



INNOVAR. Revista de Ciencias
Administrativas y Sociales

ISSN: 0121-5051

revinnova_bog@unal.edu.co

Universidad Nacional de Colombia
Colombia

ÁLVAREZ, CLAUDIA; AMORÓS, JOSÉ ERNESTO; URBANO, DAVID
Regulations and Entrepreneurship: Evidence from Developed and Developing Countries
INNOVAR. Revista de Ciencias Administrativas y Sociales, vol. 24, 2014, pp. 81-89
Universidad Nacional de Colombia
Bogotá, Colombia

Available in: <http://www.redalyc.org/articulo.oa?id=81832549007>

- How to cite
- Complete issue
- More information about this article
- Journal's homepage in redalyc.org

redalyc.org

Scientific Information System
Network of Scientific Journals from Latin America, the Caribbean, Spain and Portugal
Non-profit academic project, developed under the open access initiative

Regulations and Entrepreneurship: Evidence from Developed and Developing Countries¹

Claudia Álvarez

Administrative Engineering. Ph. D. in Entrepreneurship (International Doctorate in Entrepreneurship and Management; Autonomous University of Barcelona). Professor, Universidad EAFIT (Colombia), School of Management.
E-mail: claudiapatricia.alvarez@uab.es

José Ernesto Amorós

B.A. in Business Administration. Ph. D. in Management Sciences (ESADE Business School). Professor, Universidad del Desarrollo (Santiago Chile), School of Business and Economics.
E-mail: eamoros@udd.cl

David Urbano

B.A. in Economics. B.A. in Social and Cultural Anthropology. Ph. D. in Entrepreneurship (Autonomous University of Barcelona/Växjö University). Professor, Autonomous University of Barcelona (Catalonia), Department of Business.
E-mail: david.urban@uab.es

REGULACIONES Y ESPÍRITU EMPRESARIAL: EVIDENCIA EN PAÍSES DESARROLLADOS Y EN VÍAS DE DESARROLLO

RESUMEN: Desde el enfoque institucional, este artículo examina el efecto de las regulaciones sobre la actividad emprendedora, comparando países desarrollados frente a países en desarrollo. Utilizando un modelo de datos de panel desbalanceado, de 49 países durante el período 2001-2010, y a partir de una combinación de bases de datos internacionales, los resultados muestran una influencia positiva del gasto público y la legislación relativa a la creación de empresas en la actividad emprendedora. Además, las regulaciones pueden tener un efecto diferente sobre el emprendimiento de acuerdo con el desarrollo económico del país. Así, en las economías desarrolladas, la legislación para el desempleo está relacionada de manera positiva con la creación de empresas, mientras que dicha relación es negativa en otros casos. Este artículo contribuye tanto conceptualmente (avanzando en la teoría sobre el análisis de los factores que condicionan el emprendimiento) como desde una perspectiva práctica (para el diseño de políticas gubernamentales de fomento de la actividad emprendedora).

PALABRAS CLAVE: emprendimiento, actividad emprendedora, regulación, teoría institucional, economías desarrolladas y en desarrollo, GEM.

RÉGULATIONS ET ESPRIT D'ENTREPRISE : L'EXEMPLE DE PAYS DÉVELOPPÉS ET EN VOIE DE DÉVELOPPEMENT

RÉSUMÉ : A partir d'une approche institutionnelle, cet article examine l'effet des régulations sur l'activité entrepreneuriale par une comparaison entre les pays développés et les pays en développement. En utilisant un modèle de données de panel déséquilibré de 49 pays pendant la période 2001-2010, et à partir d'une combinaison de bases de données internationales, les résultats montrent une influence positive de la dépense publique et la législation relative à la création d'entreprises dans l'activité entrepreneuriale. En outre, les régulations peuvent avoir un effet différent sur l'entrepreneuriat selon le développement économique du pays. Ainsi, dans les économies développées, la législation pour le chômage est positivement liée à la création d'entreprises, tandis que cette relation est négative dans d'autres cas. Cet article contribue tant conceptuellement (en avançant dans la théorie sur l'analyse des facteurs qui conditionnent l'entrepreneuriat) que dans une perspective pratique (pour l'élaboration de politiques gouvernementales de stimulation de l'activité entrepreneuriale).

MOTS-CLÉS : Entrepreneuriat, activité entrepreneuriale, régulation, théorie institutionnelle, économies développées et en développement, GEM.

REGULAÇÕES E INICIATIVAS EMPRESARIAIS: CASOS DE PAÍSES DESENVOLVIDOS E EM DESENVOLVIMENTO

RESUMO: Desde a visão institucional, este artigo examina o efeito das regulações sobre a atividade empreendedora, comparando países desenvolvidos com países em desenvolvimento. Utilizando um modelo de dados de painel desequilibrado de 49 países durante o período 2001-2010, e a partir de uma combinação de bases de dados internacionais, os resultados mostram uma influência positiva do gasto público e a legislação referente à criação de empresas na atividade empreendedora. Além disso, as regulações podem ter um efeito diferente sobre o empreendedorismo, de acordo com o desenvolvimento econômico do país. Assim, nas economias desenvolvidas, a legislação para o desemprego está relacionada de maneira positiva com a criação de empresas, enquanto essa relação é negativa em outros casos. Este artigo contribui, tanto conceitualmente (avanzando na teoria sobre a análise dos fatores que condicionam o empreendedorismo), como de uma perspectiva prática (para o projeto de políticas governamentais de fomento da atividade empreendedora).

PALAVRAS-CHAVE: Empreendimento, atividade empreendedora, regulação, teoria institucional, economias desenvolvidas e em desenvolvimento, GEM.

CORRESPONDENCIA: David Urbano. Department of Business. Autonomous University of Barcelona. Building B 08193 Bellaterra (Cerdanyola del Vallés) – Barcelona. Tel. 935811209 / Fax. 935812555.

CITACIÓN: Álvarez, C., Amorós, J. E., & Urbano, D. (2014). Regulations and Entrepreneurship: Evidence from Developed and Developing Countries. *Innovar*, vol. 24, Edición Especial 2014, 81-89.

CLASIFICACIÓN JEL: L26, D02, E02.

RECIBIDO: Mayo 2012, **APROBADO:** Enero 2014.

ABSTRACT: This paper uses an institutional approach to examine the effect of regulations on entrepreneurial activity, comparing developed and developing countries. Through an unbalanced panel data set of 49 countries over the period 2001-2010 and using a combination of international databases we find a positive influence of government spending and entrepreneurship legislation on entrepreneurial activity. It was also found that regulations may have different impacts on entrepreneurship according to the country's economic development. Thus, in developed economies unemployment legislation is positively related to entrepreneurship, while this relationship is negative in other cases. This paper offers new insights both from a conceptual perspective (advancing theory concerning the factors that influence entrepreneurial activity) and a practical viewpoint (for the design of government policies to foster entrepreneurship).

KEYWORDS: Entrepreneurship, entrepreneurial activity, regulations, institutional economics, developed and developing economies, GEM.

Introduction

Although economic growth has generally been associated with the dynamism of large companies, since the early 1980s small and medium-sized enterprises have been recognized as key elements in economic and social development (Bowen & De Clercq, 2008; Grilo & Thurik, 2005; van Stel, Storey & Thurik, 2007). In this context, entrepreneurship as the engine of economic and social growth is related to a combination of several determinants such as education levels, business climate and legal and political conditions. Some of these macro-level factors can explain entrepreneurship rates as well as the types of entrepreneurial activities carried

¹ Acknowledgments: Claudia Álvarez and David Urbano acknowledge the financial support they received from the Projects ECO2013-44027-P (Spanish Ministry of Economy & Competitiveness) and ECO/2663/2013 (Economy & Knowledge Department -Catalan Government-).

out across countries and regions (Acs & Amorós, 2008b; Bowen & De Clercq, 2008). Many researchers have proposed frameworks to explain some of the macro and micro determinants of entrepreneurship activities or entrepreneurial processes (Reynolds, Hay & Camp, 1999; Reynolds *et al.*, 2005; Sobel, 2008; Verheul, Wennekers, Audretsch, & Thurik, 2002; Wennekers & Thurik, 1999). However, few studies have analyzed the factors that condition entrepreneurial activity from the institutional perspective, specifically the relevance of regulations in this process (Branstetter, Lima, Taylor & Venâncio, 2013; Calcagno & Sobel, 2013; McMullen, Bagby & Palich, 2008; Stephen, Urbano & van Hemmen, 2005, 2009).

This paper examines the effect of regulations on entrepreneurial activity, comparing developed and developing countries. Institutional economics (North, 1990, 2005) is used as the theoretical framework for the research. Concretely, we consider regulations (covering government spending, investment freedom, financial freedom, entrepreneurship legislation, labor regulations and unemployment legislation) as formal institutions or "the rules of the game" (Baumol, 1990) that affect entrepreneurial activity.

The empirical analysis is based on an unbalanced panel data set of 49 countries over the period 2001-2010 using the following databases: The Global Entrepreneurship Monitor (GEM), the Heritage Foundation's Economic Freedom Index, IMD World Competitiveness, and the United Nations Development Programme (UNDP)'s Human Development Index (HDI). We consider the total early stage entrepreneurial activity rates (TEA), derived from GEM data, to be the dependent variable. The data on independent variables, specifically on government spending and investment and financial freedom, were obtained from the Economic Freedom Index, which measures 10 components of economic freedom. Entrepreneurship legislation, labor regulations and unemployment legislation were obtained from the IMD World Competitiveness database.

According to the literature (Doing Business, 2012), regulations have been applied to business activities under the criterion "less is more" (*i.e.* less regulation means more entrepreneurial activity), without considering the development level of countries. However, in this paper we empirically demonstrate that in emerging and developing countries, and specifically in the case of Latin America, improvements in regulations covering new firm creation have a lower impact on entrepreneurial activity, probably because of the high percentage of "shadow" economic activities in these countries. Concretely, the main findings of the current research indicate a positive influence of government spending and entrepreneurship legislation on

entrepreneurial activity. Our results also show that regulations may have a different impact on entrepreneurial activity according to a country's economic development. This line of argument suggests that the unemployment legislation variable is positively related to entrepreneurship in advanced economies. By contrast, this relationship is negative in other countries.

The remainder of this paper is structured as follows. In section 2, the conceptual framework of the research is presented. Section 3 summarizes the methodological details of the empirical part. In section 4, the main findings of the study are discussed, and finally in section 5, conclusions and future lines of research are presented.

Conceptual Framework

As mentioned before, in recent years scholars have paid increased attention to the analysis of variations in entrepreneurial activity and the reasons behind this phenomenon (Busenitz & Lau, 1996; Busenitz, Gómez & Spencer, 2000; Mueller & Thomas, 2001; Reynolds, Camp, Bygrave, Autio & Hay, 2001; Shane & Kolvereid, 1995). Preliminary evidence suggests that part of the answer lies in the institutional environment, which defines, creates and limits entrepreneurial opportunities and thus affects entrepreneurial activity rates (Aldrich, 1990; Aldrich & Fiol, 1994; Gnyawali & Fogel, 1994; Hwang & Powell, 2005; Manolova, Eunni, & Gyoshev, 2008; Mueller & Thomas, 2001; Reynolds *et al.*, 1999, 2000, 2001; Valdez & Richardson, 2013; Welter, 2011; Welter & Smallbone, 2011).

A key question arising from the finding that the environmental context influences entrepreneurship is how institutions relate to entrepreneurial activity and which institutions are most important in explaining entrepreneurship rates. The institutional approach provides a useful theoretical framework for understanding such effects. Specifically, institutional economics suggests that human behavior is influenced by the institutional environment (North, 1990, 2005); hence, the decision to start up a business is also determined by the institutions in which it occurs (Aidis, Estrin & Mickiewicz, 2008; Álvarez, Urbano, Coduras & Ruiz-Navarro, 2011; Urbano, Toledano & Ribeiro-Soriano, 2011; Welter, 2005, 2011; Welter & Smallbone, 2011).

According to North (1990, p. 3), "institutions are the rules of the game in a society, or more formally, institutions are the constraints that shape human interaction". The main function of institutions in a society is to reduce uncertainty by establishing a stable structure for human interaction. In general terms, North (1990, 2005) explained how institutions and the institutional framework affect economic



and social development. These institutions can be either formal, such as constitutions, regulations and contracts, or informal, such as attitudes, values, behavioral norms, conventions or the culture of a given society. Formal and informal institutions are interdependent and tend to interact; thus, informal institutions affect the nature of formal institutions and vice versa.

Although many authors have used the institutional approach in the field of entrepreneurship (see Davidsson, 1995; Gartner, 1985; Gnyawali & Fogel, 1994), few scholars have explicitly linked institutional economics and entrepreneurial activity (Aidis *et al.*, 2008; Álvarez & Urbano, 2011; Bruton, Ahlstrom & Li, 2010; Guerrero & Urbano, 2012; Thornton, Ribeiro-Soriano & Urbano, 2011; Veciana & Urbano, 2008; Welter & Smallbone, 2011). Furthermore, even fewer have focused on formal institutions as a determinant of entrepreneurship (Amorós, 2011; Bjørnskov & Foss, 2008; Desai, Gompers & Lerner, 2003; Klapper, Laeven & Rajan, 2006; Nyström, 2008; Stephen *et al.*, 2005, 2009; van Stel *et al.*, 2007; Wennekers, Thurik, van Stel & Noorderhaven, 2007). As previously stated, this research is based on formal factors, specifically the impact

of regulations (government spending, investment freedom, financial freedom, entrepreneurship legislation, labor regulations and unemployment legislation) on entrepreneurial activity.

In general terms, the literature shows that potential entrepreneurs perceive regulations as negative (Gnyawali & Fogel, 1994). In fact, entrepreneurs may be discouraged from starting a business if they feel they have to follow too many rules and procedures (Begley, Tan & Schoch, 2005). Under these assumptions, the World Bank's Doing Business Project promotes the reduction of regulations in the belief that providing simple procedures can stimulate the creation of new businesses. Thus, according to information from this project, in 2011 125 economies implemented 245 reforms that made it easier to do business, 13% more than in the previous year.

Authors such as Desai *et al.* (2003) used data from the World Bank to analyze the country-specific effect of regulations on entrepreneurship, finding that entry regulations have a negative impact on firm entry. In this regard, Klapper *et al.* (2006) found that costly regulations are an

obstacle to the creation of new firms, especially in industries that should naturally have high entry. Later, van Stel *et al.* (2007), using the same data from the World Bank, investigated the link between business regulation and new firm formation in 39 countries. They observed that the minimum capital required to start a business decreased entrepreneurship rates across countries, as do labor market regulations.

Bjørnskov and Foss (2008) analyzed the impact of several variables (economic freedom as a measure of government size, legal quality, sound money, international trade and regulatory quality) on entrepreneurial activity. Their findings indicated that the size of government is negatively correlated and sound money positively correlated with entrepreneurial activity. Nyström (2008), using the same measure of economic freedom it was observed that a smaller government sector, better legal structure and security of property rights, as well as less regulation of credit, labor and business, tend to increase entrepreneurship. Amorós (2011) used GEM data to show that control of corruption and political stability are related to opportunity-driven entrepreneurship. By contrast, Stephen *et al.* (2009) demonstrated that labor regulations, whatever their content, seem to have little effect on the decision to start up a firm in highly formalist countries, while Wennekers *et al.* (2007) suggested that high unemployment benefits seem to reduce entrepreneurial activity.

Methodology

In the empirical part of the research we use the following four databases: The Global Entrepreneurship Monitor (GEM), the Heritage Foundation's Economic Freedom Index, the IMD World Competitiveness database, and the UNDP's HDI (see Table 1). We take the total early stage entrepreneurial activity rate (TEA) as the dependent variable of the study. TEA is the best-known indicator of the GEM project, which produces an annual assessment of the entrepreneurial activity, aspirations and attitudes of individuals across a wide range of countries. GEM defines entrepreneurs as adults in the process of setting up a business they will own or co-own and/or those currently owning/managing and operating a young business (up to 3.5 years old).

The data on independent variables, specifically on government spending and investment and financial freedom, were obtained from the Heritage Foundation, which measures 10 components of economic freedom and assigns a grade to each using a scale from 0 to 100, where 100 represents maximum freedom. Information on entrepreneurship legislation, labor regulations and unemployment legislation were obtained from the IMD World Competitiveness database, based on an index that runs from 0 to 10. The IMD World Competitiveness Center (WCC) was created in 1989, and has been a pioneer in the field of Competitiveness of Nations and World Economy Ranking.

TABLE 1. Description of Variables

| Variable | Description | Source |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| Total Early Stage Entrepreneurial Activity (TEA) | Percentage of adults aged 18–64 setting up a business or owning–managing a young firm (up to 3.5 years old), including self-employment (Reynolds <i>et al.</i> , 2005). | GEM 2001-2010 |
| Government spending | This component considers the level of government expenditure as a percentage of GDP. Government expenditure, including consumption and transfers, account for the entire score. Natural logarithm. | Heritage Foundation 2001-2010 |
| Investment freedom | In an economically free country, there would be no constraints on the flow of investment capital. Individuals and firms would be allowed to move their resources into and out of specific activities, both internally and across the country's borders, without restriction. Natural logarithm. | |
| Financial freedom | Financial freedom is a measure of banking efficiency as well as independence from government control and interference in the financial sector. Natural logarithm. | |
| Entrepreneurship legislation | Creation of firms is supported by legislation. Natural logarithm. | IMD World Competitiveness 2001-2010 |
| Labor regulations | Labor regulations (hiring/firing practices, minimum wages, etc.) do not hinder business activities. Natural logarithm. | |
| Unemployment legislation | Unemployment legislation provides an incentive to look for work. Natural logarithm. | |
| Human Development Index (HDI) | Measurement of social and economic development which combines indicators of life expectancy, educational attainment and income (measured as GDP per capita). | Human Development Report 2001-2010 |

Source: Own elaboration.

Although Gross Domestic Product (GDP) per capita has traditionally been used as a control variable, income per capita might be a misleading indicator for development (Rocha, 2004). We therefore use the HDI, which has been validated by several authors (Dakhli & De Clercq, 2004; Rocha, 2004), as an adequate measurement of development because it combines indicators on life expectancy, educational attainment and income (measured as GDP per capita) into a composite index. The HDI is a frame of reference for both social and economic development. Finally, we include a binary variable to group countries into a) developed economies, b) emerging and developing economies, according to the country classification developed by the World Economic Outlook, and c) Latin American and non-Latin American countries.

As mentioned in the introduction, the empirical analysis is based on an unbalanced panel data set of 49 countries over the period 2001–2010. Firstly, we started with a pooled regression, which omits the dimensions of space and time from the data, in order to calculate an ordinary least squares regression. Secondly, we estimated random and fixed effects models using the Hausman specification test in order to verify the choice of models. Finally, we discarded the problems of autocorrelation of the dependent

variable by controlling for group heteroskedasticity and estimating the fixed effects model using panel-corrected standard errors.

Results and Discussion

Table 2 reports the descriptive statistics, such as the means and standard deviations. In this table it may be observed that the highest rates of entrepreneurship are in Latin American countries. In addition, government spending is higher in Latin America. By contrast, other formal institutions such as investment and financial freedom, entrepreneurship legislation and labor regulations are higher in advanced economies. Surprisingly, there are few differences in average unemployment legislation between Latin America and advanced economies.

In addition, Table 2 shows the correlation coefficients of the variables used in this study. Negative and significant correlations are observed between investment and financial freedom, and entrepreneurship legislation.

In Table 3, the results of the linear regressions using panel-corrected standard errors are presented. Model 1 includes all the countries considered in the sample, Model 2

TABLE 2. Descriptive Statistics and Correlations Matrix

| | All Countries | Developed Economies | Latin American Countries |
|---------------------------------|------------------|---------------------|--------------------------|
| | Mean (Std. Dev.) | Mean (Std. Dev.) | Mean (Std. Dev.) |
| 1. TEA | 9.66 (7.30) | 6.35 (2.97) | 17.04 (7.50) |
| 2. Government spending | 3.88 (0.61) | 3.61 (0.65) | 4.35 (0.15) |
| 3. Investment freedom | 4.08 (0.38) | 4.27 (0.20) | 3.91 (0.42) |
| 4. Financial freedom | 4.06 (0.36) | 4.23 (0.24) | 3.90 (0.30) |
| 5. Entrepreneurship legislation | 1.74 (0.30) | 1.82 (0.24) | 1.36 (0.36) |
| 6. Labor regulations | 1.46 (0.32) | 1.53 (0.37) | 1.15 (0.36) |
| 7. Unemployment legislation | 1.49 (0.32) | 1.47 (0.33) | 1.47 (0.30) |
| 8. HDI | 0.84 (0.11) | 0.92 (0.03) | 0.78 (0.07) |

| | 1. TEA | 2. | 3. | 4. | 5. | 6. | 7. |
|---------------------------------|----------|----------|---------|---------|---------|---------|--------|
| 1. TEA | 1.00 | | | | | | |
| 2. Government spending | 0.43*** | 1.00 | | | | | |
| 3. Investment freedom | -0.37*** | -0.33*** | 1.00 | | | | |
| 4. Financial freedom | -0.21*** | -0.31*** | 0.69*** | 1.00 | | | |
| 5. Entrepreneurship legislation | -0.15* | -0.08 | 0.34*** | 0.43*** | 1.00 | | |
| 6. Labor regulations | -0.05 | 0.04 | 0.20*** | 0.35*** | 0.75*** | 1.00 | |
| 7. Unemployment legislation | 0.16** | 0.44*** | -0.10* | 0.08 | 0.44*** | 0.61*** | 1.00 |
| 8. HDI | -0.60*** | -0.46*** | 0.50*** | 0.51*** | 0.31*** | 0.26*** | -0.14* |

*** p < 0.001; ** p < 0.01; * p < 0.10.

Source: Own elaboration.

TABLE 3. Regression Analysis Explaining Entrepreneurial Activity (TEA)

| | Model 1 All Countries | Model 2 Developed Economies | Model 3 Emerging and Developing Economies | Model 4 Latin American Countries |
|------------------------------|--------------------------|--------------------------------|-------------------------------------------------|----------------------------------------|
| Formal institutions | | | | |
| Government spending | 1.735 (0.375)*** | 1.196 (0.266)*** | 6.564 (2.823)** | 1.191 (6.436) |
| Investment freedom | -5.771 (1.335)*** | -3.842 (1.003)*** | -8.054 (3.661)** | -4.020 (2.719) |
| Financial freedom | 1.943 (1.216) | 3.627 (1.109)*** | 1.161 (3.366) | 0.817 (3.796) |
| Entrepreneurship legislation | 5.723 (1.170)*** | 4.066 (1.140)*** | 18.949 (4.178)*** | 7.312 (3.460)** |
| Labor regulations | 0.723 (1.030) | -2.066 (0.965)** | -1.709 (3.651) | -0.244 (3.834) |
| Unemployment legislation | -2.513 (0.989)** | 1.500 (0.817)* | -11.901 (3.375)*** | -6.688 (3.410)** |
| Control variable | | | | |
| HDI | -15.738 (4.612)*** | 3.387 (5.456) | -3.160 (11.044) | -52.488 (15.201)*** |
| Advanced economies | 2.381 (1.101)** | | | |
| Latin American countries | 10.116 (1.100)*** | | | |
| Constant | 20.870 (5.183)*** | -6.460 (6.736) | 9.241 (4.746)* | 65.422 (22.203)*** |
| R2 | 0.5781 | 0.3045 | 0.460 | 0.4719 |
| Observations | 262 | 174 | 47 | 41 |
| Countries | 49 | 29 | 13 | 7 |

*** p < 0.01; ** p < 0.05; * p < 0.1.

Note: Heteroskedastic corrected standard errors in parentheses.

Source: Own elaboration.

includes the developed economies, Model 3 considers the emerging and developing economies and Model 4 includes Latin American countries. All models are highly significant ($p < 0.001$) and have high explanatory power.

The principal results show that government spending, including consumption and transfers, have a positive and significant influence on entrepreneurial activity in developed economies, and especially in emerging and developing economies, while it is not significant in Latin America. This finding differs from those obtained by Bjørnskov and Foss (2008) and Nyström (2008), who found that government size is negatively correlated with entrepreneurial activity. However, Bjørnskov and Foss (2008) and Nyström (2008) did not classify countries as developed economies or Latin American (using instead cross-sectional data on the 29 countries participating in GEM 2001, and panel data for the period 1972-2002 covering 23 OECD countries).

Similarly, investment freedom has a negative and significant influence on entrepreneurship in all countries, except in Latin America, where it is not significant. Thus, both in developed economies and in emerging and developing economies, less freedom in the flow of investment capital and higher restrictions on individuals and firms moving their resources are positively correlated with entrepreneurship rates.

Furthermore, financial freedom is positive and significant for entrepreneurship in developed economies, but not significant in other countries. This result could be related to the availability of credit for entrepreneurial activity, which is provided primarily from the banking sector in developed economies but from the informal sector in emerging and developing economies and Latin American countries.

As expected, entrepreneurship legislation is positively and significantly related to entrepreneurship in all countries, but the coefficient is particularly high in emerging and developing economies. In addition, there is a negative and significant relationship between labor regulations (hiring/firing practices, minimum wages, etc.) and entrepreneurial activity in developed economies, while the coefficient is not significant in other cases. These findings are similar to the results of Stephen *et al.* (2009), who found that labor regulations seem to have little effect on the decision to start up a firm in highly formalist countries (basically in Latin America and the Iberian Peninsula). In fact, they argued that as formalism increases (enforcing mechanisms are inefficient), entrepreneurs are less concerned with the content of laws on the books. Stephen *et al.* (2009) suggested multiple factors to explain why entrepreneurs are less responsive to working time regulations in Latin America: Lack of resources, the reduced powers

of inspectors, conciliatory interpretations of the law and inherited formalism in enforcement procedures. Additionally, Latin American countries display a relatively high degree of necessity-based entrepreneurs, many of them associated with unregistered businesses outside traditional regulations (Acs & Amorós, 2008a).

Finally, unemployment legislation has a negative and significant influence on entrepreneurship, except in developed economies. These results are in line with those of Wennekers *et al.* (2007), who proposed that high unemployment benefits reduce entrepreneurial activity. The positive relationship in developed economies could be related to specific policies to implement unemployment benefits as seed capital for new ventures.

Conclusions

In this paper, longitudinal panel data for the period 2001 to 2010 were used to investigate empirically the relationship between regulations and entrepreneurship. By applying an institutional approach (North, 1990, 2005) to the field of entrepreneurship, we analyzed the influence of regulations as formal institutions (government spending, investment and financial freedom, entrepreneurship legislation, labor regulations and unemployment legislation) on entrepreneurial activity, comparing developed and developing countries.

The main findings of the research indicate a positive relationship between government spending and entrepreneurial activity. This relationship is statistically significant for all countries, except Latin America. Furthermore, we find that entrepreneurship legislation has a positive and significant influence on entrepreneurship in all countries.

Our results also show that regulations may have a different impact on entrepreneurial activity according to a country's economic development. In this sense, the unemployment legislation variable is positively related to entrepreneurship in developed countries. As has been seen, this result could be related to specific policies to implement unemployment benefits as seed capital for new ventures. By contrast, this relationship is negative in developing countries, in line with the results of Wennekers *et al.* (2007). Finally, formal institutions such as financial freedom have a significant influence on entrepreneurial activity only in developed economies.

This paper offers new insights that are applicable both to theoretical and empirical research. From a theoretical point of view, although work on regulations as key elements of entrepreneurship is increasing, little research is still explicitly based on institutional economics and specifically on

formal factors. This study contributes to advances in the application of the theoretical framework to the analysis of conditioning factors for entrepreneurial activity (Álvarez & Urbano, 2012). From a practical perspective, the results could be useful for the design of government policies and strategies to foster entrepreneurial activity in society, distinguishing between the different levels of economic development of countries. We also highlight the specific case of Latin America, which corroborates the argument that a formal institutional framework is an indispensable but not sufficient condition to enhance entrepreneurship dynamics. Our results confirm that developing economies should rationally organize their formal institutions in order to remove unnecessary barriers and controls that obstruct entrepreneurship activities (Amorós, 2011).

Regarding future lines of research, it is proposed to carry out an in-depth analysis of opportunity (starting up a business by taking advantage of an entrepreneurial opportunity) versus necessity (starting a business because other employment options are either absent or unsatisfactory). This distinction is even more relevant in the comparison between entrepreneurship in developed and developing countries (Bowen & De Clercq, 2008; Acs & Amorós, 2008a). In addition, further research could improve the operationalization of regulations as formal factors, in order to better analyze their impact on entrepreneurial dynamics.

References

- Acs, Z. J., & Amorós, J. E. (2008a) Entrepreneurship and competitive dynamics in Latin America. *Small Business Economics*, 31(3), 305-322. DOI 10.1007/s11187-008-9133-y.
- Acs, Z. J., & Amorós, J. E. (2008b). Introduction: The startup process. *Estudios de Economía*, 35(2), 121-132.
- Aidis, R., Estrin, S., & Mickiewicz, T. (2008). Institutions and entrepreneurship development in Russia: A comparative perspective. *Journal of Business Venturing*, 23(6), 656-672. DOI 10.1016/j.jbusvent.2008.01.005.
- Aldrich, H. (1990). Using an ecological perspective to study organizational founding rates. *Entrepreneurship Theory & Practice*, Spring, 7-24.
- Aldrich, H., & Fiol, C. M. (1994). Fools rush in? The institutional context of industry creation. *Academy of Management Review*, 19, 645-670.
- Álvarez, C., & Urbano, D. (2011). Environmental factors and entrepreneurial activity in Latin America. *Academia, Revista Latinoamericana de Administración*, 48, 31-45.
- Álvarez, C., Urbano, D., Coduras, A., & Ruiz-Navarro, J. (2011). Environmental conditions and entrepreneurial activity: A regional comparison in Spain. *Journal of Small Business and Enterprise Development*, 18(1), 120-140. DOI 10.1108/14626001111106460.
- Álvarez, C., & Urbano, D. (2012). Factores del entorno y creación de empresas: un análisis institucional. *Revista Venezolana de Gerencia*, 17(57), 9-38.

- Amorós, J. E. (2011). The impact of institutions on entrepreneurship in developing countries. In W. Naudé (Ed.), *Entrepreneurship and Economic Development* (pp. 166-186). New York: Plagrave-Macmillan.
- Baumol, W. J. (1990). Entrepreneurship: Productive, unproductive, and destructive. *The Journal of Political Economy*, 98(5), 893-921.
- Begley, T. M., Tan, W., & Schoch, H. (2005). Politicoeconomic factors associated with interest in starting a business: A multi-country study. *Entrepreneurship: Theory & Practice*, 29(1), 35-55. DOI 10.1111/j.1540-6520.2005.00068.x.
- Bjørnskov, C., & Foss, N. J. (2008). Economic freedom and entrepreneurial activity: Some cross-country evidence. *Public Choice*, 134, 307-328. DOI 10.1007/s11127-007-9229-y.
- Bowen, H., & De Clercq, D. (2008). Institutional context and the allocation of entrepreneurial effort. *Journal of International Business Studies*, 39(4), 747-767. DOI 10.1057/palgrave.jibs.8400343.
- Branstetter, L., Lima, F., Taylor, L. J., & Venâncio, A. (2013). Do entry regulations deter entrepreneurship and job creation? Evidence from recent reforms in Portugal. *The Economic Journal*, 124(577), 805-832. DOI 10.1111/econj.12044.
- Bruton, G. D., Ahlstrom, D., & Li, H. L. (2010). Institutional theory and entrepreneurship: Where are we now and where do we need to move in the future? *Entrepreneurship: Theory & Practice*, 34(3), 421-440. DOI 10.1111/j.1540-6520.2010.00390.x.
- Busenitz, L. W., & Lau, C. M. (1996). A cross-cultural cognitive model of new venture creation. *Entrepreneurship: Theory & Practice*, 20(4), 25-39.
- Busenitz, L. W., Gómez, C., & Spencer, J. W. (2000). Country institutional profiles: Unlocking entrepreneurial phenomena. *Academy of Management Journal*, 43(5), 994-1003.
- Calcagno, P. T., & Sobel, R. S. (2013). Regulatory costs on entrepreneurship and establishment employment size. *Small Business Economics*. DOI 10.1007/s11187-013-9493-9.
- Dakhli, M., & De Clercq, D. (2004). Human capital, social capital, and innovation: A multicountry study. *Entrepreneurship & Regional Development*, 16(2), 107-128. DOI 10.1080/08985620410001677835.
- Davidsson, P. (1995). Culture, structure and regional levels of entrepreneurship. *Entrepreneurship & Regional Development*, 7(1), 41-62.
- Desai, M., Gompers, P., & Lerner, J. (2003). Institutions, capital constraints and entrepreneurial firm dynamics: Evidence from Europe (Working Paper No. 10165). National Bureau of Economic Research.
- Doing Business (2012). *Doing business in a more transparent world*. World Bank and the International Finance Corporation. Retrieved from <http://www.doingbusiness.org/~media/FPKM/Doing%20Business/Documents/Annual-Reports/English/DB12-FullReport.pdf>.
- Gartner, W. B. (1985). A conceptual framework for describing the phenomenon of new venture creation. *Academy of Management Review*, 10(4), 696-706.
- Gnyawali, D. R., & Fogel, D. S. (1994). Environments for entrepreneurship development: Key dimensions and research implications. *Entrepreneurship: Theory & Practice*, 18(4), 43-62.
- Guerrero, M., & Urbano, D. (2012). The development of an entrepreneurial university. *Journal of Technology Transfer*, 37(1), 43-74. DOI 10.1007/s10961-010-9171-x.
- Grilo, I., & Thurik, R. (2005). Latent and actual entrepreneurship in Europe and the US: Some recent developments. *International Entrepreneurship and Management Journal*, 1(4), 441-459. DOI 10.1007/s11365-005-4772-9.
- Hwang, H., & Powell, W. W. (2005). Institutions and entrepreneurship. In S. A. Álvarez, R. Agarwal and O. Sorenson (Eds.), *Handbook of Entrepreneurship Research: Disciplinary Perspectives* (pp. 179-210). New York: Springer.
- Klapper, L., Laeven, L., & Rajan, R. (2006). Entry regulation as a barrier to entrepreneurship. *Journal of Financial Economics*, 82, 591-629. DOI 10.1016/j.jfineco.2005.09.006.
- Manolova, T. S., Eunni, R. V., & Gyoshev, B. S. (2008). Institutional environments for entrepreneurship: Evidence from emerging economies in Eastern Europe. *Entrepreneurship: Theory & Practice*, 32(1), 203-218. DOI 10.1111/j.1540-6520.2007.00222.x.
- McMullen, J. S., Bagby, D. R., & Palich, L. E. (2008). Economic freedom and the motivation to engage in entrepreneurial action. *Entrepreneurship: Theory & Practice*, 32(5), 875-895.
- Mueller, S. L., & Thomas, A. S. (2001). Culture and entrepreneurial potential: A nine country study of locus of control and innovativeness. *Journal of Business Venturing*, 16(1), 51-75.
- Nyström, K. (2008). The institutions of economic freedom and entrepreneurship: Evidence from panel data. *Public Choice*, 136, 269-282. DOI 10.1007/s11127-008-9295-9.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge: Cambridge University Press.
- North, D. C. (2005). *Understanding the process of economic change*. Princeton: Princeton University Press.
- Reynolds, P. D., Hay, M., & Camp, S. (1999). *Global Entrepreneurship Monitor: 1999 Executive Report*. Kansas City, MO.: Kauffman Foundation.
- Reynolds, P.D., Hay, M., Bygrave, W. D., Camp, S. M., & Autio, E. (2000). *Global Entrepreneurship Monitor: 2000 Executive Report*. Kansas City: Kauffman Center for Entrepreneurial Leadership.
- Reynolds, P. D., Camp, S. M., Bygrave, W. D., Autio, E., & Hay, M. (2001). *Global Entrepreneurship Monitor: 2001 Executive Report*. Kansas City: Kauffman Center for Entrepreneurial Leadership.
- Reynolds, P. D., Bosma, N., Autio, E., Hunt, S., De Bono, N., Servais, I., López-García, 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.
- Rocha, H. O. (2004). Entrepreneurship and development: The role of clusters. *Small Business Economics*, 23(5), 363-400. DOI 10.1007/s11187-004-3991-8.
- Shane, S., & Kolvereid, L. (1995). National environment, strategy, and new venture performance: A three country study. *Journal of Small Business Management*, 33(2), 37-50.
- Sobel, R. S. (2008). Testing Baumol: Institutional quality and the productivity of entrepreneurship. *Journal of Business Venturing*, 23(6), 641-655. DOI 10.1016/j.jbusvent.2008.01.004.
- Stephen, F. H., Urbano, D., & van Hemmen, S. (2005). The impact of institutions on entrepreneurial activity. *Managerial & Decision Economics*, 26(7), 413-419. DOI 10.1002/mde.1254.
- Stephen, F., Urbano, D., & van Hemmen, S. (2009). The responsiveness of entrepreneurs to working time regulations. *Small Business Economics*, 32(3), 259-276. DOI 10.1007/s11187-007-9096-4.
- Thornton, P. H., Ribeiro-Soriano, D., & Urbano, D. (2011). Socio-cultural and entrepreneurial activity: An overview. *International Journal of Small Business*, 29(2), 105-118. DOI 10.1177/0266242610391930.
- Urbano, D., Toledano, N., & Ribeiro-Soriano, D. (2010). Analyzing social entrepreneurship from institutional perspective: Evidence from Spain. *Journal of Social Entrepreneurship*, 1(1), 54-69. DOI 10.1080/19420670903442061.

- Urbano, D., Toledano, N., & Ribeiro-Soriano, D. (2011). Socio-cultural factors and transnational entrepreneurship: A multiple case study in Spain. *International Small Business Journal*, 29(2), 119-134. DOI 10.1177/0266242610391934.
- Valdez, M. E., & Richardson, J. (2013). Institutional determinants of macro-level entrepreneurship. *Entrepreneurship Theory & Practice*. DOI: 10.1111/etap.12000.
- van Stel, A., Carree, M., & Thurik, R. (2005). The effect of entrepreneurial activity on national economic growth. *Small Business Economics*, 24(3), 311-321. DOI 10.1007/s11187-005-1996-6.
- van Stel, A., Storey, D. J., & Thurik, R. (2007). The effect of business regulations on nascent and young business entrepreneurship. *Small Business Economics*, 28(2-3), 171-186. DOI 10.1007/s11187-006-9014-1.
- Veciana, J. M., & Urbano, D. (2008). The institutional approach to entrepreneurship research: Introduction. *International Entrepreneurship and Management Journal*, 4(4), 365-379. DOI 10.1007/s11365-008-0081-4.
- Verheul, I., Wennekers, S., Audretsch, D. B., & Thurik, R. (2002). An eclectic theory of entrepreneurship: Policies, institutions and culture. In D. B. Audretsch, A.R. Thurik, I. Verheul & A.R.M. Wennekers (Eds.), *Entrepreneurship: Determinants and policy in a European-US comparison*. Kluwer: Boston/Dordrecht.
- Welter, F. (2005). Entrepreneurial behavior in differing environments. In D. B. Audretsch, H. Grimm & C. W. Wessner (Eds.), *Local heroes in the global village: Globalization and the new entrepreneurship policies* (pp. 93-112). International Studies in Entrepreneurship. New York: Springer.
- Welter, F. (2011). Contextualizing entrepreneurship - conceptual challenges and ways forward. *Entrepreneurship: Theory & Practice*, 35(1), 165-184. DOI: 10.1111/j.1540-6520.2010.00427.x.
- Welter, F., & Smallbone, D. (2011). Institutional perspectives on entrepreneurial behaviour in challenging environments. *Journal of Small Business Management*, 49(1), 107-125. DOI: 10.1111/j.1540-627X.2010.00317.x.
- Wennekers, S., Thurik, R., van Stel, A. & Noorderhaven, N. (2007). Uncertainty avoidance and the rate of business ownership across 21 OECD countries, 1976-2004. *Journal of Evolutionary Economics*, 17(2), 133-160. DOI 10.1007/s00191-006-0045-1.
- Wennekers S., & Thurik, R. (1999). Linking entrepreneurship and economic growth. *Small Business Economics*, 13(1), 27-55.