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Entrepreneurial engagement levels in the European Union

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Abstract: A multinomial logit model and survey data from the 25 EU member states and the US are used to establish the effect of demographic and other variables on various entrepreneurial engagement levels. These engagement levels range from "never thought about starting a business" to "thinking about it", "taking steps for starting up", "having a young business", "having an older business" and "no longer being an entrepreneur". Data of the 2004 *Entrepreneurship Flash Eurobarometer* survey containing over 13,500 observations is used. Other than demographic variables such as gender, age, education level and whether parents are self-employed, the set of explanatory variables used includes country specific effects, measures of risk tolerance, internal and external locus of control and four perceptions of 'obstacles'. The 'obstacle' variables include the perception by respondents of administrative complexities, of availability of financial support, of accessibility of information for start-up and whether the current economic climate is favorable. Among the four perception variables only administrative complexities displays an unambiguous obstacle profile in that its presence has a significant negative impact on higher entrepreneurial engagement levels. Country effects suggest a clear underperformance of Europe relative to the US in less mature entrepreneurial phases.

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1. Introduction

The extent of entrepreneurial activities differ largely between countries (Acs, Audretsch, Evans, 1994; Blanchflower, 2000 and 2004; Acs, Arenius, Hay and Minniti, 2005; Stel, 2005; European Commission, 2004b; Grilo and Irigoyen, 2005 and Grilo and Thurik, 2005b). This holds true for various measures of entrepreneurship such as start-up activity, business ownership, small business share, nascent entrepreneurship and the preference for entrepreneurship. Many determinants of entreprenurship have been brought forward (Blanchflower, 2000, Verheul, Wennekers, Audretsch and Thurik, 2002; Wennekers, Uhlaner and Thurik, 2002). Level of economic development (Reynolds, Bygrave, Autio, Cox and Hay, 2002 and Audretsch, Carree, Thurik and van Stel, 2005) and cultural aspects (Noorderhaven, Wennekers, Thurik and van Stel, 2004 and Uhlaner and Thurik, 2004) are often mentioned as the main drivers of entrepreneurial activity at the country level. Both the difference of entrepreneurial activity between countries and variety in measuring entrepreneurship play an important role in the present paper.

It has been long known that the *level* of entrepreneurship, expressed as the percentage of owner/managers of incorporated and unincorporated businesses relative to the labor force, differs strongly across countries.[1] This variation is related to differences in levels of economic development. In particular, evidence has been assembled for an underlying U-shaped relationship between the level of business ownership (self-employment) and per capita income. For modern economies like the old 15 member states of the EU and the US, i.e., countries with a similar level of economic development, the 1980s seem to be the turning point when entrepreneurship rates reversed their long-term downward trend and started to rise.[2] Time serial effects will play no role in the present paper since data are collected in 2004 only.

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. The data of the Global Entrepreneurship Monitor (GEM) show that there are substantial differences in the *dynamics* of entrepreneurship across countries with the developed Asian and Central European countries ranking lowest, followed by Europe. Substantially higher levels are found in the former British Empire Anglo countries (including the US) and Latin America and developing Asian countries rank still higher (Reynolds, Bygrave, Autio, Cox and Hay, 2002; Acs, Arenius, Hay and Minniti, 2005).

The present study aims at identifying some indicators of differences for both the *level* and the *dynamics* without providing an explanatory framework at the country level. An explanation of these differences is much needed as many governments attach high hopes to a positive effect of entrepreneurship on economic development and, accordingly, try to promote business start-ups.

Comparing the level of entrepreneurship across nations is difficult. Moreover, setting up a business is a process (Reynolds and White, 1997; Reynolds, 1997) where a discrimination can be made between stages such as conception, gestation, infancy, adolescence, maturity and decline. Often conception, gestation and infancy stages are referred to as the *dynamics* of entrepreneurship while the adolescence, maturity and decline stages are identified as the *level* of entrepreneurship. In the

[1] See Stel (2005) for a description of the COMPENDIA data set covering business ownership rates across 23 OECD countries in the 1972-2002 period. See also the various executive reports of the Global Entrepreneurship Monitor, e.g., Acs, Arenius, Hay and Minniti (2005) for data on nascent and young firms. Finally, see the various editions of the Flash Eurobarometer (http://europa.eu.int/comm/enterprise/enterprise_policy/survey/eurobarometer_intro.htm).

[2] The downward trend is documented in Kuznets (1966) and the turning point in Blau (1987), Acs, Audretsch and Evans (1994) and Acs, Carlsson and Karlsson (1999). Carree, van Stel, Thurik and Wennekers (2002) and Audretsch, Carree, van Stel and Thurik (2002) test for this U-shape using business ownership data and Wennekers, van Stel, Thurik and Reynolds (2005) using data of nascent entrepreneurs.

present study we will distinguish between seven stages of entrepreneurship for which systematic data are available at the level of individuals for 26 countries. These stages are referred to as engagement levels. The stages include two nascent stages ("thinking about it" and "taking steps for starting up")[3], two business stages ("having a young business" and "having an older business"), two exit stages ("gave up" and "no longer being an entrepreneur") and an outsider stage ("never thought about it"). Next to these seven stages we will also include the preference for entrepreneurship over paid employment. This is sometimes referred to as latent entrepreneurship.[4] We aim at predicting the probability that an individual chooses one of the engagement levels.[5] This will then allow us to study the impact of the various explanatory variables on the odds of being in a given engagement stage rather than another.

In the present paper we address the issue of the determinants of the various engagement levels, making use of an *Eclectic Framework* of entrepreneurship first introduced in Audretsch, Thurik, Verheul and Wennekers (2002) and following the approach of Grilo and Thurik (2005b). The purpose of this framework is to understand and analyze what determines entrepreneurship. The *Eclectic Framework* of entrepreneurship attempts to integrate the different strands of the literature into a unifying framework. At the heart of the framework is the integration of factors shaping the demand for entrepreneurship on the one hand, with those influencing the supply of entrepreneurs on the other. The *Eclectic Framework* also creates insight into the role of government policy by identifying the channels through which policy instruments influence either the demand or the supply side.

Grilo and Thurik (2005b) present a multinomial logit model which estimates the influence of a set of explanatory variables on various entrepreneurial engagement levels using survey data (2002 and 2003) from the 15 old EU member states, Norway, Iceland, Liechtenstein and the US. They use the seven engagement levels mentioned above. Usually, binary choice models discriminate between entrepreneurship (latent or actual) and no engagement (Blanchflower, Oswald and Stutzer, 2001; Blanchflower and Oswald, 1998; Grilo and Irigoyen, 2005; Grilo and Thurik, 2005a and 2005b) or success and failure (i.e. survival) in the nascent phase (Vivarelli, 2004; Gelderen, Thurik and Bosma, 2005). Grilo and Thurik (2005b) discriminate between seven entrepreneurial engagement levels. Other than demographic variables such as gender, age and education level, the set of explanatory variables includes the perception by respondents of administrative complexities, of availability of financial support, a rough measure of risk tolerance and the respondents' preference for self-employment. They incorporate a multi-level effect using country dummies as covariates. In this fashion they control for country effects when using individual demographic and perception influences.[6]

The contribution of the present paper is the following. To our knowledge Grilo and Thurik (2005b) are the first to discriminate between more than two engagement levels of entrepreneurship when explaining who becomes an entrepreneur. We extend their analysis using a more recent data set (2004 instead of 2002 and 2003) and using more explanatory variables such as whether parents are self-employed, internal and external locus of control and two additional perceptions of 'obstacles' (accessibility of information for start-up and whether the current economic climate is favorable). Moreover, using data from both the old 15 member states of the EU and the ten new ones[7] we are

[3] See Reynolds, Bosma et al. (2005) for the narrower definition of nascent entrepreneurship used in the Global Entrepreneurship Monitor.
[4] Blanchflower, Oswald and Stutzer (2001), Grilo and Irigoyen (2005) and Grilo and Thurik (2005a and 2005b).
[5] Similar setups can be found in Earle and Sakova (2000) where two types of self-employment and wage employment are predicted and Cooper, Gimeno-Gascon and Woo (1994) where entrepreneurial failure, survival and growth are predicted.
[6] This multi-level approach is also applied in Blanchflower, Oswald and Stutzer (2001) with some socio-demographic variables and in Grilo and Irigoyen (2005) where perception variables are used.
[7] In 2004 the Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and Slovakia joined the Union.

able to investigate the differences. Eight of the ten new member states are former communist countries were the transition phase with its dramatic institutional and economic shocks may lead to different entrepreneurial engagement levels, and differences in the relative importance of its determinants, when compared to long standing market economies which did not experience abrupt changes.[8] The systematic investigation of differences between old and new member states requires a specific setup in terms of modeling and testing. This is outside the scope of the present paper and the subject of a follow-up one. Nevertheless, some first impressions can be given.

The paper is organized as follows: section two gives a short account of the *Eclectic Framework* which provides some basis for the determinants of the entrepreneurial engagement levels. Section three provides a report of our empirical analysis of the determinants of engagement levels (observations and variables and estimation results). Section four concludes.

2. Determinants of entrepreneurship

2.1. The framework approach

Entrepreneurship is a multidimensional phenomenon spanning different units of observation including the individual, the firm, the region or industry and even the nation (Wennekers and Thurik, 1999; Davidsson, 2004). Next to spanning various units of observations there is a wide range of roles of entrepreneurship: the risk bearing residual claimant role; the coordinating arbitrageur role; introducing radical innovations; confined to young and new firms or active in the corporate world; confined to the business world or active in any corner of social life; bounded by traits like need for achievement, internal locus of control and risk-taking propensities (Brockhaus, 1982) and attitudes like discovering and exploiting opportunities (Shane and Venkataraman, 2000). Due to this multidimensional nature, conceptual and theoretical approaches have built on a variety of disciplines such as economics, sociology and psychology (Wennekers, Uhlaner and Thurik, 2002). Each of these approaches though having, when taken separately, the advantages inherent to any rigorous modeling – that is, establishing a clear link between the assumptions and the results – will also, almost by definition, fail to encompass all the relevant aspects that determine an individual's decision. In this respect, contributions from fields such as sociology and psychology have stressed the importance of factors such as the society's attitudes towards entrepreneurs and whether failure is strongly stigmatized in a society; the strength of interpersonal links in some communities; specific psychological characteristics of individuals that make them more prone to take risks and seek success (the so-called internal locus of control) and so forth. The contribution from economics is mainly in the area of occupational choice, i.e., who becomes an entrepreneur and what then are the economic drivers.

In analyzing the determinants of entrepreneurship, Verheul, Wennekers, Audretsch and Thurik (2002) present an *Eclectic Framework* of the determinants of entrepreneurship bringing together elements from different fields and levels of analysis.[9]

The multidimensionality of entrepreneurship is reflected both in the way it is defined and in the way it is measured. Verheul, Wennekers, Audretsch and Thurik (2002) refer to definitions of entrepreneurship from economics (based on both the functions of the entrepreneur and the perception of economic opportunities and innovation) and to those from the managerial world, where entrepreneurship is referred to as a way of managing. As regards measurement, two approaches are suggested. Business ownership and self-employment are often used as entrepreneurship proxies

[8] Verheul, van Stel and Thurik (2006).

[9] See Wennekers, Uhlaner and Thurik (2002) for an extension the framework including two historical case studies: the Dutch Golden Age of the 17th century and Britain's First Industrial Revolution (1760-1830). Alternative frameworks are provided by Busenitz, Gomez and Spencer (2000), Stevenson and Lundström (2001) and by the Global Entrepreneurship Monitor (Reynolds, Hay and Camp, 1999 and Reynolds, Bygrave, Autio, Cox, and Hay, 2002). The Global Entrepreneurship Monitor approach is updated in Acs, Arenius, Hay and Minniti (2005).

and can be the basis for constructing static indicators. From a dynamic perspective, the proposed measures of entrepreneurship are based on nascent and start-up activity.[10] Briefly, concerning the determinants of entrepreneurship, the framework distinguishes between various disciplines, several levels of analysis (micro, meso and macro), and classifies the explanatory factors into two broad categories – supply and demand side factors. On the demand side the framework focuses on factors that influence the industrial structure and the diversity of consumers' tastes, such as technological development, globalization and standard of living. The supply side looks into the characteristics of the population and the way these affect the likelihood of becoming entrepreneur. Population growth, urbanization rate, age structure, participation of women in the labor market, income levels and unemployment are example of such factors. While the supply and demand sides refer to the macro level, the framework also deals with the decision-making process explaining how and why individuals make the choice to become self-employed as opposed to other job opportunities in terms of risks and rewards of different occupational alternatives – along the lines discussed above.

The *Eclectic Framework* also distinguishes between actual (E) and 'natural' rates of entrepreneurship (E*).[11] The concept of 'natural' rate is relevant for analyzing government opportunities for and modalities of intervention. Clearly, there is room for the government to act when the actual rate of entrepreneurship deviates from the 'natural' rate. A distinction can be made between five types of measures:

G1 Intervention on the (macro) demand side to entrepreneurial opportunities. Examples of this type of intervention are policies stimulating technological developments, competition policy and establishment legislation. By fostering technological development, and improving accessibility of markets, governments create opportunities for entrepreneurial ventures and the creation of enterprises.

G2 Intervention on the supply side of entrepreneurial; energy. These policies aim at influencing the characteristics or number of people in the population such as immigration policy and.

G3 Influencing the availability of resources, skills and knowledge of potential entrepreneurs. These are input-related policies that aim at increasing the availability of inputs (e.g. financial and knowledge) into the entrepreneurial process.

G4 Influencing preferences. Although the preferences of individuals, reflected in values and attitudes, are strongly determined by culture, governments can play a role through the education system in order to influence people's values and attitudes.

G5 Influencing the risk-reward profile of entrepreneurship, i.e., the relative attractiveness of entrepreneurship vis-à-vis other employment options. Policies in the field of taxation, social security, market regulation and bankruptcy law can directly influence the decision-making process of individuals.

As is clear from this setup, in addition to personal characteristics, the environment in which business is conducted plays a crucial role in fostering or frustrating entrepreneurial activities in terms of firm creation, of firm expansion and of implementation of process, product and management innovation within a firm. From a policy point of view these "framework conditions" are the aspects that offer starting points for action. Issues such as the fiscal environment, labor market regulations, administrative complexities, intellectual property rights, bankruptcy law, education and skill upgrading, etc. are crucial in determining the entrepreneurial dynamism of an economy.

2.2. Our setup

Figure 1 gives a graphical presentation of the *Eclectic Framework* including the variables we will use in the present study to explain the various engagement levels of entrepreneurship. The five

[10] See also Wennekers, Uhlaner and Thurik (2002).
[11] See Carree, van Stel, Thurik and Wennekers (2002) and Audretsch, Carree, van Stel and Thurik (2002).

ways of government intervention are denoted by G1 through G5. The discrepancy between actual (E) and 'natural' rates of entrepreneurship (E*) leads to (lack of) opportunities for entrepreneurial action and can also give rise to government intervention. The risk reward profile faced by (prospective) entrepreneurs is driven by opportunities on the one hand and their willingness[12] represented by resources, abilities/traits and preferences on the other.

Figure 1: Eclectic Framework and the variables used in the present study

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Insert Figure 1 about here

We will not provide a separate literature survey of earlier results regarding the variables used in the present study. For an extensive account of the literature on the determinants of entrepreneurship we refer to Grilo and Thurik (2005b) and the references therein. Furthermore, it is not straightforward to compare our results to those of other studies since, to our knowledge, there are no other studies explaining entrepreneurial engagement levels using a multinomial logit setup, with the exception of Grilo and Thurik (2005b). Finally, using 13 determinants, controlling for 25 country dummies and maintaining seven engagement levels produces over 200 coefficients which will not all be discussed. Therefore, we will loosely refer to related results when discussing ours in the next section.

3. Determinants of engagement levels in European and American entrepreneurship

3.1. Observations and variables

This section presents the estimation results of a multinomial Logit model where the dependent variable is a categorical variable describing different "levels" of engagement in the entrepreneurial process. Data are used from the 2004 *Entrepreneurship Flash Eurobarometer* survey conducted in the fall of 2004 and covering the 25 EU member states and the US. This survey contains over 20,000 observations of which 13,621 can be used for our estimation.[13] Observations with no answer to one of the questions used in the present analysis were dropped.

The following question was used for the dependent variable: *"Have you started a business recently or are you taking steps to start one?"* The following options for answering were given:

- "It never came to your mind."
- "No, you thought of it or had already taken steps to start a business but gave up."
- "No, but you are thinking about it."
- "Yes, you are currently taking steps to start a new business."
- "Yes, you have started or taken over a business in the last 3 years and are still active."
- "Yes, you started or took over a business more than 3 years ago and still active."
- "No, you once started a business, but currently you are no longer an entrepreneur."

Each one of these possible answers reflects a different, and increasing, level of involvement in entrepreneurship. Note that the last four options translate an active role in the entrepreneurial world, while the first three have a softer component of varying degrees of interest in entrepreneurial activities. Respondents belonging to the last group may either have been successful entrepreneurs who retired or transferred their business or entrepreneurs who met with less success and failed. The country averages per engagement level are given in Table 1. Clear differences between the 25 European countries and the US can be observed. In the US only 1% gave up whereas the European unweighted average is 7%. The "thinking", "taking steps" and "young business" categories in

[12] Praag and Ophem (1995).

[13] This survey was conducted on behalf of the European Commission's Enterprise Directorate-General, and the key findings are presented in Flash Eurobarometer 160 "Entrepreneurship", European Commission 2004, available at "http://europa.eu.int/comm/public_opinion/flash/fl160_en.pdf".

Europe are considerably lower than in the US (unweighted averages of 21%, 3% and 3% versus 34%, 10% and 5% in the US). In the US 45% never considered setting up a business while in the EU countries this percentage is 53. In the "gave up" category, Germany, France and the Netherlands stand out with high percentages The differences between the eight former communist member states and the other 17 are relatively small with two exceptions: in the former communist countries 47% reports "never considered" while 56% gives this answer in the non-communist countries; the "thinking about" category amounts to 30% in the former communist and 17% in the non-communist countries. In these two categories the former non-communist countries are remarkably similar to the US. In the other five categories former communist and non-communist Europe are comparable in terms of unweighted averages.

Table 1: Percentages per engagement level per country

Insert Table 1 about here

The explanatory variables used in the present study can be divided into three types.

Socio-demographic variables: gender, self-employed parents, age and level of education. "Age when finished full education" is used to construct three education levels: The first encompasses those with no education or having left school before the age of 15; the second refers to those who left school between the age of 15 and 21; and the third to those having left school past the age of 21.[14] A dummy variable is used for the lower level and another for the higher level so that the intermediary level works as the base. Men and self-employed parents are the obvious dummy variables.

Perception and preference variables: the perception of lack of available financial support, the perception of complexity of administrative procedures, lack of sufficient information, economic climate and risk tolerance are captured, respectively, by the following questions:
"*Do you strongly agree, agree, disagree or strongly disagree with the following statements?*"
- "It is difficult to start one's own business due to a lack of available financial support."
- "It is difficult to start one's own business due to the complex administrative procedures."
- "It is difficult to obtain sufficient information on how to start a business."
- "The current economic climate is not favorable to start one's own business."
- "One should not start a business if there is a risk it might fail."

For each statement a dummy variable was constructed. The dummy variables take the value "1" in the case of "strongly agree" or "agree" for the first four statements.[15] For the fifth statement the risk tolerance dummy takes value "1" if "disagree" or "strongly disagree".[16]

The perception of internal and external success factors (internal versus external locus of control) is captured by the following questions:

When one runs a business, what do you think most determine its success (max two answers)?
a The director's personality.

[14] We chose not to treat this information as a continuous variable due to the discontinuity associated with the group "never having attended full time school".

[15] The first three dummy variables capture, at best, the perception individuals have of the existence of financial, administrative or informational barriers and not their actual existence. Perceptions of these barriers are probably more influential in determining an individual's entrepreneurial attitude than the actual existence of such barriers. The importance of perceptions over actual existence is probably less obvious when discussing the influence on more active phases of entrepreneurial engagement (i.e. actually having a business). Most likely, in the process of becoming an entrepreneur, one's perceptions of barriers are confronted with reality and revised accordingly if relevant.

[16] Clearly, this is a crude indicator of risk attitudes and calling this dummy "risk tolerance" may be abusive. Nevertheless, in the absence of a better measure we believe it provides some information on how taking risks is perceived by the respondent.

b The general management of the business.
c The overall economy.
d The political context.
e Outside entities.
f Other.

Two dummy variables are constructed. Internal locus of control takes value "1" if *a* or *b* are mentioned and external locus of control takes value "1" if *c*, *d* or *e* are mentioned.

Preference for self-employment is constructed on the basis of a direct question asking respondents whether they would prefer to be employed or self-employed.

Country dummies: country-specific effects are evaluated using country dummy variables with the US as the base. Therefore the coefficients associated with these variables are to be interpreted as the impact of being in the corresponding country rather than being in the US.

3.2. Estimation results

The factors presented in Table 2 describe the effect of the corresponding variable on the odds (ratio of two probabilities) of the category in question relative to the base category (in our case the base is "It never came to your mind"). A coefficient above unity implies that the corresponding explanatory variable increases the odds of belonging to the category in question relative to the group "It never came to your mind". Conversely, a coefficient below unity implies that the variable decreases the odds. We also ran an ordered logit model leaving out the "gave up" category. The results are not reported in full but will be mentioned when appropriate.

Table 2: Odds relative to "never having considered starting a business": effect of one unit change in independent variables

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Insert Table 2 about here

Below we summarize the main results of Table 2. In the presentation of the results chosen here we look systematically at the odds of belonging to a given class relative to the class "It never came to your mind". Another way of looking at these results is to investigate the odds of other pairs of classes. One may for instance want to know what the impact is of a certain explanatory variable on the odds of having an older business relative to having a younger one. The value of these impacts (though not its statistical significance) can be easily obtained from Table 2.[17] When relevant, we will also report on the odds of other class pairs.

We will discuss the effects of gender, family links to entrepreneurship and obstacles in some detail. We will also discuss country effects. We will not discuss the effect of age, education, preference for self-employment and risk tolerance which are easy to interpret.[18] The effects of internal and external success factors are generally not significant.[19] We will not burden the present paper

[17] The size of the impact of a variable on the odds of category X relative to category Y can be obtained by dividing its impact on the odds of category X relative to the base category by its impact on the odds of category Y relative to the base.
[18] In an ordered logit model (leaving out the "gave up" category) the coefficients of all these effects are significant where those of age, high education, preference for self-employment and risk tolerance are positive and that of low education negative.
[19] Also in an ordered logit model (leaving out the "gave up" category) the coefficients of internal and external success are insignificant.

with speculations as to whether this lack of significance is due to measurement issues, statistical[20] or conceptual[21] ones.

Gender

Relative to not thinking about setting up a business, the odds of any other option are higher for men than for women. This is particularly the case when considering the odds of having an active business where, relative to not considering starting one, the odds for men are about twice those of women for businesses younger than three years and two and a half times as high for businesses older than three years. The present results are similar to those obtained in Grilo and Thurik (2005b) where 2002 and 2003 observations are used. The results are in line with many studies reporting that men have a higher probability of engaging in entrepreneurship than women. See Minniti, Arenius and Langowitz (2005) and Verheul, van Stel and Thurik (2006). Note that our results are obtained from a regression where preferences for self-employment have been accounted for. It therefore suggests that this gender differential goes beyond the often observed lower entrepreneurship preferences of women. This suggests two fronts for action if women are to become equally represented in the entrepreneurial world. Firstly, to act at the level of preferences by investigating and addressing the factors responsible for this possible lack of entrepreneurial drive of women. And secondly, to address more directly the obstacles faced by women that may be hindering the materialization of entrepreneurial spirit into actual entrepreneurship.

Self-employed parents

The conventional wisdom that "breeding entrepreneurs starts at home" is confirmed by these results. Indeed, having self-employed parents increases the odds of all engagement levels, potentially leading to an effective entrepreneurial activity (i.e. from category "thinking" onwards) relative to not considering such activities. Moreover, the odds of having a young business relative to any low involvement category (from category "never considered" to "thinking") are boosted by having self-employed parents. Also, having had the example of self-employed parents makes giving up on starting a business less likely. More precisely, the odds of giving up relative to any category from taking steps onwards are negatively affected by this variable. There are many results showing the positive intergenerational correlation often with some mediator like race, parents' occupation or sex. See Matthews and Moser (1996), Dunn and Holtz-Eakin (2000) and Hout and Rosen (2000).

Administrative complexities

Relative to never having considered setting up a business, the odds of having given up, of considering or of taking steps to start a business are not significantly affected by the perception of administrative complexities. However, the odds of the more active entrepreneurial positions of actually having started one (whether active for less or longer than three years) are significantly negatively affected by a perception of administrative complexity. The odds of giving up relative to having an active business are increased by the presence of administrative complexities. More generally, the odds of a high entrepreneurial engagement level (having a business whether young or old) relative

[20] Among the correlation coefficients between the variables used in our study that between internal and external success factors is the highest (-.43).The second and third highest are those between high and low education (-.31) and age and low education (.28).

[21] Brockhaus (1982) identified three dimensions determining entrepreneurial orientation in his literature review: need for achievement, internal locus of control and risk-taking propensities. The need for achievement propensity dates back to Knight (1921); the need for achievement propensity to McClelland (1961) and the locus of control propensity to Rotter (1966). The concept of locus of control refers to the perceived control over events. In his social learning theory Rotter (1966) differentiated between internal and external locus of control. Individuals with an internal locus of control believe themselves to be in control of their destiny. Individuals with an external locus of control believe that outside forces determine their future. The obvious expectation is that self-employed have a high internal locus of control and a low external one. In their literature review Rauch and Frese (2000) find mild empirical evidence for a relationship between internal locus of control and business success. See also Beugelsdijk and Noorderhaven (2005).

to less decisive entrepreneurial standings (from category "not considering it" to "taking steps") are adversely affected by administrative complexities.[22] What is revealing in these results is the fact that when it comes to "the real thing" (actually having a business) these obstacles do play a role and one that hinders entrepreneurship. The present results are similar to those obtained in Grilo and Thurik (2005b) where 2002 and 2003 observations are used. Stel and Stunnenberg (2004) find a long-run effect of perceived administrative complexities related to starting a new business on the number of business owners across 18 OECD countries.

Lack of financial support

Regarding the influence of perceived lack of financial support, the important result is the lack of significance of this variable across the board.[23] Again Grilo and Thurik (2005b) find the same result for 2002 and 2003. This result means that, relative to never having thought about starting a business, the fact of acknowledging a lack of financial support plays no role in one's entrepreneurial position. Unlike with administrative obstacles, lack of financial support does not seem to discourage an active involvement in entrepreneurial activity. Even for those categories reflecting an effective business activity, their odds relative to not considering an entrepreneurial activity are not significantly affected by a perception of financial obstacles. The result concerning financial obstacles is in stark contrast with the result for administrative complexities where the expected negative effect is evident for engaged levels of entrepreneurship. Clearly, this somehow surprising result begs further investigation. In interpreting these results we have to bear in mind that the odds under consideration here are those of each category relative to a lack of interest for entrepreneurship. The obvious question is then whether a lack of financial support may play a role in the odds of other pairs of categories. Could it be the case that this obstacle is important in determining the odds of actually having a business relative to thinking about starting one or relative to having given up? Or, could it play a role in the odds of having an older business relative to having a younger one? Tests along these lines show that this variable has no significant effect on the odds of most pairs of categories.[24] Two exceptions should be mentioned: the odds of taking steps to start a business relative to just thinking about it are decreased by a perceived lack of financial support. Also, the odds of giving up relative to thinking, taking steps or having an older business are higher when lack of financing is perceived.[25]

Information availability

Concerning perception of readily available information on how to start a business, the positive and significant coefficient for the categories "taking steps" and "business with less than 3 years", though puzzling, can be understood as follows. Those who are in the process or have recently gone through the hurdles of starting a business still have a vivid recollection of this experience and the precise information it requires. In comparison, both those less entrepreneurially involved and those having successfully overcome this information-intensive phase have a less "haunting" perception of informational quests.[26]

[22] This pair wise odds results are consistent with the results from the ordered logit which show a statistically significant negative effect of administrative complexities on entrepreneurial engagement level.

[23] The common complaint of would be start-ups that they experience bottlenecks concerning the availability of capital led to a large amount of research starting with Evans and Leighton (1989) and Evans and Jovanovic (1989). Recent surveys of this literature can be found in Blanchflower (2004), Parker (2004) and Hurst and Lusardi (2004).

[24] In the ordered logit lack of financial support is not statistically significant.

[25] See Grilo and Thurik (2005a) for results on the influence of administrative complexities and lack of financial support on the probability of preferring to be self-employed as well as that of actually being self-employed using the same European 2004 data set as used in the present study.

[26] Note that in this interpretation we are explicitly acknowledging the bias in perceptions relative to the objective situation. The possibility of such bias and the argument that most decisions are based on perceptions rather than the objective situation has also been discussed in Grilo and Irigoyen (2005) and Arenius and Minneti (2005)

Unfavorable economic climate

The interpretation of the unfavorable current economic climate[27] obstacle has to be qualified. A first caveat relates to the occurrence of a cyclical and therefore changing economic climate in any advanced economy. This aspect sets this obstacle apart from the previous three in that the difference between the current and past objective situation is much more marked here which is likely to translate also in marked differences between current and past perceptions.[28] Belonging to categories such as "thinking" or "taking steps" can be more easily changed as a result of a change in economic climate than belonging to categories where concrete steps have already been taken. As a consequence these categories are more responsive to current economic climate and offer more interpretable coefficients for this variable. The estimation results suggest that, relative to never having considered starting a business, the odds of thinking about or taking steps to start one are not significantly affected by a perceived unfavorable economic climate.

A second caveat relates to the extent of bias in the perception of economic climate and the way this bias may differ depending on the category one belongs to. In particular, it is not unreasonable that those having a business are more wary of the economic climate.

Country dummies

The large number of individual country dummies for every category prevents an exhaustive discussion. However, the most relevant results are the following:

- Giving up rather than even considering an entrepreneurial activity appears to be a characteristic more present in the European population. Strikingly, the odds of having considered and subsequently having given up starting a business relative to not having thought about it are much stronger for most European countries in the sample than for the US. The only exceptions are Spain, Ireland, Sweden and Slovenia which are at par with the US.
- When it comes to thinking about setting up a business as opposed to not considering it at all, the result is almost the opposite of the "gave up" category: with the exception of Estonia, Lithuania and Slovakia no European country has higher odds than the US. Note that the few exceptions to this generally lower European entrepreneurial drive are to be found in the new member states.
- This relatively weaker European drive is also confirmed when looking at a more engaged stage in the entrepreneurial process, currently taking steps to start a new business, relative again to showing no interest: with the exception of the Netherlands, Austria, the UK, Estonia and Slovakia for which the odds are not statistically different than in the US, all other European countries fare less well than the US.
- Again, Europe appears less entrepreneurial than the US also in the young business arena. Relative to not considering an entrepreneurial activity, the odds of having a "young" business (less than three years old) for the large majority of European countries are not higher than for the US. Only three countries, Czech Republic, Estonia and Slovakia, have higher odds than the US (for the remaining countries the odds are either statistically lower or at par with the US). Note that again the countries faring above the US in the young business category are all new member states.
- The situation changes drastically when we look at the odds of having an older business (always relative to not wanting to start one). Here no country scores below the US and with

[27] Economic climate - often measured in terms of (change in) unemployment - is one of the usual suspects when explaining self-employment. See Audretsch, Carree, Thurik and van Stel (2005) for some computations trying to establish the net effect of the recession push and the prosperity pull mechanisms, Wennekers, Uhlaner and Thurik (2002) for some concepts and Parker (2004) and Blanchflower (2004) for literature surveys.

[28] Administrative and financial setups and business information availability are less volatile than economic climate.

the exception of Spain, France, Ireland and Latvia, for which the situation is not statistically different from the US, all other European countries have significant higher odds than the US. This result, together with the result concerning young businesses, implies that the odds of having an old business relative to having a young one are significantly higher for European countries. The only exceptions are three new member states, Estonia, Latvia and Slovakia, for which these odds are at par with those of the US.

- Finally, it remains to be seen how nationality influences the odds of having once started a business but no longer being an entrepreneur, relative to not being interested in such activities. Here, all European countries have higher odds than the US. This category of "have been entrepreneurs" is of course a heterogeneous group which makes it difficult to discuss these results. Its message would have to be tempered by the information on why the respondent is no longer an entrepreneur: has he succeeded in his venture and transferred it or has the business been a failure? Unfortunately we do not possess this type of information.

Differences between new and old European member states seem to be moderate and confined to the categories "thinking", "young business" and "older business". In the first two categories it seems that new member states, in particular former communist ones, are more entrepreneurial than the old member states. In the "older business" category there is some evidence that former communist countries are similar to the US in that the odds of having an old business relative to having a young one are not higher. More targeted and sophisticated statistic testing is needed to establish systematic differences between old and new member states.[29] This will be the subject of a follow-up paper. A rudimentary test replacing the 25 country dummies by one "old member state" dummy and one "new member state" dummy shows that the odds of having considered and subsequently having given up starting a business relative to not having thought about it are higher in old member states than in new ones while both are much higher than in the US. When it comes to thinking about setting up a business as opposed to not considering it at all, the result is almost the opposite of the "gave up" category: they are lower in old member states than in the new ones while both are lower than in the US. The odds of having a young business (always relative to not wanting to start one) in new member states do not differ from those in the US while they are lower in the old member states. Looking at the odds of having an older business relative to having a younger one the results show that they are higher for old member states than for new ones.

4. Conclusion

In the last two decades entrepreneurship re-emerged as a key agenda item of policy makers across Europe, both for individual nations and for the European Union as a whole (OECD, 1998; European Commission, 1999 and 2004a). It also returned as a topic of interest in the field of economics, after having played a central role in economic theory between the 18th and early 20th centuries (Hébert and Link, 1989; Praag, 1999). Moderate economic growth coupled with persistently high levels of unemployment stimulated expectations of entrepreneurship's potential as a source of job creation and economic growth (Acs, 1992; Thurik, 1996; Audretsch and Thurik, 2000; Carree and Thurik, 2003).

The interest in entrepreneurship probably changes along with the changing role of entrepreneurship over time and across countries. Until the 1970s the proportion of self-employed and small businesses in most developed Western economies declined steadily. During this period, a focus on entrepreneurship was virtually absent from the European economic policy agenda. The exploitation of economies of scale and scope was thought to be the essence of modern economies (Galbraith, 1967; Teece, 1993). This was a period of relatively well-defined technological trajecto-

[29] For instance, using simple additive country dummies is inadequate to establish differences. A full two regime model should be investigated.

ries, of stable demand and of seemingly clear advantages of diversification. Neo-classical economics and equilibrium theory left little room for the concepts of initiative, autonomy and the struggle with new ideas and uncertainty. As a result, references to the entrepreneur receded from the micro-economic textbooks (Barreto, 1989; Kirchhoff, 1994). Audretsch and Thurik (2001 and 2004) characterize this period as one where stability, continuity and homogeneity were the cornerstones and label it the *'managed economy'*. The last two decades witnessed massive downsizing and restructuring of many large firms that were built on certainty and the virtues of scale. This movement away from large firms toward small, predominantly young firms was a sea-change, not just a temporary aberration. Audretsch and Thurik (2001 and 2004) label this new economic period, based less on the traditional inputs of natural resources, labor and capital, and more on the input of knowledge and ideas, as the *'entrepreneurial economy'*. Paradoxically, the increased degree of uncertainty creates opportunities for small and young firms leading to higher rates of entrepreneurship. Other studies show that this change does not take place in all developed economies at the same time or to the same degree (Audretsch, Thurik, Verheul, Wennekers, 2002). Hence, comparative research may explain these variations.

In spite of this growing interest in comparative research, the understanding of these variations in entrepreneurship at the macro level is limited. One could say that the cross-country comparison of entrepreneurship and its potential determinants is still in its infancy. A comprehensive framework is needed to provide direction for this research area. The goal of the present paper is to provide an overview and further direction for this emerging topic of macro-level analysis of entrepreneurship. To this end an *Eclectic Framework* is used incorporating different streams of literature and spanning different disciplines. It is a framework for understanding and analyzing the determinants of entrepreneurship.

In its empirical part the present paper uses survey data (2004) from the 25 EU member states and the US to establish the effect of demographic and other variables on various entrepreneurial engagement levels. A multinomial logit model is used for estimating the influence of the explanatory variables while linking them to the *Eclectic Framework*. Demographic variables such as gender, age, education level and parental status represent the supply side of entrepreneurial energy; administrative complexities, availability of financial support, availability of information, the locus of control (internal vs. external) and the respondents' self declared preference to be self-employed account for the resources, abilities/traits and preference factors; a basic measure of risk tolerance captures the risk reward profile; and residual country specific effects (covered by dummy variables) together with the economic climate obstacle stand for the demand side to entrepreneurial opportunities.

The most important findings are the following:

- Relative to "not thinking about it" the odds of any other option are higher for men than for women while this effect is stronger for having an active business than for any other category.
- Having self-employed parents increases the odds of all engagement levels potentially lending to an effective entrepreneurial activity relative to not considering such activities and it makes giving up on starting a business less likely.
- Perception of administrative complexities has no effect on the odds of "gave up", "thinking about it" and "taking steps" relative to "never thought about it". However, they are clearly detrimental to the odds of the more active entrepreneurial positions of actually having started one (whether active for less or longer than three years). Also, the odds of giving up relative to having an active business are increased by the perception of administrative complexities.

- Unlike with administrative obstacles, the perceived lack of financial support does not seem to discourage an active involvement in entrepreneurial activity in that relative to never having thought about starting a business, the fact of acknowledging a lack of financial support plays no role in one's entrepreneurial position. A discouraging role of lack of financial support is nevertheless identified: the odds of giving up relative to thinking, taking steps or having an older business are higher when lack of financing is perceived.
- European countries appear to be less entrepreneurial than the US for levels of engagement up to "having a young business".
- European countries have higher odds than the US for the category "having an older business". Moreover, for the vast majority, the odds of having an old business relative to having a young one are significantly higher than in the US.

Future research should concentrate on

- The explanation of the country differences: to what extent are cultural aspects, sector composition of economic activity, market legislation, tax environment, bankruptcy law, job security, social security regimes, etc determining factors.[30] There can also be country specific aspiration levels: this role model effect could be captured, for instance, by engagement level averages.
- The role of the level and speed of economic development: to what extent do they have a moderating or mediating influence on the variables used in the present study and to what extent is this influence dependent upon the engagement level.[31] A follow-up study on differences between old and new member states of the European Union is foreseen.[32]
- The role of the wage level relative to self-employment income: this important variable is not available in the present data set while it is generally assumed to be important in shaping entrepreneurial activity.[33] More in general, the role of liquidity constraints and (household) wealth should be investigated.[34] Again, these relevant variables are lacking in the present data set.
- The effects of the variables for internal and external locus of control: their statistical insignificance warrants further investigation.

[30] See Wennekers, Uhlaner and Thurik (2002) for some insights on the role of heterogeneity on the country level when explaining entrepreneurial activity.
[31] See Wennekers, van Stel, Thurik and Reynolds (2005) for an investigation of the influence of the level of economic development on nascent entrepreneurship across countries.
[32] See Smallbone and Welter (2001).
[33] See Parker (2004) for a literature review.
[34] See Hurst and Lusardi (2004).

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Table 1: Percentages per engagement level per country

	Never considered	Gave up	Thinking	Taking steps	Business<3yrs	Business>3 yrs	No longer	Observations
Belgium	67	9	10	1	2	6	6	726
Denmark	50	10	17	2	5	9	7	294
Germany	43	17	21	3	4	6	7	791
Greece	45	6	23	2	5	9	10	916
Spain	68	3	16	4	2	4	4	623
France	63	14	12	2	2	4	4	772
Ireland	60	1	23	4	2	6	4	345
Italy	60	5	16	3	2	6	8	882
Luxembourg	58	13	12	3	3	6	5	383
Netherlands	47	14	13	3	3	10	9	677
Austria	48	6	21	5	4	9	9	265
Portugal	61	5	17	2	3	6	5	693
Finland	51	12	14	3	1	13	7	344
Sweden	60	2	17	4	3	5	8	313
UK	53	3	19	6	4	5	10	643
Czech Republic	51	9	16	2	5	8	8	648
Estonia	35	4	39	7	7	5	3	239
Cyprus	56	4	19	1	3	10	6	356
Latvia	53	5	33	2	1	2	2	366
Lithuania	42	3	40	2	2	4	7	347
Hungary	50	6	19	2	4	10	9	623
Malta	66	8	14	1	1	6	4	310
Poland	49	11	24	1	3	6	7	749
Slovenia	54	1	35	2	1	4	3	349
Slovakia	41	9	31	6	5	5	3	323
US	45	1	34	10	5	3	1	644

Source: Flash Eurobarometer Survey 160 (conducted in 2004)

Table 2: Odds relative to "never having considered starting a business": effect of one unit change in independent variables

	Gave up		Thinking		Taking steps		Business<3yrs		Business>3yrs		No longer	
	Odds	P-value	Odds	P-value	Odds	P-value	Odds	P-value	Odds	P-value	Odds	P-value
Men	1.740	0.000	1.312	0.000	1.696	0.000	2.037	0.000	2.505	0.000	1.939	0.000
Age	1.003	0.165	0.968	0.000	0.967	0.000	0.990	0.003	1.015	0.000	1.033	0.000
Low education	0.625	0.000	0.717	0.000	0.643	0.020	0.613	0.005	0.593	0.000	0.832	0.064
High education	1.412	0.000	1.408	0.000	1.789	0.000	1.717	0.000	1.433	0.000	0.897	0.259
Self-employed parents	1.087	0.301	1.121	0.048	1.362	0.009	1.717	0.000	1.971	0.000	1.602	0.000
Perc. lack of financial support	1.195	0.055	1.005	0.942	0.827	0.145	1.026	0.846	0.939	0.519	0.922	0.410
Perc. administrative complexities	0.982	0.833	0.969	0.590	0.917	0.479	0.665	0.000	0.707	0.000	0.863	0.108
Perc. insufficient info	1.005	0.945	1.008	0.886	1.286	0.029	1.337	0.008	1.031	0.711	1.016	0.845
Perc. unfavourable econ. climate	1.155	0.079	0.974	0.640	0.842	0.145	1.054	0.654	1.223	0.024	1.394	0.000
Preference for self-employment	2.264	0.000	4.478	0.000	12.634	0.000	6.262	0.000	8.221	0.000	2.420	0.000
Risk tolerance	1.171	0.033	1.113	0.043	1.156	0.208	1.393	0.002	1.288	0.002	1.209	0.020
Internal success factors	1.121	0.223	1.130	0.068	0.951	0.734	1.110	0.463	0.982	0.864	1.051	0.624
External success factors	1.154	0.088	1.148	0.023	1.080	0.564	1.003	0.981	0.972	0.758	1.068	0.475
Belgium	8.269	0.000	0.256	0.000	0.125	0.000	0.331	0.002	2.244	0.005	4.014	0.000
Denmark	10.485	0.000	0.551	0.003	0.261	0.003	1.430	0.284	4.200	0.000	7.080	0.000
Germany	23.519	0.000	0.866	0.320	0.438	0.004	1.489	0.139	3.638	0.000	7.706	0.000
Greece	7.344	0.000	0.806	0.122	0.252	0.000	1.379	0.203	4.440	0.000	8.588	0.000
Spain	2.225	0.098	0.268	0.000	0.210	0.000	0.219	0.000	1.072	0.827	2.733	0.015
France	12.689	0.000	0.305	0.000	0.162	0.000	0.292	0.000	1.273	0.433	2.839	0.010
Ireland	1.357	0.620	0.463	0.000	0.261	0.000	0.312	0.007	1.714	0.108	2.625	0.038
Italy	5.406	0.000	0.456	0.000	0.305	0.000	0.413	0.005	2.270	0.004	5.278	0.000
Luxembourg	11.922	0.000	0.306	0.000	0.302	0.000	0.516	0.083	2.286	0.011	4.358	0.001
Netherlands	20.601	0.000	0.583	0.001	0.646	0.115	1.205	0.526	5.964	0.000	9.932	0.000
Austria	8.661	0.000	0.918	0.672	0.831	0.601	1.397	0.392	5.603	0.000	9.420	0.000
Portugal	4.828	0.001	0.369	0.000	0.169	0.000	0.561	0.052	1.767	0.053	2.779	0.013
Finland	16.524	0.000	0.526	0.001	0.451	0.039	0.384	0.080	7.653	0.000	7.457	0.000
Sweden	1.840	0.299	0.503	0.000	0.522	0.047	0.666	0.307	2.202	0.028	7.139	0.000
UK	3.935	0.004	0.671	0.009	0.830	0.441	1.136	0.656	2.510	0.003	8.641	0.000
Czech Republic	12.844	0.000	0.629	0.004	0.475	0.018	2.279	0.003	6.538	0.000	9.311	0.000
Estonia	7.552	0.000	2.100	0.000	1.544	0.194	3.734	0.000	6.058	0.000	5.125	0.002
Cyprus	4.368	0.003	0.414	0.000	0.043	0.000	0.564	0.111	3.148	0.000	4.470	0.001
Latvia	6.164	0.000	1.021	0.898	0.302	0.003	0.472	0.134	1.503	0.353	2.879	0.035
Lithuania	3.389	0.024	1.406	0.044	0.338	0.008	0.743	0.502	2.406	0.022	8.064	0.000
Hungary	6.733	0.000	0.646	0.007	0.328	0.001	1.282	0.420	6.449	0.000	9.688	0.000
Malta	8.326	0.000	0.360	0.000	0.113	0.000	0.314	0.034	2.573	0.006	2.812	0.029
Poland	12.680	0.000	0.707	0.014	0.093	0.000	0.803	0.455	2.634	0.001	6.280	0.000
Slovenia	1.783	0.349	1.290	0.129	0.308	0.010	0.311	0.060	2.360	0.025	3.084	0.020
Slovakia	16.260	0.000	1.726	0.002	1.628	0.121	3.267	0.000	6.619	0.000	5.146	0.001

Note: DK/NA observations have been dropped from the sample. Base category: "It never came to your mind".
Source: *Flash Eurobarometer Surveys* 160 (conducted in 2004).

Figure 1: *Eclectic Framework* and the variables used in the present study