

Innovative entrepreneurship in high-income European countries

José Fernando López Muñoz
ESIC Business & Marketing School
Josefina Novejarque Civera
ESIC Business & Marketing School
Mabel Pisá Bó
ESIC Business & Marketing School

Cite as:

López Muñoz José Fernando, Novejarque Civera Josefina, Pisá Bó Mabel (2021), Innovative entrepreneurship in high-income European countries. *Proceedings of the European Marketing Academy*, 50th, (93953)

Paper from the 50th Annual EMAC Conference, Madrid, May 25-28, 2021



Innovative entrepreneurship in high-income European countries

This paper explores spatial contexts for innovative entrepreneurship at both the regional and individual level in the context of high-income European countries. Using GEM data, we find significant differences in the conditions influencing entrepreneurial innovativeness by regions. Such variations in entrepreneurial activity are mainly explained by the type of business and individual characteristics. This study illustrates how a contextualized view of entrepreneurship contributes to our understanding of the phenomenon. As a result, our work enriches our knowledge of the human and dynamic socioeconomical drivers motivating innovative entrepreneurial action.

Keywords: innovative entrepreneurship, environmental factors, human traits.

Track: Innovation management and new product development

1 Introduction.

The Global Entrepreneurship Monitor (GEM) can be used as a basis for reliable international comparisons of the role of entrepreneurship in national economic growth (Acs, Arenius, Hay, & Minniti, 2005; Reynolds et al., 2005). Context is important for understanding when, how, and why entrepreneurship happens (Welter, 2011). Because entrepreneurs in highly developed countries are significantly more likely to engage in innovative, rather than purely imitative activities, then we focus on high-income European countries. The emergence of new businesses is a development process at both the individual and the regional levels. Along with the information about individual entrepreneurs from the GEM adult population survey (APS), we include macroeconomic indicators to quantify several relevant dimensions of the environment in which these innovative entrepreneurs make their decisions. Data used in the empirical analysis originate from the 2016 APS, yielding a sample of 4,430 nascent and new entrepreneurs from 16 different high-income European countries.

In accordance with the GEM objectives (Acs et al., 2005), this paper focuses on three main objectives: (i) to measure differences in the level of entrepreneurial innovativeness activity between high-income European regions; (ii) to uncover important factors leading to appropriate levels of entrepreneurial innovativeness; (iii) to suggest policies that may enhance the regional level of entrepreneurial innovativeness activity.

Our study shows that entrepreneurial activity varies significantly by geographic region, type of business, and individual characteristics. Therefore, this paper extends the existing literature by integrating individual and environmental factors that influence innovative entrepreneurial behavior. To our best knowledge, no further studies exist on the factors motivating innovative entrepreneurship across high-income European countries.

2 Conceptual Framework.

The entrepreneur is seen as an agent who creates a new company with new products or production methods, acting on market imbalances (Schumpeter, 1934). To respond to the new needs and lifestyles of customers, organizations continually innovate by making use of technological advances, thus turning all this into new business opportunities (Martin, 1994). Some start-ups are more innovative than others and the factors that contribute to the level of innovation are both individual and contextual (Block, Fisch, and Van Praag, 2017).

2.1 Individual factors contributing to innovative entrepreneurship

Hoogendoorn, van der Zwan, and Thurik, (2020) highlight that the entrepreneur's specific personal traits make new companies more likely to be innovative. From an individual point of view, the likelihood of being an entrepreneur is higher among older people; although when the individuals are younger this probability is maximum and decreases afterwards (Levesque & Minniti, 2006). However, innovative entrepreneurship involves taking more risks than imitative entrepreneurship (Hyytinen, Pajarinen, and Rouvinen, 2015).

Female entrepreneurship has increased in recent decades (Kickul, Wilson, Marlino, and Barbosa, 2008). The lower participation of women in entrepreneurial activity is associated with a greater desire to achieve a balance between work and family life, relegating the desire for economic wealth to the background (Jennings & McDougald, 2007). The greater participation of men in entrepreneurial activity is associated with higher levels of self-confidence and a propensity to take risks (Echebarria-Echabe & González-Castro, 1999). Although the factors that influence female and male entrepreneurship tend to equalize (Langowitz & Minniti, 2005).

Highly educated individuals possess a broader knowledge base and knowledge contributes greatly to the ability to recognize opportunities (Arenius & De Clercq, 2005). Therefore, high levels of education increase the probability of being an entrepreneur, since human capital is associated with a greater perception of opportunities and a greater probability of undertaking an activity (Arenius & Minniti, 2005). The uncertainty surrounding education and the creation of new companies presents an exception, it is the case of rich countries with a high rate of income, as they present high rates of creation of high technology companies (Blanchflower, 2004). Employed people are reluctant to lose favorable situations (Tversky & Kahneman, 1974). Thus, we suggest the following hypothesis:

H1: There is a positive relationship between individual characteristics: gender, age, educational level and employment situation, and innovative entrepreneurship.

2.2 Contextual factors influencing innovative entrepreneurship.

Empirical studies suggest that levels of business creation differ significantly in all countries and over time (Reynolds, Bygrave, and Hay, 2003). This trend can be explained if we relate GDP per capita to the family income. Thus, Arenius & Minniti (2005) found a relationship between family income and the probability of starting an entrepreneurial activity. This relationship is represented by a U-shaped curve. Another of the contextual factors that

can influence innovative entrepreneurship is the rate of self-employed in each country. Minniti (2004) has analyzed that the presence of role models increases the confidence of individuals. In line with Sulkunen and Malin (2018), an important factor for innovation and entrepreneurship is cultural and social norms, and more specifically the percentage of the adult population with higher education.

Nordic countries have an industrial fabric with a high concentration of companies, training clusters, intensive knowledge, and high technology (Cavallini, Soldi, Friedl, and Volpe, 2016). In contrast, southern European countries are characterized by companies with low levels of knowledge intensity and cutting-edge technology (Capello & Lenzi, 2017).

Thus, we suggest the following hypotheses:

H2: There is a positive relationship between GDP per capita and innovative entrepreneurship.

H3: There is a positive relationship between the rate of self-employed and innovative entrepreneurship.

H4: The level of innovative entrepreneurship depends on the European region.

H5: The European region linked to the technological component positively affects innovative entrepreneurship.

3 Methodology.

3.1 Data.

The data used in this paper come from the GEM and the APS. The GEM defines early-stage entrepreneurs as nascent entrepreneurs and new business owners as new entrepreneurs. Those who have paid wages and salaries for more than three months and less than 42 months are otherwise considered as new business owners. The sum of nascent entrepreneurs and new entrepreneurs is what the GEM calls “Total entrepreneurial activity (TEA)”. We will use individual data and aggregate level data.

The endogenous variable is defined as a dichotomous variable that takes the value one if the entrepreneur creates both a product that is new to all or some customers and a new market (few/no businesses offer the same product). Creating a new product and new market is a specific concept of the GEM and provides an updated picture of the new business activities. The GEM has information about the predisposition that entrepreneurs show to launch new innovative businesses. This particular type of entrepreneurship is considered entrepreneurial

innovation and it is a percentage of those involved in TEA who indicate that their product or service is new to at least some customers AND that few or no companies offer the same product. The information used covers the period 2016, the latest data available at the GEM. We analyzed 16 high-income European countries, as established by the World Bank classification. Table 1 shows the variables used to explain the probability of creating a new product.

Table 1: Independent variables used in this study

<p>A. Personal characteristics:</p> <ul style="list-style-type: none"> • Gender. The gender of the workers is quantified through a dichotomous variable that takes the value one for a man and zero for a woman. • Age (in years) • Age squared: The squared value of age (in years) is included as a separate variable in the models in order to identify non-linear relationships between age and entrepreneurial activity. • Higher Education (UNEDUC) (yes/no). Whether the person holds higher (yes) education or not.). It takes the value 1 if the person has a university or postgraduate studies and 0 for any other option. • Self-employed worker (OCCUSELF) (yes / no): people who do not work for an employer but find work for themselves or have their own business (yes). <p>B. Economic characteristics, regional variables:</p> <ul style="list-style-type: none"> • Unemployment rate: Unemployment rate in 2015, the previous to the year used in the analysis period. • Density: Regions with a density greater than 32 inhabitants / km² or more have high density (according to the European average). • Change in GDP per capita: Change (in %) of GDP per inhabitant from 2015 to 2016. • Rate of self-employment. Percentage of self-employed to all gainfully employed persons in the region. <p>C. Technology indicators</p> <ul style="list-style-type: none"> • NEWTECH: measures the number of years that the technology needed to produce the product was available. It is coded taking the values 1, 2 and 3. Less than one year takes the value 1, between 1 and 5 years takes the value 2, and more than 5 years takes the value 3. Newtech is quantified through three dichotomous variables that take value one and zero, indicating “technology novelty”. <p>D. European areas</p> <ul style="list-style-type: none"> • Eastern: Poland and Slovakia. • Southern: Greece, Spain, Italy, Cyprus, Croatia, and Slovenia. • Western: Netherlands, France, Austria, Germany, and Luxembourg. • Northern: United Kingdom, Sweden, and Ireland.
--

3.2 Method

In our study, the dependent variable has only two possible values: innovative entrepreneurship (coded 1) or not (coded 0). We tested the influence on innovative entrepreneurship that they have: the independent variables described above, the use of new technologies, and the geographical area. The logit model is suitable for analyzing binary dependent variables.

First, a logit model is specified and estimated, in which the probability of innovative entrepreneurship is estimated by the following characteristics: gender, age, education, previous work experience, and education. In addition, the unemployment rate and change in GDP per capita of the country have been included as proxy variables of the economic cycle. Finally, we include the four European geographical areas. Model 2 includes the technology

variable. We analyzed whether the use of high technology influences the probability of innovative entrepreneurship. Finally, Model 3 adds a moderation variable: the interaction of technology with the European region. The moderation implies that the causal relation between two variables changes as a function of the moderator variable.

4 Results.

Table 2 shows the results of the logit estimate for innovative entrepreneurship.

Table 2: Results of the logit estimation for innovative entrepreneurship as a dependent variable

Innovative entrepreneurship	Model 1			Model 2			Model 3		
	Coefficient	z	Sig	Coefficient	z	Sig	Coefficient	z	Sig
const	-2.10887964	-3.3112	***	-3.14227627	-4.7585	***	-2.9824577	-4.4730	***
Personal characteristics									
AGE	0.01520552	0.8622		0.03040394	1.6817	*	0.03042965	1.6799	*
Age^2	-0.00021997	-1.0561		-0.00037405	-1.7506	*	-0.00037236	-1.7402	*
GENDER	-0.01969524	-0.2884		-0.06392125	-0.9101		-0.06400535	-0.9103	
OCCUSELF	-0.33912148	-4.8460	***	-0.2783307	-3.8634	***	-0.28580036	-3.9578	***
UNEDUC	0.28831934	4.2877	***	0.27920369	4.0371	***	0.28121128	4.0580	***
European regions									
Western	0.74764197	2.8341	***	1.02350944	3.7547	***	0.88605901	3.1786	***
Eastern	0.18377613	0.8490		0.27807794	1.2437		0.23490301	1.0109	
Northern	0.6174135	2.7269	***	0.83688086	3.5726	***	0.73258224	3.0497	***
Regional variables									
GDP Change	15.1737925	2.4849	**	18.6686751	2.9759	***	17.551925	2.7569	***
Unemployment	-0.00385323	-0.2726		-0.00010716	-0.0073		-0.0031611	-0.2161	
Density	-0.00117485	-2.8225	***	-0.00131841	-3.0893	***	-0.00129837	-3.0096	***
Self-Employment Rate	0.03225313	2.3963	**	0.03359677	2.4342	**	0.0322581	2.2934	**
Technology indicators									
NewTech high				0.93320794	9.4470	***	0.75215558	5.2178	***
New tech medium				1.1198318	13.7759	***	1.11014413	13.6697	***
Interaction terms									
Western* NewTech							0.4934731	2.0102	**
Eastern* NewTech							-0.01273134	-0.0356	
North * NewTech							0.30890976	1.2354	
N	4430			4430			4430		
Correct predictions	70.0%			71.7%			71.4%		
Prob >F	0.0000			0.0000			0.0000		
Crit. de Schwarz	5424.872			5214.024			5234.379		
Crit. de Akaïke	5341.722			5118.082			5119.248		
Crit. de Hannan-Quinn	5371.044			5151.915			5159.848		

Data source. GEM-APS 2016, and the World Bank.

*Significant on 10%-level; **Significant on 5%-level; ***Significant on 1%-level.

4.1 Individual characteristics.

Our study clearly shows that gender turns out to be non-significant in Models 1, 2, and 3 in line with other previous studies (e.g., Oberschachtsiek, 2008). As shown in Model 1, age has no significant influence on innovative entrepreneurship. However, in Model 2 and 3, age is statistically significant, and the positive sign of the beta coefficient indicates that as age increases, individuals are more likely to create new products. However, the negative sign of the squared age coefficient indicates that innovative entrepreneurship rate increases with age, but at a decreasing rate of change, which implies a reversed U-shaped relationship. The age at which the probability of innovative entrepreneurship reaches its peak is 45 years old. Our results are consistent with those obtained by (Cabrer-Borrás & Belda, 2018).

In our three models, higher education qualification has a positive influence on innovative entrepreneurship. An entrepreneur with higher education is approximately 7% more likely to

undertake innovative entrepreneurship. Our results are in line with those obtained by others concerning the decision to become entrepreneurs (Leoni & Falk, 2010).

In all three models, self-employment negatively influences the probability of creating innovative entrepreneurship. A self-employed person is 7% less likely to start an innovative business. Our results are in line with other studies that concluded that employment (workers or self-employed) has a negative result on entrepreneurship (Roberts, Negro and Swaminathan, 2013).

4.2 Regional characteristics.

First, among the regional influential factors investigated in this paper, the change in GDP per capita proved to be significant for all three models. Despite this, if entrepreneurship is analyzed in its broadest sense, a GDP increase might negatively affect entrepreneurship (Cabrer-Borrás & Belda, 2018). Second, our results show that the percentage of unemployed population is not relevant to explain innovative entrepreneurship in any of the three analyzed models. Third, although the question of whether someone is self-employed or not is already considered at the individual level among the person-related influential factors, the regional rate of self-employment proved to be significant for all three models. Our results show that, concerning the level of studies, innovative entrepreneurship is more likely in the case of higher studies compared to intermediate or basic studies. Furthermore, this observed difference is greater as GDP grows. Similarly, we observe that innovative entrepreneurship is less likely in the case of a self-employed people, and this difference is greater for higher values of GDP (ranging from 4% to 7%).

4.3 European regions.

Regarding European areas, the Northern, Eastern, and Western show greater scores creating innovative entrepreneurship than the Southern region. In model 3, we find that the Western European region increases the probability of innovative entrepreneurship by 22% compared to the Southern area. In general, the Eastern zone is the one that presents the least difference from the Southern one. In the Eastern area, it is 5% more likely to be an innovative entrepreneur. In the Southern, further progress is necessary in fiscal policy to simplify tax burdens. Concerning financing for entrepreneurship, a review and simplification of administration processes is required, as well as greater coordination of administrations, since many of the incentives offered to encourage entrepreneurship are territorial or local.

4.4 Technological component.

Model 2 includes a variable indicative of the newness of the technology used for the innovative venture. Our results confirm that the use of new technologies increases the probability of innovative entrepreneurship by 15%. The results of our analysis confirm the assumption that recent changes in innovation policy have transformed innovative entrepreneurship in Europe.

4.5 Moderator effect results.

In Model 3, we analyze the effect of the moderating variable on innovative entrepreneurship. The geographical areas of Europe are important for innovative entrepreneurship. Southern Europe is the baseline where innovative entrepreneurship from other regions is confronted. The Western area shows the highest probability of innovative entrepreneurship. Technological innovation is very important in Western Europe. The formation of an ecosystem conducive to innovation is what drives innovative companies to be born. Our results show that entrepreneurs from the Western European region using a new technology are 12% more likely to create an innovative venture.

5 Conclusions.

This paper has confirmed that both individual and regional qualities have an influence on the decision to become an innovative entrepreneur in high-income European countries. First, all models investigated showed a considerable difference between whichever European region and the southern European region. Indeed, the strong PIB effects revealed in the regressions suggest that entrepreneurial innovativeness cannot be fully explained by individual specific factors alone. Consequently, one can easily deduce that entrepreneurial innovation often has a factual constituent rather than being entirely attached to the creativity of the individual entrepreneur. Second, our findings show a significant influence of various individual-level characteristics identified in the empirical study, such as education, employment status, and age. This implies that perceiving, developing, and exploiting an innovative opportunity remains an individual act that is inextricably linked to contextual factors that influence individual decisions to become innovative entrepreneurs.

References

- Acs, Z. J., Arenius, P., Hay, M., & Minniti, M. (2005). Global entrepreneurship monitor 2004 executive report.
- Akaike, H. (1973). Information theory and an extension of the maximum likelihood principle. In B. N. Petrov & F. Caski (Eds.), *Proceedings of the Second International Symposium on Information Theory* (pp. 267–281). Budapest: Akademiai Kiado.
- Arenius, P., & De Clercq, D. (2005). A network-based approach on opportunity recognition. *Small Business Economics*, 24(3), 249-265.
- Arenius, P., & Minniti, M. (2005). Perceptual variables and nascent entrepreneurship. *Small Business Economics*, 24(3), 233-247.
- Belda, P. R., & Cabrer-Borrás, B. (2018). Necessity and opportunity entrepreneurs: survival factors. *International Entrepreneurship and Management Journal*, 14(2), 249-264.
- Blanchflower, D. G. (2004). *Self-employment: More may not be better* (No. w10286). National Bureau of Economic Research.
- Block, J. H., Fisch, C. O., & Van Praag, M. (2017). The Schumpeterian entrepreneur: A review of the empirical evidence on the antecedents, behaviour and consequences of innovative entrepreneurship. *Industry and Innovation*, 24(1), 61-95.
- Cabrer-Borrás, B., & Belda, P. R. (2018). Survival of entrepreneurship in Spain. *Small Business Economics*, 51(1), 265-278.
- Capello, R., & Lenzi, C. (2017). Do Southern European regions really lag behind in their innovation trends?. In *Regional Upgrading in Southern Europe* (pp. 77-100). Springer, Cham.
- Cavallini, S., Soldi, R., Friedl, J. & Volpe, M. (2016). Using the quadruple helix approach to accelerate the transfer of research and innovation results to regional growth.
- Davidsson, P. & B. Honig, 2003. The Role of Social and Human Capital Among Nascent Entrepreneurs. *Journal of Business Venturing*, 18, 301–331.
- Echebarria Echabe, A., & Gonzalez Castro, J. L. (1999). The impact of context on gender social identities. *European Journal of Social Psychology*, 29(2-3), 287-304.
- Hannan, E. J., & Quinn, B. G. (1979). The determination of the order of an autoregression. *Journal of the Royal Statistical Society. Series B (Methodological)*, 190-195.
- Hoogendoorn, B., van der Zwan, P., & Thurik, R. (2020). Goal heterogeneity at start-up: are greener start-ups more innovative?. *Research Policy*, 49(10), 104061.
- Hyytinen, A., Pajarinen, M., & Rouvinen, P. (2015). Does innovativeness reduce startup survival rates?. *Journal of Business Venturing*, 30(4), 564-581.
- Jennings, J. E., & McDougald, M. S. (2007). Work-family interface experiences and coping strategies: Implications for entrepreneurship research and practice. *Academy of Management Review*, 32(3), 747-760.
- Kickul, J., Wilson, F., Marlino, D., & Barbosa, S.D., (2008). Are mis-alignments of perceptions and self-efficacy causing gender gaps in entrepreneurial intention among our nation's teens? *Journal of Small Business and Enterprise Development*. 5 (2), 321-335.
- Langowitz, N., & Minniti, M. (2007). The entrepreneurial propensity of women. *Entrepreneurship Theory and Practice*, 31(3), 341-364.

- Leoni, T., & Falk, M. (2010). Gender and field of study as determinants of self employment. *Small Business Economics*, 34(2), 167-185.
- Levesque, M., & Minniti, M. (2006). The effect of aging on entrepreneurial behavior. *Journal of Business Venturing*, 21(2), 177-194.
- Martin, M. J. (1994). *Managing innovation and entrepreneurship in technology-based firms* (Vol. 20). John Wiley & Sons.
- Minniti, M., 2004, 'Entrepreneurial Alertness and Asymmetric Information in a Spin-Glass Model'. *Journal of Business Venturing* 19(5), 637–658.
- Oberschachtsiek, D. (2008). Founders' experience and selfemployment duration: The importance of being a 'Jack-of-all- trades'. An analysis based on competing risks, IABdiscussion paper, no. 40/2008.
- Reynolds, P. D., Bygrave, B., & Hay, M. (2003). *Global entrepreneurship monitor report*. Kansas City, MO: EM Kauffman Foundation.
- Reynolds, P., Bosma, N., Autio, E., Hunt, S., De Bono, N., Servais, I., . . . 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
- Roberts, P. W., Negro, G., & Swaminathan, A. (2013). Balancing the skill sets of founders: implications for the quality of organizational outputs. *Strategic Organization*, 11(1), 35–55
- Schumpeter, J.A. (1934), *The Theory of Economic Development*. Harvard University Press, Cambridge, MA.
- Schwarz, G. (1978). Estimating the dimension of a model. *The annals of statistics*, 6(2), 461-464
- Sulkunen, S., & Malin, A. (2018). Literacy, age and recentness of education among Nordic adults. *Scandinavian Journal of Educational Research*, 62(6), 929-948.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124-1131.
- Van Praag, C. M. (2003). Business survival and success of young small business owners. *Small business economics*, 21(1), 1-17.
- Welter, F. (2011). Contextualizing Entrepreneurship-Conceptual Challenges and Ways Forward. *Entrepreneurship Theory and Practice*, 35(1), 165-184. doi:10.1111/j.1540-6520.2010.00427.x