Factors affecting the entrepreneurial dynamics in Italy: a comparison across European countries

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Abstract

The main aim of this paper is to provide a better understanding of the factors explaining the entrepreneurial rates in Italy and the differences with the same factors in a sample of EU countries. The reason for this study is that during the last decade Italy showed one of the lowest rates of entrepreneurial activity and declining over time. The analysis takes into consideration both, macroeconomic factors, such as the overall institutional context that support entrepreneurship and micro level factors, such as the status of individuals and their response to entrepreneurial push or pull factors. The main findings are that gender, level of education, social perception of self-employment as a good career choice and social network have an impact on the probability to become nascent entrepreneur but with different relevance across countries and across sectors in the same country. The data show that in Italy the level of education become irrelevant to explain the propensity to start a business if the social capital and the importance of social networks are added to the econometric model.

JEL Classification: *L26; M13; J21*

Keywords: *Entrepreneurial dynamics; Self-employment; High-tech and low-tech entrepreneurship; Education and entrepreneurship.*

1 Introduction

It is widely recognized that entrepreneurship plays a key role for economic development and that entrepreneurs are key agents of change in market economies. In the past few decades, interest in the role of start-ups and small firms in employment growth and economic development has increased substantially. One reason is that several regions in advanced economies have experienced stagnation or decline in traditional manufacturing jobs. Stimulation of entrepreneurship in general and new business formation in particular is viewed as a means to secure present and future job opportunities (Andersson and Noseleit, 2011).

Entrepreneurship is now at the center of many policy questions. Recent documents by the European Commission (2008) and OECD (2010) have emphasized the importance of entrepreneurship to promote the development of member countries. The consequence is that, in recent years, governments have placed a great deal of policy emphasis on the development of a "culture" of entrepreneurship, which is considered to be crucial for creating flexible economies that are capable of coping with the challenges of globalization. The policy interest in entrepreneurship has been accompanied by growing academic research into its dynamics and processes.

The scientific debate on these issues has shown that willingness and ability of individuals to identify and implement new business opportunities depend on a number of personal, social and economic factors.

Recent empirical surveys about entrepreneurial activity showed that Italy has one of the lowest entrepreneurial rates among industrialized countries, and this rate declined during the last decade. This is the main reason for this study. Its aim is to analyze the factors affecting the entrepreneurial rate in Italy during the last decade and to compare them with those observed in other European countries.

The empirical analysis is conducted using the data of Global Entrepreneurship Monitor (GEM) available from 2001 to 2007 for Italy, Netherlands, Belgium, France, Spain, Uk, Denmark, Sweden, Norway, Germany. GEM measures the participation of individuals in entrepreneurship activity through an index - the Total Early-Stage Entrepreneurship Activity (TEA).[1] For each country we consider the TEA as the dependent variable and personal characteristics and socio-economic context as the independent variables.

I use Logit estimates to characterize the differences between Italy and the other European countries for the probability of adult individuals to be involved in the start-up of a new business.

The results of the empirical analysis show that the factors affecting entrepreneurial dynamics are different across countries. This means that policy aimed at fostering entrepreneurship needs to take into account which factors drive the entrepreneurial process in each country.

From a macroeconomic perspective, the ability of a country to support entrepreneurship is determined by the wide institutional context, while at a micro level, the likelihood of a person to become an entrepreneur is influenced by individual personal traits, that determine the entrepreneur's response to entrepreneurial push or pull factors. The paper aims to investigate if gender, age, level of education, social network have an impact on the probability to become nascent entrepreneur and if these factors have different relevance across countries and across sectors (low tech vs high-tech sectors) in the same country.

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[1] TEA is defined as the rate of individuals in the working-age population who are actively involved in business start-ups, either in the phase preceding the birth of the firm (nascent entrepreneurs), or the phase spanning 3.5 years after the birth of the firm (owner managers of new firms).

The paper is organized as follows. Section 2 provides the background of the study by reviewing the empirical studies about the entrepreneurial rates in Italy and by pointing out to the main factors that are supposed to influence the entrepreneurial dynamics. Section 3 describes the data and methodology used in the empirical section. Section 4 discusses the main results of empirical model. Section 5 highlights the main conclusions of the study, discusses its limitations and points out to possible development and extensions.

2 Background

Over the past decade, the entrepreneurial rate in Italy decreased and the GEM (Global Entrepreneurship Monitor) global report referred to 2009 (Kelley *et al.*, 2011) shows that Italy presents the lowest rate of total early stage entrepreneurial activities. The empirical evidence shows that the local production systems in Italy based on small firms have experienced increasing difficulty in ensuring the competitiveness of their production and the proper placement and remuneration of new recruits, in particular young people with a high level of education.

Several regions in advanced economies have experienced the same stagnation or decline in traditional manufacturing jobs and the changes in the patterns of entrepreneurial activity during the last decades pose a number of questions that satisfy both the objectives of scientific knowledge and the interests of policy makers who wish to implement measures for promoting entrepreneurship.

To implement effective entrepreneurship policies, it is necessary to understand the determinants of and the obstacles to entrepreneurship. Up to now, the lack of internationally comparable empirical evidence has constrained this understanding, impeding clear conclusions about the effectiveness of different policy approaches.

In Italy the debate on the role of SMEs is particularly important since the size structure of national economy, and specifically of the manufacturing industry, is "abnormally" biased towards small firms operating in traditional sectors. Some scholars have interpreted this feature as an expression of the delay of our country in the process of industrialization, and consider it as an element of weakness and backwardness. Others consider the prevalence of SMEs as the result of the consolidation of a production organization model based on small and medium firms (Beccattini, 1987). Literature about small firms in Italy has focused on the characteristics of SMEs and the conditions that determine their birth and growth.

During the 1980s, Garofoli (1991) showed a situation in doldrums in South area and a high dynamic in NEC (North-East and Center) area. Vivarelli (1994) analyses the period 1985-90 to evaluate the entrepreneurial dynamic in Italy and finds that the demographic profile during the 1970s reflects the division of Italy in three parts (the three Italy of Bagnasco (1977)). The raise in the number of firms and the increasing importance of the small business sector are consistent with several interpretations of the Italian economy: productive decentralization, higher flexibility of small firms, industrial district model (Beccattini, 1987).

During the 1980s, there was a fall in new firm formation despite the expansive economic cycle. This occurred for several reasons. The productive decentralization for the high cost of labour and the necessity to face a more differentiated demand fostered the creation of micro firms in the 1970s. However, in the 1980s the cost of labour increased and flexible technology was adopted also by large firms. Despite the growth of demand, the development of small firms decreased especially for manufacturing sectors. Several authors propose model for explaining birth rates in Italy (Contini and Revelli, 1986; Foti and Vivarelli, 1994) but the conclusions of

these analyses are not unique, as often happens for complex phenomena, such as the formation of new businesses (and entrepreneurship in general) and they refer to past periods (especially the 1980s and 1990s). Thus, there is a lack of empirical evidence about the recent evolution. Another limitation of these studies it that all of them consider new business registrations as a proxy for entrepreneurship. The reason is that data on new firm registrations from public records are the ones more easily available. However, researchers interested in the empirical analysis of entrepreneurial dynamic agree that new data sets, methods and definitions are needed to analyze the phenomenon properly. Shane (2012), examining the impact of the 2010 Academy of Management Review Decade Award article on the entrepreneurship field over the past ten years, sustains that entrepreneurship is not merely the formation of new firms, because this is just only one institutional arrangement for the entrepreneurship phenomenon that could be defined, in a more general way, as the process of identification, evaluation and exploitation of opportunities. Data that consider just only the registered new firms do not reflect the start-up process accurately, due to the fact that entry entrepreneurship is not always successful and there could be a hindsight bias (Fischhoff, 1975). Another problem concerns the different measures used to study the entrepreneurial activity that prevents meaningful comparisons across countries.

Using the GEM dataset avoids the problems highlighted and this is a necessary condition to understand the phenomenon and evaluate the policy initiatives addressed at fostering entrepreneurial activities (Salas-Fumas and Sanchez-Asin, 2011). The new approach is that data are reflective of entrepreneurial intent and capture the spread between individuals who could potentially operate businesses in the formal sector and those that actually do so. In the GEM dataset (Bosma *et al.*, 2011) countries are grouped into three categories: factor-driven, efficiency-driven, and innovation-driven. As development advances into the innovation-driven phase, businesses are more knowledge intensive, and the service sector expands. Italy and the other European countries considered in the analysis (Netherlands, Belgium, France, Spain, United Kingdom, Denmark, Sweden, Norway, Germany) are all classified within the innovation driven category.

People may decide to start businesses when and because they recognize specific entrepreneurial opportunities. Others may decide to start ventures and undergo a search for ideas. Entrepreneurs may recognize opportunities well in advance, or just before they set up their businesses. Consequently, the perception of opportunities relative to new business starts can take many different routes.

The quantity and quality of the opportunities that individuals perceive, and their beliefs about their capabilities, may be affected by several conditions in their environment, such as economic growth, culture and education. Different demographic groups may make distinct perceptions about opportunities and capabilities; and this is affected by historical, socio-economic or cultural factors (Reynolds, 2010).

Using data of the GEM survey in the period 2001-2007 this paper tries to answer these research questions:

- Which factors are more highly associated with individual participation in business creation in Italy comparing with other European countries?

- Which specific variables have the greatest association with individual participation in business creation in Italy comparing with other European countries?

To formulate the specific hypotheses of the empirical models, it is useful to review the papers

that used the GEM database to investigate why there are such differences across countries.

Overall, the results of these studies show that entrepreneurship must be studied using an holistic approach in which human capital, social capital and financial capital affect, at different level, the probability to become a nascent entrepreneur.

Social capital refers to the ability of actors to extract benefits from their social structures, networks, and memberships. From an entrepreneurial perspective, social capital provides networks that facilitate the discovery of opportunities as well as the identification, collection, and allocation of scarce resources. Davidsson (2006) shows that individual social capital is positively associated with entrepreneurial discovery, as indicated by the probability of entering into nascent entrepreneurial activities. Cross-national analyses of GEM data suggest that those who know others who are self-employed are more than twice as likely to become nascent entrepreneurs themselves (Bygrave *et al.*, 2001). Steinmetz and Wright (1989) show that the children of entrepreneurial parents are more likely to become entrepreneurs in their adult careers, reporting that among adults in 1980 in the U.S. work force, around 75% come from families in which the head of the household was self-employed.

The hypothesis linked to social capital is: to know another entrepreneur increases the probability to be a nascent entrepreneur.

As regards Human Capital the GEM type studies consistently find a positive effect of the level of education on the probability to become a nascent entrepreneur. Various forms of educational and social resources contribute in a different way to the dynamic processes of opportunity recognition and exploitation. Formal education is one component of human capital that may assist in the accumulation of explicit knowledge that may provide skills useful to entrepreneurs. Formal education can affect the likelihood of entrepreneurial entry through the acquisition of skills, credentialing, and sorting people by ambition and assertiveness. The shape of the relationship differs somewhat between analyses (Bygrave *et al.*, 2001). The association between education and entrepreneurship depends also on the type of education. The hypothesis included in the model is that the education has a positive influence on entrepreneurship. Concerning the characteristics of nascent entrepreneurs, several authors analyze the impact of gender. One of the common results across countries is the under representation of women among nascent entrepreneurs (Arenius and Minniti, 2005; Bygrave *et al.*, 2001; Wagner, 2004). As regards female participation in nascent entrepreneurship the most recent GEM data suggest that across countries there are about twice as many male as female nascent entrepreneurs; i.e., women make up about one third of all nascent entrepreneurs. The GEM report 2011 shows the difference in woman participation in entrepreneurial activities by countries (Delmar *et al.*, 2003). The gender gap is particularly wide in southern Europe while in the US it is much smaller. Institutional factors may be responsible for this difference, such as regulation of health care, motherhood, education and tax levels, etc. (Brush *et al.*, 2009).

In the empirical model, the hypothesis linked to female entrepreneurship is that the gender influences the TEA: to be male increases the probability to be a nascent entrepreneur.

3 Data and methodology

For the empirical analysis this paper uses data provided by the GEM consortium for the period 2001-2007 referring to Italy and other nine European countries.

The analysis starts from the TEA rate for each country in the period 2001-2007 (Table 1).

To investigate the factors affecting TEA by countries I selected a pool of data available from

Table 1: *The Total early-stage entrepreneurial activities by Ue countries, 2001-2007 (% values)*

Countries	2001	2002	2003	2004	2005	2006	2007
Netherlands	4.7	4.6	3.6	5.1	4.3	5.4	5.2
Belgium	3.1	3.0	3.9	3.4	3.9	2.7	3.1
France	2.6	3.1	1.6	6.0	5.4	4.4	3.2
Spain	5.4	4.6	6.6	5.1	5.7	7.3	7.6
Italy	6.0	5.7	3.1	4.3	4.9	3.5	5.0
UK	5.4	5.4	6.4	6.2	6.2	5.8	5.5
Denmark	5.1	6.5	5.9	5.3	4.7	5.3	5.4
Sweden	3.8	3.9	4.1	3.7	4.0	3.4	4.2
Norway	6.4	8.6	7.4	6.9	9.1	8.9	6.2
Germany	5.8	5.2	5.2	4.4	5.4	4.2	n.a.
Total	4.7	4.8	5.3	4.8	5.3	5.9	6.0

Source: Gem database 2001-2007.

APS GEM (Adult Population Survey). The same variable codification of GEM is used to allow the comparison with other studies that use the same data. For all countries, the dependent variable is Teayy (total early-stage entrepreneurial activity), while the independent variables are linked to the personal characteristics of nascent entrepreneurs, the characteristics of nascent firms and the characteristics of the country context (Table 2).

Giving the nature of the dependent variable the empirical analysis is based on LOGIT estimates referring to all countries and to Italy. Given the methodology adopted and the use of cross section data, the results are not intended to capture causal relations but to highlight statistical associations between variables and differences across countries. The factors affecting the entrepreneurial dynamics are widely investigated in the empirical literature. The paper confirms the significance of these factors and shows how their coefficients change by countries using the same empirical model. Specifically, the paper wants to analyze the differences between Italy and the other European countries for the probability of adult individuals to be involved in the start-up of a new business. For this purpose, I create interactive variables for Italy and the t-test is implemented to assess the poolability of data.

4 Empirical results

As a first step in the empirical analysis I estimated LOGIT regressions for the pooled sample, referring to all countries and for Italy. The first regression shows that all the hypotheses previously discussed are confirmed (Table 3): to be man, the higher level of education, the lower income and the upper income improve the probability to start a business. The increasing of age decreases the probability to become a nascent entrepreneur. To be unemployment, retired or student is negative related to the entrepreneurial dynamics, while knowing another entrepreneur is always significant and positive.

The Model 1 considers all the observations, while the number of observations in the other models is reduced because of missing values for the KNOWENYY and MINC variables. For 162,259 individuals the database has not missing value so the model second, third, fourth, fifth

Table 2: *The Total early-stage entrepreneurial activities by Ue countries, 2001-2007 (% values)*

Dependent Variable	Description of variable
TEAYY	individuals involved in Total early-stage Entrepreneurial Activity
TEAYYTEC	individuals involved in Total early-stage Entrepreneurial Activity in the technology sector

Independent Variable	Description of variable
AGE	current age in years of nascent entrepreneur
DGEND	dummy that takes 1 if gender= man, 0 if gender= woman
EDUC1	dummy that takes 1 if gemeduc=0 and 1 (up to some secondary education)
EDUC2	dummy that takes 1 if gemeduc=2 (secondary degree)
EDUC3	dummy that takes 1 if gemeduc=3 (post secondary)
EDUC4	dummy that takes 1 if gemeduc=4 (graduate experience)
GEMEDUC	educational attainment: up to some secondary education, secondary degree, post secondary, graduate experience
KNOWENYY	dummy that takes 1 if respondent knows a person who started a business in the past 2 years, 0 if not
MINC1	dummy that takes 1 if household income=lowest
MINC2	dummy that takes 1 if household income= middle
MINC3	dummy that takes 1 if household income= upper
MINC	multinomial dummy that takes 1 if household income=lowest, 2 if household income =middle, 3 if household income =upper
NWORK	dummy that takes 1 if individuals not work
RETSTU	dummy that takes 1 if individuals are retired or student
WORK	dummy that takes 1 if individuals work

try to control the effect of missing values on estimations (the results of regression could be influenced by the difference in the size of sample). When the variable knowenyy is added to the model (Model III), the level of education reduces its significance. Adding the level of income (Model IV) doesn't change the results of estimations except the for the variable educ 3 that loses significance.

The level of education loses significance adding the income and the effect of knowing another entrepreneur (Model V).

I include in the pooled estimations and in the estimations for Italian sample the status of not working and the status of retired or students. The expectation is that the status of retired or students is negative related to the propensity to start a new firm, while the unemployment status is a factor that should foster the entrepreneurial dynamics, specifically the necessity entrepreneurship. Necessity motives occur, for example, when (a threat of) unemployment forces people into self-employment: to start a new business can be related to a defensive attitude such as the uncertainty about future career perspectives or even the fear of becoming unemployed. This kind of start-up has been called "escape from unemployment" (Audretsch and Vivarelli, 1996). The fact that the status of not working is significant but negative in the pooled estimations, contrary to expectation, could be linked to institutional features. Concerning the key institutional determinants of firm emergence and growth, Bianchi and Henrekson (2005) discuss the role of economic policy environment as determined by business taxes, employment security laws, credit market regulations, the national pension system,

Table 3: *Regression results of LOGIT estimates for the pooled sample*

VARIABLE	MODEL I	MODEL II	MODEL III	MODEL IV	MODEL V
dgend	0.6116	0.5822	0.4745	0.5686	0.4686
	(40.25)***	(22.21)***	(17.91)***	(21.63)***	(17.64)***
age	-0.0151	-0.0156	-0.0111	-0.0163	-0.0116
	(-25.75)***	(-15.03)***	(-10.61)***	(-15.51)***	(-11.04)***
nwork	-1.3906	-1.1359	-1.0888	-1.1136	-1.0798
	(-41.3)***	(-21.93)***	(-20.95)***	(-21.43)***	(-20.72)***
retstu	-1.9955	-2.1431	-2.0561	-2.1122	-2.0478
	(-47.93)***	(-25.32)***	(-24.28)***	(-24.9)***	(-24.12)***
educ2	0.037	0.0148	-0.006	0.0033	-0.0125
	(1.85)*	-0.43	(-0.17)	-0.1	(-0.36)
educ3	0.1516	0.0735	-0.0029	0.0394	-0.023
	(7.04)***	(1.97)*	(-0.08)	-1.05	(-0.61)
educ4	0.35	0.1813	0.077	0.1184	0.0355
	(16.63)***	(4.95)***	(2.08)*	(3.2)**	-0.95
knowenyy			1.0607		1.0466
			(40.31)***		-39.55
dminc1				0.0818	0.1365
				(2.61)**	(4.32)***
dminc3				0.3688	0.2938
				(11.74)***	(9.27)***
Obs.	424,095	162,259	162,259	162,259	162,259
LR χ^2	11059.8	3252.07	4925.5	3400.59	5011.45
Pseudo-R^2	0.0686	0.0586	0.0888	0.0613	0.0903

Dependent variable: TEAYY; years 2001-2007; z values in parenthesis. ***= significant at 1%, **= significant at 5%; *= significant at 10%

wage-setting institutions and the size of the public sector and, in detail, how various welfare state arrangements may create disincentive effects for entrepreneurship and in particular for innovative and growth-oriented entrepreneurship. One aspect of welfare state institutions that has received some attention in recent empirical research with respect to the supply of entrepreneurship is social security arrangements. Social security arrangements, for example in the case of illness or unemployment, may influence in various ways the decision of individuals when choosing between waged employment and self-employment. Social security in general may have a positive effect on entrepreneurial activity by creating a safety net in case of business failure. However, empirical results suggest that it negatively affects the level of entrepreneurship by increasing the opportunity costs of entrepreneurship (Hessels *et al.*, 2008), because it implies higher wage costs, since employers normally have to pay at least part of the social security contribution for their employees.

Countries, as Italy, with generous social security and welfare schemes do not emphasize the responsibility of the individual for their own welfare, which may hamper ambitions to strive for innovation and growth. Overall, it can be observed that people in countries with a relative lack of social security nets, such as is the case in the UK and in the USA, tend to be more growth and innovation oriented than people in regions where social security systems are more generous, such as Sweden or The Netherlands. Buera (2009) using data from GEM APS 2005-2006 confirms that social security displays a negative association with the supply of

ambitious entrepreneurship, indicating that when social security systems are more generous start-ups tend to be less oriented towards innovation and growth in terms of jobs and exports.

To characterize the differences between Italy and the other European countries for the probability of adult individuals to be involved in the start-up of a new business I create an interactive variable *ita (dita, dgendita, dageita, dnworkita, dretstuita, educ2ita, educ3ita, educ4ita, dminc1ita, dminc3ita)* but the t-test rejects the null hypothesis of poolability ($\chi^2(10) = 80.35$) so I replicate the estimations for Italy and for each European countries. Regression results for the Italian data also confirm the main hypotheses (Table 4). There are some interesting differences between Italy and the European average: in Italy the secondary education losses significant in the model, while the graduate education is significant at 5%.

As in the previous section, I consider in the first, second, third, fourth, fifth model just only the individuals for which the database doesn't show missing values. The gender, to be unemployment and all level of education lose significance. The same results are obtained adding the variables *knowenyy* and *minc1* and *minc3*. To know another entrepreneur has a high effect on the probability to be involved in early-stage entrepreneurial activity; more than twice the European average. At first glance, this could mean that in Italy family and friendship connections with established entrepreneurs are more important than education.

The importance of the *knowenyy* variable is further confirmed by its interaction with the gender variable, that diminishes its coefficient. However, the relations between these variables need to be further analysed before reaching a clear conclusion. The dummy linked to income confirms the same results of previous estimations. Overall, these results seem to suggest that in Italy the "familiarity" with other entrepreneurs plays a particularly important role. The effect of this variable is so strong to overcome the effects of education that, in other countries, shows a robust and significant relation with entrepreneurship.

Another important difference is related to the unemployment status that maintains the negative sign but loses significance for Italy.

The fact that in Italy, the level of education seems to be not significant could depend on the low perception that Italian citizens have about the role of education in raising an interest in entrepreneurship (e.g. by stimulating the development of an entrepreneurial attitude) and in preparing them to become entrepreneurs (e.g. by the provision of courses that help developing the requisite skills to run a business). The Flash Eurobarometer (2009) shows that there is an equal proportion of EU citizens agreed and disagreed that their school education had helped them to develop a sense of initiative, or in other words, a sort of entrepreneurial attitude (49% of respondents "strongly agree" and "agree" while 49% of respondents "disagree" and "strongly disagree").

I repeated the estimations for each country and for each year. The main difference with Italian situation is the importance of level of education in France, UK, Sweden and Germany. Spain shows as to have a degree is significant and negative. In Denmark, to be unemployed is significant and positive related to the choice of becoming entrepreneur.

The second analysis is done considering the sample of individuals involved in the early-stage entrepreneurial activities in high-tech sectors (see Table 5). Using the same pool of independent variables, the dependent variable now is TEAYYTEC.

Splitting the sample in TEA in high-tech sectors and TEA in low-tech sectors (TEA - TEA in high-tech sectors), it results that the composition of TEA is highly imbalanced toward low-tech sectors. Moreover, the percentage of nascent entrepreneurs and new business owner in high tech sectors in Italy is the lowest of UE countries' sample (Table 6).

Given the few cases of nascent entrepreneurs in high-tech sectors, I replicate the estimations

Table 4: *Regression results of LOGIT estimates for Italy*

VARIABLE	MODEL I	MODEL II	MODEL III	MODEL IV	MODEL V
dgend	0.4638	0.3219	0.23	0.3364	0.2503
	(4.54)***	-1.55	-1.1	-1.62	-1.2
age	-0.0439	-0.0427	-0.0391	-0.0445	-0.0409
	(-10.28)***	(-4.97)***	(-4.52)***	(-5.14)***	(-4.69)***
nwork	-0.5117	-0.1533	-0.1345	-0.2258	-0.2149
	(-3.68)***	(-0.61)	(-0.53)	(-0.88)	(-0.84)
retstu	-1.5852	-1.1536	-1.0794	-1.1986	-1.1305
	(-9.6)***	(-3.22)**	(-3.0)**	(-3.33)**	(-3.13)**
educ2	0.1982	0.1087	0.1004	0.1196	0.1087
	-1.35	-0.33	-0.3	-0.36	-0.33
educ3	0.4143	0.0074	-0.0543	0.0135	-0.0459
	(2.72)**	-0.02	(-0.16)	-0.04	(-0.14)
educ4	0.5737	0.2732	0.2168	0.2114	0.1752
	(2.78)**	-0.62	-0.49	-0.47	-0.39
knowenyy			0.7051		0.6876
			(3.5)***		(3.39)**
dminc1				0.5508	0.5748
				(2.35)*	(2.45)*
dminc3				0.9098	0.8415
				(3.11)**	(2.86)**
Obs.	13,014	2,849	2,849	2,849	2,849
LR χ^2	341.94	55	67.26	65.89	77.39
Pseudo-R^2	0.087	0.0586	0.0717	0.0702	0.0825

Dependent variable TEAYY, 2001-2007; z values in parenthesis. ***= significant at 1%, **= significant at 5%; *= significant at 10%.

Table 5: *TEA firms type, 2001-2007*

FIRM TYPE	Obs	%
EXTRACTIVE	941	5,5
TRASFORMING	4534	26,4
BUSINESS SERVICE	4953	28,8
CONSUMER ORIENTED	6741	39,3

Source: GEM APS 2001-2007.

just only for the pooled sample and not for Italian sample (Table 7).

Concerning the factors affecting nascent entrepreneurship in high-tech sectors, the results of regressions show that gender is more significant in high-tech than the remainder of the sample: to be a man improves the probability of starting a new firms in high-tech sectors more than twice. The status of not working is significant at 10% and positive, as well as the status of student. Generally, the nascent entrepreneurs of high-tech sectors are young graduates in scientific or technical disciplines. The variable *edugra* is more significant in high-tech sectors than in low-tech sectors: to have a degree improves the probability of starting a new firm in high-tech sectors more than twice. To know another entrepreneur losses significance for

Table 6: *The TEA in low tech and high-tech nascent firms*

COUNTRIES	TEAYYLOW		TEAYYTEC	
	Total	%	Total	%
Netherlands	746	90	84	10
Belgium	585	92	51	8
France	386	94	26	6
Spain	6,197	94	407	6
Italy	586	96	27	4
UK	7,520	93	562	7
Denmark	1,003	87	151	13
Sweden	1,189	90	129	10
Norway	844	90	90	10
Germany	1,748	89	216	11
Total	20,805	92	1,742	8

Source: GEM APS 2001-2007.

Table 7: *Regression results of LOGIT estimates for the pooled sample*

VARIABLE	MODEL I	MODEL II	MODEL III
dgend	0.8433	0.8397	0.7678
	(13.12)***	(9.66)***	(6.85)***
age	-0.0144	-0.015	-0.0177
	(-6.14)***	(-4.66)***	(-4.21)***
nwork	0.3815	0.5521	0.6671
	(3.29)**	(3.68)***	(3.95)***
retstu	0.5555	0.6886	0.5049
	(4.4)***	(3.35)**	(1.79)*
educ2	0.1508	0.0946	-0.0377
	(1.78)*	-0.83	(-0.26)
educ3	0.7056	0.5561	0.5383
	(8.59)***	(4.94)***	(3.89)***
educ4	0.7972	0.5694	0.4905
	(9.96)***	(5.32)***	(3.51)***
knowenyy			0.0404
			-0.4
dminc1		-0.6102	-0.4509
		(-6.02)***	(-3.47)**
dminc3		0.2786	0.2542
		(3.29)**	(2.31)*
Obs.	19,991	11,528	6,647
LR χ^2	409.49	301.92	160.45
$Pseudo - R^2$	0.0377	0.0503	0.0452

Dependent variable TEAYYTEC, 2001-2007; z values in parenthesis. ***= significant at 1%, **= significant at 5%, *= significant at 10%.

techno-entrepreneurs. The connections' effect is stronger in traditional sectors (and in Italy where traditional sectors are prevailing). In the case of high-tech firms the level of income is important, in particular, to have a upper level of household income has a negative influence on the probability to start up a new business.

5 Conclusions

The aim of paper was to investigate the factors affecting the probability to become a nascent entrepreneur in Italy comparing with a pool of 9 European countries. According to GEM, Italy showed the lowest index of entrepreneurial rate in the global ranking in 2009 and the lowest share of new high-tech firms in comparison with other EU countries. This could represent a brake in the economic growth of the country. The rapidly growing firms started by entrepreneurs create wealth and jobs impacting on social and economic development. Another motive linked to the importance of fostering new firms creation derives from the current scenario of deep and significant changes to the labour market, characterised by an exponential rise in youth unemployment and the incidence of underemployment. In these conditions, young people encounter few employment opportunities and self-employment could represent a survival strategy. For this reason it is important to understand the factors affecting entrepreneurial dynamics to suggest policy actions to promote, in particular, high-tech entrepreneurship. In this sense, it is important to devote attention to the diversity of entrepreneurs in terms of their aspirations to grow and sector of activity, because entrepreneurs contribute differently to economic growth. Entrepreneurs aspiring to produce novel products in high-tech sectors and to make their company grow are bound to contribute more to economic growth than their counterparts who have lower levels of aspiration and become entrepreneurs due to the lack of other chances. In this sense, the quality of new entrepreneurship is more important than the quantity of new entrepreneurs.

The estimates for the pooled sample confirm that gender, the level of education and the fact that the person knows someone who started a firm, influence the probability to become entrepreneur but with difference results for pooled sample (all European countries) and Italian sample. The regressions for Italy show that gender influences the probability to start a new business but the influence is lower than in the first estimations for the pooled sample. Secondary education and graduate education lose relevance, while the fact of knowing another entrepreneur is relevant. This confirms the important of social milieu for a nascent entrepreneur especially in Italy, where the role of SMEs is particularly important since the size structure of national economy, and specifically of the manufacturing industry, is "abnormally" biased towards small firms operating in traditional sectors. For this type of firms the network of business relationships seems more important than competencies and knowledge, while the level of education or the gender are less relevant.

Splitting the sample in high-tech and low-tech entrepreneurs, the level of education is relevant in explaining the probability to become an entrepreneur in high-tech sectors, while the fact that you know another entrepreneur loses significance. In the case of high-tech new firms the role of education is emphasized as well as the gender gap.

To sum up, when comparing Italy with the main European countries the major differences in the factors affecting entrepreneurial dynamics are the role of education, the gender gap and the knowledge of another entrepreneur.

Given these differences, the policy actions should take into account the relevance of factors

affecting the nascent entrepreneurship. Specifically, in Italy, governments should promote entrepreneurship education and high-tech entrepreneurship. According to the literature, while the neoclassical growth theory considered economic growth as a process of mere accumulation of production capital, the endogenous growth theory shifted the lens to the importance of knowledge in the production process and its potential to create spill-overs. The gap between knowledge and exploitable knowledge or economic knowledge should be filled by nascent entrepreneurs that recognize the opportunity enclosed inside knowledge spill-overs. In this framework in which knowledge is the most potent factor generating growth, technological innovation is seen as the most important factor for achieving long-term economic growth. In advanced countries growth is powered by the capacity of nascent entrepreneurs to innovate competing in new global markets with new technologically advanced products (technological innovation). The rise of the modern economy has changed the coordination and cooperation between the actors involved in the economy, particularly in relation to diffusing, using and exploiting knowledge. Most of the open innovation literature takes the perspective of the firm in the relations with the other important actors of innovation and entrepreneurial system: university and local government. According to the Triple Helix model (Etzkowitz, 2008), when a country wants to prosper within the knowledge economy, tighter integration of the activities of industry, universities, public research facilities, and government policy is required in the areas of science and technology. Universities play a new role in this process. Traditionally the primary goal of universities lies in the advancement of scientific research and education. Universities are gradually becoming more involved in economic and social development, and pay more attention to the commercialization of research results, patent and licensing activities, adding entrepreneurial objectives as a third component to their mission. As a result, universities have become more proactive in ensuring the commercialization of their research to help sustain economic growth in the modern economy.

Another important role of university is in terms of entrepreneurship education. In Italy, there is a lack of an integrated approach to the stimulation of entrepreneurship education (Iacobucci and Micozzi, 2012). Current activities in the field of entrepreneurship have mostly surfaced bottom-up, from professors and students, gaining university support as they developed. As a consequence of this type of development, the current approach to entrepreneurship shows that there is no overall vision and coordination. Activities dealing with entrepreneurship currently encompass several important elements in the provision of entrepreneurial infrastructure and culture but fail to address other important elements. The university lacks a top-down approach, which provides the university with a central vision and master plan for its activities in this area. Current activities promoting entrepreneurship only reach a small percentage of the student population. Most activities initiated remain largely extracurricular for university students. More importantly the effects of these activities are not measured, making it difficult to ascertain if these activities achieve their goals. In this sense, there is a need to develop an institutional line of action in order to establish a role for entrepreneurship education within university courses especially in technology and scientific universities where the probability to identify an opportunity to start an high-tech firm is higher. Increased levels of entrepreneurship can be reached through education and especially entrepreneurship education due to the fact that developing an entrepreneurial culture starts with developing awareness. Everyone should know the importance of entrepreneurs for society and the subsequent step is to stimulate a positive attitude towards entrepreneurship and develop entrepreneurial qualities such as risk taking, creativity, initiative and goal setting. In this sense, the role of entrepreneurial education is to encourage the right entrepreneurial spirit among the student population creating an

entrepreneurial environment.

The paper would open discussion about the necessity to foster entrepreneurship in Italy, especially high-tech entrepreneurship even if the principal limitation concerns the fact that the empirical model used allows associations between variables affecting entrepreneurial dynamics without giving causal interpretations of results. The interpretations proposed in the conclusion should be deeper investigated.

Concerning the future research directions, despite the widespread interest from scholars and policy-maker in new firms formation, little is known about the spatial dimension to the entrepreneurial process: to evaluate entrepreneurship at local level is a necessity. The use of Gem data allows analysis across countries but doesn't take into account the differences among local environments. For this reason, the future research agenda is to analyse entrepreneurial dynamics at local level, following an holistic approach in which factors affecting new firms formation are associated to the personal features of nascent entrepreneurs, the characteristics of the newly founded firms and the characteristics of the local context.

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I fattori che influenzano la dinamica imprenditoriale in Italia: un confronto con gli altri paesi Europei.

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Sommario

Il principale obiettivo del lavoro è individuare i fattori che spiegano i tassi di attivazione imprenditoriale in Italia e le differenze con un campione di paesi Europei. Nell'ultima decade si assiste ad un declino dei tassi di attivazione imprenditoriale in Italia e l'analisi prende in considerazione fattori macro, come il contesto istituzionale che supporta la nuova imprenditorialità e fattori micro, come lo status dell'individuo e la risposta ai fattori pull e push che determinano la propensione imprenditoriale. I principali risultati sono che il genere, il livello di istruzione, la percezione dell'auto-impiego come buona opzione lavorativa e il network sociale hanno un impatto sulla probabilità di essere un imprenditore nascente ma con alcune differenze tra paesi e tra settori nello stesso paese. I dati mostrano che in Italia il livello di formazione diventa poco rilevante per spiegare la dinamica imprenditoriale se vengono inseriti nel modello esplicativo il capitale sociale e l'importanza dei network sociali.