

**THE INFLUENCE OF SOCIOECONOMIC FACTORS ON
ENTREPRENEURSHIP AND INNOVATION**

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ABSTRACT

Researchers have traditionally analyzed how innovation affects growth and how economic factors affect innovation. However, this paper explores how social capital, the quality of institutions, and income inequality affect product innovation on behalf of entrepreneurs. In order to do so, an empirical analysis is performed using panel data for thirteen European countries for the period 2002-2010.

Keywords: Product innovation, entrepreneurship, social capital, institution, income distribution.

INTRODUCTION

The specialized literature has analyzed both innovation and its effects on economic growth (Holcombe, 2007; Schumpeter, 1911). Recently, several studies have focused on entrepreneurial activity and the importance of entrepreneurs to growth (Audrestsch, 2006; Fritsch, Mueller, & Weyh, 2005).

According to Schumpeter (1911), entrepreneurship implies innovation in terms of either the launch of a new product¹, or in organization or processes and also involves a process of destruction. Entrepreneurs create new industries and, therefore, bring about significant structural changes in the economy (Nissan, Galindo,

¹ This product does not have to be entirely new but perceived as such by consumers.

& Mendez, 2012). This paper analyzes the case when an entrepreneur introduces product innovation from a Schumpeterian point-of-view.

In addition, various authors, including Gnyawali and Fogel (1994) and Shapero and Sokol (1982), have suggested that economic growth and, therefore entrepreneurship, does not only depend on economic and financial factors (such as investment in infrastructure or business investment), but also socioeconomic factors. This paper analyzes the impact that three socioeconomic factors, namely social capital, institutions, and income distribution, have on entrepreneurship and innovation.

In order to do so, the paper is organized as follows: the second section explores how social capital and institutions affect innovation on behalf of entrepreneurs. Section three addresses the main contributions to the literature that defend the notion that income inequality stimulates innovation on behalf of entrepreneurs. The fourth section presents an empirical analysis aimed at verifying the aforementioned relationships and the last section provides some brief conclusions.

SOCIAL CAPITAL, INSTITUTION, AND ENTREPRENEURSHIP

Following Worms (2003), in a narrow sense, social capital is related to social resources creation in a social group to which individuals belong voluntarily. In a broader context, those resources can emerge from the relationships that an individual establishes in groups to which he belongs voluntarily, by chance, through necessity, or by following a process of social adscription.

Social capital is, therefore, related to social networks and to norms established to improve the functioning of those networks (Putman, 1995). More specifically, Putman and Goss (2003) state that social capital is a mixture of social networks and their associated reciprocity norms, which create value in the same way that physical and human capital do (p.14).

Furthermore, various studies suggest that entrepreneurs emerge from social networks with the purpose of furthering their economic activities in a complex economic system (Cassis & Papelasis 2005; Swedberg, 2000).

In this sense, social networks provide entrepreneurs with a variety of benefits. They provide access to resources, resource exchanges (Tsai & Ghoshal, 1998), relevant information (Fukuyama, 2000), and access to international markets (Phelan, Dalgic, Li, & Sethi, 2006). They also foster innovation, help entrepreneurs to recognize opportunities (Dakhli & Clercq, 2004; Kaasa, 2009; Subramainiam & Oyundt, 2005), create intellectual capital, and organizational education (Hitt, Lee, & Yucel, 2002) and finally, they make it easier to acquire relevant knowledge and skills (Nahapiet & Ghoshal, 1998) and to boost business profits (Liao & Welsh, 2003; Nahapiet & Ghoshal, 1998).

Three different dimensions of social capital that favor entrepreneurial innovation can be taken from the various studies that have addressed its effects on entrepreneurship, namely structural, relational, and cognitive social capital (Herrera, 2009). In the first place, the structural dimension focuses on the structure and organization of social networks (Granovetter, 1973; Uzzi, 1996).

The way these links are organized provides the necessary and sufficient conditions for the transfer of information and resources to foster business success. Moreover, these networks cause synergistic effects that result in creative ideas and new combinations (Subramainiam & Oyundt, 2005).

In the second place, the relational perspective considers the strength and quality of social ties. Strong ties generate trust and help information to flow, which leads to a reduction in the cost of searching for information (Fukuyama, 2000; Uzzi, 1996). According to Knack and Keffer (1997), the more the members of a network of companies trust each other, the lower the monitoring and transaction costs. As a result, companies can use the resources they have saved for other purposes, such as innovation.

Finally, the cognitive dimension refers to the existence of values and models that are shared by the members of the network (Nahapiet & Ghoshal, 1998). This institutionalist viewpoint of social networks specifies how they provide a series of standards for acceptable behavior that entrepreneurs must abide. When individuals share similar values, it is easier to exchange ideas and resources, which can favor innovation (Dakhli & DeClercq, 2004; Kaasa, 2009).

However, it is worth indicating that social capital also refers to the social behavior of individuals within institutions. Hence, it is necessary to look at the role of institutions in the economic performance of societies (Acemoglu, 2005; Galindo, 2010; North, 1990).

So, the institutional approach shows that

institutions play an important role in economic operations, as they channel ideas and ideologies. These ideas and ideologies constitute subjective mental constructs which individuals use to interpret their environment and to make choices. North (1990) considers it necessary to analyze economic and political aspects together in order to understand economic operations. In this sense, if institutions, social interactions, and norms are efficient, they improve social cohesion. Social cohesion is an essential component for the achievement of economic performance and development.

Furthermore, good institutions improve investment in machinery, human capital, and the introduction of appropriate technologies (Galindo, 2010). However, in order to generate these positive effects, institutions have to satisfy the following characteristics (Acemoglu, 2005; Galindo, Méndez & Alfaro, 2010): a) They have to protect the property rights of most of society. This means that economic agents have more incentives for investment. b) They have to establish restrictions on the actions of certain lobbies and political elites which could penalize property rights, for example, expropriation. c) They must improve the equality of opportunities and expand the middle class, so that more individuals can carry out economic activities. In order to do so, it is necessary to facilitate access to better formation of human capital and financial resources which improve investment.

According to Fogel, Hawk, and Siegel (2006), the career prospects of an entrepreneur depend on the economic environment, which can be facilitative or detrimental. Such factors include rules and regulations, the quality of government, the

availability of education, and ambient culture.

For entrepreneurs, the rules and regulations that preserve their property rights are especially relevant, as is the existence of stable and non-corrupt governments able to build transactional trust and to design adequate macroeconomic policies to improve the social and economic environment.

In short, social stability and the social climate encourage entrepreneurship and also innovations on behalf of entrepreneurs, together with their assimilation (Galindo, Méndez & Alfaro, 2010). Bearing in mind the foregoing theoretical arguments, we propose the following hypothesis.

H1: The societies with the most social capital and the best institutions encourage entrepreneurs to innovate.

INCOME DISTRIBUTION AND ENTREPRENEURSHIP

At present, there are a whole host of factors that show how inequality has a positive effect on growth and private investment and, in turn, on entrepreneurship and innovations (Weinhold & Nair-Reichert, 2009).

Income inequality boosts the productivity of the economy by means of creating incentives and promoting competition, which generates a greater motivation to invest (Rodríguez-Pose & Tselios, 2010). Similarly, the increase in competition stemming from inequality will provide for a greater variety of products (Voskamp, 2009), all of which will encourage entrepreneurs to set in motion innovation

processes to differentiate their products from the rest.

Credit is a key variable when it comes to financing innovations. As a result, lending institutions must not be restrictive and must meet the funding requirements of entrepreneurs (Galindo, Méndez, & Alfaro, 2010). The problem is that during periods when credit is tight, this is not always possible. As a result, an unequal income distribution can stimulate entrepreneurship and innovation. Bearing in mind that the individuals with the most resources have greater access to credit (Berhanu, 2009), they can invest, innovate, and expand their production to a greater extent than others (Shin, 2012). Therefore, a certain degree of income concentration in part of the population is necessary to fuel innovation processes in the presence of such imperfections in the credit market. In the same vein, Bahmani, Galindo, and Méndez (2010) assert that if income inequality favored business people, they would have more resources to invest and innovate, which is particularly important in times of credit market restrictions.

Investment projects, and more specifically, entrepreneurs or the implementation of innovations, often entail high costs (García-Peñalosa, 2008). These costs are even higher in the case of small enterprises (Hall & Lerner, 2009; Rosenbusch, Brinckmann, & Bausch, 2011). In the absence of a generous market that works properly, income has to be sufficiently concentrated so that entrepreneurs can cover these costs, so that an unequal income distribution once again becomes a prerequisite for innovation (García-Peñalosa, 2008).

Similarly, taking into account that those costs will more than likely result in higher

prices, innovation incentives will depend on whether or not there is a group of wealthy consumers who are willing to purchase the new product (Rodríguez-Pose & Tselios, 2010). In this process, unequal income distribution can be the solution, as it will create that group of high-income consumers who are willing to pay higher prices for innovations (Roy, 2012). This group will also be more prone to choosing better and more expensive technologies, due to being able to benefit from them (Iacopetta, 2008; Kandler & Steele, 2009), as well as more expensive higher quality products (Bekkers, Francois & Manchin, 2012).

In addition, it is also important to consider that income inequality can also cause social instability, curbing the incentives for entrepreneurship and innovation (Bahmani, Galindo & Méndez, 2010; Galindo, Méndez, & Alfaro, 2010; Knight, 2012; Shin, 2012); although, this effect will depend on the degree of inequality (Knight, 2012). In this sense, Knight, Song, and Gunatilaka (2009) state that when inequality has an effect beyond an individual's own group of reference, at either national or regional level or between urban and rural areas, it can be perceived as an opportunity to gain higher profits, which could imply an incentive for entrepreneurs and innovation processes to get on equal terms with the wealthy.

Given the above, we propose the following hypothesis:

H2: Unequal income distribution provides an incentive for entrepreneurs to innovate.

EMPIRICAL ANALYSIS

Data and methods

In order to test the hypothesis formulated in the previous section, we propose the following empirical specification:

$$(1) \quad IN_{it} = \alpha + \beta_1 GINI_{it} + \beta_2 BF_{it} + \beta_3 MF_{it} + \beta_4 IF_{it} + \beta_5 FF_{it} + \beta_6 PE_{it} + \beta_7 HK + \beta_8 I_{it} + \beta_9 U_{it} + \beta_{10} TOP_{it} + \beta_{11} TNE_{it} + u_{it}$$

where subscript i denotes the country (1...i), and subscript t denotes the year, α is an intercept, the β_j 's are the coefficients to be estimated, and u_{ij} is the error term. The dependent variable (IN) represents the product innovation of entrepreneurs, which is measured by a response to an item in the GEM questionnaire, more specifically, "TEA: how many (potential) customers consider the product new/unfamiliar?" For the purpose of our research, we have chosen both options, namely "all customers" and "some customers". As regards the explanatory variables, (GINI) captures income distribution equality as measured by the Gini index obtained from the Eurostat database.

In order to capture social capital and institutional quality, our model incorporates four components from the Economic Freedom Index provided by The Heritage Foundation². These components are Business Freedom (BF), Monetary Freedom (MF), Investment Freedom (IF), and

² This foundation aims to measure the consistency of institutions and public policy in different countries. The economic freedom index comprises ten economic freedom measures that assess Rule of law, government intervention, regulatory efficiency and open markets (Miller et al., 2010).

Financial Freedom (FF), as we assume these dimensions can be closely related to the decision to innovate.

In addition, (PE) is the ratio of public expenditure to GDP, (HK) is percentage of public spending on human capital, (I) is the ratio of Gross Fixed Capital Formation to GDP, (U) is the unemployment rate. These data variables have been extracted from the World Development Indicators Database of the World Bank.

Finally, the variable (TOP) collects the number of entrepreneurial initiatives whose main motivation to begin is to profit from an opportunity, while the variable and (TNE) reflects the necessity of creating its own employment due to the lack of labor opportunities. These variables also belong

to the GEM database. Descriptive statistics for all the variables are shown in Table 1.

As mentioned previously, the structure of the data is a panel, i.e. observations on a cross-section of individuals over several time periods have been pooled. The use of panel data has several advantages for econometric estimation. For example, it allows us to control for individual or time heterogeneity, which cannot be captured by the variables in the model. Furthermore, as Baltagi (2008) affirms, panel data give “more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency” (p.7). When working with panel data there are two issues of relevance to the selection of the form of the model. One consists in deciding between random and fixed effects, which depends on the correlation of the

Table 1: Descriptives

Variable	Mean	Max	Min	Coefficient of variation
IN	44.57	62.30	25.06	0.185
GINI	28.00	35.00	23.00	0.113
BF	83.97	100.00	70.00	0.120
MF	83.37	90.80	69.90	0.048
IF	76.37	95.00	50.00	0.175
FF	73.33	90.00	50.00	0.203
PE	37.14	48.09	24.97	0.155
HK	16.23	25.67	10.67	0.235
I	20.31	34.45	11.55	0.181
U	6.81	20.10	2.30	0.433
TOP	4.46	11.67	1.09	0.452
TNE	0.71	2.11	0.09	0.585

individual/time effects with the regressors (in the random effects model the underlying assumption is the exogeneity of the unobservable effects). And the second aspect refers to the choice between a one-way or a two-way effects model, depending on whether the model incorporates only individual or time effects (one-way), or both (two-way).

On the one hand, the Hausman specification test for the fixed effects estimator versus the random effects estimator³ yields a value of 14.40 ($p = 0.2119$) with 11 degrees of freedom. Therefore, we cannot reject the null hypothesis of no correlation between the individual country effects and the explanatory variables. This result leads us to select a random effects model because it is a more efficient estimator.

On the other hand, Cameron and Trivedi (2009) point out that for short panels like ours (8 periods), it is common to let the time effects be fixed effects, by including a set of time dummies in the regressors (p.232). In this sense, the joint test of no significance of the set of year dummies ($\chi^2(8) = 197.06$; $p = 0.000$) suggests that time effects are required.

Combining both aspects, the final specification of equation (1) is a mixed error component model with random country effects and fixed time effects. In

³ The Hausman test is based on the significance, under the null hypothesis of no correlation, of the difference between a consistent and an efficient estimator. Under the null, the random effects estimator is consistent but inefficient. Under the alternative hypothesis, the random effects estimator is biased and inefficient, whereas the fixed effects estimator is consistent.

this model, the error term u_{ij} can be expressed as:

$$u_{ij} = \mu_i + \lambda_t + v_{it}$$

where μ_i denotes the unobservable country effect, λ_t is the unobservable time effect, and v_{it} is the remainder stochastic disturbance term.

Results

The final model has been estimated by Generalized Least Squares (GLS) using a sample of 13 European countries over the period 2002-2010⁴. The results obtained are shown in Table 2. As regards the variables capturing the influence of social capital and the quality of institutions, the evidence obtained is mixed. While the coefficient for the Business Freedom index (BF) is positive and significant, the component representing Financial Freedom (FF) exerts a negative influence on the dependent variable and the other two, Monetary Freedom (MF) and Investment Freedom (IF), have positive effects, but do not reach a minimum of significance.

Therefore, the thesis in Fogel, Hawk, and Siegel (2006) can be confirmed, as the higher the quality of institution, the more innovation, especially when laws and regulations enhance business activity. This is what is captured by the Business Freedom index (BF), which is a measure of the degree of entrepreneurial freedom in domestic markets, i.e., a higher value of this index indicates that entrepreneurs operate in scarcely regulated markets where free trade prevails. Conversely, financial regulation has a negative effect on innovation,

⁴ These countries are Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Netherlands, Norway, Spain, Sweden, and the United Kingdom.

probably due to the fact that such regulation can cause short-term credit constraints limiting the access to funding, which is essential for innovation processes, as has been mentioned. (Galindo, Méndez, & Alfaro, 2010). Moreover, according to Miller, Holmes, and Feulner (2010), the severe effects of the recent financial crisis in those countries with greater Economic Freedom index, especially in European countries, many of which are experiencing serious problems to manage their public debt, has led to an increase in financial market regulations. In the short term, this circumstance determines the emergence of funding problems for businesses, which in turn is negatively affecting the economic growth of these countries.

Besides, we observe, as hypothesized, that unequal income distribution significantly

affects the propensity of entrepreneurs to innovate. Therefore, Hypothesis 2 can be confirmed in correspondence with the thesis of Hall and Lerner (2009) and Rosenbusch, Brinckmann, and Bausch (2011). Therefore, some income concentration is required for entrepreneurs to undertake new innovative projects.

The size of the public sector, as measured by the ratio of public expenditure to GDP, also has a positive effect on innovation, as occurs with the share of public investment devoted to promoting human capital. The results appear to show that resources devoted to increasing the stock of physical capital in the economy also stimulate innovation on behalf of entrepreneurs. However, the associated beta coefficient is not sufficiently significant to validate this inference.

Table 2: Estimation Results

Variable	β_j	Standard Error
α	-2.711*	1.531
GINI	0.445**	0.234
BF	0.005***	0.002
MF	0.007	0.007
IF	0.000	0.002
FF	-0.003*	0.002
PE	0.575***	0.102
HK	0.394***	0.129
I	0.181	0.158
U	0.162***	0.036
TOP	0.110***	0.044
TNE	0.025	0.040

Note: Time intercepts are included in the regressions

* = $p \leq 10\%$; ** = $p \leq 5\%$; *** = $p \leq 1\%$

On a different note, the poor job prospects of the economy, represented by the unemployment rate, seem to operate as an

incentive, judging by the positive sign of this variable. However, this result is not corroborated by the estimated coefficient

for the variable TNE. In this sense, according to the perception of the entrepreneurs themselves and the results obtained from our model, the most innovative entrepreneurs are those who decided to start a business because they recognized an opportunity. These results are consistent with the thesis in Nissan and Castaño (2011).

CONCLUSION

This paper provides a brief summary of the foremost contributions to the literature that analyze the effects of social capital, the quality of institutions, and income distribution on entrepreneurship and, particularly, on entrepreneurs' innovation.

The empirical analysis yields the following results: the societies with the best institutions have the most innovative entrepreneurs, particularly when these institutions improve business freedom, since product innovation is higher in countries where the free market prevails. However, financial regulations are observed to hinder entrepreneur innovation, as such regulations restrict credit in the short term.

In addition, the empirical analysis demonstrates that in societies where there is a greater concentration of income, there is also greater innovation on behalf of entrepreneurs.

Apart from the results discussed above, the study also shows that physical and human capital stock and the importance of the public sector have a positive effect on entrepreneur innovation.

Finally, entrepreneurs who start up a business in response to a business opportunity are innovators, whereas, this

effect on innovation cannot be confirmed in the case of those who start up a business based on need.

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