

Assessing the main differences of early-stage entrepreneurship activity between Italy and Denmark:

An institutional and cultural framework approach

Sara Coppola, Cand.merc. International Business

Supervisor: Yang Jiang, CBS

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Resumé

The following study analyses the major reasons underlying the different levels in early-stage entrepreneurship between Italy and Denmark studied through an institutional and cultural framework. The institutions and the national cultures investigated, namely Structure and Policies, Innovation and R&D, Intellectual Property Rights, Financial Environment and Legal Infrastructure, create different conditions for entrepreneurship. They shape opportunities for the exploitation of business creation. In fact, the level of policy commitment, R&D expenditures, the protection of intellectual properties, the availability of financial resources and financial intermediaries and the burden arising from taxes and regulations and cultural characteristics and perceptions, all influence the availability and willingness of individuals of setting up a business. Further, institutions are related to the economic development and wealth of a country, which in turn influence people's motives and possibilities of starting a business.

The paper first explains what entrepreneurship and early-stage entrepreneurship refers to and their connection to innovation; and it illustrates the levels of start-up activity for Italy and Denmark in a general overview of the relation between rates and countries' economic development.

The analysis follows by studying each of the institutions under consideration for both Italy and Denmark, providing reflections on their status and performance through the use of various indexes and how these provide favorable conditions for entrepreneurship. The same is done through the study of some cultural characteristics and individual perceptions in Italy and Denmark. The institutions and cultural aspects are all correlated to each other, so that assessing their effects separately for the availability of entrepreneurial opportunities proves to be a difficult task.

However, the concluding part, highlights the main weaknesses and strengths of both Italy and Denmark, considered as the main influencing factors affecting early-stage entrepreneurship activity; also by providing a general assessment of the countries' performance.

Lastly, some recommendation for future improvements in the country's framework is provided, as enhanced performance of each single institution may lead to overall higher opportunities for starting up a business and thus, higher entrepreneurship activity.

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Purpose statement

Growing up and studying in Italy, one cannot avoid noticing the many inefficiencies scattered within the governmental and economic sphere, which lastly lead to a persistent and increasing lack of trust into the government and a growing feeling of having to battle against those bodies that were initially put there with the supposed purpose of guiding and serving a country.

Once moved to Denmark, such feelings decrease or even disappear. Through studying and working experiences one comes to realize how more structured and efficient the Danish government appears to be and how the Danish population in general has a higher trust and respect in the authorities that do work for the state in order to provide services and opportunities. The ability to work for a country's benefit and the efficiency of a system as a whole that supports individuals through a coordination of incentives is ultimately reflected in a stronger and healthier economy.

Within this *status quo*, one particular interest of this thesis is how a country supports individuals in the creation of start-ups and entrepreneurial activities. The topic is of interest because entrepreneurship has a fundamental role for the creation of new jobs, for innovation growth and thus, GDP growth, which is then mirrored in the total economic growth of a country (Dahlstrand, et al., 2010). Schótt (2006), states that entrepreneurs' innovativeness is correlated to one country's wealth and the OECD supports this view as it asserts that entrepreneurship is seen as the main driving force behind the revitalization of the industrial structure. Its promotion has become of vital importance for policy makers for its impact of "functioning of market economy" and the idea of entrepreneurs as "agents of change, growth and innovation"¹. This, in fact explains why the level of entrepreneurship and their variations, across countries and across time, are the subject of study for many researchers and policy-makers.

One of the main reports that studies entrepreneurship activity is the Global Entrepreneurship Monitor (GEM)². The GEM also represents the main document of reference and source of data for almost all studies related to entrepreneurship. According to GEM, Italy's average early-stage entrepreneurship activity (the TEA index³) is lower than that of Denmark. Why is that?

Through a comparative research between Italy and Denmark this research will try to analyze what are the factors that mostly influence and explain such difference.

The GEM Report for Denmark assesses entrepreneurship levels through the study of the country's institutional and cultural framework. The main reason for this is that entrepreneurship activity is

¹ OECD, *Fostering Entrepreneurship*, OECD, Paris, 2008

² The Global Entrepreneurship Monitor (GEM) is a non-profit academic research consortium and the largest single study of entrepreneurial activity in the world.

³ The TEA index measures the percentage of active adult population (between 18 and 64) who are engaged in early-stage entrepreneurship activity, either nascent (less than three months) or new business (between three and 42 months) or both. (Definition from GEM Italy 2008)

seen as embedded within such frameworks as they provide basic condition opportunities that shape entrepreneurship (Schött, 2006). The institutions analyzed in the Danish GEM reports are: financial resources, government policies, public programs, technology transfer, commercial and legal infrastructure, internal market openness, access to physical infrastructure and intellectual property rights. The cultural framework is assessed by individual values, skills, esteem and education and training. Both frameworks shape opportunities for business exploitation as opportunities have been found to be highly correlated with institutional and cultural conditions (Schött, 2006).

More specifically, this paper studies the current state of entrepreneurship activity in the two countries, why it differs and how: policies and reforms undertaken (Structure and Policy), Innovation and R&D Expenditures, Patents and Intellectual Property Rights, the Financial Environment, Legal Infrastructure and National Culture contribute to the ease or difficulty in setting up a business. These dimensions are to be considered together, in their influence of early-stage activity creation, as they are highly interrelated and separate effects cannot be seen clearly. For reasons explained further (see methodology section) differently from GEM, entrepreneurial culture is included within the institutional framework. Further, the study of government policies and public programs institutions is combined within Structure and Policy, as they are one the direct consequence of the other. Technological transfer is partially included in innovation and R&D expenditure as it is the connecting factor between research and development efforts and entrepreneurship. The Internal Market Openness and the Commercial and Physical Infrastructure institutions are not taken into account for reason of space and time limit (as explained in the narrow down section).

Each country participating in GEM has its own research center writing the specific country's national report. This results in different presentations of data, that not always, as it is the case for Italy, are analyzed within an institutional and cultural framework. Furthermore, the two frameworks, when available, are not explained by providing a country's specific analysis of the underlying factors constituting the frameworks. Additionally, GEM global reports (which put together entrepreneurial measure of all the participating countries) have the only scope of a cross-country analysis without further explanation of the underling conditions. Other times, a GEM national report for a country exists for a more recent year than the other; for example, the latest Italian GEM national report was published in 2008, while the latest Danish GEM national report was published in 2007. However, as reports still have a cross-country relation purpose, it is possible to find data regarding Denmark within the latest Italian GEM report, but not in regards to all measures. Further, when looking at other kind of studies and researches, specific indexes, analyzed through different studies, are not always comparable within a country or between Italy and

Denmark, as they have might been gathered for different periods of years. For all the reason outlined above regarding research methods and data asymmetries across-countries and time, compromises had to be made with regards to the measured used and their relevance. Most importantly, GEM does not provide a uniform comparison between two specific countries (in this case Italy and Denmark), which is what this research will attempt to provide.

This study mostly make use of GEM national reports for the framework used (during the years 2002-2008) but, through the study of other research and reports within this field, the aim of this paper is studying the current and recent measures (up to 2010) that have led Italy and Denmark to their present state of early-stage entrepreneurship activity and what they should do in order to reach better performance levels. The main value and difference of this study, from those of the Global Entrepreneurship monitor, is the strict comparison of the Italian and Danish entrepreneurship activity (specifically early-stage activity) and the deeper analysis for explaining why Denmark performance is higher than the Italian one.

In conclusion, the purpose of this research is to discover the major factors, underling certain institutions and cultural aspects, that has led Denmark to perform better than Italy regarding early-stage entrepreneurship activity, with the ultimate purpose to propose a focus on certain areas and to address possible areas of intervention.

1.2 Problem statement

- What are the underlying factors, explaining the differences between Italy and Denmark, in relation to early-stage entrepreneurship activity level?
- How can disclosed factors be addressed for the future progress in early-stage entrepreneurship?

1.3 Narrowing down

As the purpose of this research is very vast (each institution could represent a research topic per se), given space, time limit and availability of resources, some factors could have not been taken into account. The paper represents then, a general overview of the above mentioned institutions for both countries. Also, the considerations made through the analysis are slightly skewed on the Italian system as Denmark is here seen more as a benchmark given its better.

For purpose of simplicity and general overview, the study of entrepreneurship, and thus early-stage entrepreneurship, is taken at large without differentiations across market sectors and industry type (e.g. manufacturing, construction, bio-technology, pharmaceutical etc.). Considerations of the impacts of the recent worldwide financial crisis have not been openly addressed as this would have entailed a deeper analysis of the different performance across the years; before, during and after the crisis. Internationalization, exports and foreign investments, have not been taken into account; countries are analyzed as closed and defined within their borders for simplification of the analysis. Labor market at large, internal market openness and commercial and physical infrastructure have been excluded for difficulty in addressing their structures and outcomes within the page limit of this research. Age, gender and level of education among current entrepreneurs, although important as they can help policies to address the right target groups, have been excluded as they cannot explain per se different levels of early-stage activity. The cultural framework of the Danish's GEM reports also takes into account individuals' values and esteem, though these feature have not been addressed as there is no available comparable data for Italy. Finally, the paper has not taken into account the different economic and development levels across both countries' regions, which especially in Italy are very large and outstanding as the purpose of the paper has more of a general character.

1.4 Structure

After a detailed explanation of the methodology and theory used throughout the research, the paper will first address the general early-stage entrepreneurship level of Italy and Denmark and its relation to entrepreneurship innovativeness and the overall economic growth, development status and wealth of a country. Following, chapter one to five will present a review of the institutions under consideration, first for Italy and then for Denmark. At the end of each chapter a comparative evaluation between the two countries will be provided making use of different relevant indexes. Each institution is analyzed in a separate chapter and they are assessed in the following order: Structure and Policy, Innovation and R&D, Intellectual Property Rights, Financial Environment and Legal infrastructure. Chapter six analyzes different cultural factors already in a comparative perspective between Italy and Denmark. The structure is different for this chapter as a unified description has proven more suitable for this subject. Lastly, main conclusions addressing the findings related to the first problem statement and recommendation related to the second problem statement will be provided.

1.5 Methodology and Theory

The term entrepreneurship activity refers to different activities, comprehending: “prospecting and intending to start businesses, starting, owning, and managing new businesses, owning and managing established businesses, discontinuing businesses, and investing in new businesses”(Schótt, 2006).

The Global Entrepreneurship Monitor uses the TEA index (total early-stage entrepreneurial activity⁴) to measure start-up activity. The index is based on the survey respondents whom stated that they are currently planning to found a start-up or that have founded one in the past 42 months. The early-stage entrepreneurship activity is defined as “the activity surrounding upstart, thus considering the activities of starting and owning-managing a new business” (Schótt, 2006). Throughout this research the terms start-up and early-stage entrepreneurship activity will be used with the same meaning.

Entrepreneurship activity is both influenced and shaped by the society in which the activity itself is placed. In fact the way a society is organized and the way it operates create the basis for the support of entrepreneurship. Such kind of arrangements makes part of a large institutional framework that is what generates circumstances for business possibilities. With the term institutional framework it is here referred, more in general, to a comprehensive set of social institutions ranging from governments, family, human languages, universities, hospitals, business corporations, and legal systems. Among the various different definitions⁵, Turner (1997) defined institutions as: “a complex of positions, roles, norms and values lodged in particular types of social structures and organizing relatively stable patterns of human activity with respect to fundamental problems in producing life-sustaining resources, in reproducing individuals, and in sustaining viable societal structures within a given environment.” Again, Giddens (1984) defined institutions as the “more enduring features of social life.” He goes on to list as institutional: “modes of discourse, political institutions, economic institutions and legal institutions”. The contemporary philosopher of social science Harre (1979) defined an institution “as an interlocking double-structure of persons-as-role-holders or office-bearers and the like, and of social practices involving both expressive and practical aims and

⁴The early-stage entrepreneurial activity index is the sum of the nascent entrepreneurship rate (Percentage of 18-64 population who are currently a nascent entrepreneur, i.e., actively involved in setting up a business they will own or co-own; this business has not paid salaries, wages, or any other payments to the owners for more than three months) and the new business ownership rate (Percentage of 18-64 population who are currently a owner-manager of a new business, i.e. owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than three months, but not more than 42 months). (Definitions from GEM Italy 2008)

⁵ Miller and Seumas, "Social Institutions", *The Stanford Encyclopedia of Philosophy* (Spring 2011 Edition), Edward N. Zalta (ed.), URL = <<http://plato.stanford.edu/archives/spr2011/entries/social-institutions/>>

outcomes.” Examples of this are given by schools, shops, post offices, police forces, asylums and the British monarchy⁶.

Of course the spectrum covered by these definitions is very broad, but they highlight a characterization that goes beyond the mere classification of institutions as just political institutions. For reasons dictated by scope, resources, time and space limit, after an introduction on entrepreneurship in Italy and Denmark, the paper will narrow the institutional framework to the analysis of five institutions (taken the broadest possible definition) or dimensions as they will also be referred to. These are: Structure and Policy, Innovation and R&D, Intellectual Property Rights (IPRs), Financial Environment and Legal infrastructure. Each institution will be investigated separately first for Italy and then for Denmark (using the same methodology), at the end of each section a brief summary and cross-country evaluation between the two states and the factors analyzed will be provided. Here it will be highlighted what these dimensions refer to and the way in which they will be approached. National Culture will be left at the end as the first five institutions are generally analyzed with the same structure while the cultural part has within its analysis a different approach, as it is carried through by directly comparing Italy and Denmark under certain aspects.

For the analysis on entrepreneurship activity and part of the institutional and cultural framework this study will mostly use data and researches from the Global Entrepreneurship Monitor (data ranging from 2006 to 2008). The main reason for this is that the GEM reports are found to help the study on the institutional and cultural framework of both countries under consideration. The GEM will be used as a general guideline focusing on the quantitative measurement of start-up activity and on some experts' analysis for quality measure. As all surveys on entrepreneurial activity, the GEM report is also not perfect, and methods and definitions could be discussed upon but, its results proved to be quite stable and it is one of the best available sources to compare entrepreneurial activity in Italy and Denmark; moreover it is the most used survey report used among entrepreneurship and start-up activity researchers. Although, available data from the GEM report sometimes address different aspects in national reports. Occasionally there is no correspondence between Denmark GEM reports and Italian ones, so other researches will be used in order to complement the data under study.

GEM researches gather together 48 countries⁷ and data collected for each country come from a survey of the adult population in each nation and from surveys of panels of experts regarding entrepreneurship framework conditions within each country.

⁶ See note 5

⁷ Of this 48 countries 34 are developed ones (Australia, Austria, Belgium, Canada, Croatia, Denmark, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Netherlands, New Zealand, Norway, Poland,

Among the various issues addressed by GEM surveys this paper will focus, for the institutional framework, on the results of the questions regarding government policies and public programs, technology transfer, intellectual property rights, financial support and commercial and legal infrastructure. Each dimension is assessed by a number of questions (which will be quoted in the following) to which experts responds by assessing the truthfulness versus falseness of the statement. The answers are coded from 1 to 5, to enable averaging and quantitative analysis, where 1 indicate “completely false” and 5 “completely true”. Each GEM index will be used to provide an overall evaluation of the institution under consideration, while additional indexes and findings, which will vary across institutions, will be used in order to explain the Italian and Danish performance under each dimension. Below it is provided a more detailed methodology for each single institution.

1.5.1 Structure and Policies

A country’s structure and policies are important in determining early-stage activity and growth, especially with regards to entrepreneurship and innovation policies as they provide basic instrument of support. Entrepreneurship policy is mainly focused in creating a supportive environment for the emergence of new entrepreneurs and start-up activity (Lundstrom et al., 2005). Innovation policy is mainly concerned with the improvement of the interactions between universities, research institutions and business activities. Entrepreneurship policy and innovation policies are closely linked. Convergence between innovation and entrepreneurship policy is observed when the policy target is to promote new growth innovative firms (Dahlstrand et al., 2010).

Policies are measured to the extent by which the regions and/or the government apply policy that favors new firms: if they support start-ups and their growth, through specific public programs, channeled from the national to the regional/local level. From a political institutional and legislative viewpoint, innovation is the subject matter of a multilevel governance, involving a dialogue among the national level and the regional level within an EU framework (Coletti, 2007).

The structure and policy section will first explain the main bodies in charge of innovation policy decision-making, R&D activity and R&D expenditures. Then a summary of the major policies and instruments (through the study of different documents) implemented by the country’s government will be provided. As evaluation of the various policies are not made available through public documents, and thus it is not possible to assess their achievements and right implementation, a number of indexes will be used as a general evaluation measure, when comparing Italy *vis-à-vis*

Portugal, Russia, Singapore, Slovenia, South Africa, Spain, Sweden, Switzerland, Taiwan, UK and USA) and 14 are less developed countries (Argentina, Brazil, Chile, China, Ecuador, India, Jamaica, Jordan, Mexico, Peru, Thailand, Uganda, Venezuela, and Puerto Rico in a small part).

Denmark regarding policy effectiveness: the GEM Governmental and regional policies, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption.

GEM Governmental and regional policies values are assessed by asking a panel of experts the truthfulness of statements regarding a specific country: “Government policies consistently favor new firms”, “The support for new and growing firms is a high priority for policy at the national government level”, “The support for new and growing firms is a high priority for policy at the local government level (Schótt, 2006)”.

The other four indexes are taken from Datamonitor country analysis reports (2010). The indexes are calculated by the World Bank report on governance and the data are gathered through a governance survey reflecting the views of public, private and NGO respondents in 212 countries. A percentile rank of 0 represents the lowest rank and 100 represents the highest rank⁸. The Government Effectiveness measures the value of public and civil services together with the independence from political pressure, the quality of the policy and its implementation and the government credibility in connection to the commitment to such policies. The Regulatory Quality measures the government’s ability to formulate and implement solid policies and regulations for the promotion and development of the private sector. The Rule of Law measures the degree of confidence and trust by agents in performing by the rule of society, especially for what concerns contract enforcement, the court, the police and crime. The Control of Corruption measures the degree to which public power is used to achieve private gain, counting both petty and grand forms of corruption, in addition to the “capture” of the state by elites and private interests.

1.5.2 Innovation and R&D

Solow’s publication in 1956 generated a major literature connecting traditional factors of production (capital and labor) to economic growth. With research developments of growth theory, knowledge has been included to the traditional factors explicitly explaining economic growth (Romer, 1986). Differently from the traditional factors of production, knowledge has a particular strong impact on economic growth because of its spill-over tendency for the use of third-party firms. Public policies, over the years have reacted to the growth theory by calling attention to investments in research and development. In fact, empirical evidence identifies knowledge as an important source of economic growth (Acs et al., 2005). Therefore, Knowledge investment (or R&D investment) has been recognized as a key component of innovation policy, in order to increase the overall intensity of innovation activity, by many European governments (European Commission, 2004). R&D expenditure is assumed to produce not only increases in innovation

⁸Kaufmann, D., Kraay A. and M., Mastruzzi, *The Worldwide Governance Indicators: Methodology and Analytical Issues*, Brookings Institution and World Bank, September, 2010

inputs, but also in technological output, for instance in terms of number of patents⁹ (see IPR section). “The creation and the transmission of ‘knowledge’ are at the base of innovation, which is conventionally defined as the deliberate activity of enterprises and institutions towards the realization of new products and services as well as new methods of production, distribution and use” (Perani and Sigilli, 2008). The link between knowledge and innovation has been analyzed in many studies. According to Mitri (2003) knowledge produces “opinions, ideas, theories, principles, models, experience, values, contextual information, expert insight, and intuition”, which provide a “framework for evaluating and incorporating new experiences”. At the business level, knowledge “is focused on the generation and application of knowledge that leads to new capabilities for the firm”¹⁰. Popadiuk et al. (2006) moreover, views innovation as concerned with how “these new capabilities may be turned into products and services that have economic value in markets”. As a result, knowledge becomes a “critical component of the innovation process in which it fosters firms’ capacity to innovate and therefore to prosper in an increasingly competitive environment”.

Moreover, entrepreneurship is seen as a critical link between new knowledge and economic growth as it facilitates the transfer of knowledge and creates spillover effects (Kukoc and Regan, 2008). Technological transfer indicates the move of technological innovation knowledge from public research institutions to entrepreneurship (Schótt, 2006). Therefore, knowledge investment influences innovation, and the latter, defined as “the process of introducing new ideas to the firm which results in increased performance”¹¹, fosters entrepreneurship activity. Consequently, the amount of R&D expenditures and the enhanced coordination between research centers and the business world becomes crucial for increased early-stage activity (Dahlstrand et al., 2010 and Coletti, 2007).

Studies have shown how innovation is a constant development of interactive knowledge acquisition between a firm and its surrounding environment, representing a diversified array of interactions within R&D, research institutions, technological transfer and the institutional framework of a society. Thus, the interaction and cooperation between universities and the industry is of crucial importance (Parker, 2004). Hence public and private R&D expenditure becomes a very important factor for the generation of knowledge and the extent to which it is spread and put into practice.

⁹Merito M., Giannangeli S., and A. Bonaccorsi, *Do Incentives to Industrial R&D Enhance Research Productivity and Firm Growth? Evidence from the Italian Case*, Sant’Anna School of Advanced Studies, University of Pisa

¹⁰ Mitri, M., *A knowledge management framework for curriculum assessment*, Journal of Computer Information Systems, 43(4), 15–24, 2003

¹¹Rogers M., *The Definition of Measurement Innovation*, Melbourne Institute Working paper No. 10/98, May 1998

This section will present main data on R&D expenditures and how R&D translates into different levels of research, innovation and output at the firm level, given the coordination between research institutes and the industry-entrepreneurial sector.

The 2008 Italian GEM report, through a national expert survey, classifies 11 countries¹² according to the level of R&D transfer: whether new technology, science and other knowledge are efficiently transferred from universities and public research centers to new and growing firms” (Corbetta et al., 2008). The survey measures perceptions of people involved in entrepreneurship activity. Scores, range from 1(low) to 5(high), thus the data here are presented differently: the country’s score is shown in the corresponding ranking position among the 11 countries (a high number would reflect a low ranking position)¹³.

For a further assessment of different innovation aspects connected to R&D expenditure some of the Innovation Union Scoreboard (IUS, 2010) indicators will be used. As stated above, R&D investment influences the creation of knowledge which in turn influences innovation and productivity which, consequentially affects entrepreneurship activity. Therefore, IUS indicators are important because if a country’s R&D system produces low levels of research, little knowledge is created. Therefore, assuming that cooperation between research institutes and the business sector was existent and well managed, few research activity, and therefore few knowledge, would hamper new product and service creation, resulting in slow economic growth reflected in low levels of entrepreneurial activity and therefore fewer business creation.

The IUS 2010 different indicators are calculated using mainly data gathered from Eurostat and OECD. Seven are the ones used to help evaluate national R&D efforts, and they are grouped into three main categories: Open, Excellent and Attractive Research Systems, Linkages and Entrepreneurship and Innovators and Outputs.

Open, Excellent and Attractive Research Systems. As researches need funds to be carried out and researchers need to be paid, the R&D level of expenditures and the quality of the research publications in a country are the main influence factors for the level of performance and the attractiveness of the research system as a whole. The indicators that help to measure the performance and the overall level of the research system are: “*New doctorate graduates*: the number of doctorate graduates on the total population between 25 and 34 years. *Internal scientific co-publications*: the number of scientific publications with at least one co-author based abroad (where abroad is non-EU for the EU27)” on the “total population”. “*Scientific publications among*

¹²Denmark, Finland, Germany, Greece, Ireland, Italy, Korea, Norway, Slovenia, Spain and United States of America

¹³Schött data for the technological transfer were not available for Italy

top 10% most cited worldwide as % of total scientific publications of the country: the number of scientific publications among the top-10% most cited publications worldwide” on the “total number of scientific publications”. “*Non-EU doctorate students as a % of all doctorate holders*: the number of doctorate students from non-EU countries” on the “total number of doctorate students” (IUS, 2010).

The R&D system of a country also influences the actual cooperation of research based activities, carried out by research institutes, with the business sector. The involvement of both parties for knowledge transfer acquisition and its applicability for the creation of new products, is then reflected in the capacity of innovate within SMEs. The sub-indicators of Linkages and Entrepreneurship and Innovators and Outputs introduced below will help to assess the main differences between Italy and Denmark regarding SMEs participation in research and product creation.

Linkages and Entrepreneurship: “*SMEs innovating in-house*: the sum of SMEs with in-house innovation activities on the total number of SMEs (Innovative firms are defined as those firms which have introduced new products or processes either in-house or in combination with other firms)”. “*Innovative SMEs collaborating with others*: the sum of SMEs with innovation co-operation activities, (e.g. those firms that had any co-operation agreements on innovation activities with other enterprises or institutions in the three years of the survey period)” on the “total number of SMEs”. “*Public-private co-publications*: the number of public-private co-authored research publications on the total population”. Innovators and Outputs: “*SMEs introducing product or process innovations*: the number of SMEs who introduced a new product or a new process to one of their markets” on the “total number of SMEs”. “*SMEs introducing marketing/organizational innovations*: the number of SMEs who introduced a new marketing innovation or organizational innovation to one of their markets” on the “total number of SMEs” (IUS, 2010).

1.5.3 Intellectual Property Rights (IPRs)

The all spectrum of intellectual property rights covers “exclusive rights over creations of the mind, counting inventions, literary and artistic works, and symbols, names, images, and designs used in commerce”¹⁴. More specifically IPRs refer to the establishment of private ownership of knowledge, in the form of patents, copyrights and trademarks. Such ownership and its enforcement can be more or less stringent or extensive according to countries. “The world economy has come to depend on IP goods –from airplanes to business software, and from pharmaceuticals to cell phones” (International Property Rights Index, 2011 Report).

¹⁴ Kyle A.J., and H. De Soto, *International Property Rights Index, 2011 Report*, a project of the Property Rights Alliance, 2011

Intellectual property rights are viewed as playing a similar role to that of physical property rights. Effective intellectual property rights generate incentives for innovation in the same way as effective property rights create incentives for production (Baroncelli, Krivonos and Olarreaga, 2004).

According to the International Property Rights Index a strong correlation exists between an effective property rights system and its “significant impact” on the economic performance of a nation. As countries with high levels of property rights protection tend to be those with higher income per capita, in the same way countries with low levels of property rights protection tend to have lower income per capita (De Soto, 2000). Further, too stringent regulations can hamper entrepreneurial activity as it may be harder to obtain protection of intellectual property. In countries where protection of intellectual property is hard to obtain, researches may feel discouraged in carrying through their work, resulting in little cooperation among research institutes and the business sector¹⁵.

Efficient and effective protection of intellectual property rights is, however, a more difficult task compared for instance to physical property rights. This is because stealing one’s intellectual property is made relatively easy as a result of its own intrinsic qualities. Consequently, countries that have weak IPRs protection necessitate of considerable resources to create an effective enforcement system of intellectual property rights, as the latter contribute to long-term economic success (Branstetter and Saggi, 2009). Besides of encouraging domestic innovation, effective intellectual property rights protection can lead to higher incentives for foreign direct investment, which in turn stimulate economic growth (Saggi, 2002). The International Property Rights Index describes intellectual property rights are a “sine qua non” for a prosperous economy, as effective implementation of IPRs can stimulate entrepreneurship activity by providing a feeling of security to entrepreneurs and investors.

The International Property Right Index¹⁶ compares the degree of intellectual property rights among countries. The value for each country is obtained through an opinion survey. Experts for each country were asked to rate, with scores ranging from “weak and not enforced” to “strong and enforced”, their country’s IPRs. The index includes, among others, Patent Protection¹⁷ measures

¹⁵Branstetter, L. and Saggi, K., *Intellectual property rights, foreign direct investment, and industrial development* (NBER Working Paper w15393). Cambridge, MA: The National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w15393>, 2009

¹⁶*The International Property Rights Index (IPRI) for the year 2010, measures the significance of both physical and intellectual property rights and their protection towards economic well-being, using three indexes: Legal and Political Environment (LP), Physical Property Rights (PPR), and Intellectual Property Rights (IPR). The study is assessed through an international comparative perspective, it is in fact assessed among 129 countries.*

¹⁷*Patent Protection reflects the strength of a country’s patent laws based on five extensive criteria: coverage, membership in international treaties, restrictions on patent rights, enforcement, and duration of protection. (Definition from IPRI 2010)*

and Copyright Piracy¹⁸ measures. Scores for the latter measures are not available separately, but the overall score is measured on a scale from 0 (low) to 10 (high).

The legal and political environment of a country, influences the extent to which Intellectual property rights are efficient and effectively implemented (World Economic Forum's 2010-2011 Global Competitiveness Index). Three components defined as follow (World Bank Institute, 2010) are determinant in helping to describe the legal and political environment regarding enforcement and protection of IPRs: Judicial Independence studies the extent to which the judiciary system is free from political and business groups influence. The independence of the judiciary system is a crucial factor for effective protection and support of the courts with respect to IPRs. The Rule of Law, as previously described, here complements the judicial independence component. Corruption as previously described, highly influences people's trust in the existence of effective implementation and enforcement of IPRs.

GEM researches also assess Intellectual Property Rights. They do so by asking a panel of experts the truthfulness of the following statements regarding a specific country. The GEM survey for the assessment of Intellectual Property Rights in part cover the indexes analyzed above: "the Intellectual Property Rights (IPR) legislation is comprehensive", "The Intellectual Property Rights (IPR) legislation is efficiently enforced", "The illegal sales of 'pirated' software, videos, CDs, and other copyrighted or trademarked products is not extensive", "New and growing firms can trust that their patents, copyrights, and trademarks will be respected" and "It is widely recognized that inventors' rights for their inventions should be respected"(Schött, 2006). Thus, protection of IP rights is also reflected in the level of a country's intellectual assets.

In order to assess the level of intellectual assets, indicators of the Innovation Union Scoreboard (IUS, 2010) will be used. The three indicators below are calculated in the following way by the IUS 2010 using mainly data gathered from Eurostat and OECD. PCT patent application: "the number of patent applications filed under the PCT, at international phase, designating the European Patent Office (EPO)" divided by "GDP in PPP Euros. Patent counts are based on the priority date, the inventor's country of residence and fractional counts". Community trademarks¹⁹: "the number of new community trademarks applications" divided by "GDP in PPP Euros". Community designs²⁰: "the number of new community designs applications" divided by "GDP in PPP Euros" (IUS, 2010).

¹⁸Copyright Piracy The level of piracy in the IP sector is an important indicator of the effectiveness of the intellectual property rights enforcement in a country (definition from IPRI, 2010)

¹⁹According to the COUNCIL REGULATION (EC) No 40/94 definition, a community trademark is: "A Community trade mark may consist of any signs capable of being represented graphically, particularly words, including personal names, designs, letters, numerals, the shape of goods or of their packaging, provided that such signs are capable of distinguishing the goods or services of one undertaking from those of other undertakings".

²⁰A community design "is an exclusive right for the outward appearance of a product or part of it, resulting from the features (in particular, the lines, contours, colors, shape, texture and/or materials) of the product itself and/or its ornamentation" (From the OHIM, for further information see: <http://oami.europa.eu/>)

1.5.4 Financial Environment

The financial environment of a country provides those financial resources indispensable for the funding of new start-ups. Funding can assume different forms: equity or debt funding; European, governmental and regional subsidies, banks, private individual funding, venture capital²¹, business angels²² and initial public offerings. Lack of finance and/or low access to finance have been acknowledged as the main obstacles for entrepreneurship (Huyghebaert, 2007).

Many studies show that early-stage entrepreneurial activities usually display a quite low level of formal external financing. Instead they mainly rely on own equity and on informal finance such as family and friends' funds and investment of other individuals, including business angels (Bygrave, 2003). To a smaller extent, entrepreneurs also use trade credit and bank loans to finance their activity. A minor reliance on bank financing may be attributed to a lack of credit history and/or collaterals that results in having nascent entrepreneurs financially constrained and unable to start their activity. Financial constraints blocking external finance access can be alleviated through capital accumulation; a developed financial system could get rid of liquidity constraints by facilitating savings accumulation of to-be entrepreneurs, thus enhancing entrepreneurial opportunities (Parker, 2004). Stringent regulations of the banking sector also limits entrepreneurs access to bank credit. Thus, an efficient regulatory system would provide more opportunities to finance early-stage activities, but an overregulated banking system could result in extensive government intervention resulting in fewer finance possibilities.

In systems in which, external financing is very difficult (if not impossible), to obtain, the informal financing could replace the formal one as capital from family members, friends and informal business angels is more easily accessible. Therefore informal funding plays an important role for the start-up phase. Another consequence of a poorly functioning financial environment is also reflected in a weak legal system in which weak legal rights, property rights and contract enforcement influence financial discouragement, restraining access to external finance (Huyghebaert, 2007).

²¹ Venture capital is often not distinguished by private equity or merchant banking as whole of them are characterized by investment activity from institutional investors,, public operators, large firms or privates in risk capital of other enterprises. The difference mainly relies on the fact that venture capital investments are directed at start-ups activity of to-be-enterprises which usually have a strong innovation factor and high development potential. The start-up usually receive financial capital and assistance services from the investor who in return will acquire some of the company's share in order to gain from future profits. (From: B. Szego, "Il venture capital come strumento per lo sviluppo delle piccolo e medie imprese: un'analisi dell'adeguatezza dell'ordinamento italiano", *Quaderni di Ricerca Giuridica della Consulenza legale*, Numero 55, June 2002)

²²Business Angels are investors in risk capital. They are usually ex-owner or ex-managers of firms, therefore they possess a great network in the entrepreneurial word. They act as financial intermediates between start-ups and private investors. Usually Business Angels organize themselves in local networks called Business Angels Networks (B.A.N.). (From "Gli strumenti per il sostegno alle imprese ed allo start-up: Incubatori, Business Angels e Venture Capital" CETRA il portale della ricerca e dell'innovazione a Milano, Documentation)

This section will provide a general idea of what kind of financial instruments are available at the national level and when possible, their current status and affordability by potential entrepreneurs. Once again, through some types of indicators, a performance comparison between Italy and Denmark will be provided, mainly through GEM and the World Bank's Doing Business report. Gem assess Financial Resources by asking a panel of experts to state the truthfulness of the following statements for a specific country: "There is sufficient equity funding available for new and growing firms", "there is sufficient debt funding available for new and growing firms", "There are sufficient government subsidies available for new and growing firms", "There is sufficient funding available from private individuals (other than founders) for new and growing firms", "There is sufficient venture capitalist funding available for new and growing firms" and "There is sufficient funding available through initial public offerings (IPOs) for new and growing firms" (Schótt, 2006).

The World Bank's Doing Business Report (2011) also analyzes the legal rights of borrowers and lenders with respect to access to credit information and secured transaction. There are two main sub-indicators related to the financial environment: the so called 'Getting Credit' and the Legal Rights index. The Getting Credit index is based on a scale from 0 to 6 and study the depth of the credit information system of a country by measuring the rules and practices influencing scope and accessibility of credit information, available through public credit and/or a private credit bureau. The Legal Rights index is measured on a scale from 0 to 10 and indicates the degree to which collateral and bankruptcy regulations protect rights of lenders and borrowers, thus facilitating lending²³.

1.5.5 Legal infrastructure

The legal infrastructure measure the affordability and accessibility of the quality services in the legal sector, together with the ability, for new firms, to quickly be able to start a business without having to face high tax and costs and lengthy timing related to heavy regulatory permits requirements. The general legal infrastructure of a country and in particular business startup regulatory obligations (timing and costs related to procedure requirements) have been found to have a strong relationship with entrepreneurship (De Soto, 2000), as the higher their burden the lower the level of entrepreneurship activity in a country.

²³International Financial Corporation and The World Bank, *Doing Business- Italy- Making a Difference for Entrepreneurs*, 2011

The 2008 Italian GEM report, through a national expert survey, classifies 11 countries²⁴ according to the level of legal infrastructure: “whit regards to the extent to which the government sets taxes or regulations or the application of either are either size-neutral or encourage new and growing firms” (Corbetta et al., 2008). The survey measures perceptions of people involved in entrepreneurship activity. Scores, range from 1(low) to 5(high), thus, as for the technological transfer, data here are presented differently: the country’s score is shown in the corresponding ranking position among the 11 countries (a high number would reflect a low ranking position)²⁵.

More specifically, the availability and functioning of legal infrastructures can then be measured through different indexes. Within the business freedom framework, the World Bank’s Doing Business report (2011) assess different measure connected to the ‘ease of starting a business’ among 183 countries. Some of the indicators that help explain commercial and legal infrastructures are: the number of procedures required to set up a business, cost required to complete each procedure and taxes (the total tax rate as a percentage of profits and the time required to comply with major taxes). Societies with heavy administrative burdens, especially large bureaucratic countries that have an unnecessary number of rules and procedural requirements, numerous approvals and documentation requirements needed from multiple institutions, harshly restrain entrepreneurial activity. Further, the time and money required to meet heavy administrative requirements might constrain the creation of new businesses (Lee and Peterson, 2000). Also Taxation rates affect entrepreneurship, as a country tax structure influences new entrepreneurial activity, social security and public expenditure. In particular if firms’ tax is particularly high, this increase entrepreneurial costs and may affect the decision of undertaking an entrepreneurial activity in the first place (Baughn and Neupert, 2003).

The International’s Corruption Perception Index (the degree to which the public power is exercised to achieve private gain) is again a valuable measure to understand how the various entities involved in the functioning of the legal structure actually act in order to achieve efficient levels within the system. The International Property Right Index²⁶ also compare the degree of protection of property rights among countries. The overall index for each country is obtained through an opinion survey. Experts for each country were asked to rate, with scores ranging from “weak and not enforced” to “strong and enforced” the protection of property rights (both physical and intellectual) as measuring the degree to which a country has effective regulations regarding the protection of property rights

²⁴Denmark, Finland, Germany, Greece, Ireland, Italy, Korea, Norway, Slovenia, Spain and United States of America

²⁵Schött data for legal infrastructure separated from commercial infrastructure were not available

²⁶The International Property Rights Index (IPRI) for the year 2010, measures the significance of both physical and intellectual property rights and their protection towards economic well-being, using three indexes: Legal and Political Environment (LP), Physical Property Rights (PPR), and Intellectual Property Rights (IPR). The study is assessed through an international comparative perspective, it is in fact assessed among 129 countries.

and the degree to which its enforcement influences individual entrepreneurial desire. In fact, the index analyzes the overall independence of the judiciary system in a country and the possibility of private property expropriation and the facility with which individuals and businesses can enforce contracts thus facilitating interaction with subcontractors, suppliers, and consultants. The more secure and effective a legal system of protection of property rights is, the more secure individuals can feel when attempting entrepreneurial activity. Higher scores reflect high legal protection of property rights.

1.5.6 National Culture and Entrepreneurship

GEM projects view national culture as influencing and shaping individual orientation and environmental conditions, which in turn determine the level of entrepreneurship activity in different countries (Baughn and Neupert 2003).

In the same way as the institutions of a society shape the opportunities and the support to entrepreneurship activity, also the culture of a society, meant as the entire set of values, norms and beliefs, influences the way in which entrepreneurship is profiled and conducted. Here too what it will refer as cultural framework, comprehend a very broad spectrum of different aspects and facets that, for the same reasons illustrated above, it will be narrowed down into only a few ‘cultural-shaping-conditions’: a general national entrepreneurial culture, the perception of individual entrepreneurial aptitude, entrepreneurial education through training and the perceived needs for availability and quality of entrepreneurship education and training.

The culture of a society reflects its shared beliefs, values and expected behaviors regarding what’s wrong and right, which in turn influence incentives, education and skills²⁷. Any society has its own culture of values and knowledge that shapes and influence the way in which entrepreneurship is conducted and this is passed on to generations through education leading to a distribution in wealth and income. A culture that promotes entrepreneurial behavior has more propensity to develop innovation; while a culture that rather promoting conformity is less likely to encourage innovation and firm creation (Hayton et al., 2002).

As it appears to be non-existent a specific country level cultural framework related to entrepreneurship activity, for the first part of the cultural dimension the paper will focus on two cross-cultural research activities that seek to understand the differences in national cultures for the understanding of the various organizational aspects and phenomena in societies. The most widely known theory of business behavior is that of Greet Hofstede (1984). Through his study of IBM

²⁷Hayton, J.C., George, G., and S.A., Zahara, *National culture and entrepreneurship: a review of behavioral research*, Entrepreneurship Theory and Practice, 2002

employees in fifty countries, Hofstede's theory analyzes how the culture and values affect business behavior through four dimensions: **Power Distance, Uncertainty Avoidance, Individualism and Masculinity.**

Power Distance Index (PDI) measures the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally. **Uncertainty Avoidance Index (UAI)** measures a society's tolerance for uncertainty and ambiguity; it indicates to which degree members of a society feel either comfortable or uncomfortable in uncertain situations. **Individualism (IDV)** in opposition to collectivism, measures the degree to which individuals are integrated into groups. **Masculinity (MAS)** in opposition to femininity measure the distribution of roles between genders and the extent to which the dominating values in a specific society are achievement and success.

Even though Hofstede's theory does not specify the relationship between culture and entrepreneurial activity per se, his dimensions are helpful in classifying main aspects of culture, related to the potential for entrepreneurial behavior. However, studies from Baughn and Neupert (2003) and Klyver et al. 2007 help assess, with the use of multiple regressions, the relationship between Hofstede's dimensions and entrepreneurship activity within countries. The disadvantage within the Hofstede's framework is that all measures are based on data collected during the 1970s, which means that they do not take into account possible adjustments (of measures and dimensions) within the past thirty years²⁸. Though it is still one of the most widely used studies among researchers, as it gives valuable insights within different cultural dimensions and their link to business behavior.

Secondly, Reynolds et al.(2002) provides definition of entrepreneurial necessity and opportunity motives and their relation to a country's economic development and therefore, its entrepreneurial activity. The opportunity-based motive includes those individuals who choose to initiate their own activity by exploiting perceived entrepreneurial opportunities. The necessity-based motive instead, involves those individuals who decide to start their own business as a result of unsatisfactory or lack of other employment options²⁹.

There is a strong correlation between social, political, economic and cultural contexts in a country and its state of entrepreneurial activity. All these aspects influence each other; at times they are complements of one another, at others they overlap making the picture more intricate and difficult to analyze. Though, they represent key features of the engine of firm start-up and entrepreneurial

²⁸ Hechavarria D.M. and P. D. Reynolds, *Cultural norms & business start-ups: the impact of national values on opportunity and necessity entrepreneurs*, Int Entrep Manag J, 2009, 5:417–437

²⁹ Reynolds, P. D., Bygrave, W. D., Autio, E., Cox, L. W. and H. Hay, *Global entrepreneurship monitor, 2002 executive report*, Babson College, London Business School and Kauffman Foundation, 2002

opportunities, expertise and incentives for the starting of new businesses, which in turn affect the entrepreneurial activity rate of a country.

Socio-economic and national perception by individuals will instead be used to analyze the perceived support to individuals from the institutional environment. These variable play a vital role in influencing a country's early-stage entrepreneurship activity, because these factors play an important role in the decision-making of individuals of founding a new business. As previously mentioned, the level of early-stage entrepreneurship activity reflects the economic system of a country. The analysis of the institutions above helped to assess a general framework of the main factors that hinder or promote start-up activity. By analyzing individual perceptions and attitudes of entrepreneurs involved in early-stage activity, one can better understand to which extent the policies and the financial tools put forward by national governments are working effectively to actually reach individuals (Schrör and Istat, 2008). By putting GEM data for Italy and Denmark in comparison, statistical data can help determine how to improve the total economic environment with reference to social characteristics and motivations that shape and influence the decision to undertake an entrepreneurial activity. Moreover, even when some kind of data are found within various kind of reports, they often do not match across different reports analyzing the same country in the same year. Thus, although the analysis will result slightly biased, compromises had to be made in order to provide the clearest possible picture across countries and across years. The factors analyzed in this part will be: the perception of individual entrepreneurial aptitude, entrepreneurial education through training and the perceived needs for availability and quality of entrepreneurship education and training.

For entrepreneurial attitude and perceptions data are gathered from a survey carried through by GEM experts among 18 innovation-driven countries based among the adult population (18-64 years) non-entrepreneurially active. This, because the analysis is focused on perceptions of potentially to-be entrepreneurs, aimed at understanding how the population feels about entrepreneurial activity. If for example, the perception and attitude of individuals regarding entrepreneurship are low or negative, the majority of the population probably does not foresee entrepreneurship activity as a viable and possible choice of life, hence a low level of entrepreneurship activity and early-stage entrepreneurship activity. Entrepreneurial attitudes and perceptions taken into account asked to individuals if they: See good opportunities for starting a business in the next 6 months, Fear of failure, Personally knows someone who started a business in the past 2 years, Have the required knowledge and skills to start a business, Expect to start a business in the next 3 years, Entrepreneurship considered as desirable career choice and Media attention for entrepreneurship.

Training is important with regards to entrepreneurship activity as people's learning increase their participation in entrepreneurship. Through training people generate more human capital that as new entrepreneurs can be used to create and select networks taking advantage of opportunities in relation to starting their own business (Coleman, 1990). Early training for entrepreneurship at the school level mainly encourage motivation for innovation and for starting a business, later training (after school) can help to teach skills and to increase creativity, opportunity-awareness and risk-willingness (Schótt, 2010). The results of the GEM survey among 11 innovation-driven economies show the percentage of the working adult population (18-64 years) who actually received training in setting up a business. Levels vary greatly from a high level of 48% in Finland to a low 13% in Israel. The training measures are presented as follow: School voluntary, School compulsory, After school voluntary, After school compulsory and Any training.

Countries (11 for this sample) from innovation-driven economies were also analyzed regarding provisions of entrepreneurship education through training within their borders. Each dimension was rated with values from 1 to 5 (1 being the lowest) regarding the need for, availability of and quality of entrepreneurship education through training in each country through the following aspects: Entrepreneurs in general need help with their plans before start-up, Enough help available outside education system, Quality of entrepreneurship education and training at school and Quality of entrepreneurship education and training after school.

Average country scores imply that early-stage entrepreneurs' need for external help slightly decreases as countries develop economically, and the availability of such help increases. Usually the perceived quality of school-level entrepreneurship education and training raises with economic development, but the perceived quality of post-school entrepreneurship education and training does not. This implies that specialists see abundance of help availability in the majority of innovation-driven countries though, they question its quality.

2 Research

2.1 Entrepreneurship Activity and Entrepreneur's Innovation: an overview of Italy and Denmark

Entrepreneurship has for long been viewed as an important factor for national economic growth and development (Baughn and Neupert, 2003). Start-up activity can be found in all countries but with considerable differences across nation's rate of early-stage entrepreneurial activity. In an attempt to understand why such rate varies considerably across countries, researchers have studied national differences in entrepreneurial orientation and national differences in political, legal, economic and social framework (Lee and Peterson, 2000). GEM projects and Lee and Peterson's cultural model of entrepreneurship both view national culture as influencing and shaping individual orientation and environmental conditions which in turn determine the level of entrepreneurship activity in different countries (Baughn and Neupert, 2003).

An entrepreneur is referred to as innovative if she/he produces, through new procedures or technology, new products or services and, in doing so she/he is confronted with little competition. The notion of innovation can be applied to individual entrepreneurs, who are innovative, or to society, which possesses a volume of innovative entrepreneurship (Schótt, 2006). Innovation and entrepreneurship have been identified by the OECD³⁰ as two of the four microeconomic drivers for economic growth in knowledge-based economies (the other two being human capital and ICT).

Entrepreneurship is seen as the main driving force behind the revitalization of the industrial structure, its promotion has become of vital importance for policy makers for its impact of "functioning of market economy" and the idea of entrepreneurs as "agents of change, growth and innovation"³¹. Entrepreneurship is in fact one of the most important drivers of innovation (Dahlstrand et al., 2010).

'General entrepreneurship' is defined by all category of all kind of entrepreneurship activity³², and it is highly influenced by society and the way in which this is organized in supporting entrepreneurship activity in the institutions. According to Schótt (2006), the institutional framework is what gives life to opportunities and at the same time, those opportunities are key factors of the institutional framework. Opportunities are thus created by the factors of different institutions and the way they interact with society. The 2010 GEM report studied opportunities regarding entrepreneurship³³ on a scale from 1 to 5 in which Denmark was measured with a 3.4 against a 2.6

³⁰ OECD, Entrepreneurship: growth and policy, Paris 2001

³¹ OECD, *Fostering Entrepreneurship*, OECD, Paris, 2008

³² T. Schótt, *Entrepreneurship in the Regions in Denmark-studies via the Global entrepreneurship Monitor*, University of Southern Denmark, 2006

³³ GEM researches assesses Opportunities by asking to a panel of experts the truthfulness of the following statements regarding a specific country: "In Denmark, there are plenty of good opportunities for the creation of new firms", "There are more good opportunities for the creation of new firms than there are people able to take advantage of them", "Good opportunities for new firms

for Italy. By comparing different countries' opportunities and their level of entrepreneurship, Schött (2010) points out the positive relationship between the two: countries which show many opportunities are more likely to have higher levels of entrepreneurship. The opposite also holds true. As opportunities varies greatly from country to country, they can explain a lot of the variation in entrepreneurship level among states.

Gem as classified participating countries according to a nation's stage of economic development: factor-driven, efficiency-driven and innovation-driven countries. The innovation-driven economies include, among others, Italy, Denmark, Germany France, Spain, Norway, UK and the United States. A country is considered to be in the innovation-driven stage when its competitive advantage³⁴ exists within the country's capability to innovate and produce products and services at the global technology frontier. At this stage the approach should be centered on the technological diffusion and in the development of innovational environment. Therefore there should be a combined effort of incentives by the institutions towards the business sector and the enhancement of entrepreneurship activity³⁵. Innovative entrepreneurship is likely to be more effective in environments with high level of general entrepreneurship activity, specifically in those where the entrepreneurship level is high and vastly supported by society (Dahlstrand et al., 2010).

Even though EU countries show a high average of relative presence of innovative early-stage entrepreneurial activity, the picture is largely diversified if we look at specific EU countries; Italy, Spain and Greece, for example possess moderately fewer new product-market oriented entrepreneurs in early-stage entrepreneurial activity if compared to other countries such as Denmark, France, Ireland, and Slovenia. Moreover, GEM's data show how nations in the innovation-driven phase have higher numbers of technology related to early-stage entrepreneurial activity; here again although the average of European countries ranks high, Italy is still found among the lower-scores innovation-driven economies³⁶.

According to GEM's reports, economic development and the level of entrepreneurship activity is represented by a U shaped relationship, in which those nations that have a low level of income per capita are then characterized by a dominance of many small business. With the increase of income per capita, economies of scale and industrialization allow for the growth of larger businesses, development that is also strictly correlated to the presence of political stability mirrored by the presence of very strong institutions. As the number of large firms increase in an economy, the

have considerably increased in the past five years", "Individuals can easily pursue entrepreneurial Opportunities" and "There are plenty of good opportunities to create truly high growth firms". (From GEM Report-Denmark 2006)

³⁴ *Competitive advantages are what gives an edge over rivals and an ability to generate greater value. A competitive advantage can be comparative or differential. The first one regards to the ability to produce a good or service at a lower cost than its competitors. The second regards the creation of products or services that differ from competition. (From: Krugman et al., 2006)*

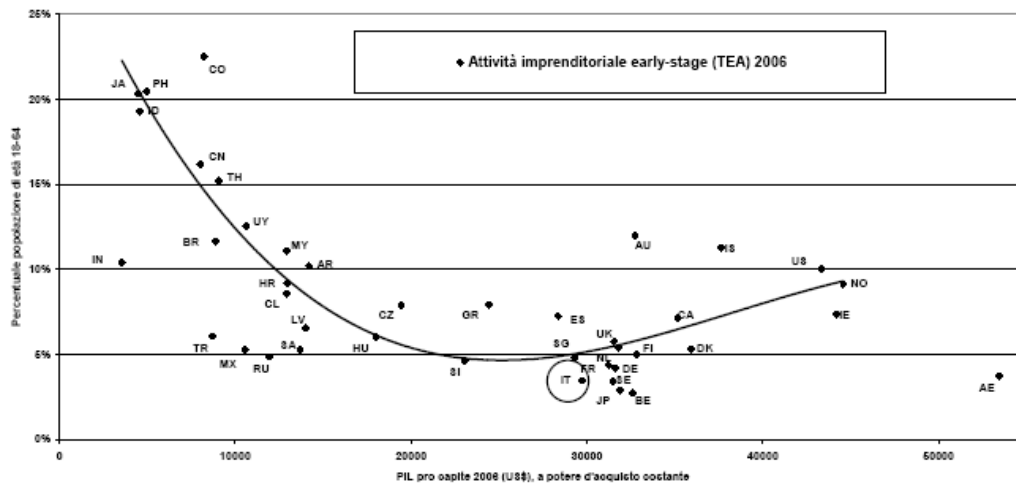
³⁵ <http://www.tradeforum.org/news/fullstory.php/aid/536>

³⁶ Corbetta G., Dawson A. and G. Valentini, *Global Entrepreneurship Monitor- Italy*, 2008 Executive Report

number of new business usually decreases, as a larger percentage of the population finds employment within these large companies³⁷.

The figure below illustrates the relationship between the level of GDP per capita and entrepreneurship level for early-stage activities in 43 countries.

Figure 1. Early-stage entrepreneurship index and GDP per capita, 2006



SOURCE: GEM Report 2006- Italy

On the left hand side of the graph we can see that countries that have relative low levels of GDP per capita are negatively correlated with the rate of early-stage entrepreneurship activity. On the right hand side instead, we see those countries that represent a positive relationship between GDP per capita and early-stage entrepreneurship activity.

As mentioned above, the “U” relation between national wealth and entrepreneurship is created by different entrepreneurship incentives between countries with a low level of economic development and those with higher economic development. In countries with lower GDP individuals start a new economic activity usually dictated by necessity, which leads to high measures of entrepreneurship. With an increase in economic development, possibility of jobs with already existing enterprises (usually of big dimensions) increase, so as to decrease the rate of entrepreneurship. Further, in countries like Italy and Denmark, with a high economic development, the rate of entrepreneurship starts to increase again with the increase of income per capita. This happens because, at this stage, starting up a new business activity becomes an interesting opportunity thanks to a more efficient job market. However, even in these countries, individuals can be pushed to initiate their own activity moved by necessity, as economic growth is limited and big enterprise find themselves forced to dismiss their employees or not able to absorb the entire job demand.

³⁷Corbetta G., Dawson A. and G. Valentini, *Global Entrepreneurship Monitor- Italy*, 2008 Executive Report,

In the graph above Italy and Denmark are positioned, although with different values, under the tendency line, close to other countries of the European Union (Germany, France and the Netherlands). These countries in fact, show relatively low levels of early-stage entrepreneurship with respect to their GDP per capita³⁸.

The Italian early-stage entrepreneurial activity, has not increased since 2002, but it has slightly swung up and down; though, it does not diverge considerably from that in other European countries (with the exception of Ireland). Between the years 2002-2008, also the Danish early-stage entrepreneurial activity has swung up and down, but the range shows higher levels than Italy for each year except for 2005 and 2008 (though the difference here are not very significant; data are respectively 4.8% for Denmark vs. 4.9% for Italy in 2005 and 4.4% for Denmark vs. 4.6% for Italy in 2008) (Schótt, 2007).

According to GEM reports, early-stage activities are generally restrained by lack of financial resources for new entrepreneurs and by a lack of efficient governmental programs. Structural problems include an inefficient use of public resources and rigidity of the labor market that hamper job creation (World Economic Forum). These are coupled by high business costs, especially related to taxation, and a low level of confidence among investors. Positive aspects include high capacity and skills among the entrepreneurial population and an overall supportive cultural and social environment that promote entrepreneurship.

As per 2008 data, Italy presents a rate of early-stage entrepreneurship activity of 4,6% against a value of 4.0% for Denmark, given its the negative change (-1) from 2007 to 2008. Even if it has changed year per year, Italy's early-stage entrepreneurship index has not shown considerable alterations since 2002 (see Table 2).

Table 1. Prevalence Rates (Expressed In %) Of Entrepreneurial Activity And Business Owner-Managers, For Those Aged 18-64

Country	Nascent Entrepreneurs	New Business owner managers Entrepreneurs	Early-stage entrepreneurship Index (TEA)
Italy	2.0%	2.7%	4.6%
Denmark	2.3%	2.3%	4.0%

SOURCE: Global entrepreneurship Monitor-Italy, 2008

³⁸Corbetta G. and A. Dawson, Global Entrepreneurship Monitor- Italy, 2006, *Rapporto 2006 sullo stato dell'Imprenditorialità in Italia*, EntER-Centre for Research on Entrepreneurship and Entrepreneurs

However, if the evolution of the index is taken into account, on average Denmark presents high values (5.4% for Denmark vs. 4.5% for Italy), comparable to those of UK, Norway and Ireland.

Table 2. Evolution Of The Tea Index In 2002-2008

Country	2002	2003	2004	2005	2006	2007	2008	Average 2002-2008
Italy	5.9%	3.2%	4.3%	4.9%	3.5%	5.0%	4.6%	4.5%
Denmark	6.5%	5.9%	5.3%	4.8%	5.3%	5.4%	4.4%	5.4%
Average EU countries ³⁹	5.2%	5.0%	4.8%	5.1%	5.0%	5.3%	5.6%	5.1%

SOURCE: Global entrepreneurship Monitor-Italy, 2008

The dispersion of the TEA economies estimates reflects how the rate of entrepreneurship activity is not just a function shaped by the difference in economic development of a country, but entrepreneurship is more of a socioeconomic event as it is highly influenced by institutions, demography, economy and culture of a country⁴⁰. Hence, with the analysis of the dimensions previously listed this study will attempt to find the main reasons underlying the difference on the countries' average level of early-stage entrepreneurship activity.

2.2 Structure and policy for Innovation and R&D

2.2.1 Structure and policy in Italy for Innovation and R&D

The Italian R&D sector, which lives according to policy and investments from the public and private sector, is very fragmented among various budget holders and decision-making bodies⁴¹, both at the local and at the national level. This creates difficulties in coordinating all the different initiatives and in allocating the funds in an efficient way.

The separation of responsibilities for the drafting and implementation of the innovation programs is divided and takes place both at the national and regional level. Even though effective cooperation

³⁹The average is available for only 13 countries of the European Union: Italy, Denmark, Ireland, Spain, UK, Finland, Hungary, Germany, Slovenia, Netherlands, France, Sweden and Belgium. (From GEM Italy, 2008)

⁴⁰Corbetta G., Dawson A. and G. Valentini, *Global Entrepreneurship Monitor- Italy, 2008 Executive Report*

⁴¹This is due to the presence of many ministries involved in the drafting and approval of research and innovation policies: the Ministry of Education, University and Research (MIUR), the Ministry of Economic Development (MSE), the Ministry of Public Administration and Innovation, the Ministry of Economic and Finance (MEF), the Ministry of Environment, the Ministry of Health and the Interministerial Committee for Economic Planning (CIPE). To these bodies other institutions are then involved for the implementation of the policies (see list of universities, knowledge institutes, public innovation agencies and organizations, private sector organizations and industrial research organizations).

among these levels is essential, usually different measures and methods are adopted between the national and regional level according to the type of program⁴².

Based on the European Commission's *Innovation Policy Progress Report, Italy (2009)*, Italian's various institutions and organizations shaping and determining innovation and R&D, working at the national and regional level, can be grouped into six categories.

Governmental and legislative level: The Italian Ministry of Education, Universities and Research (MIUR) is the body in charge of R&D, higher education policies, the development of universities and scientific institutions, and the promotion of partnership between scientific and technological research with international institutions. The MIUR also oversees some research organizations such as the National Research Council (CNR). The Ministry for Economic Development (MSE) is responsible for promoting "strategic industrial research of specialized agencies" like the National Institution for New Technologies (ENEA). The Ministry of Public Administration and Innovation is mainly involved in the modernization of the public administration through communication and information technologies. The Ministry of Economic and Finance (MEF) is in charge for the drafting of the Budget Law for the R&D and innovation system. Other ministries involved in the innovation system are the Ministry of Environment and the Ministry of Health⁴³. Universities and knowledge institutes: 77 universities spread across the territory, the Association of Italian University Rectors (CRUI), 6 main public research institutes⁴⁴ and private research centers; managed mainly by major industrial groups such as Fiat, Pirelli, Telecom Italia, Enel, and Finmeccanica. Eight main public innovation agencies/organizations: the Italian Patent Office, the Institute for Industrial Promotion (IPI), Sviluppo Italia, Innovazione Italia, Agitec and the National Agency for the Dissemination of Technologies for Innovation at the national level. The Regional Innovation Agency and the Regional Competence Centres (RCCs) at the regional level. Private sector organizations: they are main industry associations such as Unioncamere and Confindustria. Six industrial research organization and centers: the Italian Association for Industrial Research (AIRI), Industrial Experimental Stations, Industrial districts, more than 24 Technology district, 30 Science and Technology Parks, 7 Business Innovation Centers (BICs)⁴⁵. Moreover, the financial system supporting R&D is further made up of different intermediaries and financial institutions: the

⁴²Coletti, R., *Italy And Innovation: Organizational Structure And Public Policies*, CESPI, November 2007

⁴³European Commission Enterprise Directorate-General, *Innovation Policy Progress Report*, INNO-Policy TrendChart, Italy, 2009

⁴⁴*The National Research Council (CNR), the National Agency for New Technologies (ENEA), the Italian Space Agency (ASI), the Italian Aerospace Research Center (CIRA), the National Institute for Nuclear Physics (INFN) and the Italian Institute of Technology (IIT)*

⁴⁵*The Italian Association for Industrial Research (AIRI) includes private firms and public administrative bodies and public entities, the Business Innovation Centers (BICs) was created by the European Commission Director-General of Regional Policies and Cohesion (DG-XVI), while Industrial Experimental Stations, Industrial districts, Technology districts and Science and Technology Parks are both private and public or a mix of the two.*

Italian Business Angels Network (DBAN), The Italian Venture Capital and Private Equity Association (AIFI) and a series of private banks, financial intermediaries and chamber of commerce

Italian regions, with regards to R&D and innovation policy have a high level of autonomy in designing and implementing their own innovation and industrial support programs. In particular regions are responsible for the promotion of “applied research, innovation, and technology transfer programs and projects” (European Commission, 2009). Unfortunately more often than not, policies and programs established at the national level are reformulated at the regional level, providing confusion and replicates of already existing tools, which overall decreases the policy effectiveness (Coletti, 2007). Problems are especially related to: prolonged times for program or policy approval (sometimes decisions are taken a year after the program presentation), changing of application rules for measures and incentive, bureaucratic burdens that usually discourage potential projects applicants, ambiguity in applying programs measures (shifts in government direction or in country's economic priorities, which lead to discontinuity)⁴⁶.

The main document of reference for the Italian political strategy is the “PICO” (Innovation, Growth and Employment Plan) published in 2005. Also known as the National Reform Program (NRP), the plan was created for the re-launch of the Lisbon Strategy given the European Council's dissatisfaction in relation to the results obtained within the European Lisbon Strategy⁴⁷. The main objectives of the PICO⁴⁸ are: granting incentives for scientific research and technological innovation, strengthening education and training of human capital, upgrading intangible and tangible infrastructures. The plan also sets the implementation of a number of projects for the networking of private and public sectors in the innovation field and for a focus of resources on precise areas of technology, on the creation of clusters, for helping SMEs aggregation, the fostering of private and public collaboration, and the support of technology transfer to foster entrepreneurship activity.

Later, The National Reform Plan (NRP) for the years 2006-2008 restated the commitment to the promotion of innovation and research by the strengthens of the private-public partnership. The plan re-establishes the existing strategies along with the introduction of new ones. The main ones regard the reinforcement of the scientific base of the country, the straightening of the technological level of the Italian productive system, the focusing on strategic industrial research programs, involving the

⁴⁶ European Commission Enterprise Directorate-General, *Innovation Policy Progress Report*, INNO-Policy TrendChart, Italy, 2009

⁴⁷ Colletti, R., *Italy and Innovation: organizational structure and public policies*, CESPI, November 2007

⁴⁸ Italian Prime Minister's Office, Department for EU Policies, *PICO Piano Innovazione, Crescita e Occupazione. Piano italiano in attuazione nel rilancio della Strategia di Lisbona*, October 2005

participation of universities and research centers, the improvement of the competitiveness of public research systems and for the involvement of SMEs. The government moreover sets a target for expanding R&D expenditures to reach the 2.5% of GDP by 2010⁴⁹,

The National Strategic Framework (NSF) 2007-2013, which combines the EU policy programming with national programming devoted to regional development, allocated total fund for about 124.7 billion of euro. 31.6 billion of them come from national co-financing, 28.7 billion comes from the EU Structural Fund and 64.4 billion come from the Fund for Underutilized Areas (FAS Fund)⁵⁰.

Among the existing instruments for innovation within innovation programs, it is worth mentioning the Agency for the Diffusion of Technologies for Innovation and the Industria 2015 program.

The Agency for the Diffusion of Technologies for Innovation was founded by the government in 2006 with the Legge Finanziaria (Financial Bill) as a method for coping with the fragmented status of drafting and implementation of programs. The mission of the Agency is that of being a promoter of the many virtuous initiatives that are taking place all over the country but that are usually fragmented and rivals against each other. Different projects are put in place to: coordinate the different Ministries and the innovation projects at an international level, finding funds to co-finance innovation projects, manage relationships between the industries, public and private bodies and national and international institutions, promote an innovative culture and the diffusion of innovation in enterprises and institutions, in schools and among the young generations, promote the communicative action between the government, the public institutions, the enterprises and the population for the promotion of the Italian innovation abroad in an overall view for a better efficiency that will positively affect entrepreneurial activity⁵¹.

The Industria 2015 program, created by the Italian government with a law proposal in 2007 within the fiscal framework, is a further step for the enhancement of the Italian economy competitiveness in the international arena. It gives the government the power of intervention within the sphere of industrial innovation such as: “innovative finance and enterprise networks for further development”⁵². The program established strategic guidelines for the competitive development of the production industry divided in three main parts: an entrepreneurship network, innovative

⁴⁹In comparison Germany had government R&D expenditure of 2.5% in 2007, the government target was to reach the European target of 3% by 2010. Such target has not been met, instead it has deteriorated, probably has a consequence of the global financial crisis, German government R&D expenditure for the year 2011 stand at 2.3%. Spain target was 2% per the year 2010, starting from 1.2% in 2008. Spain also has not met the target as per 2011 its government R&D expenditure stand at 1.3%. France set the target per 2010 at around 3% of GDP. In 2007 it started from a level of 2%, and it has been deteriorating, not meeting the set target, as per 2011 government GDP expenditure stands at 1.9%. The United Kingdom target was set at 2.5% per the year 2014, regardless the fact that it will be met or not, the level as per 2011 stands at 1.7% (From Datamonitor-Country Profiles, 2010)

⁵⁰Coletti, R., *Italy and Innovation: organizational structure and public policies*, CESPI, November 2007

⁵¹Cianci A. and D. Giancalone, *L'Italia dei 1000 innovatori*, Rubettino, Editore, 2011

⁵²<http://www.industria2015.ipi.it/>

finance and industrial innovation projects. The strategy focuses on certain technologically productive areas with specific objectives of industrial innovation with the aim of having local and central administration of the entrepreneurship world, universities and research institutes of the financial system working together towards these objectives. There are specific subsidies to R&D projects, for studies on technical feasibility, support for SMEs and industrial property, support to new innovative start-ups, support for counseling on innovation and so on⁵³.

The report on the monitoring of the Industria 2015⁵⁴ shows how around 74% of the projects monitored is at a good stage of development, 70% of them is already in the set-up of the product prototype, while 50% is already at the product test stage. The level of satisfaction is high at all the levels of the activity. In general the picture seems positive, although three main difficulties emerged: financial, technical and partnering related. Financial problems appear to be mainly related to the long administrative procedure for the approval of projects changes which cause a delay in the subsidy allocation. For the problems of technical nature no explanation is given but it seems that as a whole, only 25% of these criticality is regarded as having high impact, of which 14% of them is related to financial problems.

In conclusion, major support in the Italian system for innovation concern the direct support of business and R&D, R&D cooperation among public research organizations and the business sector and policy measures concerning excellence and management of research in universities. Though measure for improving education and skills for entrepreneurial promotion should be increased as they appear to be almost absent. Further, the Agency for the Diffusion of Technologies for Innovation, seem to have not achieved its scope yet, as there is still a high number of authorities involved in the drafting and implementation of innovation policies, which result detrimental for a right and efficient functioning of the system towards target achievement. At the central level Italy is missing a single ministry dedicated to innovation policy, while at the regional level the duality and overlapping between the governmental and regional authorities negatively affects efficiency. Clearer roles and responsibilities are needed in the intervention areas for more effective incentives toward goals and targets supporting entrepreneurship.

2.2.2 Structure and policy in Denmark for Innovation and R&D

During the past few years Danish governance bodies for the innovation governance system have been reformed to cover all areas of innovation system both at the vertically and horizontally

⁵³<http://www.industria2015.ipi.it/?id=2>

⁵⁴Ministero dello Sviluppo Economico, dipartimento per l'impresa e l'internazionalizzazione, direzione generale per la politica industriale e la competitività, *Industria 2015- Progetti di innovazione industriale –Monitoraggio dei progetti finanziati*, Report al 30 giugno 2011

providing a uniform system. There is a strong involvement of stakeholders in the policy formulation coupled with a long tradition of consensus, with no separation between policy design and its implementation and the coordination among the different bodies involved is rather efficient (European Commission, 2009).

Based on the European Commission's *Innovation Policy Progress Report, Denmark (2009)*, Danish's various institutions and organizations shaping and determining the innovation system are summarized below. Responsibilities are divided among Danish ministries, at a lower level regional authorities can make suggestions regarding policy design and allocation of funds, feature that has strengthened the coordination between national and regional initiatives.

Governmental and legislative level: The Danish Ministry for Science, Technology and Innovation is the main coordinating body for all innovation policy matters although, also other ministries participate in the implementation. This system creates strong political and administrative coordination. The Ministry of Economic and Business Affairs deals with innovation at the traditional industry sector level with a focus on entrepreneurship, the clustering of policies and intellectual property rights (IPR). The Ministry of Education deals with broader educational policies and life-long learning features. Universities and knowledge and industrial institutes include: 8 universities spread across the country, 4 Research Council⁵⁵, 12 Authorized Technological Service Institutes (GTS institutes)⁵⁶ and 6 Science parks are property-based independent private companies that have close connections with universities.

The R&D expenditure system in Denmark (known as the Advisory and Funding System for Research and Innovation) is instead entirely managed by the ministry of Science, technology and Innovation. Research projects are evaluated by experts and researchers and awarded by free competition. The Advisory and Funding System for Research and Innovation consists of four entities: the Danish Council for Research Policy (DCRP), the Danish Councils for Independent Research (DCIR), the Danish Council for Strategic Research (DCSR) and the Danish Agency for Science, Technology and Innovation (DASTI). Further funding for research and development is distributed through diverse innovation schemes: the Industrial PhD program, a network of independent Danish research and technology organizations. Innovation intermediaries and financial institutions include: the Danish Business Angels Network (DBAN), the Danish Venture Capital and

⁵⁵The Danish Council for Research Policy (DCRP), The Danish Councils for Independent Research (DCIR), The Danish Council for Strategic Research (DCSR) and The Danish Agency for Science, Technology and Innovation (DASTI)

⁵⁶Government research institutes offer professional advice and carry out research for the respective ministry. The institutes receive basic financing from the national budget; they can get further funding through public funds allocated by open competitions through the Research Council, ministries, or other institutions. Usually, commercial activity is a common source of income for sectoral research institutes. GTS are independent non-profit making institutions. The main goal is the support of innovation in enterprises by providing technological services.

Private Equity Association (DVCA) and a series of private banks, financial intermediaries and Chambers of Commerce.

The main feature of the Danish system is its “flexicurity system”⁵⁷. The flexicurity system, adopted in the 90s, is a welfare state model providing higher flexibility in the labor market combined with social security and active labor market policies (ease of hire and fire employees and a high level of employees income security⁵⁸). Wide-ranging welfare benefits are the base of Denmark’s society, built on a sound social cohesion. The Danish welfare system provides high economic growth and a moderately equal distribution of wealth. It supplies benefits in regards of sickness, unemployment and old age; other services include subsidies children expenses, rent payment and free education.

From one side, a highly equalitarian society could restrain entrepreneurship activity, as social security benefits provided by the flexicurity system, result in a higher welfare of its citizens and thus could restrain risk-taking willingness among individuals. However, on the other hand the Danish flexicurity system provides, to all its citizens, equal opportunities and a series of direct and indirect financial supports (in the form of subsidies, access to facilities, ease of finding and changing jobs) that can translate in higher exploitation of entrepreneurship opportunities, in which each individual is put in the same condition as everybody else (if willing to and able to) of taking advantage of the available incentives.

Since 2001 the Danish government has started to implement a number of programs aimed at the entrepreneurship intensification in the education system. Of particular interest are those within the European Lisbon Strategy through which the Danish government has put forward two National Reform Programs (NRP); the first for the period 2005-2007 and the second for the period 2008-2010. Both programs have address innovation through: enhancing entrepreneurship education and research, increasing competition, cooperation between education and research, promotion of innovation and entrepreneurs, improving the interaction between enterprises and public knowledge institutions, improving regulation and infrastructure, higher institutional incentives and new technology implementation.

The National Reform Plans have then led to the creation of various elaborated innovation policy agenda in the past four years⁵⁹: the Globalization Strategy (2006), the Innovation Action Plan (2007), the Innovation Denmark, the Innovation Strategy for the Service Industry, the Strategy for the International Innovation Activities of the Enterprises and the Strategy for Enforced Innovation

⁵⁷Flemming, L., *Active Labour Market Policy in Denmark as an example of Transitional Labour Market and flexicurity arrangements –What can be learnt?*, tlm.net Managing Social Risks. through Transitional Labour Markets, WORKING PAPER, ISSN Nr. 15.72.3380-11, May 2005

⁵⁸Lundvall B.-Å., *The Danish Model and the Globalizing Learning Economy – Lessons for developing Countries*, Department of Business Studies, Aalborg University, First Draft for the Wider-project, January 2008

⁵⁹European Commission Enterprise Directorate-General, *Innovation Policy Progress Report*, INNO-Policy TrendChart, Denmark, 2009

in the Public Sector (all in 2008) and the Strategy for the GTS network (2009). The focus is therefore strong in improving the general overall framework for enhanced efficiency towards innovation and sound condition for entrepreneurship growth.

The 2006 Globalization Strategy had the main goal of maintaining Denmark in the first position regarding the best place in the world to live in⁶⁰. More than 350 initiatives were put forward to achieve this target. Within the education system, main achievements have been the creation of the Foundation for Entrepreneurship Activities and Culture-Young Enterprise, the International Danish Entrepreneurship Academy (IDEA) and the donation of grants to different educational institutions.

In order to foster education and training, in 2006 the Danish Government implemented a *Strategy for Denmark in the Global Economy* as part of the country's program to take out the most from globalization. The main objectives require Danish enterprises and public institutions to become among the most innovative at a global level with one of the highest growth rates in entrepreneurship. In order to achieve such objectives the development and production of new market goods is of vital importance. The link between knowledge and production needs to be fortified in order to be innovative. Therefore, the education system is as a way to enhance and stimulate students skills to innovate and to translate ideas into values for the society as a whole, directly affecting entrepreneurship. The Danish *Strategy for Education and Training in Entrepreneurship* represents a comprehensive framework for the education and development of future managers and employees who will then one day create economic and social value in both new organizations and the already existing enterprises and public institutions. The strategy put forward a vigorous investment in entrepreneurship training at all level of educational institutions from the folkeskole (primary schools) to the upper secondary education and from higher education to further on the job training, which has already been translated in an increased number of activities and courses and an increased number of attendants⁶¹. Important is also the interaction with external stakeholders coming from the business sector and from local and regional authorities that help in the financing and advisory of specific activities, so as to form a well spread and connected network providing a link between students and businesses. Further, a *Partnership for Education and Training in Entrepreneurship* among the Ministry of Science Technology and Innovation, the

⁶⁰European Commission Enterprise Directorate-General, *Innovation Policy Progress Report*, INNO-Policy TrendChart, Denmark, 2009

⁶¹Danish Ministry of Science, Technology and Innovation, Danish Ministry of Culture, Danish Ministry of Education, Danish Ministry of Economic and Business Affairs, *Strategy for Education and Training in Entrepreneurship*, Published By The Danish Agency For Science, Technology And Innovation, 2009

Ministry of Culture, the Ministry of Economic and Business and the Ministry of Education, through some government-regional partnership agreements work to execute the *Strategy for Education and Training in Entrepreneurship*, while coordinating the development of different initiatives. Unfortunately, besides the increased participation of students and firms within the strategy, which to a certain level may indicate the functioning of the strategy itself, an evaluation of the progress is not available yet, as it will be carried out in 2012 (Danish Agency For Science, Technology And Innovation, 2009).

In 2008, four more documents were published trying to assess different innovation aspects⁶²: Innovation Denmark, the Innovation Strategy for the Service Industry; the Strategy for the International Innovation Activities of the Enterprises and the Strategy for Enforced Innovation in the Public Sector.

The main objectives for these programs are: the strengthening of innovation in the service sector, the strengthening of public innovation, the coordination of the national innovation support system for a greater efficiency, the involvement of the service business community into R&D projects and the need for knowledge sharing for a systematic evaluation of innovation policies.

This system of dynamic innovation policies is driven by globalization, growth, competitiveness in addition to societal challenges (ageing population, immigration, environment, energy, healthcare etc.). The idea of a Danish innovation policy is that of a document that keeps updating itself as a valuable tool towards better dynamism and efficiency. Initiatives taken for a more transparent coordination and cooperation between the national and regional programs among others include the 2009 Strategy for the GTS⁶³ network 2010-2015. This strategy aims at giving businesses the opportunity to announce their specific needs for the future; the solution to such needs will then be implemented in future contracts. Such policy thus intends to improve the business sector environment by improving future GTS contracts between the Advanced Technology Groups and the government.

Moreover, the Danish government in 2009 started new reforms to regulate the central government institutions internal work and for a reduction of the administrative burdens on businesses. Such reforms are expected to reduce bureaucracy paper work and administration while giving more autonomy to the local management, so as to increase the economic performance of the country⁶⁴.

The Danish government is also proving its commitment in increasing R&D expenditures connected to innovation. The government main objectives in regards to R&D are: encourage young people to

⁶²European Commission Enterprise Directorate-General, *Innovation Policy Progress Report*, INNO-Policy TrendChart, Denmark, 2009

⁶³The GTS system is the system of Advanced Technology Groups, an association of independent non-profit research and technology institutions in Denmark.

⁶⁴Datamonitor, *Denmark: Premium Country Profile In-depth PESTLE Insights*, June 2010

complete post-secondary education, to create an entrepreneurial society by 2015 and to be “the most competitive society” by the same year⁶⁵. The main target for the 2008 NRP was to improve R&D expenditures to 3% of GDP for the year 2010⁶⁶.

The Danish innovation support has been recently restructured into the form it has today in order to address the challenge of exploiting at its best globalization; such challenge implies a wide range of complex and correlated objectives and programs concerning competitiveness, education and increase in the innovation activity level and innovation performance.

Main policies priorities for the Danish system of innovation are R&D cooperation, strategic research and excellence, management of universities R&D, with high priorities in PHD programs and public research organizations. The area that is lagging a bit behind regards support measures for SMEs (European Commission 2009). Current reforms have improved government regulation, especially thanks to the simplification of regulatory requirements and reduced administrative burdens towards businesses, the number of programs have been reduced for more clarity and efficiency. The presence of a systematic and dynamic innovation policy system by the Ministry of Science, Technology and innovation, seems to provide a more sound and unite structure addressing policy and programs formulation to help promote innovation and entrepreneurship, especially thanks to a self-criticism component that had help to focus on the main weaknesses in the system⁶⁷.

2.2.3 Italy vis-a-vis Denmark

The effectiveness of innovation entrepreneurship policy, viewed separated from other policies, may be hindered if a country’s culture for entrepreneurship is not well developed, the density of business owner is too little, the full range of education support is missing and so on (Dahlstrand et al. 2010).

The governmental and regional policies index studied through the GEM national report for Denmark (2007⁶⁸) assesses the extent to which experts (on a scale from 1 to 5) believe that in the country there is sufficient government and regional support towards entrepreneurship. The value for Italy and Denmark are shown in the table below.

⁶⁵Datamonitor, *Denmark: Premium Country Profile In-depth PESTLE Insights*, June 2010

⁶⁶European Commission Enterprise Directorate-General, *Innovation Policy Progress Report*, INNO-Policy TrendChart, Denmark, 2009

⁶⁷European Commission Enterprise Directorate-General, *Innovation Policy Progress Report*, INNO-Policy TrendChart, Denmark, 2009

⁶⁸Schótt, T., *Growth-Entrepreneurship in Denmark 2007-studied via the Global Entrepreneurship Monitor*, University of Southern Denmark, 2007

Table 3. Government Policies- the three countries with the most favorable policies and the three with the least favorable policies

Ireland	3.4
Finland	3.4
Denmark	3.2
...	
Greece	2.1
Croatia	2.0
Italy	1.9

SOURCE: Schött 2007

Although the Italian government has put forward many programs and initiatives in order to increase entrepreneurship activity and innovation, Italy scores way lower compared to Denmark (1,9 vs. 3,2). The major reason for such low score can be found on the fact that GEM data are here for the year 2007, and major reforms in Italy regarding innovation and entrepreneurship have been put forward mostly in the past three years. At present, there is no existent evaluation for policy results of the past few years; reasons for this can be found in the too short period of time that does not allow to explicitly assess the changes through quantitative research, it is also diffuse implicit practice, not to publish data if they have not proved to be satisfying. Italy is still missing a unified system of policy and programs monitoring. There has been an attempt in 2009 through the creation of the ANVUR⁶⁹ agency (for controlling only the research quality system), though at present, it has still not provided any kind of evaluation research. Denmark instead, through DASTI⁷⁰ carries on an analysis and monitoring of the various policies and initiatives performance, which has found positive effects at the micro-level, however an impact of the entire support system for innovation is difficult to assess and overall evaluations at the meta-level is still missing.

One thing that can be noted, is the focus of Danish policies regarding education and training for enhancing entrepreneurship; aspects that seem to be completely absent from the Italian policy system. For both countries is instead predominant the focus on higher and more efficient collaboration between research institutes and the business sector, that as it will be explained later in the Innovation and R&D sector, is of vital importance for exploiting early-stage entrepreneurship activity.

As there seem to be no evaluation of policy per se, comparing the general quality of the governmental and legislative system can provide an idea of the extent to which policies act efficiently thanks to effective and partial implementation. The data shown in the table below are

⁶⁹ANVUR or National Agency for the Evaluation of the University and Research System has been created for the purpose of monitoring and estimating the quality of research activities. Unfortunately, the ANVUR website, which is supposed to contain data about research publications, institute research centers and universities in Italy, seems to be still in construction and no data are available at the moment (<http://www.anvur.org>).

⁷⁰DASTI or Danish Agency for Science, Technology and Innovation performs under the Ministry of Science, Innovation and Higher Education. Its main role is that of "support and advice on research and innovation". For further information see: <http://en.fi.dk/>

presented in percentile, the higher the percentile the higher the performance. Denmark is ranked in higher percentile for all four indexes.

Table 4. Indexes influencing Policy implementation

	Government Effectiveness	Regulatory Quality	Rule of Law	Control of Corruption
Italy	66.4	78.7	62.2	62.3
Denmark	99.5	98.6	99.5	98.1

SOURCE: Datamonitor 2010

By looking at the lower levels of the Italian indexes, some inference can be made. Notwithstanding the efforts done by the government in the past decade to increase innovation and entrepreneurship activity, there is still great room for improvement. As policy evaluations are not available, the lower score with regards to policy implementation (the government credibility in connection to the commitment to such policies, the soundness and effectiveness of government policies that support the private sector development and the degree of confidence and trust by agents in performing by the rule of society), however may reflect the inability of the major policies to work effectively. Italy shows low scores in all measures compared to other EU countries and this is also due to high level of corruption (ranked in the 62.3 percentile for what regards control of corruption compared to 91.3 in France, 93.2 in Germany and 98.1 in Denmark) that influence business groups in policy making which, together with the poor fiscal health of the country, reduce the government effectiveness⁷¹. On the other hand, all the major policies that the Danish government has started to implement in the past two decades seem to be moving in the right direction. Further, it seem that, on paper, Italian policies are generally targeting right measures for increasing and strengthening innovation and entrepreneurship (except maybe for education and training); as they already address main failures within the system (reflected in the higher score for regulatory quality). The main problem then, is to be found in the managerial implementation of such policies. As previously stated, the high number of bodies and programs involved in the implementation process negatively affect efficiency and decreases government credibility (low government effectiveness). In addition a weak judicial system and the presence of corruption (low levels in rule of law and control of corruption), lead to benefit only certain groups within society, harmfully affect non-elite groups for which it becomes harder to take advantage of the above mentioned initiatives and are confronted with cumbersome amount of bureaucracy.

Another reason for the lower performance of the Italian government effectiveness can be found in the great number of different public bodies, both at the national and regional level, that leads to a

⁷¹Datamonitor, *Premium Country Profile Series, Italy, In-depth PESTILE Insights*, April 2010

difficult management of the system. In addition, a large number of the programs often address the same issue, or share similar targets, creating confusion and overlapping efforts that ultimately lead to inefficient results⁷². On the contrary, the Danish system appears more compact and integrated as policy formulation, implementation and funding are carried through in a more integrated system both horizontally and vertically, with a coordinated involvement of main stakeholders⁷³. Moreover, the regular monitoring helps policy-makers addressing main issues for an improvement of the current policies.

Weaknesses at the Italian national level at times re-emerge at the regional level. There is a need for an instrument that efficiently link upstream research and the dissemination of results (through production) by entrepreneurship activities and business clusters downstream. Regional interventions, organized with the view of being complementary to that of the national level, often merely duplicate the entire system of the “R&D process from financing by university structures to SME technology transfer activities, concentrating in particular on upstream activities” (Coletti, 2007).

Further, there is in Italy a strong focus on the SMEs for already existing firms, rather than on nascent entrepreneurs. In fact, at the national level there is no program put forward with the explicit intention of addressing entrepreneurship; an example is the total lack of educational programs regarding entrepreneurship, as instead it happens in Denmark with the government *Strategy for Education and Training in Entrepreneurship*. Directly addressing entrepreneurship activity at the educational level, foster the creation of entrepreneurial minds and skills which could then lead to higher willingness of recognizing existent opportunities for business creation.

2.3 Innovation and R&D

2.3.1 Italian Innovation and R&D: a glance at data

Public incentives are based on a funding system of direct aid to enterprises. It appears to be that the main issue of the current policy is a too strong focus on innovation in SMEs which represent the largest share of the total estimated annual budget, while, the support to innovative early-stage entrepreneurial activities has a rather low share, only around 4% (European Commission, 2009)

Given the downturn in R&D expenditures in the 90s, when public funding for R&D fell by 6.1% in 1997, the Italian government started the Science and Technology (S&T) policy. Such policy sets the milestones for a reform process and for a restructuring of the R&D system through a new

⁷² Coletti, R., *Italy And Innovation: Organizational Structure And Public Policies*, CESPI, November 2007

⁷³ *Public bodies and the national and Regional level, but also the business or research institutions as is the case for the Danish GTS system network (2010-2015)*

organization for public research institutes and the development of a more sustained R&D and technological innovation. In 2000 through the National Research Plan the government merged science and technology policies with the European Union's Science and Technology Framework Programs (S&T). Since then, R&D expenditures have started to increase, but they are still not back to the levels prior to the 1990s⁷⁴. In fact, after an increase in Italian R&D expenditures as a percentage of GDP in the years 2000-2002, they have been declining reaching a 1.2% in 2007 well below the EU target of 3%. The Italian decline in R&D expenditure is due to government cuts undertaken with the general government aim of reducing public expenditures (because of the Italian high government debt: 105.8% of GDP and negative public balance: -2.7 as a percentage of GDP). Last cuts as per 2008 decreased the university budget of 10% as the Berlusconi government thought that those funds could be allocated to support Italian banks and credit institutes⁷⁵. Regardless the new measures taken by the Italian government in 2009 concerning support to innovation, which restated a strong commitment in the increase of funds to R&D as one way to promote innovation in the country (European Commission, 2009), the R&D expenditure target of 2.5% of GDP for the year 2010, has not been met. Different statistic departments show different levels of R&D expenditure, though they are all around 1.1%⁷⁶. The decline in the R&D incentive system at the national level has not been compensated by an equal increase in the commitment at the regional level⁷⁷.

As per 2010 data, public R&D expenditure as a percentage of GDP stand at 0.58 and business R&D expenditure at 0.65, still below EU27 average of respectively 0.75 and 1.25⁷⁸.

The EU Innovation report of the year 2009 states that regarding innovation, notwithstanding latest improvement, Italy still lags behind when compared to "main European partners". Data show that innovation performance has not improved much in the past five years. The Innovation Union Scoreboard (IUS, 2010) ranks Italy above the 'moderate innovators', identifying a slow development and a below-average growth per annum: 1.8% compared to a 2.3% EU average in 2008⁷⁹. The country possesses relative strengths, in Innovators and Outputs (SMEs introduction of product or process innovations and SMEs introduction of marketing/organizational innovations). Testified also by Istat data, which show that during the triennium 2006-2008, the number of innovative enterprises (those who have introduced on the market or in their own production process

⁷⁴Datamonitor, *Italy: Premium Country Profile Series, In-depth PESTILE Insights*, April 2010

⁷⁵DL 112/2008 (Legislative Decree)

⁷⁶1.08% according to the 2010 Global R&D funding forecast, 1, 1% according to Datamonitor 2010, 1,23% in 2008 is the latest data for AIRI - R&S DATI STATISTICI, in 2008 and 1,18% latest data from Eurostat.

⁷⁷Colletti, R., *Italy and Innovation: organizational structure and public policies*, CESPI, November 2007

⁷⁸Innovation Union Scoreboard 2010, *The Innovation Union's performance scoreboard for Research and Innovation*, 1 February 2011, ProInno Europe, Inno metrics

⁷⁹European Innovation scoreboard 2009, *Comparative analysis of innovative performance*, ProInno Europe, Inno-metrics

at least one innovation) has increased by 3 percentage points compared to the previous triennium 2004-2006⁸⁰.

Growth performance is observed in Open, Excellent and Attractive Research Systems (International scientific co-publications, Scientific publications among top 10% most cited), Linkages and Entrepreneurship experience high growth rates, although together with firm investments, it still remains among the country's weaknesses⁸¹.

2.3.2 Danish Innovation and R&D: a glance at data

As mentioned above, the R&D expenditure system in Denmark is very compact and at the same time very competitive, as it relies entirely upon the ministry of Science, Technology and Innovation Research where projects are awarded by free competition.

In the past three years main priorities has focused to improve efficiency of the R&D system through increased R&D and a better cooperation and participation among institutions and the business sector with a high priority on usability⁸². Denmark results in a position of leadership in the innovation sector regarding current performance, but it is still considered to be growing slow compared to other European countries such as Germany and Switzerland⁸³. According to 2010 figures, R&D expenditures as a percentage of Danish GDP were 2.4%⁸⁴, which is a good percentage if compared to the European target of 3%. However, Danish R&D expenditures do not meet the NRP target established by the Danish government and, compared instead to other Scandinavian countries are quite low (3.3% in Sweden and 3.1% in Finland).

The IUS 2010 has classified Denmark among the innovation leaders with performance above average. The country's relative strengths are in Open, Excellent and Attractive Research Systems (especially in international scientific co-publications with growth performance) and in Linkages and entrepreneurship. Relative weaknesses are found in Finance and support, Innovators and Outputs and SMEs introducing marketing or organizational innovations⁸⁵. The problem seems to lay in the fact that those firms that intensively engage in R&D activity are the biggest and well-established ones which have high level of knowledge for the promotion of new products, though, they indicate that many of the ideas elaborated at the spin-off stage are not sufficiently developed, either because

⁸⁰Statistiche Report, Istat, *Anni 2006-2008- Innovazione nelle imprese Italiane*, 9 December 2010

⁸¹Innovation Union Scoreboard 2010, *The Innovation Union's performance scoreboard for Research and Innovation*, 1 February 2011, ProInno Europe, Inno metrics

⁸²European Commission Enterprise Directorate-General, *Innovation Policy Progress Report*, INNO-Policy TrendChart, Denmark, 2009

⁸³European Innovation scoreboard 2009, *Comparative analysis of innovative performance*, ProInno Europe, Inno-metrics

⁸⁴2011 *Global R&D Funding Forecast*, December 2010, Advantage Business Media. Other indicator show slightly different results: 2.4% according to Datamonitor 2010 and 2.72% in 2008; latest data from Eurostat.

⁸⁵Innovation Union Scoreboard 2010, *The Innovation Union's performance scoreboard for Research and Innovation*, 1 February 2011, ProInno Europe, Inno metrics

of lack of resource or because of lack of in-house expertise (The Danish Enterprise and Construction Authority, 2010), which then restrain production of new innovative products and the set up of a new enterprise.

Business in Denmark, to stay competitive, relies on a large level on knowledge transfer and acquisition (Datamonitor, 2010). As research application and technological transfer is vital for society's growth and revitalization, it is important to foster R&D activity for the development of new products and services. This, especially because new products and services present values above EU average, but according to the EIS 2009 they have experienced negative performance growth (SMEs introducing product or process innovations and SMEs introducing marketing/organizational innovations)⁸⁶. Moreover, such knowledge needs to be transferred from research-based institutions to businesses, enterprises and the society as a whole in order to keep high standard of innovation.

In general Denmark is performing well regarding the access to R&D and technology, and in particular smaller firms are found to undertake R&D activities in Denmark (especially in comparison to other countries). However some significant 'bottlenecks' are present, specifically with regards to research and business collaboration between research and business, as it still remains one of the main challenges within the Danish innovation policy (OECD, 2008).

2.3.3 Italy *vis-a-vis* Denmark

Comparing the Italian and Danish innovation and R&D system, it can be observed, regardless of some weaknesses in performance growth, how Danish indicators score higher under each category. The summary of Innovation index (SII), shows how Danish performance, through the period 2006-2010, has been stable and above EU average, high entrepreneurship levels are in fact related to higher innovation (Dahlstrand et al., 2010). Regardless of a lower than average performance at each point in time, Italy registers in total a higher growth rate (2.71% against 2.60% for Denmark and 0.85% for Europe). Reasons for this can be traced back to policies and public programs that, although fragmented among them and sometimes overlapping, are nonetheless enhancing average total innovation and entrepreneurship of the country by working within different sphere of the Italian economy. Though, the catch up phase is still long, as Italy starts at lower levels than those of Denmark. Datamonitor (2010) states that the lack of sufficient financing, especially towards the SMEs sector, is what has hindered innovation in Italy. Further, Italy still possesses very important structural rigidities and weaknesses within its system, mainly due to heavy bureaucracy requirements, taxation, and a rigid labor market.

⁸⁶Innovation Union Scoreboard 2010, *The Innovation Union's performance scoreboard for Research and Innovation*, 1 February 2011, ProInno Europe, Inno metrics

Table 5. Summary Innovation Index (SII) time series

	2006	2007	2008	2009	2010	Growth rate %
Italy	0.380	0.397	0.395	0.398	0.421	2.71%
Denmark	0.639	0.657	0.670	0.689	0.696	2.60%
EU27	0.505	0.518	0.517	0.515	0.516	0.85%

SOURCE: IUS 2010

Data from GEM (2008) has ranked Denmark 7th and Italy 11th among eleven countries, for what regards R&D transfer. Both countries in fact still need a farther strengthening of the cooperation between research centers and the business/industry sector. In Denmark the government is trying to assess such problem by increasing the number of spin-offs, while in Italy the aim is that of slightly reducing the number of organizations involved in R&D transfer as to have a more compact and unified structure without wasting resources.

Table 6. R&D transfer- The three countries with highest ranking, Denmark, and the three countries with lowest ranking

Korea	1st
Ireland	2nd
Germany	3rd
...	
Denmark	7th
...	
Slovenia	9th
Greece	10th
Italy	11th

SOURCE: Corbetta et al., 2008

Italy has very low level of R&D expenditures both at the public and the business level when compared to other European countries and especially Denmark (which possess higher than average levels). Though, on a positive note, it can be noted that, regardless of the Italian low levels of R&D expenditures, recent innovation policies seem to work in the right direction as R&D expenditure are registering positive growth performance, especially in terms of business R&D expenditures.

Table 7. Public and Business R&D expenditures

	CURRENT PERFORM.			/GROWTH PERFORM.		
	IT	DE	EU27	IT	DE	EU27
Finance and support						
Public R&D expenditure	0.58	0.90	0.75	2.8%	6.8%	3.2%
Firm investments						
Business R&D expenditures	0.65	1.92	1.25	4.3%	3.4%	2.1%

SOURCE: IUS 2010

As main research within the university system is carried out by doctorate students and researchers, it can be interesting to look at data for doctorate graduates and the number of scientific publications as an evaluation tool for the government expenditure on R&D.

New doctorate graduates levels are the same for Italy and Denmark, and they are both above EU average. Though, it seems that the Italian research system, as it is, is not able to attract a high number of researches from outside the country⁸⁷. Levels are high for growth, but the current performance is still low (Non-EU doctorate student level is 4.15 compared to 14.14 in Denmark and 19.45 in EU), which results in low levels of scientific co-publications compared to Denmark. Another problem within the Italian R&D and university system is the so called “brain drain” phenomenon, for which, many students go study abroad or study in the home country and then leave to work abroad. This is especially due by a rigid labor market which leads to difficulties related to find jobs, lower incomes and career advancement. Thus, brain drain usually causes the most brilliant people to move abroad, reducing the national research base of the country.

On a positive note, despite of the low level of research expenditures, the quality of Italian scientific publications is quite high, as they are largely cited worldwide (values very close to the EU average and Denmark) and the index registers growth performance higher than that of the EU average. From this it can be assumed that if institutional research centers were able to gather more researchers, and thus, more doctorates, the Italian research system would be highly enhanced.

The human research base of a country represents an enabler of innovation, as “the availability of high skilled and educated people is one of the most important drivers of innovation” (IUS, 2010).

Table 8. Open, excellent and attractive Research system

	CURRENT PERFORM.			/GROWTH PERFORM.		
	IT	DE	EU27	IT	DE	EU27
New doctorate graduates	1.6	1.6	1.4	12.5%	9.8%	0.0%
Internal scientific co-publications	414	587	266	7.4%	7.5%	6.7%
Scientific publications among top 10% most cited	0.10	0.12	0.11	3.8%	0.0%	2.6%
Non-EU doctorate student	4.15	14.14	19.45	14.2%	N/A	1.5%

SOURCE: IUS 2010

It could also be the case that if the amount of Italian expenditures on R&D was more efficiently managed, fewer resources would be needed. Thus, the low performance of the system is not necessary all to be blamed on the low level of R&D expenditures. In fact, as previously discussed,

⁸⁷Reasons for this might be found in the rigidity of the Italian University system, which compared to other European countries, provides fewer career opportunities (young researchers are usually ‘under the wing’ of big well-know professors and often remain stuck, without possibility of career advancement), and lower salaries.

the Italian R&D relies heavily on the state and their agencies and state-owned enterprises which are present in a very high number but poorly coordinated, which causes a general lack of defined roles and responsibilities and a lack of clear communication.

The main cause for the low industry involvement in technological R&D is in fact to be found in the great number of organizations that act as intermediaries among the science and the industrial sector, contributing to a highly bureaucratic and non-transparent system that poorly promotes innovation. This kind of system, pushes enterprises with own available funds to innovate in-house (levels are slightly above EU average, and present a high rate of growth), especially as in Italy the cooperation between research organization and the industry and communication among science, academics and the industry is very little⁸⁸. All these factors, together with the low level of business R&D expenditures, result in low levels of innovative collaboration among SMEs and between SMEs and other institutions which, also leads to a low number of public-private co-authored research publications.

Table 9. Linkages & entrepreneurship

	CURRENT PERFORM.				/GROWTH PERFORM.		
	IT	DE	EU27		IT	DE	EU27
SMEs innovating in-house	34.09	46.03	30.31		5.0%	0.0%	-2.3%
Innovative SMEs collaborating with others	5.98	8.95	11.16		8.4%	2.2%	2.6%
Public-private co-publications	20.7	49.5	36.2		0.6%	2.4%	2.2%

SOURCE: IUS 2010

Even though Italian output-innovators perform slightly better compared to the European average, the Italian consequences of the low investment in R&D and the poor coordination of funds (which do not promote collaboration between research institutes and industry and entrepreneurial activity), are evident in a lower performance of SMEs introduction of product or process innovations and marketing/organizational innovations vis-a-vis Denmark. This, also notwithstanding Denmark's recent negative performance growth.

Table 10. Outputs-innovators

	CURRENT PERFORM.				/GROWTH PERFORM.		
	IT	DE	EU27		IT	DE	EU27
SMEs introducing product or process innovations	36.91	53.61	34.18		1.5%	-4.4%	-2.3%
SMEs introducing marketing/organizational innovations	40.62	68.18	39.09		2.0%	-10.6%	-2.9%

SOURCE: IUS 2010

In general low level of R&D spending and weak coordination between the public and private sector, mainly result in poor interactions among key players (universities, public research institutes and the

⁸⁸Datamonitor, Italy: Premium Country Profile Series, In-depth PESTILE Insights, April 2010

business sector), further restraining the quantity of research carried out. Moreover, policies should further focus on the promotion of technological transfer, especially through more generous budgets, if they have to have a real impact, as the translation of research results into effective market industry application is quite low in both countries (the European Commission finds reasons also in the widespread criticism which blame the university as being closed towards the market⁸⁹).

2.4 Intellectual Property Rights

2.4.1 Italian Intellectual Property Rights

Italy is a member of the Paris Union International Convention for the Protection of Industrial Property (trademarks and patent) and of the TRIPS agreement under WTO. Even though Italy has laws regarding the protection of intellectual property, the enforcement of said laws is far below satisfactory levels⁹⁰. This reflects into Italy as being one of the countries in Western Europe having one of the highest rates of copyright piracy. In 2000 the government passed an Anti-Piracy amendment in order to overcome such problems; nonetheless, piracy rates still remain pervasive⁹¹.

Even though Italy belongs to the group of developed countries, its innovation sector and the receipt of patents lies well below that of other developed nations. The European Union Innovation scoreboard in 2009 ranked Italy as “moderate innovator” with a performance level below EU average, also put in evidence by the low number of patents registered.

According to Invitalia, Italy has one of the most developed and up-to-date laws for intellectual property rights in Europe. Recent improvements include new measures against counterfeiting, protection for internet-related intellectual property, and thinner and simplified regulation for patent and trademarks application. As will be discussed later in this section, the problem relies more on intellectual property right enforcement than on the actual quality of the law per se.

2.4.2 Danish Intellectual Property Rights

Denmark has adequate protection for what regards Intellectual property rights (IPR). Being a member of the European Union, the country complies with a number of multilateral conventions on industrial and commercial property. Further, the country performance is in conformity with main

⁸⁹ European Commission Enterprise Directorate-General, *Innovation Policy Progress Report*, INNO-Policy TrendChart, Italy, 2009

⁹⁰ The Wall Street Journal, *2011 Index of Economic Freedom*: <http://www.heritage.org/index/Ranking>

⁹⁰ <http://www.doingbusiness.org>

⁹¹ Parlamento Italiano, Legge 18 agosto 2000, n. 248, *Nuove norme di tutela del diritto d'autore*, Pubblicata nella Gazzetta Ufficiale n. 206 del 4 settembre 2000

international conventions and treaties related the protection of property rights. Denmark has ratified as well the WTO Agreement on the Trade Related Aspects of Intellectual Property Rights (TRIPS) and is a member of the Paris Union International Convention for the Protection of Industrial Property.

Intellectual property (IP) laws have highly contributed to the improvement of the technological environment. Although, Denmark ranks third as innovation leaders in the EU27 (EIS 2009), with performance above average, the country has not experienced annual growth in innovation performance and it is classified as a slow grower between the innovation leaders⁹². The reason for Denmark's slow growth could be attributed in part to the world's financial crisis and, to a level of policies and R&D expenditures that if on one side proves to be efficient for achieving high performance, on the other it is not sufficient for achieving high growth rates.

2.4.3 Italy *vis-à-vis* Denmark

According to the International Property Right Report (2010) Denmark is ranked 4th, among 129 countries, with regards to protection of intellectual property rights, with a score of 8.3. The country in fact (as stated on the structure and policy section) has low levels of corruption, high standards regarding rule of law, a fair political stability (Datamonitor 2010) and the judicial system is usually independent from political pressure (though also this index has decreased slightly) and enforcement of commercial, bankruptcy laws and secured interests in property are always applied⁹³.

The Italian enforcement of intellectual property rights ranks well below the standards of other European countries, the country in fact acquires the 26th position with a score of 6.9. The low level is influenced by the increased in Copyright piracy levels which deteriorated the Italian's image for the protection of property of professionals' opinions. Responsibility is also to be given to a particular slow judicial system for which most companies prefer to settle disputes out of court, also given the high number of politically oriented judges reflecting high levels of corruption and weaknesses in the rule of law.

Same general conclusions are also those of the GEM report⁹⁴, intellectual property in Denmark were found to be 3.55 on a scale from 1 to 5, with no significant increase nor decrease trends across the years. For the same year Italy scores 2.4, belonging to the lowest ranking group, just above Russia.

⁹²Lundsten F. *Denmark: Falling Behind The Top-5 Innovation Leaders*, www.innovationmanagement.se, SEPTEMBER 13, 2010

⁹³The Wall Street Journal, *2011 Index of Economic Freedom*: <http://www.heritage.org/>

⁹⁴Schött T., *Entrepreneurship in the Regions in Denmark- studied via the Global Entrepreneurship Monitor*, University of Southern Denmark, 2006

Table 11. Intellectual Property Rights- The three countries with most extensive rights, Denmark, and the three countries with least extensive rights.

Australia	4.3
Finland	4.2
USA	4.1
...	
Denmark	3.55
...	
Latvia	2.6
Italy	2.4
Russia	1.9

SOURCE: (Schött 2006)

The fact that across the years the Italian's performance still remains below average, reflects the fundamental weakness of the system as a whole. Structural deficiencies that even if addressed by right policies and measures, still cannot be dramatically improved within a few years.

The Danish higher quality of the R&D expenditure system, the quantity of the R&D research and its applicability, the policy goals and their more efficient implementation, together with a less corrupted system and a high level of rights protection and contract enforcement and a deeper trust within the system and the authorities are all components that are difficult to discern in their final outcome, but that taken together probably translate into higher levels of "intellectual Assets" as so identified by the IUS 2010. Intellectual Assets "capture the entrepreneurial efforts and the related collaboration efforts among innovating firms and also with the public sector" (IUS, 2010). In fact, PCT patent application in Denmark stands at 7.72, with a performance growth of 1.3% (well above the EU27 average of 4.00). Community trademarks and designs also score high, respectively 7.30 and 7.89 (also above EU27 average: 5.41 and 4.75) and notwithstanding the fact that community designs have witnessed a 3.8% decline⁹⁵.

The Italian figures are almost in line with the EU average, except for PCT patent application that in Italy stands at 2.12, against an EU average of 4.00. PCT patent application has been growing, probably showing positive signs of the government efforts with innovation policy and the extensive work put forward by the R&D system and the business sector, as it cannot be attributed to the enforcement of rights and the control of corruption in the legal system as these have not proven to have improved in the past few years⁹⁶. Community trademarks and designs score better, respectively 5.08 and 6.08 above EU27 average of 5.41 and 4.75. Community trademarks have

⁹⁵Innovation Union Scoreboard 2010, *The Innovation Union's performance scoreboard for Research and Innovation*, 1 February 2011, ProInno Europe, Inno metrics

⁹⁶ World Economic Forum's 2010-2011 Global Competitiveness Index, *International Property Rights Index - 2011 Report 2*, World Bank Institute's 2010 Governance Matters

experienced growth, while, although high, community designs have witnessed a 2.3% decline⁹⁷. Values for both indexes score well compared to the European average, though they are lower than Denmark ones. High score here are due to a long tradition of the well-known “made in Italy” that within the traditional sector has always been of great attraction and it is more a reflection of productivity of goods than pure invention within research centers as is usually the case of patents.

Table 12. Intellectual Assets

	CURRENT PERFORM.			/GROWTH PERFORM.		
	IT	DE	EU27	IT	DE	EU27
PCT patent application	2.12	7.72	4.00	3.8%	1.3%	0.4%
Community trademarks	5.08	7.30	5.41	10.5%	9.8%	10.2%
Community designs	6.85	7.89	4.75	-2.3%	-3.8%	1.2%

SOURCE: IUS 2010

It seems to be that what influence entrepreneurship activity is not as much intellectual property rights laws per se, but the degree of protection of such laws. Higher protection of intellectual property rights seems then to translate into higher patent applications, given the trust that individuals rely on them (e.g. higher sense of security for entrepreneurship in one’s own right protection), which in turn stimulates entrepreneurship activity for new product creation. Moreover, R&D investment levels influence intellectual assets levels. This because R&D expenditures foster knowledge by creating more knowledge that is then translated into firms’ capabilities and the latter are then reflected in the level of a country’s intellectual assets.

2.5 Financial Environment

2.5.1 Italian Financial Environment

The Italian financial sector is developed and offers diversified sets of services, and the banking sector experienced consolidation; the impact of the financial crisis has been comparatively modest as Italian banks are less exposed to troubled financial instruments judging against other countries. One of the main problems in organizing new investments and production remains the cumbersome bureaucracy, the inefficiency of the public administration and the legislative intricacy that causes delays and increases the cost of entrepreneurship activity⁹⁸.

The Financial tools that help new enterprises to establish their businesses work on different levels: there are ad hoc programs from the European Union, national and regional competitions and initiatives from banks and Chambers of Commerce.

⁹⁷Innovation Union Scoreboard 2010, *The Innovation Union's performance scoreboard for Research and Innovation*, 1 February 2011, ProInno Europe, Inno metrics

⁹⁸The Wall Street Journal, *2011 Index of Economic Freedom*: <http://www.heritage.org/>

The current regulatory framework for the national distribution of entrepreneurship incentives to start-ups and self-employment (autonomous work, private partnership and franchising) is the legislative decree 185/2000⁹⁹ which provides guidance for incentives and programs especially those directed to the youngster; people between the age and 18 and 35. Incentives are divided by market sector and by type of company. The main instruments for financial aid to new entrepreneurial projects are put forward by the Italia National Agency for entrepreneurial attraction and development (Invitalia)¹⁰⁰; which has been very well appreciated as application are open all year around without deadlines, and procedures are easily fulfilled online¹⁰¹.

In the period 2003-2008 the amount of subsidy supplied to entrepreneur activities amounted to 60 billion of euro. Many of the incentives at the national level are particularly addressed to young people who wants to start a business. The monitoring of Invitalia, registered in 2010 a 30% increase, compared to the previous year, for requests of grant aids and loans. Such positive trend shows that just in the first five months of this year, 2011, more than 1000 new enterprises have benefited from public funds, usually distributed by public competitions. Through the ‘*autoimprenditorialità*’, program put forward by Invitalia, start-ups can count on a mix of financial facilitation of grants, aids and low interest loans.

At present, regional incentives are a very complex system, often referred to as ‘the provisions’ jungle’ which belong to different typologies and stratify creating confusion. More often than not, programs no longer available are not repealed and are kept visible to potential users who then inevitably end up disappointed. Nonetheless regional incentives still count as a big part of the financial aid that are distributed every year to enterprises. Around 20% of the public funds paid comes from regional incentives. Each region is free to decide the formula by which such monetary supports will be supplied; such as grants aid, subsidized loans, aid in the form of (low) interest subsidy, tax credit, temporary acquisition of minority shares and vouchers. The amount of subsidies granted are usually stable in the northern region of the country, while are more volatile in the south which is more tight to development programs co-financed by the European Union and thus, it depends by the planning cycle of the EU (Coletti, 2007).

Many private banks¹⁰² provide selected services and financial facilitation for those who are initiating a business. Instruments range from low interest loans, mortgages to special programs that

⁹⁹Decreto Legislativo 21 aprile 2000, n. 185, *Incentivi all'autoimprenditorialità e all'autoimpiego, in attuazione dell'articolo 45, comma 1, della legge 17 maggio 1999, n. 144*, published in the Gazzetta Ufficiale n. 156 del 6 luglio 2000

¹⁰⁰Invitalia works through a governmental mandate in order to increase competitiveness in Italy and to sustain strategically sector for development. Its main objectives are the facilitation for foreign investment attraction and sustaining the innovation and the growth of the productive system enhancing territorial potentials.

¹⁰¹Barbieri F., Barone N., Candidi A.M., Micardi F. and F. Padula, *Mettersi in proprio-come scegliere e ottenere le agevolazioni*, LE GUIDE DEL SOLE 24ORE, Friday 24th of June, 2011

¹⁰²The most active banks in these sectors are: Intesa Sanpaolo, Unicredit, Banca Sella and Bnl-Bnp Paribas

help aspirant entrepreneurs and universities spin-offs to get in contact to collaborate and bring together researchers with the market (Barbieri et al., 2011).

Business Angels in Italy network together under the Italian Business Angels Network (I.B.A.N.)¹⁰³. The market for Business Angels in Italy has been growing since its initial phase in the first years of the XXI century. The information asymmetry, between projects-creators and investors in risk capital, is decreasing compared to previous years. The amount of investments between the year 2009 and 2010 has been growing slightly (+ 1.2%), but the amount of average investment per operator has decreased (-17%), this is due in part, by the co-investment strategy within BA groups. Business Angels in Italy are a figure of high potential growth; the number of BAs that wants to invest keeps increasing (more than the 50% in 2009). In the early-stage of enterprises today, there are 350 BAs within the IBAN, who have been investing over 31 million of euro. As the entrepreneurial projects are still at a very early stage, the growth of people within this sector results to be insignificant¹⁰⁴.

According to the Italian Private Equity and Venture Capital Association (AIFI) statistics¹⁰⁵, venture capital investment in Italy is underneath its potential. The European Private Equity and Venture Capital Association registered investment (seed, start-up, expansion, replacement capital and buyouts)¹⁰⁶ across European countries as a percentage of GDP; the Italian market capitalization stands at 0.0167%, far below that of the UK, France, Germany, and Denmark (respectively 1.123%, 0.301%, 0.187% and 0.186%). Italy has one of the highest private savings rates, very little is held in equities; investors rather choose bank deposits or real estate investment to place their capital.

2.5.2 Danish Financial Environment¹⁰⁷

According to OCSE, the overall availability of financial resources for entrepreneurs in Denmark looks positive: businesses with growth potential and reasonable guarantee seem in general able of finding loan capital and fund their operations. (OECD 2005)

The Danish financial system is quite competitive, no banks are state-owned and the central bank is independent (contrary to the Italian central bank which is co-owned by public authorities and private banks and insurance companies). During the global financial crisis, several small and medium size banks collapsed, but thanks to new laws aimed at a joint financing program by private

¹⁰³ I.B.A.N. is a non-profit association belonging to the European Business Angels Network (E.B.A.N.)

¹⁰⁴ Anselmo, P., President and T.M Caotorta., General Secretary, *Il Mercato Italiano Del Capitale Di Rischio Informale*, I.B.A.N., Data synthesis gathered by I.B.A.N. through an online questionnaire in the period January 13-March 25 2010

¹⁰⁵ For further information see: <http://www.aifi.it>

¹⁰⁶ Data are not shown for only venture capital. For further information, see: <http://www.evca.eu>

¹⁰⁷ Limited information on this section is mainly due to the non-availability of appropriate research material in English.

banks and the government, together with a relatively prudent lending policy, Denmark has been able to cope well from the crisis¹⁰⁸.

Denmark implemented its own corporate governance code in 2001. The code is based on the principle of “comply or explain” and it follows basic values such as openness, transparency, responsibility and equality of treatment. The voluntary code on transparency and private equity funds, launched by the Danish Venture Capital and Private Equity Association (DVCA) has made a lot of progress in terms of guidelines for transparency and private equity funds, putting Denmark ahead of many nations.

At the national level the government has put forward a series of instrument to help boost start-up capital for entrepreneurs. As a result, public funding is fundamental within the Danish venture capital market. Nearly all of the early programs have been taken away and all policy support instruments have been concentrated within the Danish Investment Fund (OECD 2008).

The Danish Investment Fund (Vækstfonden) has the main goal of helping start-up companies by providing capital and expertise. It is an investment fund sponsored by the government, with a capital base approximately of 300 million of euro. The fund supports Danish companies via a co-financing of R&D projects. It involves members of both the private and the public sector. Vækstfonden invests equity and provides loans and guarantees in collaboration with private partners and Danish financial institutions for early-stage activities. Thygesen, chairman of the Growth Fund, has stated that” the board is satisfied with the solid performance in 2010 as [...] banks and mortgage lenders really made use of the lending schemes throughout the year, which has helped many companies to obtain loans that they would not otherwise have had¹⁰⁹.

The number of Danish venture capitalists has increased since 1998 and many of them are members of the Danish Venture Capital Association (DVCA). During the years the overall size of the funds have increased and many investors have taken interest in new fields. As per the year 2008 there were 45 investors in the Danish venture capital market, including: venture funds, corporate venture companies and public as well as private incubators. Though as stated by the EVCA¹¹⁰, private equity investment as a percentage of GDP is still below European average (0.186% vs. 0.324) and below that of other Scandinavian countries (Sweden 0.893% and Norway 0.309%)

The Danish Venture Capital Association provides a platform for investors, lawyers and many Danish companies that work in order to widen the members’ business network and knowledge competency through the discussion of matters of common interest for the strengthening of the investment sphere. The DVCA operates through involvement in the political environment to help

¹⁰⁸The Wall Street Journal, 2011 *Index of Economic Freedom*: <http://www.heritage.org/>

¹⁰⁹Danish Growth Funds reports record 2010. For further information: <http://realdeals.eu.com>

¹¹⁰ European Venture Capital Association

promote efficient industry framework condition. At present the DVCA joins under its association various investment players: individual business angels, institutional investors and venture companies¹¹¹. However, the size of the venture capital market is still small. This factor, combined with high income tax (and thus limited private savings) may represent a deterrent factor in which, if it does not exist a wide market for access to capital, the funding for the start of a new business, when individuals are not able to benefit from other financial means (family and friends) may be proved difficult to find .

The Danish Business Angel Network (DBAN) was created in 2001 with the goal of attracting more business investment through incubators and later in 2004 it was merged with the DVCA which nowadays represents 75 angels. However, according to Denmark Statistics, the amount of investment per angel is on average only around 13 thousand euro.

Another network in Denmark for entrepreneurs, investors and research institutions is Connect Denmark; an independent and private non-profit association that, with its network, provides free advice and training to entrepreneurs , young enterprises with high grow potential¹¹².

2.5.3 Italy vis-a-vis Denmark

The GEM financial resource index for Italy was found to be 2.4 in 2007, right below Greece¹¹³ and Spain. The data indicate the low extent to which experts believe that in the country there are sufficient resources. The score for Denmark were found to be 2.9. If compared to other countries, we see that Denmark is surpassed in terms of resources, by other developed countries (Belgium, the United States and Israel), but still leaves some others behind and so it succeeds to have average financial resources among developed countries.

Table 13. Financial Resources- The three countries with most financial resource, Denmark and the three countries with least financial resource

Israel	3.9
USA	3.8
Belgium	3.7
...	
Denmark	2.9
...	
Spain	2.6
Greece	2.6
Italy	2.4

SOURCE: Schótt T., 2007

¹¹¹Copenhagen Capacity website: <http://www.copcap.com/>

¹¹²FORA, *Business angels i Danmark og USA, Rapport udarbejdet til regeringens udvalg for risikovillig kapital*, Juni 2009

¹¹³ Although this rank might have changed given the recent events in Greece's financial economy

The lower score for Italy can be explained by the fact that, notwithstanding the numerous reforms that took place, the country has still not been able to completely free the economy from government intervention and a heavy bureaucracy as investors keep being prudent given the strictness of labor laws (regulation and time consuming for setting up a business, rigidities in hiring and firing employees). Furthermore, investors' deterrents result also from the fact that, despite European community measures, for which the Italian law complies, on paper, with the European directives, the system is still too rigid, the enforcement measures are weak and bureaucracy is a lengthy process¹¹⁴.

According to The World Bank's Doing Business report in 2011 credit information from the public is well available in Italy and Denmark. On a scale from 0 to 6 Italy scores 5 and Denmark 4, while Legal Rights related to lenders and borrowers are quite scarce in Italy scoring 3, on a scale from 0 to 10. Italy shows a very low score compared to other countries such as Switzerland(8) and UK (9) reflecting a system that hardly facilitate lending. Denmark on the other hand, possesses high collateral and bankruptcy regulations in order to protect rights of lenders and borrowers mirrored by a score of 9¹¹⁵.

According to the OECD in Denmark the access to finance is overall encouraging though, there are some weaknesses related to the rather small size of the venture capital market, and the D.B.A.N. which is also heavily government dependent (as it is part of the Danish Investment Fund). However, the activities of the Vækstfonden have with no doubt helped to make the venture capital more transparent for entrepreneurial companies in search of capital. Moreover, regardless of the high level of participation of the public sector, the Danish venture capital market has grown professionally. The government involvement in the venture capital market has usually been accepted because of existent market failures (some firms could not find financial resources in the private market as they were too young, too small or too risky). Though as the situation is today, the professionalization of the venture capital market has brought higher requirements on rates of return on investments, which risk to leave out many young entrepreneurs from the capital market. Start-up companies are thus forced to ask for capital among their families and friends that often cannot provide the expertise as investors can (OECD, 2008).

In Italy, notwithstanding the presence of many financial means, at least on paper, initial problems for start-ups are mostly perceived in the lack of bank financing and the absence of category associations. Results of a research project of the Milan Chamber of Commerce¹¹⁶, show how

¹¹⁴ Datamonitor, *Italy: Premium Country Profile Series, In-depth PESTILE Insights*, April 2010

¹¹⁵ Doing Business 2011, *Italy, Making a difference for Entrepreneurs*, IFC, 2011

¹¹⁶ *Giovani Imprenditori a Milano*, research project of the degree course in Communication Scienze "Vita e Salute" San Raffaele di Milano, Camera di Commercio di Milano, 2009

entrepreneurs feel lonely in facing difficulties and overwhelmed by taxes and excessive and not-clear bureaucracy. In the majority of the cases in fact, entrepreneurs have not benefited of institutional financial help or service assistance provided by different private or public bodies (also because of lack of knowledge of them). In general those who took advantage of such financial means did it with difficulty, as warranties from financial institutions were possible to be met only with parental support. The result is that those who do not have own financial means often feel discouraged and therefore are more likely to give up, while those who can, prefer doing everything with their own forces. Complaints also regard the perception of help and normative help for start-up activity from institutions: the information research and the decision of opening an activity is completely left to the individual who faces a confusing and poorly coordinated jungle of information documents and initiatives. In general entrepreneurs do not think of using the local Chamber of Commerce as it is seen more as an abstract, intangible entity than as an opportunity of help.

In general results show a strong perception of total lack of interest from institutions in helping who is starting a business, especially in the first period. Moreover, entrepreneurship in Italy is perceived as fragmented and heterogeneous; in general, internally torn up and with sporadic cases of excellence that, nonetheless, cannot modify the system structure by themselves¹¹⁷.

2.6 Legal infrastructure

2.6.1 Legal infrastructure for Italy

Italy is ranked 80th for the ease of doing business by the World Bank's Doing Business report in 2011. Data show a worsening of Italy's position compared to the year 2010 in which it was ranked 76th among 183 countries¹¹⁸. Among the different indexes that make part of the ease of doing business, starting up a business is of particular interest for the purpose of this session. Although the total index itself has deteriorated in the past year, we can spot some improvements under the voice starting up a business ('getting a local limited liability company up and running'), in which the total rank went from 74 to 68 from 2010 to 2011. The number of procedures required to set up a business has decreased to 6 and also the number of days required has decreased from 10 to 6 (OECD average of 13.8 days) also thanks to the enhancement of the online registration system. Other sub-indicators include the cost required to complete procedures (% of income per capita), which stands at 18.5 and funds deposited in a bank or with a notary prior to registration, which stands at 10.1% of income per

¹¹⁷*Giovani Imprenditori a Milano*, research project of the degree course in Communication Scienze "Vita e Salute" San Raffaele di Milano, Camera di Commercio di Milano, 2009

¹¹⁸<http://www.doingbusiness.org>

capita. Both these indicators are pretty high when compared to other countries, apart from Switzerland, Belgium and Spain¹¹⁹.

Taxes could represent a big deterrent for Italians' to-be entrepreneurs. Two of the indicators: time required to comply with major taxes (285 hours per year) and total tax rate as a percentage of profits (68.6), position Italy at the 128th place among 183 countries¹²⁰. In fact, corporate tax in Italy are among the highest in EU, reaching a 31.4%, composed of a 27.5% of standard corporate tax rate and local tax (IRAP) of 3.9%. Moreover corporate houses are subject to capital gains tax; 12.5% from shareholding capital, and 20% for non-qualifying shareholding capital. Other taxes comprise VAT, a tax on interest and an advertising tax¹²¹.

Italy was ranked 41st out of 129 countries in the 2011 International Property Rights Index¹²²; the score is 50, meaning that the court system is inefficient and delayed; corruption as seen previously is present and the judiciary in cases might be subject to government influence.

2.6.2 Legal infrastructure for Denmark

Denmark is one of the most competitive economies in the world; Denmark's high level of investment, business, property rights, labor and financial freedom together with a high freedom from corruption, helped the country to achieve the 6th ranking position regarding the ease of doing business (World Bank's Doing Business report, 2010). The country scores 27 under the voice starting up a business, with sub-indicators performing pretty well; "the Danish system provides large freedom in starting, operating and closing a business", with an average of 6 days to open up a business (13.8 OECD average) with 4 different procedure (18 procedure OECD average) "making Denmark one of the world's most efficient and dynamic countries". Moreover, there is no cost required to complete each procedure (% of income per capita), "but the need of funds deposited in a bank or with a notary prior to registration begin as a percentage of income per capita is quite high"¹²³.

The total tax rate as a percentage of profits is 29.2%, placing Denmark at the 13th place among 183 countries¹²⁴. Corporate taxes for Danish companies (taxable income and capital gains), are set at 25%; moreover a withholding tax of 28% is applied on dividends paid to foreign shareholders and interest payments to non-resident group companies face a withholding tax of 25%. A VAT tax of

¹¹⁹International Financial Corporation and The World Bank, *Doing Business- Italy- Making a Difference for Entrepreneurs*, 2011

¹²⁰International Financial Corporation and The World Bank, *Doing Business - Italy- Making a Difference for Entrepreneurs*, 2011

¹²¹Datamonitor, *Italy: Premium Country Profile In-depth PESTLE Insights*, April 2010

¹²²The Wall Street Journal, *2011 Index of Economic Freedom*: <http://www.heritage.org/>

¹²³International Financial Corporation and The World Bank, *Doing Business-Denmark- Making a Difference for Entrepreneurs*, 2011

¹²⁴International Financial Corporation and The World Bank, *Doing Business - Italy- Making a Difference for Entrepreneurs*, 2011

15% is also applied on imports and taxable deliveries of goods and services with exemption for hospitals, medical, dental care, insurance, banking and some kind of financial activities and travel agency services. Corporate taxes in Denmark are lower than in the rest of Europe, although the income tax rate still remains significantly high (51.1% as January 2010) being one of the highest in the world. The problem with high income tax is the difficulty in putting a part private saving, in which, in case of needed collateral or impossibility to find capital investors could restrain the exploitation of opportunities related with starting a business. On a more positive note, the time required to comply with company's major taxes is in fact only 135 hours per year¹²⁵.

Denmark was ranked 8th out of 129 countries in the 2011 International Property Rights Index¹²⁶, the score is 90, meaning that private property is well guaranteed by the government; the system of the courts is able to enforce contracts efficiently and those who unlawfully confiscate private property are punished. In such a system, as previously noted, level of corruption are very low.

2.6.3 Italy vis-a-vis Denmark

Among eleven countries, GEM report (2008) ranks Italy in the 11th position as regarding government encouragement (through taxes and regulations) towards entrepreneurship creation. The same report instead places Denmark at the 2nd position; thanks to the development of the past years, the Danish government has decreased administrative burdens and taxation for business purposes (European Commission, 2009).

Table 14. Legal Infrastructure- The three countries with the highest ranking and the three countries with lowest ranking

Finland	1st
Denmark	2nd
Ireland	3rd
...	
Greece	9th
Slovenia	10th
Italy	11th

SOURCE: Corbetta et al., 2008

Italian's lower value can be explained by the rigidity of the Italian system which is reflected especially within labor laws, where the country faces very high costs and legalities for what concerns the lay off and the hiring process and high taxes as a percentage of profits. These factors,

¹²⁵International Financial Corporation and The World Bank, *Doing Business 2011- Denmark- Making a Difference for Entrepreneurs*, 2011

¹²⁶The Wall Street Journal, *2011 Index of Economic Freedom*: <http://www.heritage.org/>

together with the regulatory non-transparency, the possibility of government intervention (for example the Italian government has veto power on acquisitions involving foreign investments and it often holds controlling interest in privatized companies) and hostile labor unions slows down market mobility and the possibility for private enterprises to grow bigger¹²⁷.

As regarding taxes, they represent an important role when considering entrepreneurial activity as, when constituting a high burden, they can hamper entrepreneurial activity creation. The Doing Business data show how in those economies where it is more difficult and costly to pay taxes, there is a high presence of informal sector activity¹²⁸. Taxes as a percentage of profits in Denmark are quite low, although apparently they have been increasing¹²⁹. With this regard Schött (2007) argues that increasing taxes might constitute one of the major factors working against entrepreneurial activity, negatively influencing incentives, as taxes directly affect entrepreneurs in their efficient realization of potential growth for nascent entrepreneurs. Another strong negative factor affecting entrepreneurship activity is the high cost related to comply with required documentation procedure, as they could represent a burden for a new entrepreneur¹³⁰.

Table 15. Starting Up a Business

Country	Number Of Days Required	Number Of Procedure Required	Cost Required To Complete Each Procedure (% Of Income Per Capita)	Total Tax Rate As A Percentage Of Profits	Time Required Required To Comply With Taxes (Hours Per Year)
Italy	6	6	18.5%	68.6%	285 hours
Denmark	6	4	none	29.2%	135 hours

SOURCE: International Finance Corporation and The World Bank, *Doing Business-Measuring business regulations*. For further information see: <http://www.doingbusiness.org/>

The presence of strong flaws regarding delays, structural rigidities and corruption in the Italian legal system (as the judiciary could be influenced by other branches of the government¹³¹) also negatively affect entrepreneurial activity. The Danish regulatory environment on the other hand, is largely transparent and laws are mostly applied evenly and efficiently, the court guarantee efficient protection of property rights; and corruption is not highly present¹³².

¹²⁷The Wall Street Journal, *2011 Index of Economic Freedom*: <http://www.heritage.org/index/Ranking>

¹²⁸Here for the informal sector is meant the “product of rational behavior of entrepreneurs that desire to escape state regulations” through unofficial business activities (tax evasion, avoidance of labor regulation and other government or institutional regulations, no registration of the company) and underground activities (crime, corruption). From the World Bank Group, for further information see: <http://www.worldbank.org/>

¹²⁹International finance corporation and The World Bank, *Doing Business-Measuring business regulations*. For further information see: <http://www.doingbusiness.org/>

¹³⁰The World Bank and the International Finance Corporation, *Doing Business 2011- Italy- Making the Difference for Entrepreneur*, 2011

¹³¹Kyle A.J., and H. De Soto, *International Property Rights Index, 2011 Report*, a project of the Property Rights Alliance, 2011

¹³²Corruption Perception Index 2010 Report, Transparency International, The global coalition against corruption, IFC, 2010

2.7 National Entrepreneurial Culture

From Stinchcombe publication (1965) regarding social structure organizations, organizational theorists have studied how the social context influences the underlying strategies and structures at the time of starting up a business. As the types of institutions analyzed above, influence the decision of starting or not starting a business, they themselves reflect a broader national culture of the country in which they operate. Consequently, national cultures also constitute a key feature at the institutional level, in which it is viewed as an institution that outlines structures and mechanisms of social order that in turn, influences new firm creation¹³³.

Several researchers have been studying national cultures and its influence to business behavior and why entrepreneurial behavior varies across countries. As already stated in the methodology, the most cited and widely studied research is that of Hofstede which analyze the following dimensions.

Power Distance Index (PDI): population within high-power-distance countries (Latin European, Latin American and Far Eastern countries) are thought to dislike work and try to avoid it; as a consequence those in charge have to be authoritarian and supervise their subordinates. There is a widespread believe that managerial and entrepreneurial people come from a high social class or graduated from elite universities and who you are in terms of status is far more important than actual performance. Decision making within these societies is centralized and the organizational structure reflects a pyramid model. **Uncertainty Avoidance Index (UAI)**: uncertainty avoiding societies try to reduce the possibility of uncertain situations by implementing strict laws, rules and safety and security measures. On the other hand, societies with a lower uncertainty avoidance degree appear more tolerant of opinions different from their own, and are characterized by fewer rules. **Individualism (IDV)**: individualistic societies (such as USA) find that ties between individuals are loose; members are expected to look after themselves and their immediate family. On the other hand, in collectivistic societies people are more integrated and rely into strong and cohesive groups in exchange for their loyalty. As a result, in collectivist countries, people are largely viewed in terms of the group they belong to, which cause a widespread habit, at the organizational level, of choosing leaders based on personal ties, seniority or age more than on personal merit and skills. **Masculinity (MAS)**: in high masculine societies, jobs are usually defined by gender, as men are in general associated with long-term careers and women with short-term employment (given pregnancy and subsequent taking care of the children). On the other hand, more feminine society stress equality of role gender and emphasizes values such as the caring for others, a balanced life style and life quality.

¹³³Hechavarria D.M. and P. D. Reynolds, *Cultural norms & business start-ups: the impact of national values on opportunity and necessity entrepreneurs*, Int Entrep Manag J, 2009, 5:417–437

Italy shows high levels of individualism, masculinity and uncertainty avoidance and a lower, compared to the other three dimensions, power distance index¹³⁴. In Denmark, power distance, masculinity and uncertainty avoidance are quite low, while individualism scores pretty high in comparison¹³⁵.

Comparing Hofstede's five dimensions of Italy vis-a-vis Denmark (Table 16) it can be noted that Italian's power distance, masculinity and uncertainty avoidance indexes are much higher than Danish ones. The difference is lower for individualism.

Table 16. Percentile* Ranks for Hofstede's Cultural Dimensions

Country	PDI	IDV	MAS	UAI
Italy	38	89	93	58
Denmark	6	85	8	6

*) 100= highest, 50 = middle

SOURCE: Cullen and Parboteeah 2008¹³⁶

According to Klyver et al. (2007) higher levels of the power distance index decrease the chance for an individual to become an entrepreneur. This is in fact the case for Italy, as the defined separation of roles and the importance given to background culture and education could discourage those people that do not know or do not have ties within the entrepreneurial world. Moreover the widespread belief that it matters more where you come from than actual individual's performance could farther discourage the willingness to start an activity. High power distance countries in fact, reflect more unequal societies, especially with regards to the legal system where "privileges" and corruption are more diffused (Hofstede, 1980). On the contrary the lower value for Denmark in the power distance index reflects a society in which people are regarded as equally important and capable of achieving results. In the view that personal skills matter, and individual merit is recognized, people could be more willing to undertake entrepreneurial career as individuals are not trapped within their current social status, and personal effort will be rewarded (although a more equalitarian system could also decrease people desire into starting a new activity as the Janteloven factor discussed later argues).

¹³⁴ Compared to Latin European countries (France, Spain and Belgium) the Italian indexes of power distance and uncertainty avoidance are lower in Italy, but higher if compared to Germanic countries (Austria, Germany, Netherlands and Switzerland). While individualism in Italy seems, on average, lower than in Germanic countries and about the same for other Latin European countries. The masculinity measure is instead higher for Italy than for other Latin European countries and about the same for Germanic European countries.

¹³⁵ If Denmark is compared with the other Scandinavian countries (Finland, Norway and Sweden), it can be observed that on average, power distance and uncertainty avoidance are slightly higher in other Scandinavian countries compared to Denmark, while masculinity seems to be slightly lower (except for that of Finland) and the individualism indexes are pretty much the same.

¹³⁶ Cullen and Parboteeah 2008 have adapted values from Hofstede, Geert. 1980, Hofstede, Geert 1991 and Ronen S., and O. Shenkar 1985

High level of masculinity are positively related with the odds of somebody being an entrepreneur (According to Klyver et al., 2007). In countries like Italy where success and achievement are important, the masculinity index is high, showing possibility for high rates of entrepreneurship.

Most researchers seem to agree on the argument that high individualism and low uncertainty avoidance, in particular, are positively correlated to a country's level of innovation and entrepreneurship, as culture strengthen some individual characteristics and penalize others, these two indexes possess features that can be related to entrepreneurship (Lee and Peterson, 2000). Thomas and Muller (2000) argue that entrepreneurial propensity is highest in countries that present a combination of high individualism and low uncertainty avoidance (as the case for Denmark). Further, according to Baughn and Neupert (2003) individualism and uncertainty avoidance also shape specific conditions (particularly access to financial resources, labor flexibility, administrative burdens, legal infrastructures and economic conditions) in supporting or restraining start-up activity. However, low uncertainty avoidance and power distance could also create fewer incentives for entrepreneurship, as such dimensions reflect societies values where personal fulfillment and accomplishment can be achieved within employee job roles given the higher autonomy left for decision-making and the more informal less hierarchical environment.

The Danish system is skill-oriented, which means that it is based on detailed job description and well defined work rules. It seems that the strong historical Danish union system has heavily affected the way in which Danish business are organized; there is in fact a strong practice of democratic leadership in which employees have the possibility to influence their own working environment. This translate in an opportunity for self-realization, and a chance to fulfill the desire of being creative and in charge, which are important factors associated with the people's motivation of becoming entrepreneurs¹³⁷. This could explain the higher early-stage entrepreneurship activity in the country. Though, other studies also point out that the Danish low-power-distance index and the low-uncertainty avoidance index, which translates into higher freedom and autonomy of employees on the job, contribute to self-realization and fulfillment within the working environment, hampering the desire of starting one's own business (OECD, 2008).

The Italian high level of the uncertainty avoidance index, in part reflects a society in which financial security is important, career path tend to be fixed and conflicts and competition are usually avoided if possible (Hofstede, 1980). Baughn and Neupert (2003) findings show how high uncertain avoidance countries strongly rely on strict rules and regulation that might provide some sort of social cohesion but might not be matching with an entrepreneurial need for flexibility and

¹³⁷Schött, T., *Entrepreneurship in the Regions in Denmark- studied via the Global Entrepreneurship Monitor*, University of Southern Denmark, 2006

immediate action in order to take advantage of an opportunity. In addition, complex laws and regulatory requirements facilitate the abuse of power among governmental bureaucrats through payment extortion to to-be entrepreneurs. In fact high uncertainty avoidance societies usually show higher level of corruption (as is the case for Italy).

High level of individualism (both Italy and Denmark) have been shown to possess a positive relationship with the access of financial resources by early-stage entrepreneurship activity and higher protection of intellectual property rights that lead to a more favorable environment for entrepreneurship activity and in particular for start-up creation (Baughn and Neupert 2003). As this has already been assessed for Denmark, some of the findings regarding Italy, especially those related to protection of intellectual property rights, are instead in contradiction with its high level of individualism. In fact, if we observe the values above for Italy and Denmark and we compare them with the Hofstede's dimensions descriptions and the societies' current cultural characteristics, some measures seem not to match, though Hofstede's framework should be taken in a general perspective and it should also be kept in mind that Hofstede's measures are based on data collected during the 1970s, which means that they do not take into account possible adjustments (of measures and dimensions) within the past thirty years¹³⁸. Though, they are still valid for wide-ranging outlook as cultural values are found to be highly influential regarding individuals motives and a significant amount of behavioral studies has used and still uses Hofstede's dimensions in order to explain behavioral processes. Thus, Hofstede's theory does not accurately describe cross-country differences in terms of entrepreneurship activity, which is why other studies have been used to help explain such link.

As entrepreneurship is influenced by different life circumstances, Reynolds et al. (2002) makes a clear theoretical differentiation between "opportunity-based" and "necessity-based" motives as contextual reasons for engaging in entrepreneurship, resulting from different life circumstances. Opportunity entrepreneurship is usually correlated to high technology orientation and high growth firm; while necessity entrepreneurship usually reflects successive increases in economic growth¹³⁹. Correlated to the U shape figure examined in the beginning of this research (p. 25), we can in fact state that, poorer countries or regions usually present higher rates of necessity entrepreneurship, as other employment options are not largely available. On the contrary, wealthier countries with higher

¹³⁸ Hechavarria D.M. and P. D. Reynolds, *Cultural norms & business start-ups: the impact of national values on opportunity and necessity entrepreneurs*, Int Entrep Manag J, 2009, 5:417–437

¹³⁹ Hechavarria D.M. and P. D. Reynolds, *Cultural norms & business start-ups: the impact of national values on opportunity and necessity entrepreneurs*, Int Entrep Manag J, 2009, 5:417–437

social welfares and policies' protection, create the bases for new opportunities for entrepreneurship as institutions favor positive conditions for the creation of business.

Evidence suggests that a significant difference in motivational nascent rate can be attributed to cultural differences (Hechavarria and Rynolds, 2009). Countries with a higher percentage of entrepreneurial early-stage linked to opportunity are Denmark and Norway. As stated in the beginning of this study, the major incidence of the motivation connected to necessity seems to be negatively related to a country's economic development; it is more diffused in poorer countries, the lowest levels are in fact registered for Brazil and Croatia¹⁴⁰.

In both Italy and Denmark most early stage activities are initiated in order to take advantage of a business opportunity rather than because constrained by necessity, a factor common to all high income countries.

In Italy 84% of new entrepreneurs have initiated a business for reasons linked to opportunity and 16% for necessity. Italian's regions appear to be very diversified among themselves; in northern regions most early-stage activity has been initiated for opportunity reasons (in Lombardy, Piedmont, Emilia-Romagna, Veneto and Liguria), while in southern regions, even though the opportunity motive still holds, there are also a lot of business created for reasons related to necessity. This is true especially in Campania and Toscana; the regions that in 2006 contributed in a larger number to new entrepreneurship activity (Corbetta, 2008). In Denmark 93% of new entrepreneurs have initiated a business for reasons linked to opportunity and 7% for motives dictated by necessity. These data reveal a lively entrepreneurship activity, as opportunities rise as a condition emerging from the combination of the institutions previously analyzed and placing Denmark far above the middle compared to other European countries (Schótt, 2007). The Italian's data are probably given by a limited economic growth¹⁴¹ and differentials among regions' economic growth, which could have pushed individuals into starting new entrepreneurial activities because of the scarcity of other job opportunities.

Table 17. Overall Percentage Of Early-Stage Activity

Country	Opportunity- based	Necessity-based
Italy	84%	16%
Denmark	93%	7%

SOURCE: GEM data 2008

¹⁴⁰Corbetta G., Dawson A. and G. Valentini, *Global Entrepreneurship Monitor- Italy*, 2008 Executive Report

¹⁴¹Corbetta G., Dawson A. and G. Valentini, *Global Entrepreneurship Monitor- Italy*, 2008 Executive Report

The level of entrepreneurial activity in a country is also influenced by the population perception of individual willingness and aptitude to become an entrepreneur. Important factors include the perceived availability of opportunities¹⁴² to start a business in the near future; knowing successful entrepreneurs could boost an individual's own ability to start a flourishing business. The latter is usually quite strong during favorable economic climate. Perceived personal skills and knowledge as well as the consideration of an entrepreneurial occupation as being a desirable career choice also influence the likelihood that an individual will start a business.

Among the Italian population, 35% of adults believe they possess the required knowledge and skills to become an entrepreneur. The average is 30% for Denmark. The average for innovation-driven economies is 39%¹⁴³. The perception of one's own ability to succeed in entrepreneurial activity might be enhanced as people see and personally know an increasing number of successful entrepreneurs. This, however, does not affect actual capabilities, as one's own success does not influence abilities in third parties (Corbetta et al. 2008). Yet, only 7% of the Italian population and 5% of the Danish population expects to start an enterprise in the next three years, in line with the European average of innovation-driven economies. This low percentage rate can be explained by a number of factors. In Italy start-up activity could be hampered by the excessive administrative and taxation burden and the general economic climate which reduces the attractiveness of starting a business. Also the 'fear of failure' (high both in Italy and Denmark; respectively 48% and 43% against an average of 39,7%) is considered a significant cultural detrimental component to new business activity. The high percentage for Denmark can be explained within these factors as 'fear of failure' translates into risk aversion. Hancock and Bager (2003) states that the Danish society "doesn't help entrepreneurs, who fail" this is given by the fact that "[...] attempts to reduce differential within Danish society" (e.g. the 'Janteloven' factor¹⁴⁴) "[...] have led to the development of a risk averse society, with a high need for secure income and a low tolerance of income disparity" (Hancock et al 2001). This could further explain the low level of expectation rate to start a business. Hancock and Bager (2003) suggest that Danish society "should use failure as a learning tool and encourage people to be brave". The 'fear of failure' in Italy could be mostly explained by the common sentiment among the population of being left totally alone by the state and its

¹⁴² Perceived opportunities is defined as the "Percentage of 18-64 population (individuals involved in any stage of entrepreneurial activity excluded) who see good opportunities to start a firm in the area where they live". (From GEM indicators)

¹⁴³ The innovation-driven economies taken into account are: Italy, Denmark, Belgium, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Korean Republic, Netherlands, Norway, Slovenia, Spain, UK and USA.

¹⁴⁴ 'Janteloven' is a behavioral pattern common in Scandinavian countries. It negatively depicts and criticizes individual success and accomplishment as inappropriate and unworthy- do not think you are special-. Hancock and Bager (2004) state that "the Jantelov keeps 'people in their place'", and go on in saying that Danish people "are not allowed to be proud or brag about achievements". Nowadays "the Jantelov is still a big barrier to entrepreneurship. Even though the 'dot.com' period made some big changes in the balance of power and the way people think and work, it didn't last long enough to consolidate these changes" (Hancock and Bager, 2004)

institutions. This feeling can translate, especially among the youngsters, into not being able to count on the government in case of difficulties, and thus a higher uncertainty and ‘fear’ of failing without an external support. According to the Milan Chamber of Commerce researches in fact, entrepreneurs have expressed that in Italy there is insufficient cultural support to entrepreneurs, especially with regards to support to individual success obtained through personal effort and of personal initiative and encouragement to those individuals that take on entrepreneurial risks. The feeling of being left alone by the institutions comes with regards to complicated administrative regulations, a highly taxed and bureaucratic system and a lack of communication and cooperation among the various entities (research institutes, the industry, Chambers of Commerce, financial intermediaries etc.) that are often perceived as working against single individuals rather than for them.¹⁴⁵

Besides the low percentage of individuals who expect to start a business in the next three years, in Italy is also low the percentage of people that see good opportunities for starting a business (35%)¹⁴⁶. This could be attributed to the general economic climate of the country given the global financial crises, and again the difficulties connected with obtaining loans or support of venture capital investors, when personal savings and family financial support are not enough. The picture is more optimistic for Danish people, were 69% of the population under consideration stated that they see good opportunities for starting a business in the next six months. Though the cultural factor outlined above for Denmark could explain why this translates only into a small percentage of people that actually expect to start a business in the next three years.

Some anomalies within innovation-driven economies regard the fact that while in both Italy and Denmark, according to individual perception, entrepreneurship is not subject to a lot of media attention, with scores below average, in both the two economies, starting a business is still regarded as a desirable career choice (68% in Italy and 57% in Denmark). As media attention reflects the popularity of entrepreneurship (Corbetta et al., 2008) and it is also a powerful tool for influencing individuals’ tastes and perceptions, it would be expected to have a direct positive relation with the perception of entrepreneurial career as being a desirable choice. Through the analysis of this research, assumptions on this phenomenon for Denmark rely on the high number of people that receives training compared to other countries, especially the compulsory one, with regards to

¹⁴⁵*Giovani Imprenditori a Milano*, research project of the degree course in Communication Scienze “Vita e Salute” San Raffaele di Milano, Camera di Commercio di Milano, 2009

¹⁴⁶*This might sound in contrast with what previously stated with regards to an Italian high percentage of people that started a business because of opportunity based motivations. Though, the opportunity-reason is based on the number of people actually involved in early-stage entrepreneurship activity, so it shows how many (in percentage terms) people among those that started a business decided to do it because of an opportunity or because dictated by necessity. On the other hand, the measure analyzed here reflects how many (still in percentage terms) people not engaged in entrepreneurship activity think there are possibility to actually start a business.*

starting a business (see section below) that thus, besides creating actual skills, training influence individuals into thinking that entrepreneurship is not only important but a valuable and desirable career choice, even though the media focus is quite low. For Italy, reasons related to entrepreneurship perceived as a desirable career choice can be found in a highly regulated and static labor market that prevent many people into finding a job, or a well-paid job. Low income perspectives connected to employee jobs or impossibility to find a job could push people into considering opportunities to undertake an entrepreneurship activity. This is also supported by Schótt (2006) statistical study, in which results show that the most often cited reason for starting an enterprise are ‘the desire to be one’s own boss’ and ‘the prospect of making more money’.

Table 18. Entrepreneurial Attitudes and Perceptions, By Phase of Economic Development, 2008. Figures Are Expressed In %

Country	Sees good opportunities for starting a business in the next 6 months a)	Fear of failure would prevent to start a business b)	Personally knows someone who started a business in the past 2 years a)	Has the required knowledge and skills to start a business a)	Expects to start a business in the next 3 years a)	Entrepreneurship considered as desirable career choice c) *)	Media attention for entrepreneurship c) *)
Italy	35	48	30	35	7	68	40
Denmark	69	43	43	30	5	57	32
Average ¹⁴⁷	39.3	39.7	36.9	34.8	7.8	59.7	57.3

a) Denominator: non-entrepreneurially active adult population 18-64 years

b) Denominator: non-entrepreneurially active adult population 18-64 years that sees good opportunities to start a business

c) Denominator: adult population 18-64 years

*) Country attitudes perceived by individuals

SOURCE: Corbetta et al. 2008 GEM Report

The educational level influences the probability that an individual can find a job as an employee or that she/he will build her/his own entrepreneurial activity; usually people with a higher educational level have a higher probability of getting engaged in entrepreneurial activities (Corbetta et al, 2008). Data regarding training vary greatly within innovation-driven economies, with Italy positioned towards the bottom (17% of the population received training in starting a business) and Denmark at the top (22%).

¹⁴⁷The average is calculate for 18 countries among innovation-driven economies: Italy, Denmark, Belgium, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Japan, Korean Republic, Netherlands, Norway, Slovenia, Spain, UK and USA.

Table 19. Percentage of the Working Population Aged 18-64 That Received Voluntary or Compulsory Training in Starting A Business During or After School, 2008

Country	School voluntary	School compulsory	After school voluntary	After school compulsory	Any training
Italy	6	4.2	5.3	3.7	16.5
Denmark	2.4	7,1	2.1	11.9	22
Countries' average ¹⁴⁸	7.3	4.6	7.7	8.3	23.3

SOURCE: Corbetta et al. 2008 GEM Report

In general Italy does not include entrepreneurship in its national curriculum for vocational education. Though, Italian legislation is trying to push schools into promoting links with the labor market, but students' participation is not compulsory. There is however a growing number of entrepreneurship programs at the national and regional level, supported both by the private and the public sector. The perception although is still of a school system that does not encourage and promote creativity, self-sufficiency and personal initiative, which are necessary characteristics for the diffusion of entrepreneurial initiative (Corbetta and Dawson, 2006). The lack for the amount of training received in school, as per individual perception, is then coped by individual undertaking more voluntary training after school; the score is in fact higher than Denmark (but still lower than the 'countries' average').

In Denmark vocational training courses are usually a combination of teaching and work experience. Entrepreneurship is compulsory taught in all VET¹⁴⁹ programs by national law. While in upper secondary commercial and technical education entrepreneurship programs are optional¹⁵⁰. In general Denmark has higher compulsory training than the 'countries' average', both for training in school and after school. This could explain the lower level of voluntary training, as people in general think they have already received a sufficient level of training, and then are probably not interested in undertaking more on voluntary basis.

In Italy, experts think that entrepreneurs need help with their plans before start-up (value of 4.0, equal to the innovation-driven countries' average of 4.0), the Danish perception is even higher: 4.3.

¹⁴⁸ Countries' average are available, among innovation-driven countries, for: Italy, Denmark, Israel, Korea Republic, Greece, Japan, France, United Kingdom, Germany, Spain, Ireland, Iceland, Belgium, Slovenia, Finland.

¹⁴⁹ Vocational Educational Training (VET) has different forms in different countries. VET programs differ from academic ones in the curriculum and in the aim they have in generally preparing students for specific types of occupations and, in some cases for the direct entry into the labor market. Given differences across European countries the EU Commission-Enterprise and Industry provide a broad definition of vocational education includes all vocational, technical and commercial schools and colleges, and all the possible fields of specialized training. A main feature of Danish VET system is its ability for constant renewal thanks to the Danish Innovation and Development Program that integrates development and innovation into daily practice. (From *Entrepreneurship in Vocational Education and Training, Final Report of the Expert Group, European Commission-Enterprise and Industry Directorate-General, Promotion of SME competitiveness, November 2009*)

¹⁵⁰ European Commission-Enterprise and Industry Directorate-General, Promotion of SME competitiveness, *Entrepreneurship in Vocational Education and Training, Final Report of the Expert Group, November 2009*

This value could explain a general feeling of insecurity in one's own ability which could explain the rather lower level (compared to innovation-driven country average) on people's perception in own skills and knowledge regarding the start of a business.

Italy performs worse than other innovation-driven countries with regard to “enough help available outside education system”: 2.8 (the innovation-driven countries' average is 3.3, close to the Danish score of 3.1), which is in line with the 'loneliness' feeling discussed above. With regard to “quality of entrepreneurship education and training at school”, Italy scores 1.8, while the innovation-driven countries' average is 2.2. Again Denmark performs better with a score of 2.4. Taking into account the data above, in Italy' there is a low presence of training within the school system and the current quality is quite low. The Italian government should focus on addressing some specific policies in order to enhance training education within the school and not only outside of the school system where many programs are already in place. In fact, the Italian quality of entrepreneurship education and training after school is perceived as being similar to that of other innovation-driven countries in Italy (the score is 2.8 for both) and it is slightly below average in Denmark: 2.4.

Table 20. Perceived Need For And Availability And Quality Of Entrepreneurship Education And Training, By Country (Average Ratings By Experts From 1 To 5), 2008

Country	Entrepreneurs in general need help with their plans before start-up	Enough help available outside education system	Quality of entrepreneurship education and training at school	Quality of entrepreneurship education and training after school
Italy	4.0	2.8	1.8	2.8
Denmark	4.3	3.1	2.4	2.4
Country averages for INNOVATION-DRIVEN economies ¹⁵¹	4.0	3.3	2.2	2.8
Country averages for FACTOR-DRIVEN economies ¹⁵²	4.2	2.5	1.7	2.5
Country averages for EFFICIENCY-DRIVEN economies ¹⁵³	4.2	2.8	2.1	3.4

SOURCE: Corbetta et al. 2008 GEM Report

¹⁵¹ Countries' average are available, among innovation-driven countries, for: Italy, Denmark, Finland, Germany, Greece, Ireland, South Korea, Norway, Slovenia, Spain, United States.

¹⁵² Factor-driven economies are: Bolivia, Bosnia and Herzegovina, Colombia, Ecuador, Egypt, Iran. (From GEM distinction between countries in 2008 by stage of economic development)

¹⁵³ Efficient-driven economies are: Argentina, Brazil, Chile, Croatia, Dominican Republic, Jamaica, Macedonia, Mexico, Peru, Russia, Serbia, South Africa, Turkey and Uruguay. (From GEM distinction between countries in 2008 by stage of economic development)

In conclusion Hofstede's dimension help understanding cultural societies' characteristics; although the dimensions' features are to be taken in a general and not a specific perspective, they can help analyzing factors that are conducive of entrepreneurship activity. Italian's high values of masculinity and uncertainty avoidance are negatively related to entrepreneurship, while high individualism and Danish low uncertainty avoidance in general seem to facilitate entrepreneurship activity, in the way they help to predict financial, regulatory and legal infrastructure favoring start-up businesses. The opportunity motive related to starting up of a business is high in Italy and slightly higher in Denmark, showing positive relation within the level of wealth of both countries. In Italy in fact, the lower level of GDP per capita, as compared to Denmark, also reflects a higher necessity motive rate.

Italian and Danish people in general perceive entrepreneurship as a desirable career choice, though Italian see less good opportunities for starting a business than Danish people, and both countries have a low percentage of individuals that actually expect to start a business in the near future. These factors can be generally explained by a low perception of required skills and knowledge about how to start a business and from fear of failure.

Training is overall higher in Denmark, although Italy experience higher voluntary training compared to compulsory one, probably reflecting individual's initiative and a lower focus of Italian policy programs towards entrepreneurial education; this is testified also by a perceived lower quality of the training within school. Denmark on the contrary has higher compulsory training, with perceived higher quality, most likely given the effort of the Danish education strategy for entrepreneurship. Though, the quantity and the quality of received training after school is lower. To-be entrepreneurs in general also require much help for their business and implementation plans before starting an entrepreneurial activity.

3. Conclusion

This paper has tried to analyze the main causes for the different level in early-stage entrepreneurship between Italy and Denmark. Given the higher level for Denmark, the research has been mainly focused on Italian's weaknesses vis-a-vis Danish strengths through the study of the countries' institutional framework as defined above. Main references has been the most widely used and largest single study of entrepreneurship, the GEMs reports, and a series of public documents from the European Commission and OECD. In order to understand and explain the main differences a series of indexes has been applied, which highly emphasize the major weaknesses and strengths of the Italian and Danish system. Main influencing factors for the lower Italian average level of early-

stage entrepreneurship are found to be, in particular, a) the low level of the government ability to formulate and implement solid policy, b) the degree of trust of agents to perform according to societies' rules, c) the protection of property rights, and d) the low independence from corruption.

GEM correlations for the analyzed institutions are all rather high, as each institution has an influence in shaping opportunities for entrepreneurial activity. As social institutions vary from one country to the other, opportunities differ. Institutions are correlated to one another and opportunities are considered as the outcome arising from the combination of different institutional characteristics, not as a simple sum of such characteristics, but rather how each one of them positively affect the total sum of opportunities. The positive relation of opportunities with different institutional features reflects the fact that typically a country with encouraging institutions offers sufficient opportunities for entrepreneurship (the opposite also holds true). The different institutions are all highly correlated to one other, as they influence each other, and it is hard to separate their effect and to evaluate separate effects of each one of them on opportunities. However, GEM's multiple regression shows high correlation. GEM assesses multiple regression models and found that every institution is significant in relation to opportunities and thus, early-stage entrepreneurship. In this way the difference in entrepreneurship level is to be considered as explained by the variation among institutional factors.

Moreover entrepreneurship has effects for economic growth and vice versa. Wealthy countries usually enlarge opportunities for production, distribution and consumption, encouraging individuals into entrepreneurship, so richer countries have levels of entrepreneurship that are likely to grow with growing wealth. Because of these means, the economy in a society is also a cause of entrepreneurship.

3.1 Italy

The Italian system still lacks a systematic approach to assess the concrete effects of innovation policies and measures; there is at present no ad hoc data monitoring, which also leads to difficult judgments and evaluations. Yet, some general consideration can be made based on the analysis carried through and the use of the indexes applied. Overall entrepreneurial activity is undertaken in a higher percentage through the exploitation of opportunities rather than driven by necessity motives. This is in line with the development status of the Italian economy and its wealth, as explained at the beginning of this paper, more developed economies have higher rates of entrepreneurship linked to exploitation of opportunities. The lower level compared to Denmark can then be explained by the Italian' lower level in GDP per capita.

Trough the analysis of the Italian institutions main drawbacks that restrain entrepreneurial activity, are found in a high number of authorities involved in the drafting and implementation of innovation policies. At the central level is missing a single ministry devoted to innovation policy, while at the regional level the duality between the governmental and regional authorities negatively affects efficiency. There is here a need for clearer roles and responsibilities in the intervention areas for more effective incentives toward goals and targets. In addition, a low level of R&D spending and a poor level of coordination between the public and the private sector, which mainly results in a weak interactions among key players (universities, public research institutes and the business sector), restrain the quantity of research carried through, which obstacle Italian entrepreneurship. The Italian system should instead focus on a fewer number of dedicated and efficient bodies, which refer to a central entity with only a supervisor role. Such system could help for the rationalization of resources, decreasing bureaucracy and enhancing programs efficiency. The ineffectiveness of the Italian policy system is in fact mirrored by a rather low value (compared to Denmark and other countries) in the indexes of government effectiveness, regulatory quality, rule of law and control of corruption; which also reflect the reality of a slow judicial system and a widespread corruption among governmental authorities.

The low level of IPRs protection in Italy is also a discouraging factor for to-be entrepreneurs, as it could restrain activity by the fear of not getting recognized for the entire value of one's creation; hence a lower level of patent applications.

Government policies and the financial environment are embedded in a highly bureaucratic and taxed system. The burden represented by a heavy bureaucracy is a major restrain to Italian entrepreneurship; both regarding programs applications, time and money required to fulfill with necessary documentation procedures and access to information. High taxes and cost related to set up a business also constitute a deterrent. These factors, coupled with a rigid labor market (although this aspect as not been openly addressed), high requirements of warranties and guarantee (that usually young entrepreneur do not have), constitute deterrents for access of bank credit and private financial incentives (business angels and capital investors); which further results in a quite low rank for the overall Ease of Doing Business index, when compared with other countries.

Regarding cultural characteristics, strict regulations and tight bureaucracy also reflect the high level of Italian uncertainty avoidance and masculinity dimensions, which have been found to be negatively related to entrepreneurship. The high power distance index, reflected in an authoritarian system where roles are well defined and separated, coupled with a low encouragement of self-achievement and success (where status quo matters more than performance), also translates into a negative relation with entrepreneurship activity. Another obstacle to entrepreneurship is the low

Italian level of education through training. Specific study programs should be aimed at developing students' ability and knowledge needed for starting a business, as training enhances the ability to recognize available opportunities. Low education regarding entrepreneurship is in fact further reflected by perceived low levels of required knowledge and skills which are also detrimental to business creation and could generate 'fear of failure' (high in Italy) which is a further obstacle to entrepreneurship.

On a more positive note, factors that help entrepreneurship are the presence of professional services of support (although very little used), the presence of financial intermediaries and resources, although it can result very complex to access such funds (given requirements, documentation, lengthy times), and a positive view regarding the entrepreneurship career that is perceived as a highly desirable profession choice.

3.2 Denmark

As quite positive scores were found for almost all the indexes analyzed through this paper, conclusion may lead to an optimistic general view of the Danish environment, as it seems that the overall system addressing innovation and entrepreneurship is working well as also confirmed by the European Commission reports. Denmark has high levels of financial freedom, property rights protection, labor freedom and freedom from corruption, which alleviate some of the burdens regarding entrepreneurship activity. Current reforms have improved government regulation, in particular in the simplification of regulatory requirements and reduced administrative burdens towards businesses, placing Denmark among the most competitive countries. The creation of a systematic and dynamic innovation policy system by the Ministry of Science, Technology and innovation, seems to provide a more efficient and united structure addressing policies and programs formulation to help promote innovation and entrepreneurship, especially thanks to its self-criticism component to address current challenges¹⁵⁴. In the past few years there has been a strengthening of the coordination between national and regional initiatives. Although it is too early to say if the system put in place is meeting the ambitions of the proposed policies targets, the overall innovation system seems successful and its own self-critical component is important for evaluations and improvements. As contrary to Italy, Denmark already possesses a system for analysis and monitoring of the various policies and initiatives performance, which at the micro-level finds positive effects. Though, an impact of the entire support system for innovation is difficult to assess and overall evaluations at the meta-level is still missing. However, Denmark has been ranked

¹⁵⁴ European Commission Enterprise Directorate-General, *Innovation Policy Progress Report*, INNO-Policy TrendChart, Denmark, 2009

6th for the easy of doing business, especially given the low costs and the few overall time needed to comply with all procedure requirements connected to start an activity, which show a good overall condition for entrepreneurship.

However, some less positive aspects regard the lack of a notable increase in public innovation investments and business innovation, which register an overall negative level of growth in SMEs product/process and marketing/organizational innovation. Further there is need for a better improvement of the cooperation between the industry/business sector and research institutions.

The size of the venture capital market is still small and high income taxes represent a deterrent for private savings and thus limit access to capital for the start of new businesses, when individuals are not able to benefit from other financial means (family, friends, banks and business angels).

Regarding culture high individualism and low uncertainty avoidance facilitate entrepreneurship activity, in the way in which they help to predict financial, regulatory and legal infrastructure favoring start-up businesses. Although, low uncertainty avoidance and power distance can also create fewer incentives for entrepreneurship. These dimensions in fact, reflect societal values where personal fulfillment and accomplishment can be achieved within employee job roles given the higher autonomy left for decision-making and the more informal less hierarchical environment.

Restraints to entrepreneurship activity, reflected in a high percentage of individuals that actually expect to start a business in the next three years, are mostly found in ‘fear of failure’ probably caused by a society that does not support much entrepreneurs who have failed, and by a general risk-aversion propensity (partly due to the Janteloven factor). This, is found notwithstanding the high governmental focus on education programs as policy priority and therefore a high training rate for entrepreneurship. A further explanation might be the relative good conditions of the Danish labor market, with relatively high salaries and a high tax system that act as a disincentive for new business creation.

Overall though, Denmark has been focusing successfully on framing good conditions to enhance entrepreneurship, which in fact result in an averagely high rate of start-up activity, slightly above the European average. Danish institutions can thus be largely considered as favorable.

3.3 Recommendation

In connection to the above findings and inspiration from Denmark, the structural rigidities in the Italian system that restrain entrepreneurship activity, are composed almost exactly of those factors that instead enhance the Danish system (coordination among authorities, government efficiency, intellectual property right protection, control of corruption, bureaucracy etc.).

As in Italy it is still missing a structured monitoring system for the measures implemented for the support and improvement process of the policy mix, more effective monitoring and evaluation systems are necessary for *ex ante*, *ex post* and intermediary evaluation. Policy learning should become a normal practice which could rely on foreign and international experiences where applicable. As unnecessary fragmentation of resources and the high number of programs might be a restraining factor, as interventions need a “critical mass” in order to be effective, an efficient monitoring system could help evaluate and reduce the number of programs avoiding fragmentation and overlapping between the national and regional level and helping to put in perspective the various policies with a more structured allocation of responsibilities among the national and between the national and the regional level. In order to be effective, and taking example from abroad, policies should comply with explicit requirements: administrative simplicity and flexibility. In addition, policies should further focus on the promotion of technological transfer, especially through more generous budgets, if they have to have a real impact. Policies should address measures to increase the number of doctorates, by encouraging a more secured and long-term employment perspective for university researchers and support the recruitment for skilled personnel (researchers, engineers, designers) within firms, and SMEs especially. Also measures to ensure continuous development of skills through training schemes, aimed in particular at avoiding brain drain, should be implemented through ad hoc programs at all levels of education. In addition, policies should address new measures to encourage entrepreneurship and the creation of firms through financial support for the creation and early development phase of innovative enterprises, support to risk capital.

The cultural environment both in Italy and Denmark should be changed towards toleration of failure, in order not to discourage those individuals who have failed just because of exogenous factors. Though, as cultural characteristics and tradition are very hard to change as they are imbedded deeply in one’s culture, governments should focus on encouragement and formation of individuals as potential entrepreneurs through specific programs. Structural changes require long period of times. However, if main public bodies responsible for the shaping of the institutional environment do not comply with characteristics of flexibility, transparency and independence from private political gain, changes can result harder and might not ever be achieved.

4 Perspectives

The research carried through, as mentioned in the beginning, is restricted to a limited study of certain institutions and cultural factors, which of course do not provide the overall picture regarding the subject topic. Factors not taken into account, such as the internal market openness and commercial and physical infrastructure, should be addressed by further research in order to assess a more comprehensive framework of the Italian and Danish economy related to the exploitation and access of entrepreneurship opportunities.

Insights regarding the recent global financial crisis can help explaining further the variations and outcomes of the different institutions performance across the years, and it could provide suggestions for reinforcements of the institutional base. Taking countries as closed entities within their borders, limits the assessment of the availability of financial resources as it does not take foreign investments and the attractiveness of the home market for foreign entrepreneurs into account. Moreover, countries differ in economic development across regions. Addressing such difference could provide information for specific policies' drafting and focus on explicit issues for a more uniform country's economic development. Differentiation of entrepreneurship by sector is a further element that could contribute additional insights of a country's economy, providing more precise suggestions of possible areas of intervention, as certain policies, programs, and R&D activity could need variations across different industry sectors depending on their specific intrinsic features. Labor market, internal market openness and commercial and physical infrastructure could further deepen the analysis on entrepreneurship as they are all part of an economic analysis of a country's market that additionally shapes and influences entrepreneurial opportunities, affecting the level of individuals that decide to undertake start-up creation.

The study's initial intention was that of analyzing throughout a survey, a number of already existing start-ups in relation to individual difficulties encountered during their business creation process. The purpose was that of investigating the individuals' knowledge or availability of the above mentioned programs, policies and financial intermediaries, in order to assess the actual effect and affordability, through direct data collection, of the measures put forward within a country's environment. Such study has not been possible for reasons related to information access, but it is believed to be a valuable tool for a further evaluation of the economic environment.

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