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The Significance of Business Exit for Future Entrepreneurial Activity

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**DEPARTAMENT D'ECONOMIA – CREIP**
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# The Significance of Business Exit for Future Entrepreneurial Activity

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## Abstract

**Purpose:** The purpose of this paper is to analyse the impact of business exits on future dimensions of entrepreneurial activity at the macroeconomic level.

**Design/methodology/approach:** This research uses the Global Entrepreneurship Monitor (GEM) data for 41 countries and the Generalized Method of Moments (GMM) to carry out the analysis. The paper differentiates the effect of the two components of total entrepreneurial activity, and the two motivations for it – opportunity and necessity entrepreneurship.

**Findings:** The results presented here show a positive and significant effect of the coefficient associated with exits in all models. This means that the levels of entrepreneurial activity exceed business exits. The robustness of the models are tested, including other variables such as the fear of failure, the Gross Domestic Product, role models, entrepreneurial skills and the unemployment variables. The main hypothesis which stated that at national level business exits imply greater rates of opportunity-driven entrepreneurship is corroborated.

**Originality/value:** One would expect that unemployment rates would imply higher levels of necessity entrepreneurship. However, results show that unemployment rates do in fact favour opportunity entrepreneurship levels. This could be due to those government policies that are aimed at promoting entrepreneurship through the capitalization of unemployment to be totally invested in a new start-up. To the best of our knowledge, this is the first panel data study to link previous exit rates to future dimensions of entrepreneurial activity.

**Keywords:** Entrepreneurship, business exits, social values, industrial organization

**Paper type:** Research paper

## 1. Introduction

Assessing the impact of entrepreneurial exit at macroeconomic level may be an interesting instrument to promote entrepreneurship. In most countries, it has become fashionable to view entrepreneurship as the panacea for stagnating or declining economic activity (Henry and Treanor, 2013; Matlay, 2005; 2001). As a dominant paradigm, the concept of entrepreneurship has established itself firmly in the parlance of policymakers, educators, advisors and business people (Matlay and Westhead, 2004).

The current economic and financial crisis faced by economies since 2008 has triggered significant debate among policymakers. Many researchers have noted that the labour market experienced its deepest downturn in the post-war era in the recent recession (Elsby *et al.*, 2011). In particular, this downturn has had an important implication for entrepreneurial rates. For similar reasons, in most developed and developing countries, entrepreneurial exit has become a crucial process since it may impact the industry as it changes the competitive balance in the industry and may provide a different value to rivals. Yet little attention has been paid to the impact of entrepreneurial exits on the entrance decision at macroeconomic level (DeTienne, 2010).

Fritsch and Mueller (2004) suggested that market exits should be understood as necessary elements of market selection, which is likely to result in improved competitiveness and employment growth, and that policy should abstain from subsidizing firms in order to prevent them from leaving the market. Previous research with Global Entrepreneurship Monitor data shows substantial differences in the dynamics of entrepreneurship across countries (Reynolds *et al.*, 2005; Acs and Varga, 2005; Wennekers *et al.*, 2005).

Differences in levels of entrepreneurship correlated with levels of economic development are emphasized in Audretsch and Thurik (2004; 2001; 2000). Hence, scholars seem to agree that the level of entrepreneurial activity varies systematically across countries (see for example, Grilo and Thurik, 2008; Rees and Shah; 2006; Blanchflower and Meyer, 1994; Wit and Winden, 1989). Therefore it is crucial to understand what drives entrepreneurial activity across countries and time.

Since labour mobility has been found to be an important source of knowledge spillovers and productivity growth (Millán *et al.*, 2013; Power and Lundmark, 2004; Stephan, 1996; Breschi and Lissoni, 2001; Cooper, 2001), this study, using the GEM, aims to explain whether business exits imply or not a fall in future levels of entrepreneurial activity at macroeconomic level. In order to enhance the study, the Total Entrepreneurial Activity (TEA) and its two components – nascent and new business activity rates– have been analysed. And since not all entrepreneurs are homogeneous (Ardagna and Lusardi, 2009; Reynolds *et al.*, 2005), it is also differentiated between entrepreneurship by opportunity-driven and necessity-driven entrepreneurship rates, respectively.

Our data set is a six-year country-level panel data covering the period 2002–2007 for 41 countries. One of the most interesting features of our analysis is the use of longitudinal data. It allows us to study entrepreneurial activity rates regarding business exits following the same firms over multiple time periods. To the best of our knowledge, this is the first panel data study that links previous exit rates to future dimensions of entrepreneurial activity at macroeconomic level. The second section contains a brief review of the literature on entrepreneurship. The third section describes the data and the econometric

methodology. The fourth section explains the main results and the final section draws conclusions from the analysis.

## 2. Literature review

### *2.1 Business exit*

Following DeTienne (2010), exit as the process by which entrepreneurs leave the firm they created –either by removing themselves from the ownership and decision-making structure of the firm, shutting down the business, or discontinuing business activity – is a critical stage of the entrepreneurial process. Entrepreneurial exit not only represents the end of the firm's life cycle, but also has a significant effect on the industry and the local economy. From an industry perspective, entrepreneurial exit rates might represent a change in both the competitive balance of the industry and the configuration of the local industrial fabric, thus providing value to competing rivals (Akhigbe *et al.*, 2003).

Business exit is far beyond being a mere liquidity-related event. At the territorial level, exit rates might be the ultimate consequence of the recycling process of the stock of entrepreneurial firms (DeTienne, 2010). Although territories show high (or low) business exit rates, exits are path dependent and influence future decisions of entrepreneurs. This way, the regeneration of the population of businesses represents a mechanism to transfer novelty to established firms, with potentially positive and negative effects on the territory's economy (Audretsch, 1995). On the one hand, new firms represent a vital space for introducing innovations into the market (Decker and Mellewigt, 2007). Although, market selection forces often take many of these short-lived firms out of the economy, thus limiting their potential contribution to the economy. On the other hand, and in the background of the current economic downturn, new firms are vulnerable to market

conditions, thus increasing their likelihood of being selected out at the fringe of the industry. This way, economic turbulences might contribute to the consolidation of high-potential new firms, thus facilitating the regeneration of the stock of firms by displacing established businesses (Audretsch, 1995; DeTienne, 2010).

*2.2. Entry decision: opportunity and necessity motivations*

Entrepreneurs are a heterogeneous group, mainly because of large differences in their motivations to become entrepreneurs. Research in the economics of entrepreneurship distinguishes between opportunity and necessity entrepreneurs (e.g. Block and Wagner, 2010; Ardagna and Lusardi, 2009; Reynolds *et al.*, 2005; Sternberg and Wennekers, 2005). These categories correspond to a distinction between the two different factors that influence people to be entrepreneurs (Gilad and Levine, 1986; Shapero and Sokol, 1982). On the one hand, 'pull' factors arise when people voluntarily engage to pursue a business opportunity. On the other hand, 'push' factors appear when they lack employment alternatives.

Some authors have highlighted four different motives as to why it is important to distinguish between opportunity and necessity entrepreneurs. First, the socio-economic characteristics of both types of entrepreneurs differ (Amit and Muller, 1995). Second, the entrepreneurial motives may affect the business performance (Kautonen and Palmroos, 2009; Hessels *et al.*, 2008). Third, the relationship between the business cycle and the entrepreneurship cycle may be different according to the entrepreneurial motive (Koellinger and Thurik, 2009). Fourth, the determinants are also different according to the entrepreneurial motive (Wennekers *et al.*, 2005; Wong *et al.*, 2005).

Despite the fact that at microeconomic level opportunity and necessity entrepreneurs may be crucial (see Verheul *et al.*, 2010), at macroeconomic level this distinction is also important. For instance, Wennekers *et al.* (2005); Wong *et al.* (2005) and Acs and Varga (2005) show evidence of how opportunity and necessity entrepreneurs have a differential impact on economic growth and job creation. More recently, Koellinger and Thurik (2012) study the effect of an increase in entrepreneurship levels on future GDP. They show that opportunity entrepreneurship leads the cycle by two years, while necessity entrepreneurship leads the cycle by only one year.

Hessels *et al.* (2008) report empirical evidence of the differences between countries. In that sense, Shane and Kolvereid (1991) and Baum *et al.* (1993) find that there is a different prevalence between the motives and needs between countries. Also, Wennekers *et al.* (2005) and Levie and Autio (2008) highlight the necessity to consider the country conditions to explain the determinants of opportunity and necessity entry decisions.

Therefore, it seems necessary to distinguish between opportunity and necessity entrepreneurship, given the important consequences for policymaking as measures to provide motivation and stimulate entrepreneurship. See Shane *et al.* (2003), in which the authors urge researchers to control for opportunity in studies of motivation.

*2.3 Linkages between entrepreneurial exit and entry*

Building on the theoretical deductions made by Geroski (1995) and Bartelsman *et al.* (2005), the process of business dynamics encompasses business entry and exit, and these are significantly correlated across most industries and territories, and without a distinctive cyclical pattern. Moreover, labour mobility between firms is an important source of

knowledge spillovers, and thereby of productivity growth (Millán *et al.*, 2013; Power and Lundmark, 2004; Cooper, 2001; Breschi and Lissoni, 2001; Stephan, 1996 ).

From an industry perspective, specific characteristics, such as the displacement effect exerted by firm exit and entry in firm dynamics over time, along with region-specific characteristics (e.g., value added per capita, endowment of technological factors, operating specialization, population density, entrepreneurial spillovers, the presence of industrial districts and their agglomeration economies) may have an effect on the economy's business exit rates.

On the one hand, one might expect to find a fringe of 'revolving door' firms with a low probability of survival, continuously entering and exiting the market. This exacerbates resource allocation processes in the economy, and limits the potentially positive impact of new firms on the economy. On the other hand, firm exit is not necessarily harmful to the economy as this event of industrial dynamics allows the exploitation and exploration of new technological and entrepreneurial opportunities. Also, firm exit might indirectly stimulate firm entry by releasing resources into the economy (Carree *et al.*, 2011; Pe'er and Vertinsky, 2008). Based on these arguments we argue that business exit rates act as a catalyst for the enhancement of the regeneration of the stock of businesses in the economy. Thus, we hypothesize that business exit is positively associated with future territorial entry rates.

At this point, it is worth noting that the expected effect of exit rates on entry rates is heterogeneous across territories as a result of the dissimilarities in the way through which entrepreneurs engage in entrepreneurial activities (Hessels *et al.*, 2011). For the purposes

of this study, the analysis focuses on the motivation underlying the entrepreneurial activity at the country level, that is, identification of entrepreneurship driven by opportunity or necessity.

Entrepreneurs driven by opportunity motivations develop business ideas that are considered valuable. These entrepreneurs exploit these projects on the basis of expected future economic profits and increased market shares as a result of the value added of their products/services (Baron, 2006; Shane and Venkataraman, 2000). Moreover, these individuals observe third-person opportunities around them and evaluate the feasibility and desirability of their pursuit (Autio *et al.*, 2013).

Wealthier countries reflect a higher demand of goods and services, creating more opportunities to start new businesses (Minniti *et al.*, 2005; Van Stel *et al.*, 2007). These countries have greater potential demand, more capacity to absorb new products, refinement of existing factors, access to financial resources, existence of economic rent and higher human capital levels (Van Stel *et al.*, 2007; Wong *et al.*, 2005; Reynolds *et al.*, 2002). Hence, entrepreneurial exit rates will bestrew entrepreneurial spillovers, offering a fringe for future levels of entrepreneurial activity. Therefore, exit will probably positively affect entry rates in the sense that a less crowded market offers more market opportunities and less competition for firms, thereby providing a stimulus to entrepreneurship (Burke and Van Stel, 2014).

Conversely, less developed economies are assumed to have a high number of necessity entrepreneurship because of the difficult living conditions and the need to survive (Koster and Rai, 2008). Individuals are pushed into entrepreneurship driven by lack of

employment options, seeking short-term options, and are not influenced by demand (Kelley *et al.*, 2012; Van Stel *et al.*, 2007; Acs, 2006; Wong *et al.*, 2005). Therefore, in these countries entrepreneurial activity represents the last economic resort for individuals and other options for economic activity are absent or unsatisfactory (Wong *et al.*, 2005).

Additionally, in developing and underdeveloped territories individuals lack an efficient banking system that channels financial resources to the creation of new ventures and local demand tends to be limited, which in turn limits the innovation capacity of these entrepreneurs (Van Stel *et al.*, 2004). In these countries individuals are faced with hard market conditions, which increases the opportunity cost of business exit. Therefore, we hypothesize that in developing and underdeveloped economies exit rates will have a negative impact on future business entry rates.

## 3. Data and Method

### *3.1. Data*

In order to analyse entrepreneurial activity, we combine information from two databases, the GEM Adult Population Surveys (APS) and the World Data Bank (WDB), building a sample of 41 countries covering the period 2002–2007. Missing values for some variables were filled to allow us to capture a trend characterizing our data series.

The GEM Adult Population Surveys (APS) provide harmonized estimates of the level of entrepreneurial activity. These surveys involve locating a representative sample of the adult population to create national measures of entrepreneurial activity. The best known indicator and the mostly widely used, the Total Entrepreneurial Activity (or TEA index), reflects the prevalence of individuals that are (1) currently starting a new business or (2)

the owner and managers of a young firm. GEM data also allows for the investigation of different entrepreneurial motives (see Reynolds *et al.*, 2005). Hence, this data represents one way to develop a broad, valid model on entrepreneurship.

Data from country characteristics have been obtained from the World Data Bank. It uses World Development Indicators (WDI) which is the primary World Bank database for development data from officially recognized international sources.

Six years of country-level panel data from the GEM and WDB is employed, covering the period 2002–2007 and including individuals from 41 countries. These countries are Argentina, Australia, Belgium, Brazil, Canada, Chile, China, Colombia, Croatia, Denmark, Finland, France, Germany, Greece, Hong Kong SAR China, Hungary, Iceland, India, Ireland, Italy, Jamaica, Japan, Latvia, Mexico, Netherlands, New Zealand, Norway, Peru, Russian Federation, Singapore, Slovenia, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, Uganda, United Kingdom, United States and Uruguay.

*3.2 Variable description*

An advantage of using GEM data is that the TEA can be decomposed into those individuals that are (1) currently starting a new business or (2) the owners and managers of a young firm; and that entrepreneurs are categorized by their start-up motives (3) opportunity versus (4) necessity, not including those who said they engaged for both reasons or did not know (Koellinger and Thurik, 2012). Hence, whether different stages of entrepreneurial activity and different dimensions of entrepreneurship show different patterns from previous rates of entrepreneurial exits can be examined. Therefore, the five dependent variables, which are proxies of the level of entrepreneurial activity, are as follows. First, TEA is the percentage of the adult population (18–64 years old) who are

actively involved in setting up a new business and/or currently own and manage a business that is less than three and a half years old, so it is the sum of the nascent entrepreneurship rate and the new entrepreneurship rate. Second, Nascent Entrepreneurship Rate (*Nascent*) is the percentage of the adult population (18–64) who are actively involved in setting up a business which they will own or co-own with no wages paid for more than three months. Third, New Firm Entrepreneurship Rate (*New Business*) is the percentage of the adult population (18–64) who are currently an owner-manager of a new business of more than three but less than 42 months. Fourth, opportunity entrepreneurship (*Opportunity Entrepreneurship*) is the percentage of the adult population (18–64) who are involved in TEA and are opportunity-driven individuals. Fifth, necessity entrepreneurship (*Necessity Entrepreneurship*) is the percentage of the adult population (18–64) who are involved in TEA and are necessity-driven individuals.

With regards to the covariates, for the purpose of the study we are interested mainly in the variable which shows the percentage of the adult population who have shut down, discontinued or quit a business they owned and managed, in any form of self-employment, or selling goods or services to anyone during the past year (*Exits*). This variable includes all possible reasons for business exits.

In addition, a set of control variables is considered. First, the fact of having fear of failure (*Fear of Failure)* is an informal institutional factor that may act as an important obstacle to entrepreneurial activity (Driga *et al.*, 2009; Koellinger *et al.*, 2007; Lafuente *et al.*, 2007; Arenius and Minniti, 2005; Simon *et al.*, 1999). Second, the lagged logarithm of the Gross Domestic Product per capita expressed in dollars at constant prices and at

Purchasing Power Parity Adjusted (*lnGDP_pc*) is an indicator of the economic development providing a larger market potential and greater infrastructure for start-ups (Wennekers *et al.*, 2005; Parker and Robson, 2004). Third, the interaction between the logarithm of the GDP per capita and exit rates allows us to observe the sensitivity of the exit rates with respect to the wealth per capita (*lnGDP_pc X Exits*). Fourth, a sociocultural factor that has been widely studied is the entrepreneurial role models effect (*Role Model*) on entrepreneurship (Bosma *et al.*, 2012; Driga *et al.*, 2009; Vaillant and Lafuente, 2007; Lafuente *et al.*, 2007; Venkatamaran, 2004). The OECD (2003) and the European Commission (2003) identify the presence of entrepreneurial role models (who have created new businesses over the past two years within one's personal social circle) as one of the most important sociocultural traits for entrepreneurship (Vaillant and Lafuente, 2007). Fifth, we consider the perceived entrepreneurial skills variable (*Entrepreneurial Skills*) which explains an important part of the decision to become an entrepreneur (Driga *et al.*, 2009; Vaillant and Lafuente, 2007; Arenius and Minniti, 2004). Finally, unemployment variables, measured as the share of the force that is without work but available for and seeking employment, may act as a push factor for necessity entrepreneurship, assuming that many people losing their jobs will start a business, and as a pull factor according to the theories on entrepreneurial capability and income choice (Koellinger and Thurik, 2012; Verheul *et al.*, 2002; Wennekers *et al.*, 2005; Rocha and Sternberg, 2005; Wong *et al.*, 2005;Audretsch and Thurik, 2000; Evans and Leighton, 1990).

The possibility of estimating the independent influences of a specific time (year) is introduced into the analysis in the form of dummy variables. The selection of a reference point for a set of dummy variables requires careful consideration because it influences

significantly the meaning and the values of resulting coefficients. For the purpose of this study, the regression coefficients for all year dummy variables were evaluated relatively to 2002; the beginning year of our time series was chosen so the influence of each successive year on country rates of total entrepreneurial activity across the entire study period could be assessed.

Table 1 provides descriptive statistics of the variables for the overall sample. It can be seen that within the 7.90% of the sample who are involved in an entrepreneurial activity, 4.50% are nascent entrepreneurs and 3.72% are new firm entrepreneurs. Among them, 5.82% declared they are involved in opportunity entrepreneurship, while 1.73% were in necessity entrepreneurship. Of these, 2.84% of them indicate having exited a business in the previous year.

Table 1. Descriptive statistics (2002-2007)

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Total Entrepreneurial Activity | 109 | 7.902 | 5.194 | 1.905 | 31.640 |
| Nascent | 109 | 4.504 | 2.694 | 1.062 | 16.009 |
| New Business | 109 | 3.720 | 3.281 | 0.435 | 18.595 |
| Opportunity Entrepreneurship | 109 | 5.825 | 3.468 | 1.108 | 17.876 |
| Necessity Entrepreneurship | 109 | 1.737 | 2.160 | 0.152 | 14.399 |
| Exits | 109 | 2.839 | 3.225 | 0.458 | 29.979 |
| Fear of Failure | 109 | 35.465 | 9.393 | 17.081 | 61.511 |
| Entrepreneurial skills | 109 | 44,52 | 12,41 | 8,65 | 78,39 |
| Role Model | 109 | 38,71 | 9,69 | 16,88 | 73,46 |
| lnGDP_pc | 109 | 10.027 | 0.627 | 6.752 | 10.779 |
| lnGDP_pc × Exits | 109 | 31.285 | 26.414 | 4.441 | 160.224 |
| Unemployment | 109 | 7.476 | 4.160 | 1.2 | 26.7 |
| Female Unemployment | 109 | 8.515 | 5.124 | 1.1 | 30.7 |
| Male Unemployment | 109 | 6.694 | 3.643 | 1.3 | 26.8 |

Source: Self-device from GEM and WDB databases.

Table 2 provides descriptive statistics for the sample controlling by the GDP per capita. Thus we observe that our sample is represented mostly by countries with a GDP per capita increased to 20,000 with an equal number of observations to 77. Regarding the entrepreneurial activity and exits, it can be seen that it is higher for lower levels of GDP per capita. But the difference between both levels of entrepreneurial activity is higher when the GDP per capita is lower than 20,000. In this case, only 0.86% of the sample are involved in necessity entrepreneurship, while 5.39% are in opportunity entrepreneurship.

Table 2: Descriptive statistics according with GDP per capita

| | Less than 20,000 US$ | | More than 20,000 US$ | |
|---|---|---|---|---|
| | Mean | Std. Dev. | Mean | Std. Dev. |
| Total Entrepreneurial Activity | 11,079 | 7,390 | 6,582 | 3,169 |
| Nascent | 5,654 | 3,566 | 4,026 | 2,083 |
| New Business | 5,802 | 4,938 | 2,855 | 1,664 |
| Opportunity Entrepreneurship | 6,880 | 4,520 | 5,386 | 2,845 |
| Necessity Entrepreneurship | 3,854 | 3,006 | 0,857 | 0,523 |
| Exits | 4,812 | 5,322 | 2,019 | 0,953 |
| Fear of Failure | 34,485 | 7,759 | 35,873 | 10,012 |
| Entrepreneurial skills | 49,66 | 16,26 | 42,39 | 9,76 |
| Role Model | 39,07 | 10,78 | 38,56 | 9,27 |
| lnGDP_pc | 9,197 | 0,535 | 10,372 | 0,176 |
| lnGDP_pc × Exits | 52,200 | 39,099 | 22,593 | 10,354 |
| Unemployment | 9,828 | 6,076 | 6,499 | 2,497 |
| Female | 11,281 | 6,961 | 7,365 | 3,603 |

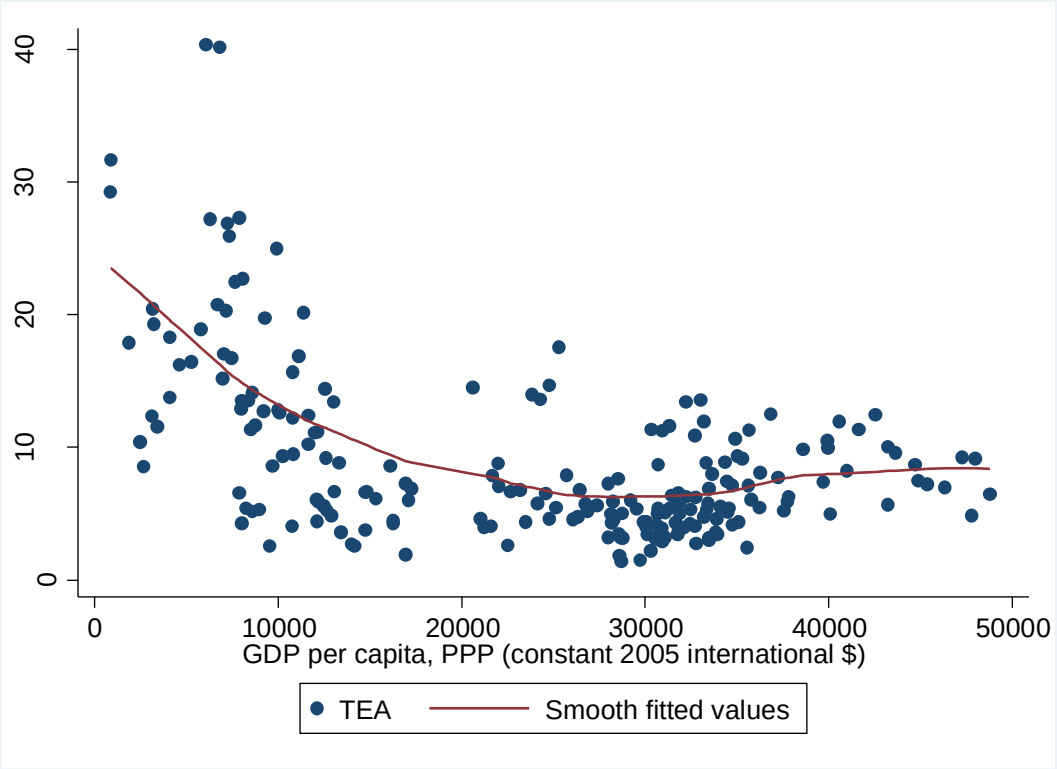
| | | | | |
|---|---|---|---|---|
| Unemployment | | | | |
| Male Unemployment | 8,734 | 5,518 | 5,847 | 1,990 |

Source: Self-device from GEM and WDB databases.
Notes:
1. Observations for countries with GDP per capita < 20000$ is 32.
2. Observations for countries with GDP per capita ≥ 20000$ is 77.

From the results in summary statistics, we may suspect that TEA differs depending on the economic conditions of the country. For this purpose, kernel-weighted local polynomial smoothing techniques are used to obtain non-parametric estimates of the dependence of TEA on the lagged GDP per capita. Figure 1 shows the graphical result.

As we can see, there is a decreasing impact of GDP per capita on the TEA. The figure shows a non-linear relationship, particularly negative for countries with less than 20,000$ per capita. However, we may also suspect that the impact of GDP per capita on the TEA rates will differ according to its two components and also according to the different motivation to become an entrepreneur.

Figure 1: Total Entrepreneurial Activity versus per capita Gross Domestic Product.




Figures 2a and 2b show how the sensitiveness of the TEA with respect to the economic conditions, is higher when considering necessity entrepreneurship than opportunity entrepreneurship, as may be expected.

Figure 2a: Opportunity Entrepreneurship versus per capita GDP.

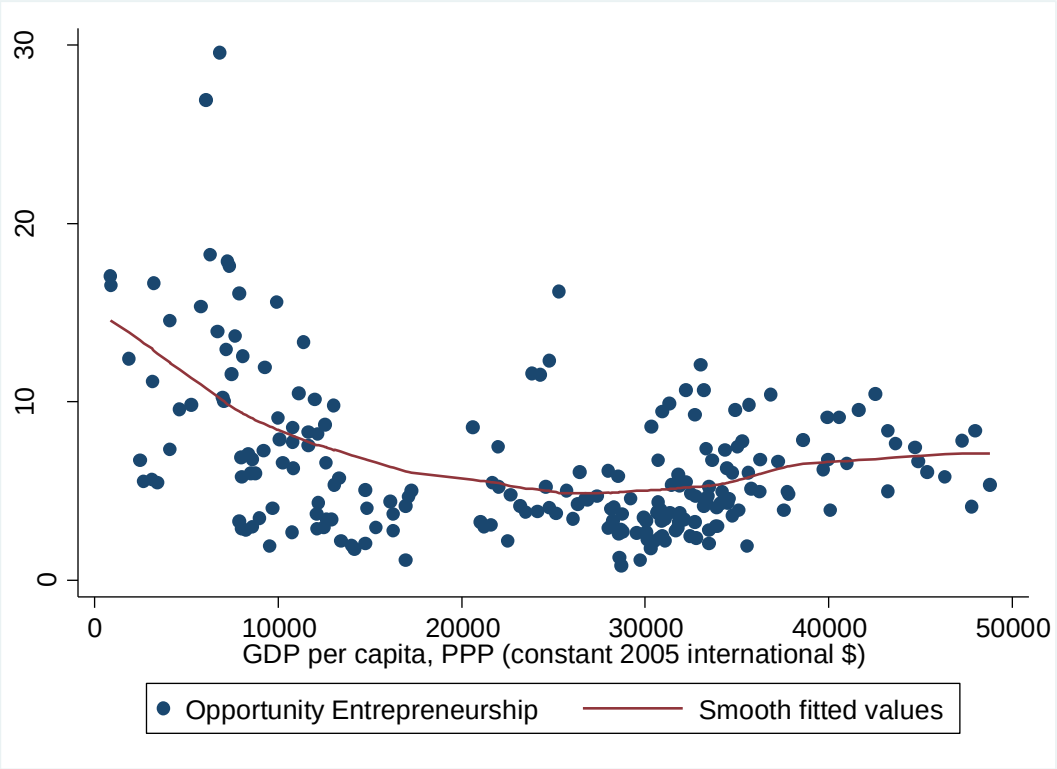
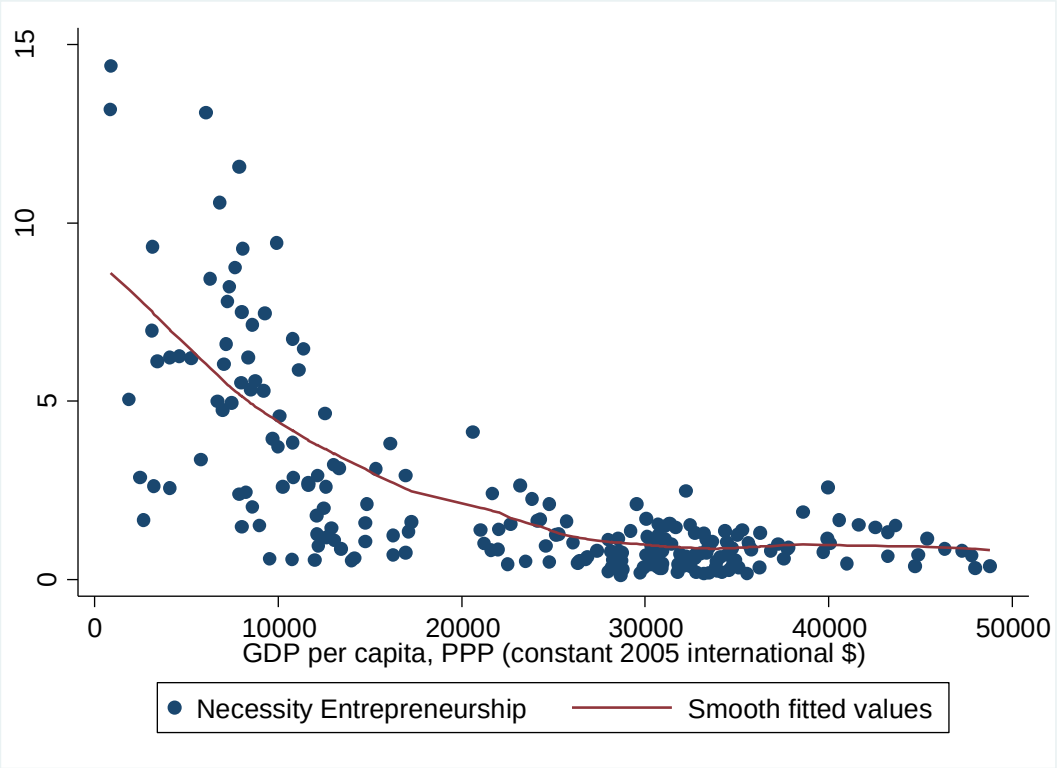



Figure 2b: Necessity Entrepreneurship versus per capita GDP.



*3.3. Method*

In order to test whether business exits imply or not a fall in future levels of entrepreneurial activity at macroeconomic level we estimate the following panel regression model from 2002 to 2007 for 41 countries. The general model is:

$$\Delta y_{it} = \alpha + y_{it-1}\lambda + Exits_{it}\delta + X_{it}\beta + u_i + u_t + \varepsilon_{it} \quad (1)$$

where $\Delta y_{it}$ is the total entrepreneurial activity in country *i* at period *t*, more specifically $\Delta TEA_{it} = TEA_{it} - TEA_{it-1}$; $Exits_{it}$ is the main explanatory variable ;$X_{it}$ is a set of control variables; $u_i$ is a country-specific effect; $u_t$ is a time-specific effect; $\varepsilon_{it}$ is a time-varying error term, and $\alpha$, $\lambda$ and $\beta$ are a set of parameters to be estimated. We include the endogenous variable lagged one period ($y_{it-1}$) since the speed of growth in the explained variable depends on the level of this variable the previous year, i.e., those countries that have higher entrepreneurship rates at *t-1* will grow at a lower rate from *t-1* to *t*.

Our main coefficient of interest is $\delta$, which reflects the effect of the previous exit rates (*Exits*) on the rates of entrepreneurial activity (*TEA*). A positive sign of $\delta$ would imply that business exit rates entail future greater levels of entrepreneurial activity at country level. On the other hand, a negative sign would imply that business exit rates would result in future lower levels of entrepreneurship.

Our outcome variable ($\Delta y_{it}$) reflects the changes in the level of entrepreneurial activity in a given country. In order to enhance the analysis, we separate the components of TEA by distinguishing between nascent activity (*Nascent*) and new firm activity (*New Firm*).

Moreover, we also differentiate among opportunity-driven (*Opportunity Entrepreneurship*) and necessity-driven entrepreneurship rates (*Necessity Entrepreneurship*).

The set of explanatory variables we consider is the following. *Fear of Failure*; the lagged logarithm of the GDP per capita (*lnGDP_pc*); the interaction among the lagged logarithm of the GDP per capita and exits (lnGDP_pc X Exits) in order to control for differences between income levels and exit rates across countries; unemployment variables (*Unemployment*) differentiating among gender (*Female Unemployment, Male Unemployment*); *Role Models* and the perceived *Entrepreneurial Skills*.

According to Nickell (1981) and Judson and Owen (1999), the presence of the unobserved heterogeneity in panel data models with lagged dependent variables as an explanatory variable would tend to generate biased and inconsistent estimates if the time dimension of the panel is fixed and small. This is why the Generalized Method of Moments (GMM) estimator proposed by Arellano and Bond (1991) is considered. This treats the equation to be estimated as a system of equations, one for each period, and in this method the first differences are calculated from the equation for removing individual heterogeneity observed. Subsequently, lagged levels of the series are used as instruments for the endogenous variables in first differences.

However, this estimator known as 'difference estimator' presents some shortcomings. Lagged levels of explanatory variables are weak instruments for estimating the parameters of the first-difference variables, leading to inconsistent estimates of the model. Arellano and Bover (1995), Blundell and Bond (1998) and Bond (2002) show that the

GMM ‘system estimator’, which is based on asymptotic and small sample properties, works better. They suggest to instrument endogenous and non-strictly exogenous variables with lags of their own first differences, instead of with lags for the variables in levels. The GMM variant of Arellano and Bond’s original used in the present paper incorporates these elements. In the first differenced equations, the lagged level values of explanatory variables are used as instruments (as in the GMM difference estimator). Since the set of instruments used in the GMM difference approach are strict subsets of the instruments used in the GMM system estimation, a specific contrast of the additional instruments is reported. The Sargan test for autocorrelation is used to test the existence of serial correlation and the Hansen test of overidentifying restrictions (Hansen, 1982) is used to contrast global validity of instruments in the regression. Both approaches have one-step and two-step variants. We use the two-step method, although the variances tend to be biased downwards. Therefore, to improve the precision of this estimator, we apply the Windmeijer finite-sample correction to these standard errors (Windmeijer, 2005).

## 4. Results

Tables 3, 4, 5, 6 and 7 show the results from estimating the model defined in equation 1, using the GMM, and are organized in the following way. Specification (1) considers the lagged endogenous variable as covariate, the percentage of population that has exited a business the previous year, the fear of failure and the logarithm of the GDP per capita lagged one period as control variable, which could affect the relation between exits and total entrepreneurial activity. Specification (2) includes all the variables in specification (1) and also captures the interaction between the GDP per capita and exit rates. Specification (3) is an extension of specification (2) with the Role Model variable included. Specification (4) adds the perceived entrepreneurial skills variable.

Specification (5) adds the lagged unemployment rate variable. Specification (6) and specification (7) are an extension of the previous specifications by including the effect of the unemployment gender.

The Hansen test does not reject the used instruments in any of the specifications, indicating they are good instruments for our model. Moreover, the results of the Arellano-Bond test for autocorrelation, i.e. AR(1) and AR(2), do not reject the null hypothesis of no second-order correlation. The results of these tests indicate that there is no serial correlation between the first-differenced variables used as instruments and the first differences of the residuals. This indicates that we are using the correct instruments and also the coefficients and standard errors are not biased. Therefore, our estimation model is valid.

Table 3: Estimates of the Total Entrepreneurial Activity

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| Total Entrepreneurial Activity$_{t-1}$ | -1.439*** | -1.195*** | -0.805*** | -1.133*** | -1.230*** | -0.948*** | -1.278*** |
| | (0.089) | (0.208) | (0.281) | (0.259) | (0.260) | (0.205) | (0.232) |
| Exits | 3.216*** | 2.601*** | 2.672*** | 2.075*** | 2.954*** | 2.830*** | 3.185*** |
| | (0.349) | (0.498) | (0.667) | (0.778) | (1.065) | (0.746) | (0.864) |
| Fear of Failure | -0.265*** | -0.150** | -0.182* | -0.176 | -0.354** | -0.213* | -0.352** |
| | (0.075) | (0.074) | (0.105) | (0.125) | (0.149) | (0.117) | (0.153) |
| lnGDP_pc$_{t-1}$ | 6.220* | 1.023 | -2.548 | -2.037 | 6.160 | 5.507 | 9.484 |
| | (3.272) | (4.198) | (5.264) | (4.424) | (9.165) | (6.772) | (8.371) |
| lnGDP_pc$_{t-1}$ X Exits | | -0.081 | -0.205** | -0.181** | -0.079 | -0.129* | 0.000 |
| | | (0.086) | (0.095) | (0.092) | (0.122) | (0.073) | (0.107) |
| Role Model | | | 0.031 | 0.068 | 0.125 | 0.071 | 0.089 |
| | | | (0.206) | (0.207) | (0.218) | (0.210) | (0.240) |
| Entrepreneurial Skills | | | | 0.202** | 0.020 | -0.017 | -0.007 |
| | | | | (0.097) | (0.127) | (0.109) | (0.094) |
| Unemployment$_{t-1}$ | | | | | 1.390* | | |
| | | | | | (0.813) | | |
| Female Unemployment$_{t-1}$ | | | | | | 1.094** | |
| | | | | | | (0.491) | |
| Male Unemployment$_{t-1}$ | | | | | | | 1.807** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | (0.725) |
| Constant | -49.513 | -1.491 | 35.048 | 23.730 | -60.365 | -54.894 | -95.520 |
| | (32.623) | (42.375) | (53.687) | (43.398) | (92.653) | (68.146) | (83.981) |
| Hansen Test (stat.) | 11.51 | 10.94 | 6.60 | 3.62 | 1.70 | 2.59 | 1.95 |
| Hansen Test (p-value) | 0.40 | 0.28 | 0.58 | 0.82 | 0.95 | 0.86 | 0.92 |
| Test AR(1) (z-stat.) | -2.08 | -1.75 | -1.86 | -2.33 | -0.96 | 0.14 | -2.54 |
| Test AR(1) (p-value) | 0.04 | 0.08 | 0.06 | 0.02 | 0.34 | 0.89 | 0.01 |
| Test AR(2) (z-stat.) | -0.78 | -0.27 | 0.92 | 0.80 | 1.33 | 1.37 | 0.83 |
| Test AR(2) (p-value) | 0.43 | 0.79 | 0.36 | 0.42 | 0.18 | 0.17 | 0.41 |
| Sample size | 140.00 | 113.00 | 113.00 | 113.00 | 112.00 | 109.00 | 109.00 |
| Number of countries | 41.00 | 40.00 | 40.00 | 40.00 | 39.00 | 38.00 | 38.00 |

The endogenous variable is $\Delta TEA_{t-1}$

Notes:

1. All models include dummy years
2. *** Significant at 1% , ** Significant at 5%, * Significant at 10%.
3. Numbers in parenthesis are the coefficient standard errors.

The coefficient of the lagged dependent variable is negative and significant in all models. Hence, as has been explained in the previous section, the higher the levels of entrepreneurial activity, the harder it is to grow. In all the tables we can see that the exit rate is an influential variable for enhancing future levels of entrepreneurial activity. The statistical significant effect of our main variable of interest shows that previous exit rates lead to more levels of entrepreneurial activity for all dimensions of it. The process of learning from business exit benefits society through its application to subsequent businesses (McGrath, 1999). This result is also consistent with that observed by Hessels *et al.* (2011), who also find a positive and significant impact of business exits on future levels of entrepreneurial activity, referring to the fact that people who have recently experienced an entrepreneurial exit more often perceive good entrepreneurial opportunities than those who did not experience an exit.

Concerning the covariates, all the results from the different dimensions of entrepreneurship suggest a negative connection between the fear of failure and future entrepreneurial rates. This result is consistent with Driga *et al.*, (2009); Vaillant and

Lafuente, (2007) and Arenius and Minniti (2005). Hence, it is an important constraint for all dimensions of entrepreneurship, in particular for nascent rates and opportunity-driven entrepreneurship.

Table 4: Estimates of the Nascent Entrepreneurial Activity

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| $Nascent_{t-1}$ | -1.193*** | -1.016*** | -1.016*** | -1.085*** | -1.407*** | -1.262*** | -1.321*** |
| | (0.076) | (0.191) | (0.192) | (0.195) | (0.243) | (0.149) | (0.140) |
| Exits | 1.979*** | 1.406*** | 1.373*** | 0.800* | 1.985*** | 1.682*** | 2.027*** |
| | (0.264) | (0.389) | (0.404) | (0.418) | (0.602) | (0.392) | (0.541) |
| Fear of Failure | -0.252*** | -0.194*** | -0.200*** | -0.152** | -0.142** | -0.143** | -0.140** |
| | (0.074) | (0.065) | (0.067) | (0.072) | (0.065) | (0.063) | (0.064) |
| $lnGDP\_pc_{t-1}$ | 3.596* | 1.419 | 0.877 | -0.622 | 6.642 | 6.051 | 7.934* |
| | (2.162) | (2.288) | (2.412) | (2.450) | (4.265) | (3.709) | (4.376) |
| $lnGDP\_pc_{t-1}$ X Exits | | -0.019 | -0.015 | -0.037 | 0.019 | -0.002 | 0.031 |
| | | (0.048) | (0.050) | (0.052) | (0.065) | (0.045) | (0.047) |
| Role Model | | | 0.074 | 0.121 | 0.066 | 0.185 | 0.143 |
| | | | (0.110) | (0.129) | (0.145) | (0.136) | (0.160) |
| Entrepreneurial Skills | | | | 0.141*** | -0.036 | -0.017 | -0.051 |
| | | | | (0.053) | (0.056) | (0.044) | (0.047) |
| $Unemployment_{t-1}$ | | | | | 1.099*** | | |
| | | | | | (0.284) | | |
| Female $Unemployment_{t-1}$ | | | | | | 0.759*** | |
| | | | | | | (0.181) | |
| Male $Unemployment_{t-1}$ | | | | | | | 1.281*** |
| | | | | | | | (0.300) |
| Constant | -26.988 | -6.565 | -3.882 | 4.263 | -69.484 | -66.982* | -86.035** |
| | (22.417) | (24.171) | (24.834) | (25.754) | (42.436) | (37.531) | (43.025) |
| Hansen Test (stat.) | 8.28 | 8.48 | 7.71 | 9.96 | 2.31 | 1.63 | 4.09 |
| Hansen Test (p-value) | 0.69 | 0.49 | 0.46 | 0.19 | 0.89 | 0.95 | 0.66 |
| Test AR(1) (z-stat.) | -2.41 | -2.43 | -2.42 | -1.97 | -0.16 | -0.90 | -2.00 |
| Test AR(1) (p-value) | 0.02 | 0.02 | 0.02 | 0.05 | 0.87 | 0.37 | 0.05 |
| Test AR(2) (z-stat.) | -0.85 | -0.59 | -0.27 | 0.58 | -0.22 | 0.63 | 0.09 |
| Test AR(2) (p-value) | 0.40 | 0.55 | 0.79 | 0.56 | 0.83 | 0.53 | 0.93 |
| Sample size | 140.00 | 113.00 | 113.00 | 113.00 | 112.00 | 109.00 | 109.00 |
| Number of countries | 41.00 | 40.00 | 40.00 | 40.00 | 39.00 | 38.00 | 38.00 |

The endogenous variable is $\Delta Nascent_{t-1}$

Notes:

1. All models include dummy years
2. *** Significant at 1% , ** Significant at 5%, * Significant at 10%.
3. Numbers in parenthesis are the coefficient standard errors.

Table 5: Estimates of the New Business Activity

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| New Business$_{t-1}$ | -1.574*** | -0.975*** | -0.884*** | -0.954*** | -0.948*** | -0.895*** | -0.971*** |
| | (0.075) | (0.107) | (0.237) | (0.243) | (0.223) | (0.225) | (0.243) |
| Exits | 1.638*** | 1.438*** | 1.691*** | 1.300*** | 1.399** | 1.372*** | 1.542*** |
| | (0.259) | (0.315) | (0.399) | (0.485) | (0.636) | (0.486) | (0.596) |
| Fear of Failure | -0.002 | -0.025 | -0.056 | -0.061 | -0.071 | -0.058 | -0.103 |
| | (0.044) | (0.054) | (0.078) | (0.077) | (0.105) | (0.075) | (0.115) |
| lnGDP_pc$_{t-1}$ | 6.502* | -1.445 | -0.602 | -1.947 | -0.801 | -1.310 | 0.211 |
| | (3.552) | (3.965) | (3.597) | (3.729) | (5.605) | (4.498) | (5.730) |
| lnGDP_pc$_{t-1}$ X Exits | | -0.129*** | -0.131*** | -0.149*** | -0.137** | -0.136*** | -0.113* |
| | | (0.026) | (0.048) | (0.050) | (0.065) | (0.044) | (0.068) |
| Role Model | | | -0.138 | -0.084 | -0.093 | -0.127 | -0.104 |
| | | | (0.131) | (0.137) | (0.133) | (0.139) | (0.147) |
| Entrepreneurial Skills | | | | 0.076 | 0.058 | 0.055 | 0.038 |
| | | | | (0.054) | (0.102) | (0.083) | (0.083) |
| Unemployment$_{t-1}$ | | | | | 0.121 | | |
| | | | | | (0.619) | | |
| Female Unemployment$_{t-1}$ | | | | | | 0.104 | |
| | | | | | | (0.377) | |
| Male Unemployment$_{t-1}$ | | | | | | | 0.368 |
| | | | | | | | (0.613) |
| Constant | -63.593* | 18.379 | 15.570 | 25.914 | 15.028 | 20.808 | 4.714 |
| | (36.009) | (40.454) | (35.497) | (36.187) | (56.460) | (46.071) | (58.596) |
| Hansen Test (stat.) | 11.04 | 4.48 | 2.90 | 0.80 | 0.71 | 1.46 | 1.22 |
| Hansen Test (p-value) | 0.44 | 0.88 | 0.94 | 1.00 | 0.99 | 0.96 | 0.98 |
| Test AR(1) (z-stat.) | 0.50 | -2.22 | -1.21 | -1.30 | -0.81 | -0.84 | -0.58 |
| Test AR(1) (p-value) | 0.61 | 0.03 | 0.23 | 0.19 | 0.42 | 0.40 | 0.56 |
| Test AR(2) (z-stat.) | -0.84 | 0.67 | 0.78 | 0.61 | 1.09 | 1.16 | 1.42 |
| Test AR(2) (p-value) | 0.40 | 0.50 | 0.44 | 0.54 | 0.28 | 0.25 | 0.16 |
| Sample size | 140.00 | 113.00 | 113.00 | 113.00 | 112.00 | 109.00 | 109.00 |
| Number of countries | 41.00 | 40.00 | 40.00 | 40.00 | 39.00 | 38.00 | 38.00 |

The endogenous variable is ΔNew Business$_{t-1}$

Notes:

1. All models include dummy years
2. *** Significant at 1% , ** Significant at 5%, * Significant at 10%.
3. Numbers in parenthesis are the coefficient standard errors.

Regarding the GDP per capita, on the one hand we report that in those countries where the lagged GDP per capita is higher, the TEA rates, its components and opportunity-driven entrepreneurship rates are also higher; but the necessity-driven entrepreneurship is lower. Wealthier countries reflect a higher demand of goods and services, creating more opportunities to start new businesses in line with Van Stel *et al.* (2007) and Minniti *et al.* (2005). But necessity entrepreneurship is driven by a lack of employment options, seeking short-term options and is not influenced by demand, which coincides with the conclusions of Kelley *et al.* (2012), Van Stel *et al.* (2007), Acs (2006), and Wong *et al.*(2005). These results corroborate the hypothesis that proposed that that developing and underdeveloped economies exit rates will have a negative impact on future business entry rates.

Table 6: Estimates of the Opportunity Entrepreneurship

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| Opportunity Entrepreneurship$_{t-1}$ | -1.409*** | -1.212*** | -0.832*** | -1.405*** | -1.513*** | -1.063*** | -1.263*** |
| | (0.089) | (0.213) | (0.316) | (0.307) | (0.318) | (0.299) | (0.316) |
| Exits | 2.388*** | 2.133*** | 1.958*** | 1.781*** | 2.562*** | 2.295*** | 2.586*** |
| | (0.282) | (0.410) | (0.486) | (0.567) | (0.818) | (0.619) | (0.728) |
| Fear of Failure | -0.181** | -0.142** | -0.185* | -0.143 | -0.235** | -0.111 | -0.179 |
| | (0.071) | (0.068) | (0.100) | (0.111) | (0.093) | (0.107) | (0.119) |
| lnGDP_pc$_{t-1}$ | 7.492*** | 3.618 | -1.070 | 1.857 | 11.199 | 7.941 | 10.823 |
| | (2.400) | (3.547) | (4.433) | (3.578) | (7.620) | (5.465) | (7.112) |
| lnGDP_pc$_{t-1}$ X Exits | | -0.041 | -0.122* | -0.054 | -0.001 | -0.066 | -0.013 |
| | | (0.041) | (0.070) | (0.067) | (0.078) | (0.059) | (0.070) |
| Role Model | | | -0.049 | 0.201 | 0.164 | -0.024 | 0.004 |
| | | | (0.178) | (0.171) | (0.184) | (0.209) | (0.226) |
| Entrepreneurial Skills | | | | 0.143* | -0.004 | -0.014 | 0.008 |
| | | | | (0.081) | (0.063) | (0.076) | (0.072) |
| Unemployment$_{t-1}$ | | | | | 1.211*** | | |
| | | | | | (0.425) | | |
| Female Unemployment$_{t-1}$ | | | | | | 0.781** | |
| | | | | | | (0.329) | |
| Male Unemployment$_{t-1}$ | | | | | | | 1.150** |
| | | | | | | | (0.497) |
| Constant | -66.319*** | -29.663 | 21.912 | -22.860 | -116.276 | -78.353 | -108.882 |
| | (23.854) | (36.323) | (46.489) | (35.893) | (75.754) | (54.622) | (71.971) |
| Hansen Test (stat.) | 11.35 | 10.00 | 5.61 | 7.47 | 2.35 | 1.32 | 1.35 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Hansen Test (p-value) | 0.41 | 0.35 | 0.69 | 0.38 | 0.88 | 0.97 | 0.97 |
| Test AR(1) (z-stat.) | -2.16 | -1.54 | -1.37 | -1.74 | -0.87 | 0.77 | . |
| Test AR(1) (p-value) | 0.03 | 0.12 | 0.17 | 0.08 | 0.38 | 0.44 | . |
| Test AR(2) (z-stat.) | -0.73 | 0.26 | 0.49 | 1.37 | 1.13 | 1.46 | 0.89 |
| Test AR(2) (p-value) | 0.46 | 0.80 | 0.63 | 0.17 | 0.26 | 0.15 | 0.37 |
| Sample size | 140.00 | 113.00 | 113.00 | 113.00 | 112.00 | 109.00 | 109.00 |
| Number of countries | 41.00 | 40.00 | 40.00 | 40.00 | 39.00 | 38.00 | 38.00 |

The endogenous variable is $\Delta$Opportinity Entrepreneurship$_{t-1}$

Notes:

1. All models include dummy years
2. *** Significant at 1% , ** Significant at 5%, * Significant at 10%.
3. Numbers in parenthesis are the coefficient standard errors.

Table 7: Estimates of the Necessity Entrepreneurship

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| Necessity Entrepreneurship$_{t-1}$ | -1.074*** | -0.681*** | -0.674*** | -0.733*** | -0.659*** | -0.730*** | -0.841*** |
| | (0.052) | (0.139) | (0.140) | (0.146) | (0.138) | (0.110) | (0.152) |
| Exits | 0.613*** | 0.567*** | 0.556*** | 0.460*** | 0.322 | 0.487*** | 0.610*** |
| | (0.066) | (0.131) | (0.147) | (0.163) | (0.230) | (0.170) | (0.218) |
| Fear of Failure | -0.059*** | -0.025 | -0.026 | -0.037 | -0.005 | -0.043 | -0.069 |
| | (0.015) | (0.037) | (0.036) | (0.036) | (0.035) | (0.046) | (0.063) |
| lnGDP_pc$_{t-1}$ | -0.947 | -1.549 | -1.691 | -2.105* | -3.203** | -1.877 | -0.966 |
| | (0.826) | (0.958) | (1.051) | (1.094) | (1.550) | (1.491) | (1.897) |
| lnGDP_pc$_{t-1}$ X Exits | | -0.056*** | -0.059*** | -0.065*** | -0.081*** | -0.059*** | -0.043 |
| | | (0.014) | (0.015) | (0.015) | (0.020) | (0.021) | (0.029) |
| Role Model | | | 0.024 | 0.016 | -0.025 | 0.020 | 0.039 |
| | | | (0.041) | (0.042) | (0.046) | (0.053) | (0.048) |
| Entrepreneurial Skills | | | | 0.032 | 0.060* | 0.019 | 0.002 |
| | | | | (0.024) | (0.034) | (0.038) | (0.040) |
| Unemployment$_{t-1}$ | | | | | -0.151 | | |
| | | | | | (0.166) | | |
| Female Unemployment$_{t-1}$ | | | | | | 0.042 | |
| | | | | | | (0.139) | |
| Male Unemployment$_{t-1}$ | | | | | | | 0.214 |
| | | | | | | | (0.277) |
| Constant | 11.741 | 17.623* | 18.291* | 22.370** | 34.514** | 20.021 | 9.829 |
| | (8.530) | (9.972) | (10.807) | (11.221) | (15.779) | (15.829) | (20.131) |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Hansen Test (stat.) | 11.56 | 4.01 | 3.45 | 1.54 | 0.94 | 2.59 | 2.47 |
| Hansen Test (p-value) | 0.40 | 0.91 | 0.90 | 0.98 | 0.99 | 0.86 | 0.87 |
| Test AR(1) (z-stat.) | -1.44 | -2.26 | -2.25 | -2.36 | -1.78 | -1.79 | -1.44 |
| Test AR(1) (p-value) | 0.15 | 0.02 | 0.02 | 0.02 | 0.08 | 0.07 | 0.15 |
| Test AR(2) (z-stat.) | -0.88 | 0.58 | 0.68 | 0.62 | 0.23 | 0.73 | 0.78 |
| Test AR(2) (p-value) | 0.38 | 0.56 | 0.50 | 0.54 | 0.82 | 0.46 | 0.44 |
| Sample size | 140.00 | 113.00 | 113.00 | 113.00 | 112.00 | 109.00 | 109.00 |
| Number of countries | 41.00 | 40.00 | 40.00 | 40.00 | 39.00 | 38.00 | 38.00 |

The endogenous variable is $\Delta$Necessity Entrepreneurship$_{t-1}$

Notes:

1. All models include dummy years
2. *** Significant at 1% , ** Significant at 5%, * Significant at 10%.
3. Numbers in parenthesis are the coefficient standard errors.

On the other hand, a context in which there are high economic development and exit rates will turn in a decrease in entrepreneurial rates. This verifies the joint impact of the country wealth and exits on the growth rate of TEA. Developed countries with high exit rates tend to experience a lower growth rate of new business activity and opportunity-driven entrepreneurship. A possible explanation for this situation is that the entrepreneurial population see wage employment as a better and more secure choice.

Moreover, as for the cognitive dimension of the institutional profile, the study analysed the impact of the personal knowledge of entrepreneurial role models (Role Model) and entrepreneurial self-confidence (Entrepreneurial Skills) on the propensity towards entrepreneurial activity rates. Contrary to Vaillant and Lafuente (2007), no influence was found of entrepreneurial role models on entrepreneurship. Similarly to Arenius and Minniti (2004) and Driga *et al.*, (2009), self-confidence in one's own skills has a positive effect on future levels of entrepreneurial activity at country level, such as nascent, opportunity and necessity entrepreneurship. However, no effect was found on new business activity (New Business).

The positive relationship between the unemployment rates and the level of entrepreneurial activity (*TEA, Nascent Entrepreneurship and Opportunity Entrepreneurship*) supports the 'supply push' or the 'push effect of unemployment', which coincides with other research (Koellinger and Thurik, 2012; Thurik *et al.*, 2008; Audretsch and Vivarelli, 1996; Foti and Vivarelli, 1994; Storey and Jones, 1987; Gilad and Levine, 1986 ). Still, one would expect that unemployment rates would imply greater levels of necessity entrepreneurship acting as a negative indicator of entrepreneurial opportunity as some authors suggested (Wennekers *et al.*, 2005; Verheul, *et al.*, 2002; Audretsch and Thurik, 2000). However, the results show that unemployment rates favour the level of opportunity entrepreneurship. This could be due to the government policies that are aimed at promoting entrepreneurship through the capitalization of unemployment to be totally invested in a new start-up. Also, this may be because the study has been carried out in a period of economic expansion.

Finally, we contribute to the existing research by providing further evidence on the relationship between the business exit rates and the different dimensions of entrepreneurship at macroeconomic level.

## 5. Conclusions

Although the value of entrepreneurial exits and entry for economic development is widely accepted, the bulk of research has focused on individual-level variables that may not effectively inform country-level phenomena. Therefore, using a sample from 2002 to 2007 for 41 countries participating in the GEM, this paper aimed at studying whether business exits imply, or not, a fall in future dimensions of entrepreneurial activity at macroeconomic level.

First and foremost, the results presented here show a positive and significant effect of the coefficient associated with exits in all models. The main contribution of the study indicates that exit rates represent a change in both the competitive balance of the industry and the configuration of the local industrial fabric, thus providing value to competing rivals (Akhigbe *et al.*, 2003). This positive effect also indicates the operation of a powerful Schumpeterian 'churn', whereby the entrepreneurship base may be continuously rejuvenated through turnover and replacement dynamics (Sutaria and Hicks, 2004). Furthermore, nascent entrepreneurship is more sensitive to previous exit rates than the percentage of new business activity rates. This is a reasonable finding in the sense that nascent entrepreneurship is the beginning of the process. Results when analysing the effect on opportunity and necessity-driven entrepreneurship support the sensitiveness of both motives. Less crowded markets offer more market opportunities and less competition for firms, thereby providing a stimulus to entrepreneurship (Burke and Van Stel, 2014).

The academic implications of these findings provide strong support in favour of a greater use of a territorial approach to the study of entrepreneurship, especially regarding the relationship between previous exit rates and future levels of entrepreneurial activity at macroeconomic level.

The results also suggest that entrepreneurial rates are to some extent governed by 'laws' related to the level of economic development. We find that a high rate of business exits in developed countries leads to an increase in the growth of the total entrepreneurial activity. This specifically highlights the importance of country characteristics when the

relationship between entrepreneurial exits and subsequent entrepreneurial growth levels is assessed. The result that richer countries fail to benefit from entrepreneurial exits does not imply that these countries should discourage exit rates. Instead, it may be an indication that the exit of firms in a country subside the degree of competitiveness within the country, thus offering a less hostile environment for new entrants.

With regard to the motives, it has been well documented that opportunity entrepreneurship enhances knowledge spillovers and economic growth (Acs and Varga, 2005). Hence, the higher positive exit rate effect on opportunity-entrepreneurship may be a potential positive indicator for governments. Policymakers should consider exits as a relevant indicator when the promotion of different types of entrepreneurship is required for industry balance.

Our study has several limitations that should be taken into account when interpreting the results and at the same time provide indications for possible avenues of future research. First, the results may be affected by other covariates, such as some technological sophistication, institutions and culture. Therefore, a greater number of covariates could complement the present study. Second, the use of a broader timeline could provide a more long-term analysis, allowing the differentiation between periods of expansion and recession. In addition, the different forms of exits could be taken into account in order to affect the entrepreneurial growth. We conclude that inviting other scholars and policymakers to continue this line of research may provide novel answers for the entrepreneurship field.

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