UNIVERSITAT ROVIRA I VIRGILI

DEPARTAMENT D'ECONOMIA

(creip)

CENTRE DE RECERCA EN ECONOMIA INDUSTRIAL I ECONOMIA PÚBLICA

WORKING PAPERS

Col·lecció "DOCUMENTS DE TREBALL DEL DEPARTAMENT D'ECONOMIA - CREIP"

Business Exits entail greater future levels of entrepreneurship? An empirical analysis at country level

Judit Albiol

Document de treball n.34 - 2012

DEPARTAMENT D'ECONOMIA – CREIP
Facultat d'Economia i Empresa

UNIVERSITAT
ROVIRA I VIRGILI

DEPARTAMENT D'ECONOMIA

DEPARTAMENT D'ECONOMIA – CREIP
Facultat d'Economia i Empresa

Business Exits entail greater future levels of entrepreneurship? An empirical analysis at country level. [*]

Judit Albiol[a]

December, 2012

a Department of Economics, GRIT, CREIP, Universitat Rovira i Virgili, Avda. Universitat 1, Reus 43204, Spain. e-mail: judit.albiol@urv.cat.

Abstract

Using Global Entrepreneurship Monitor data for 41 countries this study investigates the impact of business exit on entrepreneurial activity at the country level. The paper distinguishes between two types of entrepreneurial activity according with the motive to start a new business: entrepreneurs driven by opportunity and necessity motives. The findings indicate that exits have a positive impact on future levels of entrepreneurial activity in a country. For each exit in a given year, a larger proportion of entrepreneurial activity the following year. Moreover, this effect turns out to be higher for opportunity entrepreneurs. The findings indicate that both types of entrepreneurial activity rates are influenced by the same factors and in the same direction. However, for some factors we find a differential impact on the entrepreneurship. The results show some important implications given that business exit may be overcome when there is a necessity motivation. This has important implications for both researchers and policy makers.

JEL codes: L26
Keywords: Entrepreneurship, business exit, social values

---

1 Introduction

The topic of entrepreneurship as an academic area of study is relatively recent and draws upon the insights of many disciplinary areas including business and management, sociology, psychology, economics, finance, and public policy Sorensen and Chang (2006). Moreover, entrepreneurship has witnessed an increasing number of contributions during the last decades. The literature has emphasized the role of entrepreneurship on economic growth due to its capacity to introduce new processes and products, to put underutilized resources to new uses, to initiate the formation of new industries, and to accelerate the 'gales of creative destruction' Schumpeter (2012). Hence, entrepreneurial activity is linked to employment creation, increases in productivity, improvement of living standards and economic growth (Baumol (1994); Carree and Thurik (2010); Audretsch and Keilbach (2008); Thurik (2009); ?); Carree and Thurik (2010)).

One feature of the concept of entrepreneur is a lack of an agreed upon definition of entrepreneur in the research community (Van Praag (1999); Mahoney and Michael (2005); Thurik and Wennekers (2004); Van der Sluis et al. (2008); Harris (2010))[1]. But, researchers usually use the concept of self-employment to analyse entrepreneurship. Hence, we consider entrepreneurship as self-employees due to the kind of data available and also based on the population we are most interested in studying.

However, taking up entrepreneurship implies recognising a priori irreducible uncertainty (Venkataraman (2002)). In other words, the entrepreneurial dynamism is formed by two different processes: the entry and exit decisions. In general both processes are highly correlated. Large percentages of entrepreneurial exit and entry indicate countries with low barriers to entry and exit due to their industrial structure and institutional characteristics.

Few empirical studies have highlighted the impact of the entrepreneurial exit or failure on the entrance decision at macroeconomic level. On the one hand, entrepreneurial exit is an extremely important process since it may impact the industry as it changes the competitive balance in the industry and it may provide a different value to rivals. Entrepreneurial exit not only has a significant effect on the entrepreneur, but it also on the firm, the industry and the economy. These economic benefits may include reinvestment of financial resources into other young companies, reinvestment of knowledge resources into other companies, new venture creation, strengthening local resources infrastructure, philanthropy, and endowment of community activities (Baumol (1994)). On the other hand, the stigma associated with failure is an important determinant of entrepreneurial

---

[1]See Van Praag and Versloot (2007) for a review of the literature related to the definitions of entrepreneurs.

activity. It influences not only the decision to become an entrepreneur, but also the choice of projects and the decision to terminate a project. A broad range of evidence suggests that failure is highly stigmatized in Europe and in certain Asian countries, whereas the American social norms consider failure as a step in a process of experimentation. Project outcomes depend on luck and ability, and the cost for failed entrepreneurs is determined by the market's expectations about their ability (Landier (2005)). Moreover, the view that the stigma is due to social norms and not only laws, is often asserted in government reports, political speeches and journal articles[2].

Assessing the impact of entrepreneurial exit at macroeconomic level may be an interesting instrument in order to promote entrepreneurship. Scholars seem to agree that the level of entrepreneurial activity varies systematically across countries (Rees and Shah (2006); Wit and Winden (1989); Blanchflower and Meyer (1994); Grilo and Thurik (2008); Teruel and De Wit (2011)). Also the dynamics of entrepreneurship, expressed as the rate of nascent entrepreneurship or the prevalence of young enterprises, show a wide-ranging diversity across nations[3]. Differences in levels of entrepreneurship according with levels of economic development are emphasized in Audretsch and Thurik (2000, 2001, 2004). It is therefore crucial to understand what drives the entrepreneurial activity among different countries and years.

However, few empirical studies consider the interrelationships between both processes at aggregate level and most of them have focused on entrepreneurial exit or failure in the sense of reengagement. So, given the increasing importance of entrepreneurship, this study aims to explain whether business exits imply, or not, a fall in future levels of entrepreneurial activity at macroeconomic level controlling for other factors.

To the best of our knowledge, this is the first panel data study that link previous exit rates to future levels of entrepreneurial activity at macroeconomic level.

The paper is organized as follows: Section 2 briefly summarizes the literature. Section 3 describes the data and presents some figures. Section 4 introduces the model used and the econometric methodology. Section 5 explains the main results and finally, Section 6 draws conclusions from the analysis.

---

[2]In a recent article in The Economist (2012), it is claimed that although Europe has some successful entrepreneurs, they are still underrepresented. One of the motives pointed out is that 'there is a freedom to fail' in US in comparison with Europe.

[3]Previous research with GEM data shows substantial differences in the dynamics of entrepreneurship across countries (Reynolds et al. (2005); Acs and Varga (2005); Wennekers et al. (2005))

2 Literature review

2.1 Entry decision: opportunity and necessity motives

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. Reynolds et al. (2005); Sternberg and Wennekers (2005); Ardagna and Lusardi (2009); Block and Wagner (2010)). These categories correspond to a distinction between two different factors that influence people to be entrepreneurs (Shapero and Sokol (1982); Gilad and Levine (1986)). 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.

Despite the fact that at microeconomic level opportunity and necessity entrepreneurs may be crucial (see Verheul et al. (2010))[4], at macroeconomic level this distinction is also important. For instance, Wennekers et al. (2005); Wong et al. (2005) and Teruel and De Wit (2011) show evidence how opportunity and necessity entrepreneurs have a differential impact on economic growth and job creation. Acs and Varga (2005) find that opportunity entrepreneurship has a positive and statistically significant effect on technological change, while necessity entrepreneurship and entrepreneurial activity in general have no such impact. More recently, Koellinger and Roy Thurik (2009) show that opportunity entrepreneurship leads the cycle by two years, while necessity entrepreneurship leads the cycle by only one year. Their speculative explanation under this different pattern is that necessity entrepreneurship has to do with the legitimation or moral approval of entrepreneurship within a culture.

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, there seems necessary to distinguish between opportunity and necessity entrepreneurship given the important consequences for policy making as measures to stimulate entrepreneurship[5].

---

[4]Those authors have highlighted four different motives why it is important to distinguish between opportunity and necessity entrepreneurs. First, the socio-economic characteristics of both types of entrepreneurs differ. Second, the entrepreneurial motives may affect the business performance. Third, the relationship between business cycle and the entrepreneurship cycle may be different according with the entrepreneurial motive. Fourth, the determinants are also different according with the entrepreneurial motive.

[5]See Shane et al. (2003) in which the authors urge researchers to control for opportunity in

2.2 Business exit and failure

Failure and exit are both an important phenomenon in the entrepreneurial process, including both its causes and consequences for individuals, organizations, and society. Some studies indicated that entrepreneurial exit is theoretically distinct from failure. Bates (2005) and Headd (2003) found that about one-third of the discontinued business owners characterized their firms as successful at closure. At least in the eyes of entrepreneurs, exit and failure are two distinct concepts (Chopra (2005)).

Entrepreneurial exit is a multi-faceted phenomenon since it can be coped from different approaches and includes different types of entrepreneurial exits such as liquidation, bankruptcy, or sell-off of a firm. Furthermore, it concerns both exit of entrepreneurial firms from the marketplace and exit of self-employed persons from their entrepreneurial activities on the labour market. In that sense, Holmberg (1991) defines entrepreneurial exit as the process by which the founders of firms leave the firm they helped to create; thereby removing themselves, in varying degree, from the primary ownership and decision-making structure of the firm. Wennberg (2011) highlighted the two main implicit sides of the exit phenomena: the deliberate closure (implying failure) and the successful sale of a business (entrepreneur may exit while the firm persists or the entrepreneur may close the business but continue being an entrepreneur by starting a new one). Recent literature suggests that exit can be an indicator of entrepreneurial learning and its effect on subsequent entrepreneurial engagement can be a major source of the evolution of industries and economies (Hessels et al. (2011)). They also state that the same people often exit and enter the start-up process repeatedly, a phenomenon called "revolving door entrepreneurship" or "serial entrepreneurship".

Conversely, business failure occurs when a fall in revenues and/or rise in expenses are of such magnitude that the firm becomes insolvent and is unable to attract new debt or equity funding; consequently, it cannot continue to operate under the current ownership and management (Shepherd et al. (2000)). Several studies have examined factors that enhance the success and mitigate the failure that occurs. In that sense, a community's perspective concerning business failure may have implications for the level of entrepreneurial activity that occurs within these ventures as employees, personal and venture capital available to nascent entrepreneurs, and the existence of support networks for emerging ventures (Cardon et al. (2011)).

Hence, there seems that assessing the impact of entrepreneurial exit and failure at macroeconomic approach could be an interesting instrument in order to promote entrepreneurship. In general, the value attached to entrepreneurial ac-

---

studies of motivation.

tivities are likely to be territorially focused. These community perspectives may ultimately form differing climates of entrepreneurial tolerance-increased tolerance for risky ventures in communities accustomed to regular venture failure, decreased tolerance for frequent venture founding or serial founding in communities less used to ventures failure or with fewer incidents of failure, and a general difference in the attitudes and philosophies of communities about the importance of new venture creation and their role in venture success Cardon et al. (2011)).

2.3 Linkages between entrepreneurial exit and entry

Hessels et al. (2011) investigated whether and how a recent entrepreneurial exit relates to subsequent engagement discriminating between six levels of entrepreneurial engagement and using individual-level data. They found that a recent exit increases the probability of being involved in some engagement levels. The positive relationship with potential entrepreneurship demonstrates that people who recently experienced an entrepreneurial exit more often indicate having relevant entrepreneurial skills and more often perceive good entrepreneurial opportunities than those who did not experience an exit. This would suggest that at the national level, business exits imply greater rates of entrepreneurial activity driven by opportunity motives. From this raises the need to differentiate between entrepreneurship driven by opportunity and necessity motives.

Opportunity entrepreneurs are in the position to reap the fruits that the enhanced personal control over the employment of their human capital offers them as an entrepreneur. They have spotted a business opportunity that allows them the best use of their specific human capital (in the sense of Lazear (2009), compare Becker (1962), and Neal (1995)). Opportunity entrepreneurs can prepare for their step into entrepreneurship thoroughly beforehand - as they have alternative employment options, they can wait till the optimal time has come. If the choice to become an entrepreneur is economically rational, opportunity entrepreneurs will only make this choice if their returns exceed their opportunity costs, i.e. the wage they would earn in paid employment. Hence, they can use their former education investments more productively than in alternative paid employment. In contrast, necessity entrepreneurs would not be entrepreneurs if they had alternative employment options. The fact that they are pushed into their entrepreneurial activities demonstrates that they do not have full control over the use of their human capital. Therefore, they cannot fully exploit the benefits from personal control. As entrepreneurship is their remedy of last resort, it is likely that they do not have time to develop a business idea that best fits their skills, and they cannot wait for the optimal point in time. One can argue that the ex-ante expected pay-offs from necessity entrepreneurs' investments in education do not actualise, as unexpectedly there is no demand for their formally acquired skills on the labour market;

necessity entrepreneurs have to reorientate themselves. It is not wages from paid employment that constitute the opportunity costs for necessity entrepreneurs, as this alternative is not available, but rather the transfers they would receive in case of unemployment. Even if necessity entrepreneurship does not use the human capital acquired at all (which is a sunk investment in this situation), it may be more attractive than (long-term) unemployment, which also does not provide returns to human capital.

Oxenfeldt (1943) was one of the first to argue that unemployed individuals or individuals with low prospects for wage employment may become self-employed to earn a living. This effect of unemployment, lowering the opportunity costs of self employment and driving individuals to start their own business, is often referred to as the 'supply push' or the 'push effect of unemployment'. Evidence of this effect has been provided in many studies (Gilad and Levine (1986); Storey and Jones (1987); Foti and Vivarelli (1994); Audretsch and Vivarelli (1996); Thurik et al. (2008)). For instance, ?, observed that increasing levels of unemployment were followed by a rise in business.

Previous studies observed a U-shaped relationship between entrepreneurial activity and the level of GDP per capita. Wennekers et al. (2005) found that for higher income countries, improving incentive structures for business start-ups and promoting the commercial exploitation of scientific findings offer the most promising approach for public policy. On the other hand, lower income countries may be better off pursuing the exploitation of scale economies, fostering foreign direct investment and promoting management education.

Some authors emphasize business failures as an important element of entrepreneurship levels. Entrepreneurial failure has a significant effect on the entrepreneur, the firm, the industry, and the economy. Entrepreneurial failure may impact the industry as it changes the competitive balance in the industry and it may provide a different value to rivals. These economic benefits may include reinvestment of financial resources into other young companies, reinvestment of knowledge resources into other companies, new venture creation, strengthening local infrastructure, philanthropy, and endowment of community activities.

Cardon et al. (2011) interpret from their data that the attitude resulting from cultural interpretations of failure appears to influence the level of entrepreneurial within community. The financial impact of businesses failing seems to incur damage to other start-ups pulling in revenue from their brethren. Thus, it is critical for both potential entrepreneurs and researchers to understand the cultural context when evaluating the climate of a new venture. Entrepreneurs may wish to know the climate in which their ideas will be received, as it may affect decision-making, planning or expectations. Conversely, researchers may find it of interest to study how unique environments, not only economically but also socially, shape

the entrepreneurial experience.

Figure 1, summarizes the model used as a starting point of the analysis. The model includes variables related with the social attitude but also those related with the economic conditions. It is specifically hypothesized that the behavior may differ depending on the motivation to start up a business.
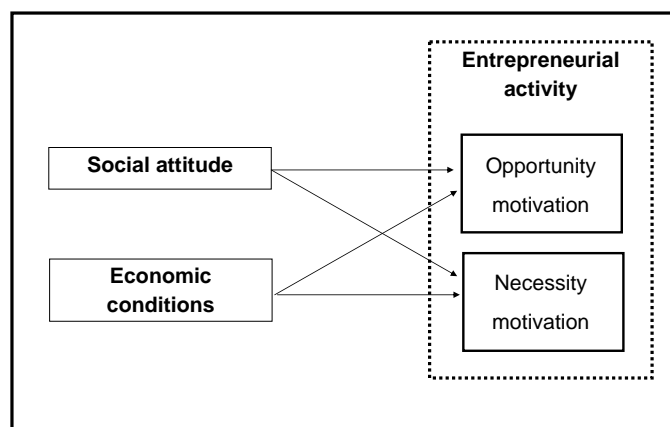

Figure 1: Entrepreneurial model.

3 Descriptive Statistics

3.1 Database

In order to analyse the 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. The GEM research program assembles relevant harmonized data on annual basis. The data facilitates cross national comparisons at the national level of entrepreneurial activity, estimates the role of entrepreneurial activity in national economic growth, determines the factors that account for national differences in the level of entrepreneurship, and facilitates policies that may be affecting entrepreneurship.

The country is considered to be the basic unit of analysis for the GEM initiative. 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 (Reynolds et al. (2005)).

Therefore, GEM defines people who are entrepreneurially active as adults in the process of setting up a business they will (partly) own and or currently owning and managing an operating young business. This definition coincides with those who consider venture creation the most appropriate focus of entrepreneurial research (Gartner (1990)).

To sum up, while it is clear that the GEM survey procedures leads to data that is similar to that assembled by national governments, results are not identical. GEM survey data provides a range of estimates that are harmonized across countries. The value of the research is related to the ability to provide harmonized approximations; these GEM estimates indicate a ten-fold difference between the least and most entrepreneurially active countries (Reynolds and Curtin (2004))[6]. Hence, this data represents one way to develop a broad, valid model on entrepreneurship.

The other database used in the study is the World Data Bank which uses World Development Indicators. World Development Indicators (WDI) is the primary World Bank database for development data from officially-recognized international sources. Data from country characteristics have been obtained from the WDB.

It is employed 6 years of country-level panel data from the GEM and WDB, covering the years 2002-2007. The panel data is a sample that includes four dependent variables linked to entrepreneurship. The sample includes individuals from 41 countries in which surveys were conducted between 2002 and 2007. 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 Variables and statistical summaries

An advantage of using GEM data is that entrepreneurs are categorized by their start-up motives (opportunity versus necessity). Hence, it can be examined whether different types of entrepreneurship show different patterns of previous rates of entrepreneurial exits. The differentiation between opportunity and necessity is available for the entire time period 2002-2007. Below, we consider the share of

---

[6]For a detailed overview of the GEM methodology and approach see Reynolds et al. (2005)

opportunity-and necessity-bound entrepreneurs, leaving aside those who said they engaged for both reasons or did not know (**?**). The three dependent variables, which are proxies of the level of entrepreneurial activity in a given country, are the following. First, Total Early Entrepreneurial Activity *tea* is the percentage of the adult population (16-64 years old) that is actively involved in setting up a new business and/or currently own and manage a business that is less than 3.5 years old. Second, Total Early Entrepreneurial Activity driven by Opportunity Motives *tea_opp* is the percentage of the adult population (18-64) that is involved in TEA and driven by opportunity motives. Third, Total Early Entrepreneurial Activity driven by Necessity Motives *tea_nec* is the percentage of the adult population (18-64) that is involved in *tea* and driven by necessity motives.

Regarding 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 quite a business they owned and managed, any form of self-employment, or selling goods or services to anyone during the past year *disent*. This variable includes all possible reasons for business exits.

We also take into account other variables: the fear of failure which would be a barrier to start a new business *frfail*, the lagged logarithm of the Gross Domestic Product per capita in current international dollar *lngdp_pc* which catches up the business cycle[7], the interaction between the logarithm of the *gdp_pc* and *disent* which allows us to observe the sensitivity of the failure rates with respect to the wealth per capita *lngdp_pc × disent*. The total percentage of unemployment *unemploy*[8], the percentage of unemployment female labour force *un_fem* [9] and the percentage of unemployment male labour force *un_male*. Data for the development of the variables were assembled from two sources, as indicated before. Missing values for some variables were filled to allow us to capture a trend characterizing our data series.

The possibility of estimating the independent influences of a specific time (year) and a specific place (country) 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 values of resulting coefficients. For the purpose of this study, the regression coefficients for

---

[7]It is expressed in dollars at constant prices and at PPPA.

[8]Unemployment refers to the share of the force that is without work but available for and seeking employment.

[9]Relevance to gender indicator: Women tend to be excluded from the unemployment count for various reasons. Women suffer more from discrimination and from structural, social, and cultural barriers that impede them from seeking work. Also, women are often responsible for the care of children and the elderly and for household affairs. Furthermore, women are considered to be employed when they are working part-time or in temporary jobs, despite the inestability of these jobs or their active search for more secure employment[10]

all year dummy variables were evaluated relative to 2002; the beginning year of our time series was chosen so the influence of each successive year on (regional) **country** rates of total entrepreneurial activity across the entire study period could be assessed. Table 1 provides descriptive statistics for the overall sample. It can be seen that within the 7.902% of the sample who are involved in an entrepreneurial activity, 5.825% declared they are involved in entrepreneurship driven by opportunity motives, while a 1.737% were driven by necessity motives. The 2.839% of them indicate having exited a business in the previous year. The 35.465% said that fear of failure would prevent them from starting a new business.

Table 1: Statistical descriptives (2002-2007)

Variable	Obs	Mean	Std. Dev.	Min	Max
tea	109	7.902	5.194	1.905	31.640
tea_opp	109	5.825	3.468	1.108	17.876
tea_nec	109	1.737	2.160	0.152	14.399
$disent$	109	2.839	3.225	0.458	29.979
$frfail$	109	35.465	9.393	17.081	61.511
$lngdp\_pc_{t-1}$	109	10.027	0.627	6.752	10.779
$lngdp\_pc_{t-1} \times disent$	109	31.285	26.414	4.441	160.224
$unemploy$	109	7.476	4.160	1.2	26.7
un_fem	109	8.515	5.124	1.1	30.7
un_male	109	6.694	3.643	1.3	26.8

Source: Own elaboration from GEM and WDB database.

Table 2 provides descriptive statistics for the sample controlling by the Gross Domestic Product 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 20000. In this case, only the 0.857% of the sample are involved in entrepreneurship driven by necessity motives, while the 5.386% are driven by opportunity motives. Moreover, the 35.873% said that fear of failure would prevent them from starting a new business.

From the results in summary statistics, we may suspect that the *tea* activity differs depending on the economic conditions of the country. For this purpose, it is used kernel-weighted local polynomial smoothing techniques to obtain non-parametric estimates of the dependence of *tea* on the *gdp_pc*. Figure 2 shows the graphical result.

As we can observe, there is a decreasing impact of *gdp_pc* 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_pc* on the *tea* **rates** will differ according with different motivation to become an entrepreneur.

Table 2: Statistical descriptives according with GDP per capita

| | Less than 20000\$ | | More than 20000\$ | |
Variable	Mean	Std. Dev.	Mean	Std. Dev.
tea	11,079	7,390	6,582	3,169
tea_opp	6,880	4,520	5,386	2,845
tea_nec	3,854	3,006	0,857	0,523
disent	4,812	5,322	2,019	0,953
frfail	34,485	7,759	35,873	10,012
$lngdp\_pc_{t-1}$	9,197	0,535	10,372	0,176
$lngdp\_pc_{t-1} \times disent$	52,200	39,099	22,593	10,354
$unemploy_{t-1}$	9,828	6,076	6,499	2,497
un_fem_{t-1}	11,281	6,961	7,365	3,603
un_male_{t-1}	8,734	5,518	5,847	1,990

Source: Own elaboration from GEM and WDB database.

Notes:

1. The number of observations for countries with GDP per capita less than 20000\$ is 32.

2. The number of observations for countries with GDP per capita more than 20000\$ is 77.
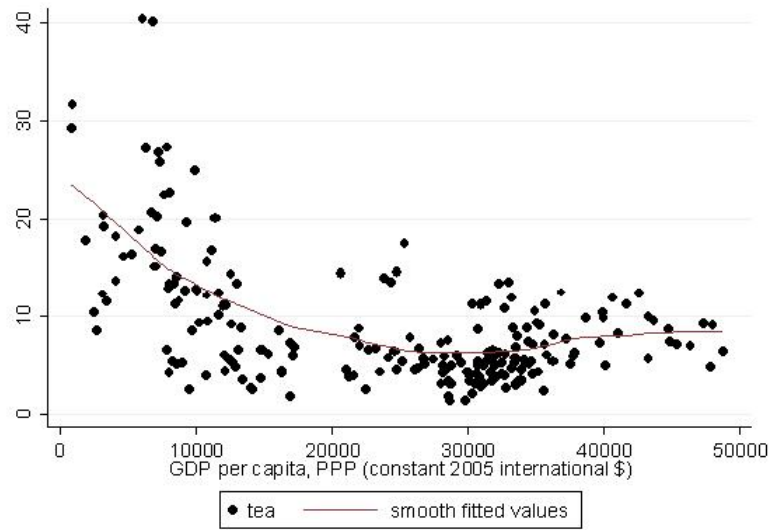

Figure 2:
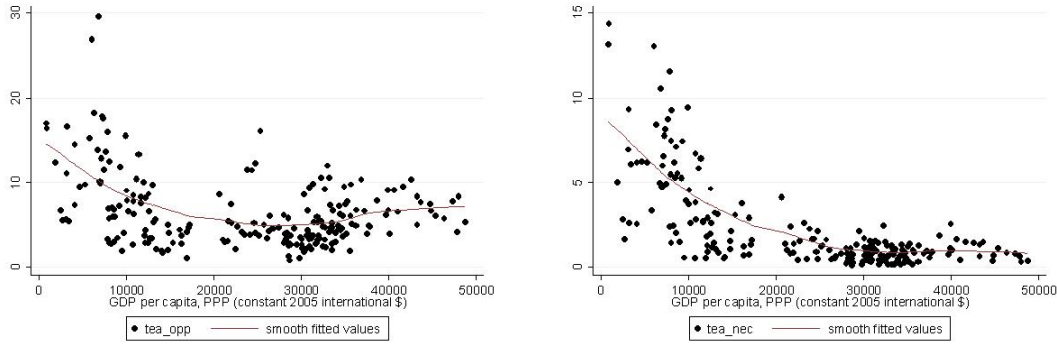Total Entrepreneurial Activity versus per capita Gross Domestic Product.

Figure 3: Total entrepreneurial Activity versus per capita GDP. Opportunity motive (left). Necessity motive (right)

Figure 3 show how the sensitiveness of the *tea* with respect to the economic conditions is higher when considering the *tea* driven necessity motivations than those driven by the opportunity motivation as may be expected.

4 Econometric methodology

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

The general model is:

$$\Delta y_{it} = \alpha + y_{it-1}\lambda + X_{it}\beta + u_{it} \tag{1}$$

where the subscripts denote the country i (where $i = 1, 2, \ldots, N$) and the time period t (where $t = 1, 2, \ldots, T$) denotes a set of explanatory variables, u_{it} is a normally distributed random error term, and α, λ and β are a set of parameters to be estimated.

But as we must consider the effect country (for the differences and / or individual characteristics), unobserved heterogeneity between countries and the time effect, the error term is decomposed as follows

$$u_{it} = \mu_i + \mu_t + e_{it} \tag{2}$$

where μ_i is a country-specific effect; μ_t is a time-specific effect and e_i is a time-varying error term.

In our case, the dependent variable is *tea*, more specifically $\Delta tea_t = tea_t - tea_{t-1}$. So, our regression model has the following specification:

$$\Delta tea_{it} = \alpha + tea_{it-1}\lambda + disent\delta_{it} + X_{it}\beta + \mu_i + \mu_t t + e_{it} \qquad (3)$$

$$\Delta tea\_opp_{it} = \alpha + tea\_opp_{it-1}\lambda + disent\delta_{it} + X_{it}\beta + \mu_i + \mu_t + e_{it} \qquad (4)$$

$$\Delta tea\_nec_{it} = \alpha + tea\_nec_{it-1}\lambda + disent\delta_{it} + X_{it}\beta + \mu_i + \mu_t + e_{it} \qquad (5)$$

The estimation of dynamic panel data models presents some econometric problems. First, the unobserved heterogeneity of the sample firms may cause bias in the estimation of the parameters. Second, the presence of the lagged dependent variable as an explanatory variable can imply correlation between this variable and the error term, which in turn creates a problem of endogeneity. With the aim of solving with these problems, we use the Generalized Method of Moments (GMM) proposed in Arellano and Bond (1991)[11] which is more efficient than other estimations providing a convenient framework for obtaining asymptotically efficient estimators in dynamic models with panel data. The GMM estimator proposed by Arellano and Bond (1991) 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.

The GMM estimator consistence depends on two assumptions. On the one hand, the error term does not exhibit second order autocorrelation and, on the other hand, instruments have to be valid. Arellano and Bond (1991) propose two tests to contrast it. First, the serial correlation test indicates that there is no serial correlation between the second-differenced variables used as instruments and the second differences of the residuals e_i. The null hypothesis is that of no autocorrelation (test $p - value \succ 0.1$). Second, Hansen test of over-identifying restrictions (Hansen (1982)) is used to contrast global validity of instruments in the regression. The test follows a chi-square distribution with (J-K) degrees of freedom, where J is the number of instruments and K is the number of regressors. The null hypothesis is that the chosen instruments are valid. If the model is well specified may not be rejected (test $p - value \succ 0.1$).

5 Empirical results

An panel that contains forty-one countries over the period 2002-2007 is used. Time dummies are included in the reported estimated coefficients to take into account any time-specific effect.

---

[11]See (Roodman, 2005)

Tables 3, 4 and 5 shows the results from estimating the model defined in equation 3, equation 4 and equation 5 respectively, using the Generalized Method of Moments (GMM) and are organized as follows. Specification (1) considers the lagged endogenous variable as covariate, the percentage of population who has exited a business the previous year, the fear of failure and the logarithm of the Gross Domestic Product per capita lagged one period as control variable which could affect the relation between failures and total entrepreneurial activity. Specification (2) includes all the variables in specification (1) and takes also into account the interaction between the Gross Domestic Product per capita and the percentage of population who have exited a business the previous year. Specification (3) is an extension of the specification (2) including the lagged unemployment rate. Specification (4) and specification (5) are an extension of the previous specifications but including the effect of the unemployment gender, female and male respectively.

We also report the Hansen test of over-identifying restrictions, which is a test of the validity of instrumental variables. In all specifications the Hansen test does not reject the used instruments 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), does not reject the null hypothesis of no second order correlation. The results of these tests indicate that there is no evidence of second order correlation in the error term e_{it}. Given this, we have evidence 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, using equation 3, presents the results under the Generalized Method of Moments analysing the Total Entrepreneurial Activity.

The results show different entrepreneurial activity according to the different covariates. The coefficients attached to exit are significant and positive in all specifications. The process of learning from business exit benefits society through the application of that knowledge to subsequent businesses McGrath (1999). This result is also consistent with that observed in Hessels et al. (2011) who also finds a positive and significant impact of business exits on future levels of entrepreneurial activity referring to the fact that people who recently experienced an entrepreneurial exit more often perceive good entrepreneurial opportunities than those who did not experience an exit.

The covariate fear of failure is statistically significant and negative in all specifications, implying a decrease in the level of total entrepreneurial activity in a country. The lagged logarithm of the Gross Domestic Product per Capita catches up the country's wealth, allowing us to distinguish the impact between developing and developed countries. As we observe, the effect for this variable is statistically significant and positive in the first specification which indicates, that the economic environment fosters entrepreneurship levels.

15

Table 3: Estimates of the Total Entrepreneurial Activity.

	(1)	(2)	(3)	(4)	(5)
tea_{t-1}	-1.439***	-1.195***	-1.254***	-0.977***	-1.271***
	(0.089)	(0.208)	(0.232)	(0.180)	(0.206)
$disent$	3.216***	2.601***	3.213***	2.792***	3.174***
	(0.349)	(0.498)	(0.655)	(0.474)	(0.524)
$frfail$	-0.265***	-0.150**	-0.363***	-0.209*	-0.339**
	(0.075)	(0.074)	(0.118)	(0.118)	(0.146)
$lngdp\_pc_{t-1}$	6.220*	1.023	8.018	4.858	9.345
	-3.272	-4.198	-6.677	-5.823	-6.884
$lngdp\_pc_{t-1} \times disent$		-0.081	-0.064	-0.120*	-0.001
		(0.086)	(0.088)	(0.070)	(0.084)
$unemploy_{t-1}$			1.536***		
			(0.466)		
un_fem_{t-1}				1.011***	
				(0.314)	
un_male_{t-1}					1.721***
					(0.496)
$Constant$	-49.513	-1.491	-74.921	-46.115	-91.178
	-32.623	-42.375	-68.705	-60.176	-70.790
Hansen Test (stat.)	11.51	10.94	2.13	3.39	2.43
Hansen Test (p-value)	0.40	0.28	0.98	0.91	0.96
Test AR(1) (z-stat.)	-2.08	-1.75	-0.53	0.39	-0.92
Test AR(1) (p-value)	0.04	0.08	0.59	0.69	0.36
Test AR(2) (z-stat.)	-0.78	-0.27	1.49	1.21	1.02
Test AR(2) (p-value)	0.43	0.79	0.14	0.23	0.31
Sample size	140	113	112	109	109
Number of countries	41	40	39	38	38

The endogenous variable is Δtea_{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.

Specification (2) is richer than specification (1) in the sense that the difference in the level of entrepreneurial activity is influenced by other covariates as the interaction between the level of the per capita GDP lagged one period and exits but it is not statistically significant. However, in specification (4), where we test the robustness of our model including another control variable which could affect the relation between the level of entrepreneurial activity and exits: the unemployment rate; the interaction variable mentioned above is significant and negative. So, our empirical results show that the combined effect of both variables, negatively affects the country entrepreneurship rates.

The lagged unemployment rate and the lagged unemployment rate controlling by gender, either male and female, turn out to be statistically significant and positive in specifications (3), (4) and (5). This shows that there is a positive relationship between the unemployment rates and the level of entrepreneurial activity. This result supports the 'supply push' or the 'push effect of unemployment'(Gilad and Levine (1986); Storey and Jones (1987); Foti and Vivarelli (1994); Audretsch and Vivarelli (1996); Thurik et al. (2008); Koellinger and Roy Thurik (2009))

Table 4: Estimates of the Total Entrepreneurial Activity driven by opportunity motives.

	(1)	(2)	(3)	(4)	(5)
tea_opp_{t-1}	-1.409***	-1.212***	-1.480***	-1.193***	-1.278***
	(0.089)	(0.213)	(0.311)	(0.232)	(0.228)
$disent$	2.388***	2.133***	2.697***	2.340***	2.629***
	(0.282)	(0.410)	(0.590)	(0.383)	(0.409)
$frfail$	-0.181**	-0.142**	-0.195***	-0.080	-0.164*
	(0.071)	(0.068)	(0.071)	(0.075)	(0.087)
$lngdp\_pc_{t-1}$	7.492***	3.618	12.703*	10.326*	12.222**
	-2.400	-3.547	-7.002	-5.584	-5.865
$lngdp\_pc_{t-1} \times disent$		-0.041	-0.011	-0.041	-0.011
		(0.041)	(0.073)	(0.054)	(0.055)
$unemploy_{t-1}$			1.116***		
			(0.364)		
un_fem_{t-1}				0.721***	
				(0.212)	
un_male_{t-1}					1.147***
					(0.311)
$Constant$	-66.319***	-29.663	-126.145*	-104.672*	-123.127**
	-23.854	-36.323	-72.045	-57.394	-59.826
Hansen Test (stat.)	11.35	10.00	3.05	2.13	1.86
Hansen Test (p-value)	0.41	0.35	0.93	0.98	0.98
Test AR(1) (z-stat.)	-2.16	-1.54	0.01	0.76	-0.63
Test AR(1) (p-value)	0.03	0.12	0.99	0.45	0.53
Test AR(2) (z-stat.)	-0.73	0.26	1.41	1.05	0.80
Test AR(2) (p-value)	0.46	0.80	0.16	0.29	0.42
Sample size	140	113	112	109	109
Number of countries	41	40	39	38	38

The endogenous variable is Δtea_opp_{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 results when considering the level of entrepreneurial activity driven by opportunity motives are given in table 4. The structure is the same as that in Table 3. The coefficient of the lagged dependent variable is negative and significant. The higher levels of entrepreneurial activity, the harder it is to grow. In specification (1) the estimated coefficients turn out to be statistically significant. The coefficient associated with exits turns out to be positive and statistically significant. The coefficient associated with fear of failures turns out to be positive and statistically significant. And once again, the level of the per capita GDP lagged one period is statistically significant and positive in specifications(1), (3), (4) and (5). Also the lagged unemployment rates are all statistically significant and positive.

Table 5 reports the results from estimating the equation 3 where the dependent variable is the level of total entrepreneurial activity driven by necessity motives. Among the country characteristics, the interaction between the level of the per capita GDP lagged one period and exits remains negative and significant. Other country characteristics, such as the GDP lagged one period and the unemployment

Table 5: Estimates of the Total Entrepreneurial Activity driven by necessity motives.

	(1)	(2)	(3)	(4)	(5)
tea_nec_{t-1}	-1.074***	-0.681***	-0.703***	-0.719***	-0.802***
	(0.052)	(0.139)	(0.125)	(0.107)	(0.132)
$disent$	0.613***	0.567***	0.543***	0.567***	0.631***
	(0.066)	(0.131)	(0.145)	(0.119)	(0.127)
$frfail$	-0.059***	-0.025	-0.047	-0.048	-0.065
	(0.015)	(0.037)	(0.039)	(0.040)	(0.048)
$lngdp\_pc_{t-1}$	-0.947	-1.549	-1.448	-1.248	-0.861
	(0.826)	(0.958)	-1.034	-1.030	-1.096
$lngdp\_pc_{t-1} \times disent$		-0.056***	-0.054***	-0.050***	-0.043***
		(0.014)	(0.017)	(0.015)	(0.015)
$unemploy_{t-1}$			0.070		
			(0.118)		
un_fem_{t-1}				0.070	
				(0.074)	
un_male_{t-1}					0.183
					(0.141)
$Constant$	11.741	17.623*	17.090	14.805	10.708
	-8.530	-9.972	-10.758	-10.762	-11.470
Hansen Test (stat.)	11.56	4.01	3.10	3.77	3.24
Hansen Test (p-value)	0.40	0.91	0.93	0.88	0.92
Test AR(1) (z-stat.)	-1.44	-2.26	-1.86	-1.96	-1.69
Test AR(1) (p-value)	0.15	0.02	0.06	0.05	0.09
Test AR(2) (z-stat.)	-0.88	0.58	0.60	0.67	0.58
Test AR(2) (p-value)	0.38	0.56	0.55	0.50	0.56
Sample size	140	113	112	109	109
Number of countries	41	40	39	38	38

The endogenous variable is Δtea_nec_{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.

variables have turn out to be statistically non-significant, so we do not find an impact of these variables on the level of entrepreneurial activity driven by necessity motives. Exits continue to have a positive impact on the entrepreneurial activity. The interaction between exits and the per capita GDP lagged one period is negative and statistically significant in all specifications. The unemployment variables have turn out to be non-statistically significant.

It is worth mentioning that there is a different behaviour between the levels of entrepreneurship driven by necessity or opportunity motives. The impact of previous failures and the fact of having fear of failure is larger for opportunity than for necessity entrepreneurs. The coefficient associated with the per capita GDP lagged one period turns out to be positive and statistically significant for entrepreneurs driven by opportunity motives and negative and non-significant for entrepreneurs driven by necessity motives. The interaction variable is only significant for levels of entrepreneurial activity driven by necessity motives. And the unemployment rates are positive in both models but statistically significant for

levels of entrepreneurial activity driven by opportunity motives.

6 Conclusions

This paper has been aimed to study whether business exits imply, or not, a fall in future levels of entrepreneurial activity at macroeconomic level. Implementation of the model has been possible by the rich information available from a panel representative of entrepreneurship at country level. Although the Generalized Method of Moments leads to control for unobserved heterogeneity, the results may be affected by other covariates implying a problem of endogeneity. As these issues are clearly beyond the scope of this paper, here we will, provide a brief discussion of the main results and leave a more thorough analysis for further research.

First and foremost, the results presented here show a positive and significant sign of the coefficient associated with exits in all models. It means that the levels of entrepreneurial activity exceed business exits.

Models 2 and 3 which analyse the total entrepreneurial activity driven by opportunity and necessity motives support the sensitiveness of both motives. The robustness of the models are tested including other variables as the fear of failure, the gdp_pc and the *unemployment* variables. The different specifications combining all these variables for both types of entrepreneurship corroborate the main hypothesis named that at national level, business exits imply greater rates of entrepreneurial activity driven by opportunity motives.

One would expect that unemployment rates would imply greater levels of necessity entrepreneurship. However, the results show that unemployment rates favours the level of opportunity entrepreneurship. It could 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. Moreover, this may be because the study has been carried out in a period of economic expansion.

Table 6: Correlation matrix

	tea	tea_opp	tea_nec	disent	frfail	lngdp_pc_{t-1}	lngdp_pc_{t-1} × disent	unemploy_{-1}	un_fem_{t-1}	un_male_{t-1}
tea	1									
tea_opp	0.9441*	1								
tea_nec	0.8392*	0,6185	1							
disent	0.6747*	0.5193	0.7681	1						
frfail	-0.0318	-0.0794	0.0359	-0.0343	1					
lngdp_pc_{t-1}	-0.5753*	-0.3388*	-0.8329*	-0.6832*	-0,0341	1				
lngdp_pc_{t-1} × disent	0.7173*	0.5851*	0.7577*	0.8270*	-0,0531	-0.6779*	1			
unemploy_{-1}	-0.1101	-0.2289*	0.1253	0.0441	0.016	-0.3267*	0.0744	1		
un_fem_{t-1}	-0.058	-0.1763	0.1594	0.0571	0.0796	-0.3320*	0.1152	0.9698*	1	
un_male_{t-1}	-0.1585	-0.2718*	0.0832	0.0295	-0.0412	-0.3053*	0.0298	0.9674*	0.8770*	1

Source: Own elaboration from GEM and WDB database.
Note:
1. *** Significant at 1% , ** Significant at 5%, * Significant at 10%.

References

Acs, Z. and Varga, A. (2005). Entrepreneurship, agglomeration and technological change. *Small Business Economics*, 24(3):323–334.

Ardagna, S. and Lusardi, A. (2009). Where does regulation hurt? evidence from new businesses across countries. Technical report, National Bureau of Economic Research.

Arellano, M. and Bond, S. (1991). Some tests of specification for panel data: Monte carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2):pp. 277–297.

Audretsch, D. and Keilbach, M. (2008). Resolving the knowledge paradox: Knowledge-spillover entrepreneurship and economic growth. *Research Policy*, 37(10):1697–1705.

Audretsch, D. and Thurik, A. (2000). Capitalism and democracy in the 21st century: from the managed to the entrepreneurial economy*. *Journal of Evolutionary Economics*, 10(1):17–34.

Audretsch, D. and Thurik, A. (2001). What's new about the new economy? sources of growth in the managed and entrepreneurial economies. *Industrial and corporate change*, 10(1):267–315.

Audretsch, D. and Thurik, A. (2004). A model of the entrepreneurial economy. Technical report, Papers on entrepreneurship, growth and public policy.

Audretsch, D. and Vivarelli, M. (1996). Determinants of new-firm startups in italy. *Empirica*, 23(1):91–105.

Bates, T. (2005). Analysis of young, small firms that have closed: delineating successful from unsuccessful closures. *Journal of Business Venturing*, 20(3):343–358.

Baum, J., Olian, J., Erez, M., Schnell, E., Smith, K., Sims, H., Scully, J., and Smith, K. (1993). Nationality and work role interactions: A cultural contrast of israeli and us entrepreneurs' versus managers' needs. *Journal of Business Venturing*, 8(6):499–512.

Baumol, W. (1994). *Entrepreneurship, management, and the structure of payoffs.* Cambridge, MA: MIT Press.

Becker, G. (1962). Investment in human capital: a theoretical analysis. *The journal of political economy*, pages 9–49.

Blanchflower, D. and Meyer, B. (1994). A longitudinal analysis of the young self-employed in australia and the united states. *Small Business Economics*, 6(1):1–19.

Block, J. and Wagner, M. (2010). Necessity and opportunity entrepreneurs in germany: characteristics and earnings differentials. *Schmalenbach Business Review*, 62:154–174.

Cardon, M., Stevens, C., and Potter, D. (2011). Misfortunes or mistakes?: Cultural sensemaking of entrepreneurial failure. *Journal of Business Venturing*, 26(1):79–92.

Carree, M. A. and Thurik, R. (2010). The impact of entrepreneurship on economic growth. *International Handbok Series on Entrepreneurship*, 5:557–594.

Chopra, A. (2005). Survival. *Paper presented at the Academy of Management Conference, Hawaii.*

Foti, A. and Vivarelli, M. (1994). An econometric test of the self-employment model: The case of italy. *Small Business Economics*, 6(2):81–93.

Gartner, W. (1990). What are we talking about when we talk about entrepreneurship? *Journal of Business venturing*, 5(1):15–28.

Gilad, B. and Levine, P. (1986). A behavioral model of entrepreneurial supply. *Journal of small business management*, 24(4):45–53.

Grilo, I. and Thurik, R. (2008). Determinants of entrepreneurial engagement levels in europe and the us. *Industrial and Corporate Change*, 17(6):1113–1145.

Hansen, L. (1982). Large sample properties of generalized method of moments estimators. *Econometrica: Journal of the Econometric Society*, pages 1029–1054.

Harris, B. (2010). *New Venture Entrepreneurship and its Impact on Globalization and Economic Development.* PhD thesis, Indiana University-Bloomington.

Headd, B. (2003). Redefining business success: Distinguishing between closure and failure. *Small Business Economics*, 21(1):51–61.

Hessels, J., Grilo, I., Thurik, R., and van der Zwan, P. (2011). Entrepreneurial exit and entrepreneurial engagement. *Journal of Evolutionary Economics*, 21(3):447–471.

Hessels, J., Van Gelderen, M., and Thurik, R. (2008). Drivers of entrepreneurial aspirations at the country level: the role of start-up motivations and social security. *International Entrepreneurship and Management Journal*, 4(4):401–417.

Holmberg, S. (1991). Value creation and capture: entrepreneurship harvest and ipo strategies. *Frontiers of Entrepreneurship Research*, pages 191–204.

Koellinger, P. and Roy Thurik, A. (2009). Entrepreneurship and the business cycle. *Discussion Paper TI09- 032/3, Tinbergen Institute*.

Landier, A. (2005). Entrepreneurship and the stigma of failure. *Available at SSRN 850446*.

Lazear, E. (2009). Firm-specific human capital: A skill-weights approach. *Journal of Political Economy*, 117(5):914–940.

Levie, J. and Autio, E. (2008). A theoretical grounding and test of the gem model. *Small Business Economics*, 31(3):235–263.

Mahoney, J. and Michael, S. (2005). A subjectivist theory of entrepreneurship. *Handbook of Entrepreneurship Research*, pages 33–54.

McGrath, R. (1999). Falling forward: Real options reasoning and entrepreneurial failure. *Academy of Management Review*, 24(1):13–30.

Neal, D. (1995). Industry-specific human capital: Evidence from displaced workers. *Journal of labor Economics*, pages 653–677.

Oxenfeldt, A. (1943). *New Firms and Free Enterprise: Pre-War and Post-War Aspects*. Washington, American Council on Public Affairs.

Rees, H. and Shah, A. (2006). An empirical analysis of self-employment in the uk. *Journal of Applied Econometrics*, 1(1):95–108.

Reynolds, P., Bosma, N., Autio, E., Hunt, S., De Bono, N., Servais, I., Lopez-Garcia, P., and Chin, N. (2005). Global entrepreneurship monitor: Data collection design and implementation 1998–2003. *Small Business Economics*, 24(3):205–231.

Reynolds, P. and Curtin, R. (2004). Examples of analysis: Work file preparation, comparisons, and adjustment of weights. *The Handbook of Entrepreneurial Dynamics: The Process of Business Creation, Thousand Oaks, CA: Sage Publications*, pages 495–540.

Roodman, D. (2005). Xtabond2: Stata module to extend xtabond dynamic panel data estimator. Washington, DC: Center for Global Development.

Schumpeter, J. (2012). *Capitalism, Socialism and Democracy*. New York, Harper.

Shane, S. and Kolvereid, L. (1991). An exploratory examination of the reasons leading to new firm formation across country and gender. *Journal of Business Venturing*, 6(6):431–446.

Shane, S., Locke, E., and Collins, C. (2003). Entrepreneurial motivation. *Human resource management review*, 13(2):257–279.

Shapero, A. and Sokol, L. (1982). The social dimensions of entrepreneurship. *Encyclopedia of entrepreneurship*, pages 72–90.

Shepherd, D., Douglas, E., and Shanley, M. (2000). New venture survival: Ignorance, external shocks, and risk reduction strategies. *Journal of Business Venturing*, 15(5):393–410.

Sorensen, J. and Chang, P. (2006). Determinants of successful entrepreneurship: A review of the recent literature. *Available at SSRN 1244663*.

Sternberg, R. and Wennekers, S. (2005). Determinants and effects of new business creation using global entrepreneurship monitor data. *Small Business Economics*, 24(3):193–203.

Storey, D. and Jones, A. (1987). New firm formationa labour market approach to industrial entry*. *Scottish Journal of Political Economy*, 34(1):37–51.

Teruel, M. and De Wit, G. (2011). Determinants of high-growth firms: Why have some countries more high-growth firms than others? *EIM Research Reports*, (H201107).

Thurik, A. (2009). Entreprenomics: entrepreneurship, economic growth and policy. *Entrepreneurship, growth and public policy*, pages 219–49.

Thurik, A., Carree, M., Van Stel, A., and Audretsch, D. (2008). Does self-employment reduce unemployment? *Journal of Business Venturing*, 23(6):673–686.

Thurik, R. and Wennekers, S. (2004). Entrepreneurship, small business and economic growth. *Journal of Small Business and Enterprise Development*, 11(1):140–149.

Van der Sluis, J., Van Praag, M., and Vijverberg, W. (2008). Education and entrepreneurship selection and performance: A review of the empirical literature. *Journal of Economic Surveys*, 22(5):795–841.

Van Praag, C. (1999). Some classic views on entrepreneurship. *De economist*, 147(3):311–335.

Van Praag, C. and Versloot, P. (2007). What is the value of entrepreneurship? a review of recent research. *Small Business Economics*, 29(4):351–382.

Venkataraman, S. (2002). The distinctive domain of entrepreneurship research: An editor's perspective. in j.katz & r. brockhaus (eds.). *In J.Katz & R. Brockhaus (Eds.), Advances in entrepreneurship, firm emergence, and growth*, 3:119–138.

Verheul, I., Thurik, R., Hessels, J., and van der Zwan, P. (2010). Factors influencing the entrepreneurial engagement of opportunity and necessity entrepreneurs. *EIM Research Reports H*, 201011:1–24.

Wennberg, K. (2011). Entrepreneurial exit. *Available at SSRN 1825113*.

Wennekers, S., Van Wennekers, A., Thurik, R., and Reynolds, P. (2005). Nascent entrepreneurship and the level of economic development. *Small business economics*, 24(3):293–309.

Wit, G. and Winden, F. (1989). An empirical analysis of self-employment in the netherlands. *Small Business Economics*, 1(4):263–272.

Wong, P., Ho, Y., and Autio, E. (2005). Entrepreneurship, innovation and economic growth: Evidence from gem data. *Small Business Economics*, 24(3):335–350.