sum_{j=1}^{4} EDUC_{jit}$	Exogenous	Metric	Level of education j of entrepreneurs in country i at time t
Education variables			
TEASS	Exogenous	Metric	Percentage of population aged 18–64 years involved in TEA with primary education
TEASD	Exogenous	Metric	Percentage of population aged 18–64 years involved in TEA with secondary education
TEAPS	Exogenous	Metric	Percentage of population aged 18–64 years involved in TEA with medium education over the total TEA
TEAGE	Exogenous	Metric	Percentage of population aged 18–64 years involved in TEA with superior education
$\sum_{l=1}^{2} EXP_{jit}$	Exogenous	Metric	Percentage of entrepreneurs with previous experience level l among all entrepreneurs in country i at time
Experience variables			
TEAOWN	Exogenous	Metric	Percentage of population aged 18–64 years involved in TEA answering "Yes" to the item: Currently owner-manager of a business asset
TEASUB	Exogenous	Metric	Percentage of population aged 18–64 years involved in TEA answering "Yes" to the item: Currently involved in start up of which I will own all or part
$\sum_{s=1}^{5} EDAD_{sit}$	Exogenous	Metric	Percentage of entrepreneurs in age category s of total entrepreneurs in country I at time t
Age variables			
TEA1824	Exogenous	Metric	Percentage of population aged 18–24 involved in TEA
TEA2534	Exogenous	Metric	Percentage of population aged 25–34 years involved in TEA
TEA3544	Exogenous	Metric	Percentage of population aged 35–44 years involved in TEA
TEA4554	Exogenous	Metric	Percentage of population 45–54 years involved in TEA
TEA5564	Exogenous	Metric	Percentage of population aged 55–64 involved in TEA

Notes: (1) TEA = Total Entrepreneurial Activity, an index designed to reflect the percentage of the adult population involved in nascent (less than 3 months) and new (3–42 months) companies

(2) The education of primary level offers to the children basic competitions of reading, writing and mathematics, besides an elementary comprehension of topics as history, geography, natural sciences, social sciences, plastic arts and music. The education of secondary level completes the presentation of basic education that began in the primary level and points to lay the foundations for a learning and a human development that they last the whole life, offering an instruction more orientated to topics or specific competitions, with more specialized teachers. The tertiary, medium education or post secondary, though it does not represent the step to a qualification of advanced investigation, normally demands, as minimal requirement of admission, the satisfactory ending of the education of secondary level. The top education, where the sciences and the investigation would have major content, case of the diplomaturas, masters, masters, conferred a doctor's degree and post doctorates. Source: Institute of Statistics of the United Nations Organization for the Education, the Science and the Culture (UNESCO).

The proposed general model includes panel data and fixed effects:

$$\mathrm{TEA}_{\mathrm{it}} = \alpha_i + \beta \sum_{j=1}^{4} \mathrm{EDUC}_{\mathrm{jit}} + \delta \sum_{l=1}^{2} \mathrm{EXP}_{\mathrm{lit}} + \varphi \sum_{s=1}^{5} \mathrm{EDAD}_{\mathrm{sit}} + \varepsilon_{\mathrm{it}}. \quad (1)$$

This model also can be disaggregated into separate models for men and women to discern any differences related to this factor. Table 2 contains the variables used in these models.

The equations for these gender-specific models are as follows:

$$\mathrm{TEAMAL}_{\mathrm{it}} = \alpha_i + \beta \sum_{j=1}^{4} \mathrm{EDUCMAL}_{\mathrm{jit}} + \delta \sum_{l=1}^{2} \mathrm{EXPMAL}_{\mathrm{lit}} + \varphi \sum_{s=1}^{5} \mathrm{EDADMAL}_{\mathrm{sit}} + \varepsilon_{\mathrm{it}}; \quad (2)$$

$$\mathrm{TEAFEM}_{\mathrm{it}} = \alpha_i + \beta \sum_{j=1}^{4} \mathrm{EDUCFEM}_{\mathrm{jit}} + \delta \sum_{l=1}^{2} \mathrm{EXPFEM}_{\mathrm{lit}} + \varphi \sum_{s=1}^{5} \mathrm{EDADFEM}_{\mathrm{sit}} + \varepsilon_{\mathrm{it}}. \quad (3)$$

Table 2. Variables included in the gender-based models

Variable name	Type	Scale	Description
$\mathrm{TEAMAL}_{\mathrm{it}}$	Endogenous	Metric	Percentage of male population, 18–64 years of age, involved in launching a company or owning a young company in country i
$\mathrm{TEAFEM}_{\mathrm{it}}$	Endogenous	Metric	Percentage of female population, 18–64 years of age, involved in launching a company or owning a young company in country i
$\sum_{s=1}^{5} \mathrm{EDADMAL}_{\mathrm{sit}}$	Exogenous	Metric	Percentage of male entrepreneurs in age category s of total entrepreneurs in country i at time t. The age range variables are the same as in the general model
$\sum_{s=1}^{5} \mathrm{EDADFEM}_{\mathrm{sit}}$	Exogenous	Metric	Percentage of female entrepreneurs in age category s of total entrepreneurs in country i at time t. The age range variables are the same as in the general model
$\sum_{j=1}^{4} \mathrm{EDUCMAL}_{\mathrm{jit}}$	Exogenous	Metric	The level of education j of male entrepreneurs in country i. The education variables are the same as in the general model

End of Table 2

Variable name	Type	Scale	Description
$\sum_{j=1}^{4} \text{EDUCFEM}_{jit}$	Exogenous	Metric	The level of education j of female entrepreneurs in country i. The education variables are the same as in the general model
$\sum_{l=1}^{2} \text{EXPMAL}_{jit}$	Exogenous	Metric	The percentage of male entrepreneurs with previous experience level l of total male entrepreneurs in country i. The experience variables are the same as in the general model
$\sum_{l=1}^{2} \text{EXPFEM}_{jit}$	Exogenous	Metric	The percentage of female entrepreneurs with prior experience level l of total female entrepreneurs in country i. The experience variables are the same as in the general model

Panel data methodology, which combines temporal series and cross-sectional data, is appropriate for estimating the behavior of nascent and new entrepreneurs across countries, because it can offer estimations even when no observable heterogeneities emerge for each country or across time. In addition, it can identify individual-specific effects for each entrepreneur pertaining to how he or she decides to create a company.

4. Analysis of results and discussion

The estimations of Equations 1–3 rely on estimated generalized least squares (EGLS), corrected for heteroscedasticity by White's method using the variables in the general model (see Table 3). The variance explained by the endogenous variables TEAit, TEAMALit, and TEAFEMit are 90.75%, 83.9%, and 88.3% respectively.

Table 3. Estimations obtained in the general, male, and female models: 2002–2006

Variable	General	Men	Women
	Coefficient	Coefficient	Coefficient
C	0.010054	0.04183	0.022318
t-Statistic	3.750508	9.913256	17.20055
TEA1824			0.037537
t-Statistic			3.62634
TEA2534		0.023301	0.005765
t-Statistic		8.743899	2.75243
TEA1834	0.036318		
t-Statistic	3.192402		

End of Table 3

Variable	General	Men	Women
	Coefficient	Coefficient	Coefficient
TEA3544			0.015138
t-Statistic			6.532628
TEA5564	0.050886	0.089149	
t-Statistic	4.665341	5.784141	
TEAPS	0.003584		
t-Statistic	1.824434		
TEAMSDPS		0.011137	
t-Statistic		1.885498	
TEAFPSGE			0.007497
t-Statistic			4.168436
TEASUB	0.048071	0.018046	0.012144
t-Statistic	7.880816	6.166281	2.401513
Unweighted Statistics			
R-squared	0.907486	0.838947	0.88261
Durbin-Watson stat	1.827488	2.425397	1.967734

Notes: Dependent Variable: TEA
Method: Pooled EGLS (Cross-section weights)
Sample: 2002 2006
Included observations: 5
Cross-sections included: 22
Total pool (balanced) observations: 110
Linear estimation after one-step weighting matrix
White cross-section standard errors & covariance (d.f. corrected)

Thus, age, educational level, and experience all significantly and positively influence the likelihood of creating a company, in support of the hypotheses. The next step analyzes the average elasticities of the variables of every model, as listed in Table 4.

These elasticities reveal the order of importance of the characteristics of nascent and new entrepreneurs across 22 countries: previous experience of the entrepreneur, with an elasticity of 0.4818%; age of the entrepreneur, especially for entrepreneurs between 18 and 34 years of age, with an elasticity of 0.2534% and for those between 55 and 64 years of age, with an elasticity of 0.0763%; and finally, a medium level of education, with an elasticity of 0.0175%.Yet some differences emerge for men and women. The average male entrepreneur has experience (elasticity = 0.15%) and is aged either 25–34 years (elasticity = 0.098%) or 55–64 years (elasticity = 0.097%); he also has earned secondary and medium education levels (elasticity = 0.0897%).

Table 4. Average variable elasticities

Model	General	Men	Women
TEA1824			0.0689
TEA2534		0.0979	0.0422
TEA1834	0.2534		
TEAF3544			0.1142
TEA5564	0.0763	0.0973	
TEAPS	0.0175		
TEAMSDPS		0.0897	
TEAFPSGE			0.0812
TEASUB	0.4818	0.1503	0.1578

For female entrepreneurs, experience again has the greatest effect, with a similar elasticity (0.16%). However, the next most relevant characteristic is education, especially medium and superior levels (elasticity = 0.08%). Age also has an effect, such that the age interval from 35 to 44 years indicates an elasticity of 0.11% (elasticity of the variable TEAF3544), followed by 18 to 24 years, with an elasticity of 0.0689% (elasticity of the variable TEA1824), and then 25 to 34 years, with an elasticity of 0.0422% (elasticity of the variable TEA2534). Therefore, these findings suggest that entrepreneurial women, on average, decide to start business when they are between 18 and 44 years of age, which is opposite the results for men, who initiate their businesses either between 25 and 34 years or between 55 and 64 years of age.

To detect further differences in the models that may reflect country characteristics, the next model estimation classifies the sample according to the income level of the country. The results are in Table 5, and the associated elasticities for each of the variables, according to gender and income level of countries, are in Table 6.

The analyses in Tables 5 and 6 reveal that entrepreneurs in high-income countries, in average terms, have experience (elasticity = 0.556%) and range in age from 18 to 34 years (elasticity = 0.204%) or 55 to 64 years (elasticity = 0.0995%), with medium and superior educational levels (elasticity = 0.105%). In medium- and low-income countries, entrepreneurs again represent two main age groups with similar elasticities, namely, 55–64 years (elasticity = 0.199%) and 18–24 years (elasticity = is 0.196%). The characteristic that differentiates these two groups is experience; it is significant for the 55–64 year age group, with an elasticity of 0.545% (variable TEASUB), but not for the 18–24 year age group. That is, an older entrepreneur has more experience and initiates a new venture in response to an opportunity rather than need. The findings reverse for the youngest group of entrepreneurs, who lack experience and consequently create companies due to their need-based motives.

Table 5. Estimation results, grouped according to country income level: 2002–2006

Variable	General			Men		Women	
	High income countries	Medium and low income countries	Medium and low income countries*	High income countries	Medium and low income countries	High income countries	Medium and low income countries
C	–0.00144	0.03085	0.02472	0.01962	0.08519	0.01727	0.02735
t-Statistic	–0.33207	1.01342	0.96544	2.86677	10.92252	5.21388	1.84478
TEA1824		0.09935			0.35566	0.02493	0.06476
t-Statistic		1.75394			7.70617	3.47131	2.01510
TEA2534				0.02835		0.00657	
t-Statistic				3.51063		1.68966	
TEA1834	0.03465						
t-Statistic	3.21742						
TEA3544						0.01196	
t-Statistic						4.64558	
TEA5564	0.05009	0.31135	0.29582	0.06907	0.48991		
t-Statistic	4.58333	2.64888	2.64598	2.22485	11.32350		
TEASD		–0.04566	–0.04941				
t-Statistic		–3.00381	–3.07464				
TEAPS		0.11606	0.09221		0.16869		0.11031
t-Statistic		3.58969	2.31245		12.82200		4.09883
TEASDPS				0.01134			
t-Statistic				2.29989			
TEAPSGE	0.00974					0.00949	
t-Statistic	1.77474					5.94021	
TEASUB	0.04645	0.03365	0.08281	0.03614	–0.15617	0.00458	0.03862
t-Statistic	6.69270	0.73809	2.31165	2.34219	–30.96547	0.59940	2.02263
AR(1)					–0.47788		
t-Statistic					–5.07088		
Unweighted Statistics							
R-squared	0.8758	0.9250	0.9048	0.7705	0.9575	0.7514	0.8860
Durbin-Watson	2.5845	2.3823	2.1348	3.0929	2.1014	2.5654	1.9931

Notes: (1) The third column under the general model features entrepreneurs aged between 55 and 64 years, for which the relevance of experience was hidden in the general model by the higher weight in the sample of entrepreneurs aged between 18 and 24 years
Dependent Variable: TEA
Method: Pooled EGLS (Cross-section weights)
Sample: 2002 2006
Linear estimation after one-step weighting matrix
White cross-section standard errors & covariance (d.f. corrected)

Table 6. Average variable elasticities by country income level: 2002–2006

Variable	General			Men		Women	
	High income countries	Medium and low income countries	Medium and low income countries*	High income countries	Medium and low income countries	High income countries	Medium and low income countries
TEA1824			0.196		0.6305	0.0409	0.1374
TEA1834	0.204						
TEA2534				0.1341		0.0636	
TEA3544						0.1266	
TEA5564	0.0995	0.189	0.199	0.0951	0.2622		
TEASD		–0.153	–0.142				
TEAPS		0.155	0.196		0.2633		0.1845
TEAMSDPS				0.1147			
TEAPSGE	0.105					0.1532	
TEASUB	0.556	0.545	0.221	0.3460	–0.5196	0.0750	0.3121

Notes: (1) The third column under the general model features entrepreneurs aged between 55 and 64 years, for which the relevance of experience was hidden in the general model by the higher weight in the sample of entrepreneurs aged between 18 and 24 years

Although the level of education of the average entrepreneur in medium- and low-income countries is secondary or average, the latter predominates over former level, as reflected in the negative elasticity (–0.153% and –0.142%, pertaining to the variable TEASD) of an medium education level. Thus, as these countries improve their educational level, the number of entrepreneurs with a secondary level of education diminishes and the proportion with an average level increases, especially among young entrepreneurs. Accordingly, the elasticity of this variable TEAPS is high (0.196%) for the group of 18–24 year olds compared with that among the group of 55–64 years old (0.155%).

Furthermore, in high-income countries, the average male entrepreneur is between 25 and 34 (elasticity = 0.1341%) or 55 and 64 (elasticity = 0.0951%) years of age. Women instead predominantly represent the 35–44 year group (elasticity = 0.1266%), followed by 25 to 34 years (elasticity = 0.0636%) and 18 to 24 years (elasticity = 0.0409%). As for the men's educational level, the secondary–medium education level stands out (elasticity = 0.1147%), whereas female entrepreneurs exhibit a higher level of studies (elasticity = 0.1532%). This indicator may reveal that female entrepreneurs start their businesses later than men, apparently because they have obtained sufficient education. Finally, experience is a determinant factor for both men and women making the decision to begin a business. However, the variable has more weight for men than women, according to their respective elasticities (0.3121% versus 0.0750%).

These characteristics also differ for high- versus medium- and low-income countries. In the latter group of countries, the average male entrepreneur is younger (between

18 and 24 years, elasticity = 0.6305%), but older male entrepreneurs (55–64 years) in high-income countries show a higher elasticity (elasticity = 0.2622%). Women in both groups of countries reveal a significant elasticity only for the 18–24 year age group, though the elasticity is higher in medium- and low-income compared with high-income countries (0.1374%).

Finally, as for the educational level, in this group of countries, both male and female entrepreneurs possess an average educational level. The more influential factor for women is experience, whereas men indicate a negative elasticity for the experience variable (elasticity of –0.5196%). Men in these countries start businesses due to their need, not in response to opportunity, such that they sense an obligation to start a business despite lacking experience. The opposite effect occurs for women.
Table 7 synthesizes the hypothesis results.

Table 7. Hypotheses results

Sample	Hypothesis	Sample	Hypothesis
Total sample of countries	H1 supported H2 rejected H3 supported	Women sample	H1 supported H2 supported H3 supported
Man sample	H1 supported H2 rejected H3 supported	Medium and low income countries sample	H1 supported H2 rejected H3 supported
Women sample	H1 supported H2 supported H3 supported	Man sample	H1 supported H2 rejected H3 rejected
High income countries sample	H1 supported H2 supported H3 supported	Woman sample	H1 supported H2 rejected H3 supported
Man sample	H1 supported H2 rejected H3 supported		

5. Conclusions

This study identifies sociodemographic factors that affect the entrepreneurship behavior of nascent and new entrepreneurs. Specifically, data pertaining to the characteristics of entrepreneurs from 22 countries in the GEM project reveal differences according to the gender of the entrepreneur and the socioeconomic level of considered country. The entrepreneurial characteristics with the most significant influences on entrepreneurship behavior are, in order, previous experience, age, and educational level.

Yet the results vary for different genders. When male entrepreneurs start a business, they tend to possess previous experience, have completed secondary studies, and represent average ages ranging primarily between 25 and 34 years or between 55 and 64 years. The average female entrepreneur has more education than her male counterpart and

ranges in age mainly from 35 to 44 years (though women 18–24 and 25–34 years of age are also well represented). These results indicate that female entrepreneurs start their businesses later than men, apparently because at that point, she has obtained sufficient education. Yet the influence of experience is not that different on the behaviors of men versus women. Both male and female entrepreneurs recognize the importance of previous experience for the success of their start-up project and work to detect and develop new business opportunities with innovative potential. Previous experience clearly helps potential entrepreneurs find innovative business opportunities and develop a network of contacts that can provide advantages for the creation and consolidation of their company. Such experience also may provide the entrepreneur with the confidence needed to initiate entrepreneurial activities.

This study also notes the effect of the level of country income, such that the characteristics of average entrepreneurs vary somewhat. The most relevant difference between high- and medium- and low-income countries for men relates to experience; older entrepreneurs have more experience than the youngest entrepreneurs, and older male entrepreneurs start their companies in sectors they know, so they can take advantage of business opportunities based on their previous experience. These results suggest though that regardless of the economic level of the country, a growing number of older workers resist definitive retirement and regard entrepreneurship as a means to remain active in the labor market. For women, country income reveals a greater age difference: In high income countries, female entrepreneurs are mostly 35–44 years, whereas in medium- and low-income countries, entrepreneurial women tend to be 18–24 years of age.

This model incorporates diverse variables related to the sociodemographic profiles of nascent and new entrepreneurs in 22 countries across four different continents and analyzes them according to both gender and the income per capita in their country. It therefore represents a key contribution to entrepreneurship research. Moreover, this study reveals the importance of sociodemographic variables in stimulating the creation and consolidation of companies.

Broadly, this research offers several contributions. First, in contrast with most prior investigations, which analyze entrepreneurs using samples from only one culture, this study considers a very wide sample from 22 countries that ensures great cultural diversity. Second, this study identifies which sociodemographic characteristics of men and women at different socioeconomic levels have major impacts on their entrepreneurial behavior. Therefore, government agencies dedicated to increasing entrepreneurship rates in their countries can better determine which groups to focus on in their communication and recruitment efforts. Third, this investigation focuses on a very concrete phase of entrepreneurship, unlike previous work that fails to distinguish nascent, new, and consolidated entrepreneurs. By limiting the sample to nascent and new entrepreneurs whose companies have existed for less than 42 months, this study diminishes possible heuristic biases derived from the joint consideration of different phases in the creation of a company.

However, this study also suffers several limitations. In particular, the constructs in the causal model are not comprehensive; they constitute only a portion of the diverse prec-

edents and consequences that could have been considered. However, to avoid excessive model complexity, these factors, precursors, and mediating variables have been limited purposefully. Further research should incorporate additional new variables in the model (e.g., public help programs, social networks, cultural values, business expectations). It also would be interesting to examine the type of planning that young versus older entrepreneurs undergo, the degree of innovation in the opportunities they detect, and the motivations that primarily stimulate them to create companies. For example, exactly what motivates men versus women of 55 to 64 years of age to create a company?

References

Alas, R. 2004. Process model for organisational change: a study of Estonian companies, *Journal of Business Economics and Management* 5(3): 49–60.

Arenius, P.; De Clercq, D. 2005. A network-based approach on opportunity recognition, *Small Business Economics* 24(3): 249–265. doi:10.1007/s11187-005-1988-6

Arenius, P.; Minniti, M. 2005. Perceptual variables and nascent entrepreneurship, *Small Business Economics* 24(3): 233–247. doi:10.1007/s11187-005-1984-x

Baron, R. A. 2004. The cognitive perspective: a valuable tool for answering entrepreneurship's basic 'why' questions, *Journal of Business Venturing* 19(2): 221–239. doi:10.1016/S0883-9026(03)00008-9

Cooper, A. C.; Dunkelberg, W. C. 1987. Entrepreneurial research: Old question, new answers, and methodological issues, *American Journal of Small Business* 11(3): 11–23.

Davidsson, P. 2006. Nascent entrepreneurship: empirical studies and developments, *Foundations and Trends in Entrepreneurship* 2(1): 1–76. doi:10.1561/0300000005

De Jorge Moreno, J.; Laborda Castillo, L.; De Zuani Masere, E. 2010. Firm size and entrepreneurial characteristics: Evidence from the SME sector in Argentina, *Journal of Business Economics and Management* 11(2): 259–282. doi:10.3846/jbem.2010.13

Frank, H.; Lueger, M.; Korunka, C. 2007. The significance of personality in business startup intentions realization and business success, *Entrepreneurship and Regional Development* 19: 227–251. doi:10.1080/08985620701218387

Frederking, L. C. 2004. A cross-national study of culture, organization and entrepreneurship in three neighbourhoods, *Entrepreneurship and Regional Development* 16: 197–215. doi:10.1080/0898562042000197126

Furkukawa, K.; Shafer, W. E.; Lee, G. M. 2007. Values and attitudes toward social and environmental accountability: a study of MBA students, *Journal of Business Ethics* 71(4): 381–394. doi:10.1007/s10551-005-3893-y

Gelderen, M.; Bosma, N.; Thurik, R. 2001. *Setting up a business in the Netherland: Who starts, who gives up, who is still trying. Frontiers of Entrepreneurship Research* [online], [cited 10 May 2008]. Available from Internet: <http://www.babson.edu/entrep/fer/Babson2001/I/IG/IG.htm>.

Grilo, I.; Irigoyen, J. M. 2006. Entrepreneurship in the EU: to wish and not to be, *Small Business Economics* 26(4): 305–318. doi:10.1007/s11187-005-1561-3

Grüner, H. 2006. Entrepreneurship in Germany and the Role of the New Self-Employed, *Journal of Business Economics and Management* 7(2): 59–67.

Hessels, J.; Gelderen, M.; Thurik, R. 2008. Entrepreneurial aspirations, motivations, and their drivers, *Small Business Economics* 31(3): 323–339. doi:10.1007/s11187-008-9134-x

Hyytinen, A; Ilmakunnas, P. 2007. What distinguishes a serial entrepreneur?, *Industrial and Corporate Change* 16(5): 793–821. doi:10.1093/icc/dtm024

Johnson, P.; Parker, S. C.; Wijberga, F. H. 2006. Nascent entrepreneurship: achievements and opportunities, *Small Business Economics* 27: 1–4. doi:10.1007/s11187-006-9004-3

Klandt, H. 2004. Entrepreneurship Education and Research in German-Speaking Europe, *Academy of Management Learning and Education* 3(3): 293–301. doi:10.5465/AMLE.2004.14242226

Kolvereid, L.; Isaksen, E. 2006. New business start-up and subsequent entry into self-employment, *Journal of Business Venturing* 21: 866–885. doi:10.1016/j.jbusvent.2005.06.008

Lee, D. Y.; Tsang, E. W. 2001. The effects of entrepreneurial personality, background and network activities on ventures growth, *Journal of Management Studies* 38(4): 584–602. doi:10.1111/1467-6486.00250

Levesque, M.; Minniti, M. 2006. The effect of aging on entrepreneurial behavior, *Journal of Business Venturing* 21(2): 177–194. doi:10.1016/j.jbusvent.2005.04.003

McCline, R. L.; Bhat, S.; Baj, P. 2000. Opportunity recognition: An exploratory investigation of a component of the entrepreneurial process in the context of the health care industry, *Entrepreneurship: Theory and Practice* 25(2): 81–94.

Mitchell, R. K.; Busenitz, L.; Lant, T.; McDougall, P. P.; Morse, E. A.; Smith, J. B. 2004. The distinctive and inclusive domain of entrepreneurial cognition research, *Entrepreneurship: Theory and Practice* 28(6): 505–518. doi:10.1111/j.1540-6520.2004.00061.x

Naude, W.; Gries, T.; Wood, E.; Meintjies, A. 2008. Regional determinants of entrepreneurial startups in a developing country, *Entrepreneurship and Regional Development* 20(2): 111–124. doi:10.1080/08985620701631498

Nikolaus, F.; Christian, L. 2004. Entrepreneurial intentions of business students: A benchmarking study, *International Journal of Innovation and Technology Management* 1(3): 269–288. doi:10.1142/S0219877004000209

Oosterbeek, H.; Van Praag, M.; Ijsselstein, A. 2009. *The Impact of Entrepreneurship Education on Entrepreneurship Skills and Motivation*. European Economic Review. Forthcoming.

Peter, A.; Vertinsky, I. 2008. Firm exits as a determinant of new entry: Is there evidence of local creative destruction, *Journal of Business Venturing* 23(3): 80–306.

Peterman, N. E.; Kennedy, J. 2003. Enterprise education: influencing students: perceptions of entrepreneurship, *Entrepreneurship: Theory and Practice* 28(2): 129–144. doi:10.1046/j.1540-6520.2003.00035.x

Raguseo, D. 2009. Žaidybinio mokymo metodo taikymas mokymo procese, *Verslas:teorija ir praktika* [Business: Theory and Practice] 10(4): 308–314. doi:10.3846/1648-0627.2009.10.308-314

Reynolds, P. 1997. Who starts new firms? Preliminary explorations of firms-in-gestation, *Small Business Economics* 9: 449–462. doi:10.1023/A:1007935726528

Reynolds, P.; Bosma, N.; Autio, E.; Hunt, S.; De Bono, N.; Servais, I.; Lopez-Garcia, P.; Chin, N. 2005. Global Entrepreneurship Monitor: Data Collection Design and Implementation 1998–2003, *Small Business Economics* 24(3): 205–231. doi:10.1007/s11187-005-1980-1

Ripollés, M.; Blesa, A. 2006. Redes personales del empresario y orientación emprendedora en las nuevas empresas, *Cuadernos de Economía y Dirección de Empresas* 26: 73–93.

Roberts, E. B. 1970. How to succeed in a new technology enterprise, *Technology Review* 23: 23–27.

Sandberg, W. R.; Hofer, C. W. 1987. Improving new venture performance: The role of strategy, industry structure, and the entrepreneur, *Journal of Business Venturing* 2: 5–28. doi:10.1016/0883-9026(87)90016-4

Sapienza, H. J.; Grimm, C. M. 1997. Funder characteristics, start-up process, and strategy / structure variables as predictors of shortline railroad performance, *Entrepreneurship: Theory and Practice* 22(1): 5–24.

Shrader, R. C.; Oviatt, B. M.; McDougall, P. P. 2000. How new ventures exploit trade-offs among international risk factors: lessons for the accelerate internationalization of the 21st century, *Academy of Management Journal* 43(6): 1227–1247. doi:10.2307/1556347

Shirokova, G.; Knatko, D. 2008. Founder influences the development of organizations: a comparison between founder and non-founder managed Russian firms, *Journal of Business Economics and Management* 9(2): 91–95. doi:10.3846/1611-1699.2008.9.91-95

Souitaris, V.; Zerbinati, S.; Andreas, A. L. 2007. Do Entrepreneurship Programmes Raise Entrepreneurial Intention of Science and Engineering Students? The Effect of Learning, Inspiration and Resources, *Journal of Business Venturing* 22: 566–591. doi:10.1016/j.jbusvent.2006.05.002

Stam, E.; Audretsch, D.; Meijaard, J. 2008. Renascent entrepreneurship, *Journal of Evolutionary Economics* 18(3/4): 493–507. doi:10.1007/s00191-008-0095-7

Ucbasaran, D.; Westhead, P. 2002. *Does entrepreneurial experience influence opportunity identification*? *Frontiers of Entrepreneurship Research* [online], [cited 10 May 2008]. Available from Internet: <http://www.babson.edu/entrep/fer/Babson2002/III/III_P3/III_P3.htm>.

Uhlaner, L.; Thurik, R. 2007. Postmaterialism influencing total entrepreneurial activity across nations, *Journal of Evolutionary Economics* 17(2): 161–187. doi:10.1007/s00191-006-0046-0

Van Praag, M. C.; Versloot, P. H. 2007. What is the value of entrepreneurship? A review of recent research, *Small Business Economics* 29(4): 351–321. doi:10.1007/s11187-007-9074-x

Volkman, C. 2004. Entrepreneurship Studies, an ascending academic discipline in the twenty-first century, *Higher Education in Europe* 29(2): 177–185.

Wagner, J. 2007. What a difference makes–female and male nascent entrepreneurs in Germany, *Small Business Economics* 28(1): 1–21. doi:10.1007/s11187-005-0259-x

Westhead, P.; Ucbasaran, D.; Wright, M.; Binks, M. 2005. Novice, serial, and portfolio entrepreneur behaviour and contributions, *Small Business Economics* 25(2): 109–132. doi:10.1007/s11187-003-6461-9

Zander, I. 2004. El espíritu emprendedor en el ámbito geográfico. Fundamentos conceptuales e implicaciones para la formación de nuevos clusters, *Cuadernos de Economía y Dirección de la Empresa* 20: 9–34.

Zhao, H.; Seibert, S. E.; Lumpkin, G. T. 2009. The relationship of personality to entrepreneurial intentions and performance a meta-analytic review, *Journal of Management Online First* 36: 381–404. doi:10.1177/0149206309335187

Župerka, A. 2010. Students' Entrepreneurship Development Improvement Tendencies in Lithuania, *Business Management and Education* 8(1): 299–311.

VERSLUMO CHARAKTERISTIKŲ ĮTAKA ĮMONĖS KŪRIMUI: STUDIJOS, ATLIKTOS 22 VALSTYBĖSE, REZULTATŲ PRISTATYMAS

A. Álvarez-Herranz, P. Valencia-De-Lara, M. P. Martínez-Ruiz

Santrauka

Straipsnyje pristatomų tyrimų rezultatai apima sociodemografinių veiksnių įtakos naujai kuriamam verslui ir jo aplinkai analizę. Tyrimas buvo atliktas 22 valstybėse. Jo rezultatai rodo, kad tam tikros individualios asmens verslumo savybės turi teigiamą įtaką paties verslo organizavimui, pavyzdžiui, ankstesnė verslininko patirtis, amžius ir išsilavinimas. Straipsnio autoriai pateikia rekomendacijas, susijusias su verslumo skatinimu, jos turės įtakos ne tik ekonominei, bet ir regioninei vystymosi politikai.

Reikšminiai žodžiai: verslumas, sociodemografinės charakteristikos, elgesys, metodologija.

Agustín ÁLVAREZ-HERRANZ is Doctor in Economics and Business Administration. He is presently Associate Professor in the Department of Econometrics, University of Castilla-La Mancha, Spain. His research areas are mainly the study of entrepreneurship and the economics of transport and infrastructures. He has participated in different Conferences and Seminars worldwide and has written several articles and book chapters.

Pilar VALENCIA-DE LARA is Doctor in Economics and Business Administration. She is presently Associate Professor in the Department of Business Administration, University of Castilla-La Mancha, Spain. Her research areas are mainly: the study of entrepreneurship and the creation of a financial credit system with levels and jumps in the interest payments as it could apply to new business opportunities and to business development.

María Pilar MARTÍNEZ-RUIZ is Ph.D. in Economics and Business Administration, and currently Associate Professor at the Department of Marketing of the University of Castilla-La Mancha (Spain). She has participated in different Conferences and Seminars worldwide, has written several articles and numerous book chapters. Her main research lines are marketing communications, retailing, product and service innovation and entrepreneurship.