The Main Factors Influencing Entrepreneurial Activities and Intentions within a Country — A Case Study of Spain

Dario Ortega-Anderez and Eugene Lai

Abstract—**The paper investigates the main factors influencing the levels of entrepreneurial activity and intentions in a European country with Spain as a case study. The research consists of two parts: an exploratory study and a causal study. By analysing the responses from 90 students and graduates, the results of the exploratory study showed that awareness of entrepreneurship has helped to increase entrepreneurial intentions among younger people. Two key factors have been identified as the main contributors: Entrepreneurship curriculum and entrepreneurial activities and associated support offered in a learning environment. However, the results also showed that there has not been any statistical significant improvement in the past six years.**

By analysing the 2013 data collected from 36 countries published by Global Entrepreneurship Monitor (GEM), the results of the causal study showed that four key factors account for approximately 47% of the variation in the Nascent Entrepreneurship Rate in a country. They are a) economic development, b) culture (Hofstede's cultural dimensions), c) access to financial capital, d) and access to human capital. The present study confirms that a U-shaped relationship continues to exist between Nascent Entrepreneurship Rate and economic development (GDP per capita) for GEM sampled countries.

Index Terms—**Entrepreneurship, entrepreneurial intentions, nascent entrepreneurship rate.**

I. INTRODUCTION

The importance of new business creation in economic growth, employment generation and innovation is well established [1]-[3]. Moreover, entrepreneurship encourages competition within the current global business environment [4].

It has been suggested that the levels of entrepreneurial activity in a country are affected by a number of influential themes which differ from one country to another, as the level of entrepreneurial activity varies considerably between countries [5], [6]. Henley [7] classified these themes into four categories: culture, access to financial capital, human capital availability and economic development, which have been used to explain the diversity in the levels of entrepreneurial activity across countries. A measure of entrepreneurial activities in a country used by the Global Entrepreneurship Monitor (GEM) is called the Nascent Entrepreneurship Rate, which is defined as the percentage of the population 18-64 years old who are currently a nascent entrepreneur (i.e. those who are actively involved in the setting up of a business to be owned by themselves or jointly with others).

National culture can influence how a society develops entrepreneurial behaviours amongst its members, both collectively and individually, pertaining to areas such as attitude towards risk, orientation for growth, innovation, opportunity recognition and their exploitation [8]. When assessing relationships between culture and entrepreneurship, the majority of studies tend to involve the use of Hofstede's model [9] covering five different cultural dimensions: power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation. Briefly, *power distance* is a measure of the extent to which a society accepts hierarchy and unequal power distribution. *Individualism* is an indication of an individual's creativity and uniqueness. *Masculinity* shows the degree to which a society encourages and rewards its members for excellence and performance improvement. *Uncertainty avoidance* relates to a resistance towards risks because of unpredictable future situations. *Long term orientation* highlights the degree to which members of a society engage in future-oriented behaviours such us delaying gratification, investing in the future and planning [11], [12]. However, Hofstede's more recent work [10] suggests that new dimensions may also need to be considered when assessing culture issues. An alternative to Hofstede's model is the Global Leadership and Organizational Effectiveness (GLOBE) model developed by House [11].

Previous investigations on the availability of financial capital tend to focus mainly on inheritance and windfall gains [13], [14] and the state of the housing market [5], [15]. However, the work of [16], [17] suggests that accessibility to bank credit (or other similar sources of finance) could have an impact on business creation and hence the entrepreneurial activities at the national level of a country, as the availability of credits depends largely on the prevailing economic conditions.

The human capital stock of a country formed by professionals and entrepreneurs is a necessity in the formation and 'maintenance' of a healthy economy [18]. Professionals enable economic transactions, while entrepreneurs provide innovations and different ways of doing things. Previous studies examining the relationships between human capital and entrepreneurial activity focus mainly on reviewing the impact of the quality of the human capital. One such approach is by assessing the tertiary school indexes in different countries. There was little work done on examining the quantity of human capital available in a country, as unfavourable conditions in the labour market (e.g. high unemployment) may be considered as a push factor that

encourages more individuals towards business creation [7]. Indeed, the level of economic growth/development in a country can have a direct impact on the country's entrepreneurial activity. Statistical evidence shows that functional relationships exist between (i) per capita income and the level of business ownership [19] and (ii) between per capita income and the number of nascent businesses [20].

The importance of educational systems on business creation has also been highlighted by international organizations. The Organization for Economic Co-operation and Development [21] and the European Union [22] consider that entrepreneurial education is a very important enabling factor for economic development. Indeed, universities and colleges are considered as some of the most important instruments in both regional and national economic and social development [23], while education and training provides the means to foster entrepreneurship particularly amongst younger generations [2], [23]. However, entrepreneurial training is traditionally associated with subject areas which are strongly related to entrepreneurship such as economic, business and management, although many universities and colleges are gradually incorporating business and management as part of science and technology curriculum [24].

Using Spain as a case study, the Global Entrepreneurship Monitor (GEM) surveyed 28,306 Spanish adults who experienced university education in 2006. They were asked to rate the entrepreneurial support of their universities on a Likert scale 1 to 5. The results (overall 2.485 out 5) suggested that Spanish Universities are lagging other European universities in the area of entrepreneurial support in Higher education [2]. The present project seeks to revisit some of the issues highlighted by the study of [2] following a period of unparalleled economic contraction in Spain.

II. METHODOLOGY

The research consists of two parts: an exploratory study and a causal study. The exploratory study involves surveying responses from Spanish high school and university students, as well as graduates focusing on their perceptions and understanding of the prevailing entrepreneurial intentions in Spanish educational system. Based on the 2013 data collected from 36 countries published by Global Entrepreneurship Monitor, the causal study examines the factors influencing the levels of entrepreneurial activity in a country with particular emphasis on culture, availability of human capital, access to financial capital, and economic development.

A. Hypotheses - The Exploratory Study

By focusing on their perceptions and understanding of the prevailing entrepreneurial intentions in the Spanish educational system, the exploratory study conducted questionnaire surveys amongst 30 high school students, 30 university students and 30 graduates using a combination of quota and snowballing sampling methods. Two hypotheses have been formulated as follows:

Hypothesis 1. H_0: There will be no change in the entrepreneurial (or business) intentions of individuals regardless of any combination of changes to the following

factors: the support given by the educational institutions to the respondents; the entrepreneurial knowledge of the respondents; the exposure to entrepreneurship by the respondents; and the entrepreneurial support provided to the respondents by their family.

Hypothesis 2. H_0: There is no significant difference in the support offered by Spanish universities towards the development of entrepreneurship between 2006 and 2014. Cited by [2], an average score of 2.485 was provided by GEM in 2006.

B. Hypotheses – The Casual Study

Based on the 2013 survey of 36 countries published by Global Entrepreneurship Monitor [25]-[27], the causal study examines the effect of culture, economic development, human capital and financial capital upon the entrepreneurial activity in a country. Additionally, it also assess the continue validity of an apparent quadratic relationship between Nascent Entrepreneurship Rate and economic development amongst the GEM sampled countries. Two hypotheses have been formulated as follows:

Hypothesis 3. H_0: The Nascent Entrepreneurship Rate within a country does not change regardless of its economic development, culture, access to human or financial capital in that country.

Hypothesis 4. H_0: The relationship between Nascent Entrepreneurship Rate and economic development amongst GEM sampled countries continues to follow a U-shape curve.

Assuming a 95% confidence interval, multiple regression analysis involving 2-tailed tests has been conducted to test the validity of the null hypotheses. Tests were also performed to check for potential issues of multi-collinearity between the independent variables.

III. RESULTS AND DISCUSSION

TABLE I: CORRELATIONS TABLE-THE EXPLORATORY STUDY

		Business Intentions (1-5)	Exposure (5-25)	Ed. System Support (1-5)	Family Support (1-5)	Knowledge (0-7)
Business Intentions (1-5)	Pearson Correlation	1	0.289	0.274	-0.053	0.35
	Sig. (2-tailed)		0.006	0.009	0.617	0.001
	N	90	90	90	90	90
Exposure (5-25)	Pearson Correlation	0.289	1	0.704	-0.119	0.487
	Sig. (2-tailed)	0.006		0.000	0.262	0.000
	N	90	90	90	90	90
Ed. System Support (1-5)	Pearson Correlation	0.274	0.704	1	-0.135	0.503
	Sig. (2-tailed)	0.009	0.000		0.205	0.000
	N	90	90	90	90	90
Family Support (1-5)	Pearson Correlation	-0.053	-0.119	-0.135	1	0.099
	Sig. (2-tailed)	0.617	0.262	0.205		0.352
	N	90	90	90	90	90
Knowledge (0-7)	Pearson Correlation	0.350	0.487	0.503	0.099	1
	Sig. (2-tailed)	0.001	0.000	0.000	0.352	
	N	90	90	90	90	90

Hypothesis 1: Table I shows the results of the correlation analysis for the exploratory study. With a correlation value of 0.704 (i.e. greater than the generally acceptable value of 0.6), the 'educational system support' appears to have collinearity issues with 'exposure'. By eliminating the former, the overall Pearson's correlation coefficient r for the exploratory study is 0.381 and the adjusted r^2 is 0.115. A regression ANOVA test has also been conducted to check the validity of the analysis. With a calculated F ratio of 4.868 and a significance 0f 0.004 (which is much less than 0.05), the results suggest that the set

of factors under consideration is significantly related to the entrepreneurial (or business) intentions. Therefore the null hypothesis should be rejected.

By examining the regression coefficients (Table II), it appears that 'entrepreneurial knowledge' (with B=0.183, sig.=0.015) may be used as a predictor for determining the 'business intentions'. Given that 'exposure' and 'educational system support' exhibit a significant correlation with 'entrepreneurial knowledge' (r=0.487, sig.=0.000 and r=0.503, sig.=0.000 respectively, Table I), they may be considered as indirect but positive factors towards 'business intentions'.

Hypothesis 2: Using the survey results of 30 University students, a one sample t-test of the support provided by Spanish universities has been carried out against the mean value obtained in 2006 as cited in [2]. Given that the mean values are largely similar in both cases (2.485 in 2006 and 2.40 in 2014) and a significance of 0.667 for the present investigation (which is much greater than 0.05), there is no significant variation in the mean values thus obtained. Consequently, the null hypotheses should not be rejected.

TABLE II: MULTIPLE REGRESSION COEFFICENTS - THE EXPLORATORY STUDY

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	sig.
(Constant)	2.049	0.526		3.899	0.000
Exposure (5-25)	0.045	0.037	0.141	1.209	0.230
Family Support (1-5)	-0.064	0.100	-0.065	-0.639	0.525
Knowledge (0-7)	0.183	0.074	0.288	2.485	0.015

The survey results also show that awareness of entrepreneurship has helped to increase entrepreneurial intentions among younger people. Two key factors have been identified as the main contributors to the attainment of entrepreneurial knowledge, namely the entrepreneurship curriculum and support offered by educational institutions including the level of exposure to entrepreneurial activities in a learning environment. By comparing the present results with those published by [2] covering the amount of support towards entrepreneurship offered by Spanish universities, it can be concluded that there has not been any statistical significant improvement in the past six years.

TABLE III: CORRELATIONS TABLE - THE CAUSAL STUDY

		Nascent Entrep. Rate	GDP per Capita	Unemploy-ment Rate	Access to Credit	Population Growth	Power Distance	Individualism	Masculinity	Uncertainty Avoidance	Pragmatism	Indulgence
Nascent Entreprenship Rate	Pearson Corr.	1	-0.274	-0.039	-0.102	0.321	0.021	-0.137	0.005	0.018	-0.572	0.518
	Sig. (2-tailed)		0.106	0.820	0.554	0.056	0.904	0.426	0.977	0.918	0.000	0.001
	N	36	36	36	36	36	36	36	36	36	36	36
GDP per Capita	Pearson Corr.	-0.274	1	-0.233	-0.382	0.235	-0.404	0.301	-0.194	-0.466	0.117	0.193
	Sig. (2-tailed)	0.106		0.171	0.021	0.167	0.015	0.075	0.257	0.004	0.497	0.259
	N	36	36	36	36	36	36	36	36	36	36	36
Unemployment Rate	Pearson Corr.	-0.390	-0.233	1	0.012	-0.268	-0.061	0.220	0.104	0.164	-0.207	0.031
	Sig. (2-tailed)	0.820	0.171		0.943	0.113	0.723	0.197	0.548	0.340	0.226	0.856
	N	36	36	36	36	36	36	36	36	36	36	36
Access to Credit	Pearson Corr.	-0.102	-0.382	0.012	1	-0.243	0.396	-0.241	-0.263	0.455	0.148	-0.194
	Sig. (2-tailed)	0.554	0.021	0.943		0.154	0.017	0.158	0.121	0.005	0.388	0.258
	N	36	36	36	36	36	36	36	36	36	36	36
Population Growth	Pearson Corr.	0.321	0.235	-0.268	-0.243	1	-0.226	0.091	-0.072	-0.353	-0.351	0.426
	Sig. (2-tailed)	0.056	0.167	0.113	0.154		0.186	0.598	0.675	.35	0.036	0.010
	N	36	36	36	36	36	36	36	36	36	36	36
Power Distance	Pearson Corr.	0.021	-0.404	-0.061	0.396	-0.226	1	-0.677	0.138	0.334	0.361	-0.499
	Sig. (2-tailed)	0.904	0.015	0.723	0.017	0.186		0.000	0.422	0.046	0.030	0.002
	N	36	36	36	36	36	36	36	36	36	36	36
Individualism	Pearson Corr.	-0.137	0.301	0.220	-0.241	0.091	-0.677	1	0.114	-0.177	-0.253	0.406
	Sig. (2-tailed)	0.426	0.075	0.197	0.158	0.598	0.000		0.506	0.301	0.137	0.014
	N	36	36	36	36	36	36	36	36	36	36	36
Masculinity	Pearson Corr.	0.005	-0.194	0.104	-0.263	-0.072	0.138	0.114	1	0.141	0.175	-0.196
	Sig. (2-tailed)	0.977	0.257	0.548	0.121	0.675	0.422	0.506		0.411	0.307	0.253
	N	36	36	36	36	36	36	36	36	36	36	36
Uncertainty Avoidance	Pearson Corr.	0.018	-0.466	0.164	0.455	-0.353	0.334	-0.177	0.141	1	0.145	-0.208
	Sig. (2-tailed)	0.918	0.004	0.340	0.005	0.035	0.046	0.301	0.411		0.400	0.222
	N	36	36	36	36	36	36	36	36	36	36	36
Pragmatism	Pearson Corr.	-0.572	0.117	-0.207	0.148	-0.351	0.361	-0.253	0.175	0.145	1	-0.577
	Sig. (2-tailed)	0.000	0.497	0.226	0.388	0.036	0.030	0.137	0.307	0.400		0.000
	N	36	36	36	36	36	36	36	36	36	36	36
Indulgence	Pearson Corr.	0.518	0.193	0.031	-0.194	0.426	-0.499	0.406	-0.196	-0.208	-0.577	1
	Sig. (2-tailed)	0.001	0.259	0.856	0.258	0.010	0.002	0.014	0.253	0.222	0.000	
	N	36	36	36	36	36	36	36	36	36	36	36

Hypothesis 3: Table III shows the results of the correlation analysis for the causal study. With a r value of -0.677 and a significance of 0 0.000, there appears to be a negative but significant correlation between 'power distance' and 'individualism'. Taking into account their respective correlation with Nascent Entrepreneurship Rate (r=0.021 and r =-0.137), the parameter 'power distance' has subsequently been eliminated from the regression analysis in order to avoid any problems of multi-collinearity. As a result, the overall correlation value r is 0.771 and the adjusted r^2 is 0.475. The results confirm that the combined correlation of the remaining factors is strong and that 47.5% of the variation in the

'Nascent Entrepreneurship Rate' in a country may be explained by the variation of the factors taken as a set. Within the set, the following four factors are considered relatively more important than others: a) GDP per capita (impact of economic development), b) three of the Hofstede's cultural dimensions (indulgence, individualism and pragmatism), c) access to credit (access to financial capital), d) unemployment rate and % population growth (access to human capital).

As in the previous case, a regression ANOVA test has also been conducted to check the validity of the analysis. With a calculated F ratio of 4.951 and a significance of 0.001, the results suggest that the four identified factors (i.e. factors (a)–(d) above), taken as a set, are significantly related to Nascent Entrepreneurship Rate. Therefore the null hypothesis should be rejected.

By examining the coefficients B and associated significance of the factors (Table IV), the following three variables may be used as predictors for the Nascent Entrepreneurship Rate: *Individualism* (B=-0.059, Significance=0.004); *Pragmatism* (B=-0.064, Sig.=0.007); *Indulgence* (B=0.077, Sig.=0.008).
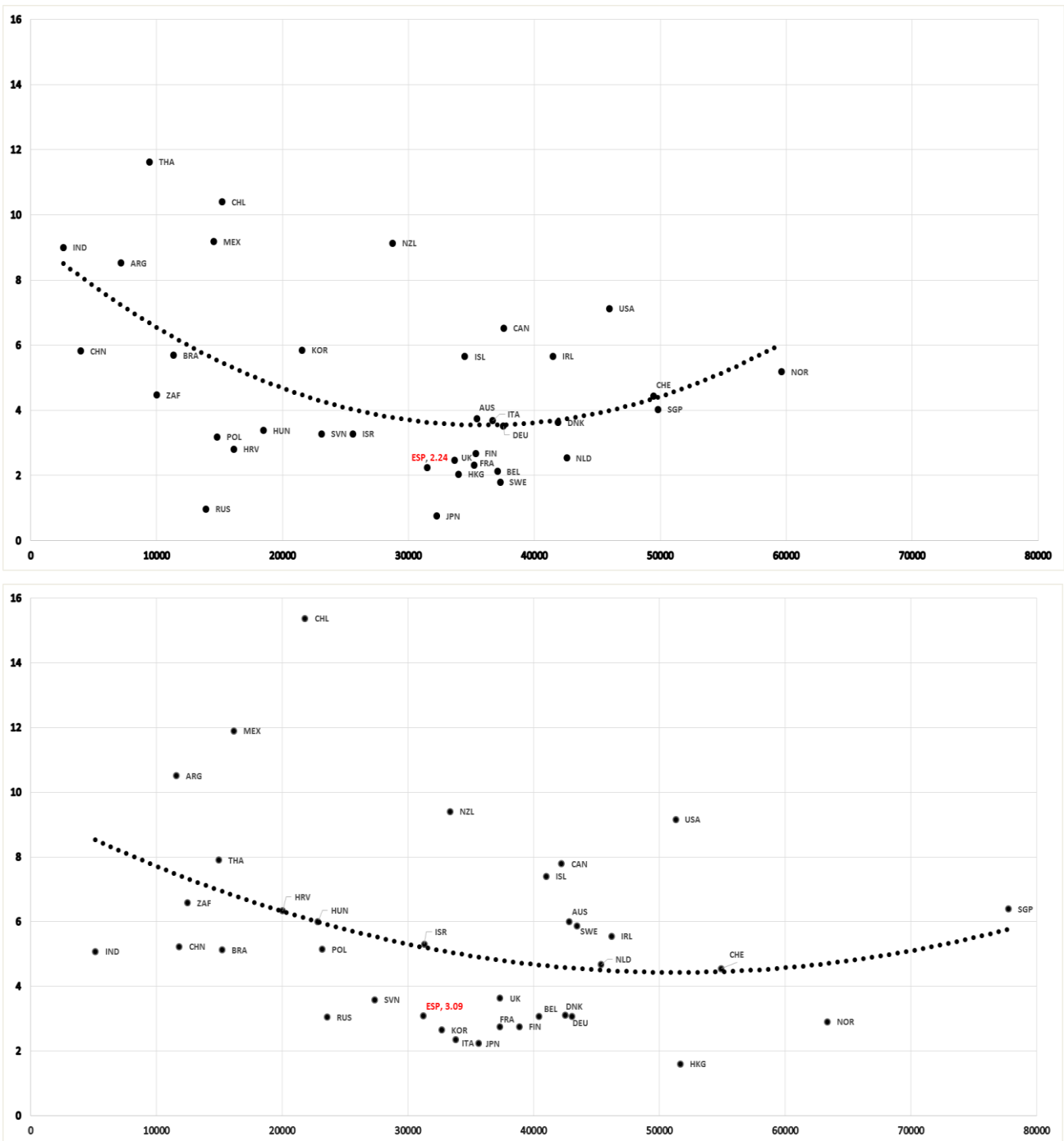

Fig. 1. (Top) Nascent Entrepreneurship Rate 2002 Vs GDP per capita ppp 2001 (source: [20]);
(Bottom) Nascent Entrepreneurship Rate 2013 Vs GDP per capita ppp 2013.
(x-axis: GDP per capita (US$), y-axis: Nascent Entrepreneurship Rate (%))

Hypothesis 4: Fig. 1 shows a curve fit of the 2013 data of sampled countries published by Global Entrepreneurship Monitor GEM [25], with Nascent Entrepreneurship Rate (y-axis) against GDP per capita (x-axis). Also shown in the

figure is a similar curve fit published by the work of [20] based on the 2002 data. It can be seen that a quadratic relationship (i.e. a U-shape curve) continue to exist between Nascent Entrepreneurship Rate and economic development (as measured by GDP) amongst the GEM sampled countries in 2013. Furthermore, the 2013 curve has apparently shifted higher, suggesting that the entrepreneurial activities in most of the sampled countries have increased in the past decade in spite of the general downturn in global economic activities from 2008. Therefore the hypothesis should not be rejected.

TABLE IV: MULTIPLE REGRESSION COEFFICIENTS-THE CASUAL STUDY

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	sig.
(Constant)	6.156	2.795		2.202	0.036
Population Growth	0.075	0.828	0.014	0.091	0.928
Uncertainty Avoidance	0.014	0.019	0.112	0.742	0.465
Access to Credit	-0.003	0.014	-0.035	-0.233	0.817
Unemployment Rate	-0.051	0.079	-0.089	-0.641	0.527
Individualism	-0.059	0.019	-0.448	-3.119	0.004
Masculinity	0.03	0.019	0.218	1.545	0.134
Pragmatism	-0.064	0.022	-0.467	-2.919	0.007
Indulgence	0.077	0.027	0.486	2.844	0.008

IV. CONCLUSION

The results of the present study lend support to the views that entrepreneurial support and exposure offered by the educational system help to increase entrepreneurial knowledge, which in turn promote greater entrepreneurial (or business) intentions amongst college/university students. Thus, education, training and involvement in entrepreneurial activities continue to be the main factors which help to foster entrepreneurship amongst the younger generation. However, the question remains as to how the levels of entrepreneurial knowledge amongst students could be raised through innovation in the educational system (e.g. curriculum development, exposure to business-oriented learning activities).

In the case of Spain, the relatively small sample of results tends to suggest that there have been no significance changes in students' entrepreneurial intentions between 2006 and 2014. It is not clear as to whether this is a consequence of the recent severe economic recession experienced by the country.

The causal study confirms that there exists a strong correlation between entrepreneurial activity and the following factors: culture including attitude towards risk, access to financial and human capital, and economic development. Taken together, this set of factors could provide a significant variation to the Nascent Entrepreneurship Rate. Further, three of the Hofstede's cultural dimensions have been shown to have a significant linear relationship with entrepreneurial activity. *Indulgence* is identified as a positive factor, while *individualism* and *pragmatism* are negative factors.

The present study also confirms that a U-shape relationship continues to exist between Nascent Entrepreneurship Rate and economic development (as measured by GDP) amongst GEM sampled countries.

REFERENCES

[1] S. Wennekers and R. Thurik, "Linking entrepreneurship and economic growth," *Small Business Economics*, vol. 13, no. 1, pp. 27-56, 1999.
[2] A. Coduras, D. Urbano, A. Rojas, and S. Mart ñez, "The relationship between university support to entrepreneurship with entrepreneurial activity in Spain: A Gem data based analysis," *International Advances in Economic Research*, vol. 14, no. 4, pp. 395-406, 2008.
[3] X. Zhao, H. Li, and A. Rauch, "Cross-country differences in entrepreneurial activity: The role of cultural practice and national wealth," *Frontiers of Business Research in China*, vol. 6, no. 4, pp. 447-474, 2012.
[4] D. R. Soriano and K. H. Huarng, "Innovation and entrepreneurship in knowledge industries," *Journal of Business Research*, vol. 66, no. 10, pp. 1964-1969, 2013.
[5] A. Henley, "Self-employment Status: The role of state dependence and initial circumstances," *Small Business Economics*, vol. 22, no. 1, pp. 67-82, 2004.
[6] A. Freytag and R. Thurik, "Entrepreneurship and its determinants in a cross-country setting," *Journal of Evolutionary Economics*, vol. 17, no. 2, pp. 117-131, 2007.
[7] A. Henley, "Job Creation by the self-employed: The roles of entrepreneurial and financial capital," *Small Business Economics*, vol. 25, no. 2, pp. 175-196, 2005.
[8] J. C. Hayton, G. George, and S. A. Zahra, "National culture and entrepreneurship: A review of behavioural research," *Entrepreneurship Theory and Practice*, vol. 26, no. 4, pp. 33-52, 2002.
[9] G. Hofstede, *Cultures and Organizations*, London: McGraw-Hill, 1991.
[10] G. Hofstede, G. J. Hofstede, and M. Minkov, *Cultures and Organizations: Software of the Mind: Intercultural Cooperation and its Importance for Survival*, McGraw-Hill, 2010.
[11] R. House, M. Javidan, P. Hanges, and P. Dorfman, "Understanding cultures and implicit leadership theories across the globe: an introduction to project GLOBE," *Journal of World Business*, vol. 37, no. 1, pp. 3-10, 2002.
[12] G. Hofstede, *Culture's Consequences*, New York: Sage, 1980.
[13] A. E. Burke, F. R. Fitz Roy, and M. A. Nolan, "When less is more: distinguishing between entrepreneurial choice and performance," *Oxford Bulletin of Economics and Statistics*, vol. 62, no. 5, pp. 565-587, 2000.
[14] M. P. Taylor, "Self–employment and windfall gains in Britain: evidence from panel data," *Economica*, vol. 68, no. 272, pp. 539-565, 2001.
[15] M. Cowling and P. Mitchell, "The evolution of UK self-employment: A study of government policy and the role of the macroeconomy," *The Manchester School*, vol. 65, no. 4, pp. 427-442, 1997.
[16] A. Calza, C. Gartner, and J. Sousa, "Modelling the demand for loans to the private sector in the Euro Area," ECB Working Paper, no. 55, 2001.
[17] B. Hofmann, "The determinants of bank credit in industrialized countries: Do property prices matter?" *International Finance*, vol. 7, no. 2, pp. 203-234, 2004.
[18] M. F. Iyigun and A. L. Owen, "Risk, entrepreneurship, and human-capital accumulation," *American Economic Review*, pp. 454-457, 1998.
[19] M. Carree, A. Van Stel, R. Thurik, and S. Wennekers, "Economic development and business ownership: An analysis using data of 23 OECD countries in the period 1976–1996," *Small business economics*, vol. 19, no. 3, pp. 271-290, 2002.
[20] S. Wennekers, A. Van Wennekers, R. Thurik, and P. Reynolds, "Nascent entrepreneurship and the level of economic development," *Small Business Economics*, vol. 24, no. 3, pp. 293-309, 2005.
[21] OECD report. (2008). [Online]. Available: https://www.oecd.org/newsroom/40556222.pdf.
[22] EU Expert Group (2008). [Online]. Available: https://ec.europa.eu/research/era/pdf/eg7-era-rationales-final-report_en.pdf.
[23] D. A. Kirby, "Creating entrepreneurial universities in the UK: Applying entrepreneurship theory to practice," *Journal of Technology Transfer*, vol. 31, no. 5, pp. 599-603, 2006.
[24] M. Ripoll és, "Aprender a Emprender en las Universidades (Learning Entrepreneurship at University)," *Arbor*, vol. 187, no. 3, pp. 83-88, 2011.
[25] Global Entrepreneurship Monitor. (2014). Databases. [Online]. Available: http://www.gemconsortium.org/visualizations.
[26] Doing Business. (2013). Databases. [Online]. Available: http://www.doingbusiness.org/rankings.

[27] The World Bank. (2014). Databases. [Online]. Available: http://data.worldbank.org/data-catalog/world-development-indicators.

Dario Ortega-Anderez completed his bachelor degree in electronics engineering at the University of Burgos, Spain and his MSc in engineering management at Nottingham Trent University, UK in 2014.

He previously worked in a managerial position in the retail industry where he developed management and enterprise skills. He was appointed as a research assistant in the Department of Physics, Nottingham Trent University to work on an EU-funded project (Automated Reed Bed Installations) involving 2 Universities -Nottingham Trent University (UK) and Polytechnic University of Catalunya (Spain) and 5 industrial partners. The project completed in September 2015. He is currently a PhD student at Nottingham Trent University working in the field of Artificial Intelligence applied to Assisted Living.

Eugene Lai gained a BSc in mechanical engineering from Queen Mary College, University of London in 1979 and a PhD in fluid mechanics from Queens College, University of Cambridge in 1983. Upon graduation, he worked as an aeroengine installation design engineer at Rolls Royce Limited until 1986. He joined Nottingham Trent University as a faculty member in 1986.

He held a number of appointments as an external examiner both in the UK and overseas, and is currently a visiting professor and a member of the Academic Council of MS Ramaiah University of Applied Science, Bangalore, India.