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Dissertation Thesis:
The Role of Innovation and Entrepreneurship in Growth and Economic Recovery: Greece’s Path Out of Recession

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Abstract

Entrepreneurship is a phenomenon which has attracted a lot of attention worldwide and has been given multiple definitions. Its performance is affected by many different variables and its effects on the economy are multiple. The link between the driving factors of entrepreneurship and the effects it has on economic life is an issue that has preoccupied academics, businessmen and policy makers.

This dissertation provides a review of the literature on entrepreneurship, innovation and the linkage of entrepreneurship to economic performance in order to clarify some basic meanings and achieve a better understanding of the data. Measurement of entrepreneurship is another important issue and is also addressed in this paper.

The present research focused on assessing entrepreneurship in Greece. Attention has been given on how indicators relatively to entrepreneurship, innovation and the general entrepreneurial environment have been evolved the last years, due to the debt crisis the country goes through.

In order to identify the key changes of entrepreneurship determinants and the crisis impact on them there have been employed different sources of data. The secondary data used from GEM, IOBE and WEF showed the quantitative change of indicators, while the primary data obtained from interviews with local entrepreneurs allowed to have a more qualitative approach to the situation and shape a more comprehensive view.

The results from data analysis have been compared and led to some main findings which can be quite useful to provide an insight on how the situation is shaped in Greece relatively to entrepreneurship. The main problems and trends of entrepreneurship are addressed at that point.

Based on the findings of the data analysis there have been made some general recommendations and proposals for further action from policy makers, for instance the elimination of bureaucracy, the stabilization of taxation scheme or the facilitation of access to finance for entrepreneurs. All recommendations aim to improve the business environment, promote the entrepreneurial activity and help high growth enterprises to develop.
Acknowledgements

I would like to thank for his invaluable help and time Dr. Fragiskos Archontakis. His advice and encouragement were very important for me while trying to write this paper. I would also like to thank the entrepreneurs that contributed on their way to my research and dedicated some of their time being interviewed.
**Definitions and Acronyms**

- **E.U.** - European Union
- **GDP** - Gross Domestic Product
- **G.E.M.** - Global Entrepreneurship Monitor
- **IE** – Innovation Entrepreneurship
- **IMF** - International Monetary Fund
- **I.O.B.E.** - Foundation for Economic and Industrial Research
- **SME** - Small and Medium Sized Enterprise
- **NSI** - National Innovation Systems
- **O.E.C.D.** - Organization for Economic Cooperation and Development
- **R&D** - Research and Development
- **T.E.A.** - Total Entrepreneurial Activity
- **VE** - Venture Entrepreneurship
- **WEF** - World Economic Forum
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I. Introduction

A. Context of the dissertation

Entrepreneurship and innovation have been identified both from the academic and the business world as major factors that affect the development and the prosperity of national economies. Entrepreneurs may affect an economy’s growth in various ways. Entrepreneurs create new businesses that can strengthen job creation, enhance competition and might contribute to increasing productivity (Acs, 2006). Entrepreneurs facilitate innovation by providing the mechanism for the commercialization of knowledge spillovers (Audretsch & Thurik, 2001). Innovative entry can lead to a wider variety of products and processes that may lead to more innovation that can reinforce economic development.

Academics have identified different types of entrepreneurship and have shown through empirical research the differential impacts they have on economic growth. They have examined entrepreneurship’s impact regarding the motivation (Poh Kam Wong et al., 2005; Acs, 2006), the innovativeness of the new entry (Tang & Koveos, 2004), the venture’s stage of development (Weenekers et.al, 2005) or the industry the enterprise belongs to (Carree & Thurik, 1999). Empirical studies have tried to assess the impact by estimating the contribution of entries or exits of businesses on productivity (Baldwin, 1995), employment rates (Reynolds, 1994) regional growth rates (Fritsch & Mueller, 2004) or GDP (Gross Domestic product) per capita (Van Stel et.al, 2005).

Entrepreneurship activity plays a different role in every economy depending on the stage of economic development. According to the WEF (World Economic Forum) there are three stages of economic development. In the first stage of development economies are factor-driven competing based on natural resources and unskilled labor. In the second stage that of efficiency-driven development economies are characterized by increased industrialization and economies of scale. Moving to the third stage of development, economies are innovation-driven. At that level they compete based on R&D, knowledge intensity and expanding service sector. At that point of economic development there are appropriate conditions that offer great potential for innovative entrepreneurial activity.

At present time when Greece due to its debt crisis faces a severe economic recession, the need for innovative profit related actions is extremely crucial. Entrepreneurs should play a leading role in the country’s effort to transform into a healthy and competitive economy. Enhancing the economy’s entrepreneurial capacity should be an integrated procedure aiming at the evolvement of a wide variety of factors. Enhancing entrepreneurship is not about having a larger number of ventures; what should be ensured is the viability, the growth perspectives of the new entries and their qualitative contribution to the economy.

While some commentators would claim that times of crisis are not appropriate for new start-ups there are businessmen and academics that believe there is not a better time than a downturn for new entrepreneurs to be born and thrive. During a downturn opportunities exist for creative and innovative people. The rough economic environment pushes people to find ways in order to survive and create income. High rates of unemployment and lay-offs can generate potential entrepreneurs. Even if not all of them will be successful at their efforts they will at least put the economy into motion and something good might come out of this.
Entrepreneurship is a multifaceted concept difficult to define and even more difficult to measure. Many methods and indicators are used in order to give a clear picture. In the measurement process there has been significant contribution by GEM (Global Entrepreneurship Monitor) who is able to provide information for the entrepreneurial activity, the attitudes towards entrepreneurship, the aspirations of entrepreneurs and estimations on the entrepreneurial framework conditions. In Greece IOBE (Foundation of Economic and Industrial Research) also contributes to the assessment of entrepreneurship by providing more analytical data.

Even at times of normal economic conditions small and medium enterprises need the support of specific policies and programs by the state in order to survive and grow. At present that small and medium enterprises are in a weak position because of the crisis, policies have to be more carefully designed and bear in mind the extraordinary economic conditions. The analysis of the data available for entrepreneurship in Greece and those collected from interviews with entrepreneurs can provide findings to policy makers, in order to help them gain a profound insight on the reforms needed for a sound framework that can support entrepreneurship.

B. Contribution of the study and main objectives

The objectives of this dissertation are the following:

- To show the relationship between entrepreneurial activity and growth in a macroeconomic level as this has been identified by economic literature.
- To justify entrepreneurship as the appropriate approach of being a “path” for exiting economic recession.
- To identify the status of Greece relatively to innovation and entrepreneurship. To identify the roadblocks for the development of innovation and entrepreneurship.
- To measure differences in entrepreneurial attitudes, activity and aspirations as they have been shaped the last years under the effect of the financial crisis and to uncover factors determining the nature and level of national entrepreneurial activity.
- To show that even turbulent times present opportunities and are appropriate for entrepreneurial kick offs.
- To identify policy implications for enhancing entrepreneurship in the Greek economy.

C. Structure of the dissertation

This dissertation consists of eight chapters. The present chapter provides an introduction to the topic and the objectives of the study. The second chapter includes the literature review. It provides definitions on the basic topics examined on the study and results of previous researches on the linkage of entrepreneurship with economic growth. The next chapter describes the methodology used for the conduct of this dissertation. In chapter four and five there is a presentation of the characteristics of the business environment and innovation in Greece. In chapter six there is also presentation and interpretation of the data provided by GEM and IOBE for domestic entrepreneurial activity and the results from the interviews with entrepreneurs. The seventh chapter includes comments on the findings, policy implications and recommendations and at the final chapter there are the conclusion remarks on the study.
II. Literature review

A. Innovation and economic growth

The technological raid the economy has undergone the last decades in all sectors, has raised the scientific interest towards understanding and analyzing the innovative process; especially the mode firms innovate and the impact of this technological evolution on enterprises and markets (Acs et.al, 1994). A large body of studies has dealt with technological progress and innovation and how they contribute to economic performance at firm, industry and macro level. The way a firm, an industry, a region and even an entire economy performs, is linked to how effectively innovation potential has been harnessed (Audretsch & Keilbach, 2004).

It is generally accepted that what fosters the innovative process is the creation of new knowledge which is an important driver of economic growth. The mechanisms through which new knowledge contributes to economic growth are not well understood. Entrepreneurship has been identified as a mechanism (in addition to incumbent firms) that converts new knowledge into economic growth (Carlsson et.al, 2009). One of the first to understand the importance of the existence of entrepreneurs in favor of innovation and thus economic growth was Schumpeter (1942). He explains that entrepreneurs’ innovative activity feeds a creative “destruction process” that is causing disturbances in the economic system which on their turn, lead to the creation of new opportunities. By trying to restore the balance of the system more innovations occur. According to Grilliches (1979) and his model of knowledge production function, firms contribute to innovative activity by constantly aiming at the acquisition of new economic knowledge which constitutes the most critical input in Grilliches’ model.

R&D activity is considered to be the most important but not the only source of creating new economic knowledge and innovation outputs that can foster growth. Different types of R&D make different contribution to growth. The two main categories that have been identified are academic research and industrial research. The first has no immediate economic value either due to the fact that is produced in areas that do not have strong connection to the market or because it might never reach those standards that will imply inherent economic value from its commercialization. Some economic value is attributed to the knowledge graduates carry with them to labor market. On the other hand we have industrial R&D which can have potential economic value by commercialized intellectual property. Commercialization can be accomplished by expansion of existing business activities through a wide range of methods (e.g. direct sales, licensing, mergers etc.) (Carlsson, Acs, Audretsch and Braunerhjelm, 2009).

R&D is an activity related both with large and small enterprises. While it is generally expected that large organizations would be better able to exploit R&D, in certain industries smaller firms seem to have innovative advantage. R&D can prove to be very risky due to the big expenses required, so it is a difficult decision for companies to undertake. The larger the firm the stricter is the management and risky decisions have to get approval from more
departments. This sort of bureaucracy inside firms can place some impediments in promoting new innovative projects, while in smaller firms people reach in decisions easier and faster (Scherer, 1992, Acs et al., 1994).

The level of R&D investments shows diversifications among different industries as well as among countries. Industries such as electronics and pharmaceuticals that depend more on innovation, in order to make profits, tend to spend large amounts of money on R&D. Similarly, countries that are more innovative tend to have high investments in R&D proving for once more the strong linkage between knowledge input and innovative output in all levels of economic activity (Audretsch, 2004; Aghion, 2006).

Edquist (2004) explains that firms are not single players in the innovative process, but their innovative efforts are defined by a complex environment consisting of other dynamic factors as well. It is not adequate to invest high amounts in R&D with no specific focus to foster economic growth. What is substantial for economies apart from R&D is to shape a general environment able to support innovation and foster growth (Aghion, 2006). A framework of systemic innovation has to be introduced in order to build innovative capacities at the national level.

The national innovation systems (NSI) definitions (Table 1) approach emphasizes on the flows of knowledge and technology among the actors of the system which include enterprises, research institutes, universities and governments. These flows are the most important part of the innovative process and are of four different types (Table 2): 1) interactions among enterprises, 2) interactions among enterprises, universities and public research institutes, 3) diffusion of knowledge and technology to enterprises, 4) personnel mobility (OECD, 1997).

Table 1 : National Innovation Systems: definitions

<table>
<thead>
<tr>
<th>National innovation systems: definitions</th>
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<tbody>
<tr>
<td>• &quot;... the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies.&quot; (Freeman, 1987)</td>
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<td>• &quot;... the elements and relationships which interact in the production, diffusion and use of new, and economically useful, knowledge ... and are either located within or rooted inside the borders of a nation state.&quot; (Lundvall, 1992)</td>
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<td>• &quot;... a set of institutions whose interactions determine the innovative performance ... of national firms.&quot; (Nelson, 1993)</td>
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<td>• &quot;.. the national institutions, their incentive structures and their competencies, that determine the rate and direction of technological learning (or the volume and composition of change generating activities) in a country.&quot; (Patel and Pavitt, 1994)</td>
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<tr>
<td>• &quot;.. that set of distinct institutions which jointly and individually contribute to the development and diffusion of new technologies and which provides the framework within which governments form and implement policies to influence the innovation process. As such it is a system of interconnected institutions to create, store and transfer the knowledge, skills and artifacts which define new technologies.&quot; (Metcalf, 1995)</td>
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Source: OECD, 1997
Table 2: Types of knowledge flows

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<tr>
<th>Type of knowledge flow</th>
<th>Main Indicator</th>
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<tbody>
<tr>
<td><strong>Industry alliances</strong></td>
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<tr>
<td>Inter-firm research co-operation</td>
<td>Firm surveys</td>
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<td></td>
<td>Literature-based counting</td>
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<tr>
<td><strong>Industry/university interactions</strong></td>
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<td>Co-operative industry/University R&amp;D</td>
<td>University annual reports</td>
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<td>Industry/University co-patents</td>
<td>Patent record analysis</td>
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<td>Industry/University co-publications</td>
<td>Publications analysis</td>
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<td>Industry use of university patents</td>
<td>Citation analysis</td>
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<td>Industry/University information-sharing</td>
<td>Firm surveys</td>
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<td><strong>Industry/research institute interactions</strong></td>
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<td>Co-operative industry/Institute R&amp;D</td>
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<td>Industry/Institute information-sharing</td>
<td>Firm surveys</td>
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<td><strong>Technology diffusion</strong></td>
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<tr>
<td>Technology use by industry</td>
<td>Firm surveys</td>
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<tr>
<td>Embodied technology diffusion</td>
<td>Input-output analysis</td>
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<tr>
<td><strong>Personnel mobility</strong></td>
<td></td>
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<tr>
<td>Movement of technical personnel among industry, universities and research</td>
<td>Labour market statistics</td>
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<td></td>
<td>University/Institute reports</td>
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Source: OECD, 1997
B. Entrepreneurship and economic growth

The entrepreneur is a term difficult to define although his function exists from the depths of time. The literature has given many definitions none of them though widely accepted. The reason for the multiple definitions of the entrepreneur is due to the fact that the concept has attracted attention and been addressed by many scientific disciplines like anthropology, social science, economics and management (Ahmad & Seymour, 2008). In economic literature, there have been identified at least 13 discrete roles for the entrepreneur (Hebert & Link, 1989, Van Dijk & Thurik, 1995, Van Praag, 1996, Weenekers & Thurik, 1999):

1. The person who assumes the risk associated with uncertainty.
2. The supplier of financial capital.
3. An innovator.
4. A decision maker.
5. An industrial leader.
6. A manager or a superintendent.
7. An organizer and coordinator of economic resources.
8. The owner of an enterprise.
10. A contractor.
11. An arbitrageur.
12. An allocator of resources among alternative resources.
13. The person who realizes the start up of a new business.

Cantillon (1730) is the one who has been granted the first reference to the entrepreneur as a self-employed person whose ventures are closely related to uncertainty. The entrepreneur has a cost when starting his activity but he cannot be certain that the outcome will bring him profits. A later view expressed by Say (1803) presented the entrepreneur as a manager, a coordinator of the processes of the business with many capabilities. Being an entrepreneur is described as a difficult task with many challenges to face. Very close to Say's view was Marshall (1890) who characterized the entrepreneur as a "superintendent" that focuses on all aspects of his business and superintends every minor detail. He also stresses the importance of high personal skills in order to become a successful entrepreneur.

Schumpeter (1934) defined the entrepreneur as an innovator who takes advantage of changes and carries out new combinations, including: a) introduction of a new good, b) introduction of a new method of production, c) opening of a new market, d) conquest of a new source of supply and e) the carrying out of a new organization of any industry. Knight (1921) was very close to Cantillon's views also emphasized on the risk and uncertainty, as an important element of the entrepreneurial process. According to Knight the entrepreneur is something more than a decision maker, a director or a controller, the entrepreneur is an owner of capital and it is this capital that is compromised (Long, 1983).
Kirzner (1973) unlike Knight in his early work was recipient of criticism due to his view of an entrepreneur who owns no capital. Consequently there was no risk inherent in the entrepreneurial process. The emphasis was put on the ability of the entrepreneur to perceive new profit opportunities and act on them; this was according to Kirzner the main task of the entrepreneur (Hebert & Link, 1989).

Since the 1980’s there has been impressive interest on entrepreneurship, especially from the perspective of innovative behavior. Entrepreneurship is a multi-faceted phenomenon that affects variously economic performance; economic life cycle variations on the other hand set the conditions under which entrepreneurship is addressed (Nijkamp, 2003).

As difficult as it is to define entrepreneurship, it is even more difficult to measure it and find out the exact impact it has on growth. From the viewpoint of linking entrepreneurship with growth Weenekers and Thurik (1999) have identified two major roles of entrepreneurship that stand out. One has to do with “new entry” and the other with “newness”. What is meant with new entry is a firm’s start-up into any industry. Audretsch (1995) reveals that the importance of new entry varies from industry to industry according to the technological status. Firm start-ups are more important in industries that enjoy higher technological status because of higher expected profits, while they tend to be of less importance in industries that are not technologically intense. Audretsch also examines how the number of start-ups can be subject to changes over time and place and have differential impact on economic performance.

With newness is meant that entrepreneurship has to be innovating. “Innovativeness reflects a firm’s tendency to engage in and support new ideas, novelty, experimentation creative processes that may result in new products services or technological processes. Although innovations can vary in their degree of radicalism, innovativeness represents a basic willingness to depart from existing technologies or practices and venture beyond the current state of the art” (Lumpkin & Dess, 1996, p. 142).

The ability of a region to exploit specific contexts and support an environment that can help entrepreneurship to develop, has been defined as entrepreneurship capital and is expected to affect positively the economic performance of the region for a number of reasons. The first one is that it constitutes a mechanism for knowledge spillovers which underlies endogenous growth (Romer, 1986). The second reason is that increased entrepreneurship capital can generate increased competition by an increased number of enterprises. Finally, apart from the creation of new enterprises we have the development of diversity among enterprises which can affect the growth potential of a region (Audretsch & Keilbach, 2004).

GEM model on entrepreneurship shows how entrepreneurial attitude of a country gets affected from the socio-political and cultural context that can have a positive impact on entrepreneurship activity. The creation of new firms as well as the growth of the established ones results in creation of new jobs, intensified competition, higher productivity through technological advances and all that can lead to high levels of economic growth.
Not all kinds of entrepreneurship have a positive impact on economic development. GEM has identified two types of entrepreneurship that have different impacts; “necessity entrepreneurship” which means that someone has become an entrepreneur because there is no other better option and “opportunity entrepreneurship” which is the conscious option to start a business based on an unexploited opportunity which entails profit. After an empirical analysis based on GEM data Acs (2006) found that necessity entrepreneurship had absolutely no impact on economic development while opportunity entrepreneurship has a significantly positive effect. Wong et al. (2005) found that high levels of opportunity
entrepreneurship affect positively a country’s growth rates while the opposite thing happens with high levels of necessity entrepreneurship. They found though that the impact of the different types was not significant for economic growth.

Tang and Koveos (2004) have identified two other types of entrepreneurship with differential impacts on economic growth. The first type “venture entrepreneurship” involves the creation of new businesses while the second “innovation entrepreneurship” deals with the introduction of any innovation (goods, processes etc.) embedded in existing enterprises. The effect of the different types depends upon the existent level of economic growth. VE affects positively GDP rates in high income countries while IE brings the exact different results for the same group of countries.

Effects of entrepreneurial activity on economic development can also be of different types and depend upon the stage of maturity of the firm. Fritsch & Mueller (2004) have identified four main indirect effects of new business formation that can generate more significant positive influence to economic growth than the direct effects. Effects are observed both for new and established firms that have to cope with increased competition in order to survive; those are: increased efficiency, acceleration of structural change, amplified innovation and innovative entry. The previously mentioned indirect effects lead to improving the competitiveness of an economy, region or industry. Increased competitiveness on its turn can stimulate growth.

C. Linking entrepreneurship to economic growth

Economic theorists dealing with economic growth with reference to entrepreneurship have attributed variant importance to the effect of entrepreneurship on economic growth. Some believe it has a pivotal role in leading economies to economic growth while others have not yet decided if there is a positive correlation between the two, or if there are only specific forms of entrepreneurship that can bring positive results to national economic growth indicators. Different economic schools share different views on the issue.

Starting from Schumpeter (1934) who first referred to the entrepreneur as a “creative destructor” and then moving on to the Neoclassicals and the Austrians theorists who have attributed different roles to the entrepreneur and placed quite many limitations on how the entrepreneur can be perceived from the economic growth perspective. Weenekers and Thurik (1999) have made a classification of the different approaches that have tried to define the relationship between entrepreneurship and economic growth. The same classification was later used and revised by Karlsson, Friis and Paulsson (2004) who consider this systematization a useful tool of identifying links between entrepreneurship and economic growth theories. A brief sketch of the theories according to the previously mentioned classification is going to be offered below.

Schumpeter’s view on “creative destructor” is shared also by another economist. Baumol (1968) adopts the Schumpeterian innovator and considers the entrepreneurial function vital component for the process of economic growth. He discerns the entrepreneur from the
manager in the sense that he does not just oversee processes, schedules outputs and inputs but his job is to locate new ideas and put them into effect, to lead and even to inspire.

While German school economists believe that the entrepreneur creates instability which leads to disequilibria and later on to economic development, the neo-classical economic theory attributes a totally different role. The neo-classicals emphasize on the role of the entrepreneur in leading markets to equilibrium. The neo-classical model suggests that there is perfect information between individuals; equilibrium is achieved when demand meets supply and economic objectives are clear and based on rational choices (Weenekers et al 1999, Glancey & McQuaid 2000). All the above impose some sort of limitation on entrepreneurship. Even though the model leaves no space for an active entrepreneur, after some time of consideration from economic theorists and the change of circumstances, there have been some attempts to incorporate entrepreneurship into their models.

Coming to the Austrian school, attention is focused on the ability of the entrepreneur to apprehend profit opportunities. Kirzner one of the most distinguished contemporary economists of the Austrian school identifies the entrepreneur with the arbitrageur, who recognizes profit opportunities in the price differentials in different markets. Trying to uncover the link between entrepreneurship and growth examines two issues that of resource misallocation and competition. Kirzner (1982) supports the fact that where there are opportunities that can lead to profitable activities there has been some resource misallocation and it is then that entrepreneurship intervenes to correct this waste. As far as competition is concerned, he argues that new entrants drive competition by introducing new products and create changes that lead to new opportunities. For Kirzner the entrepreneur tries to bring the economy back to equilibrium in contrast to the entrepreneur of Schumpeter who disrupts this balance (Kirzner 1999, Douhan et al. 2007). Holcombe (1998) claimed based on Kirzner that those new opportunities can generate more entrepreneurship and this continuous self-reinforcing process can lead to long-run growth.

Mainstream modern neo-classicals have not expressed any interest to deal with the entrepreneur in their models. In the most important growth model of the neo-classical theory, that of Solow (1956) the entrepreneur has no active role. In Solow’s model growth rate is exclusively determined by advances in knowledge or technological progress. The role of the entrepreneur is missing from other growth models as well.

Entrepreneurship was difficult to fit in the neo-classical model for several reasons, but there have been other attempts to incorporate entrepreneurship in growth models. The development of the endogenous growth or “new growth” theory has created new potential to fit entrepreneurship into the growth model but with its role to remain implicit. The most important representatives of the theory emphasize on the variables of research and innovation (Romer, 1990, Aghion & Howitt, 1992), and human capital (Lucas, 1988). The “new growth” theory stresses the endogenous role of innovation and human capital in contrast with the neo-classical model which explains growth as exogenously defined modifications (Weenekers & Thurik, 1999).
A very important economic theorist Michael Porter believes that there is a strong linkage between entrepreneurship and economic growth. “Invention and entrepreneurship are the heart of the national advantage” (Porter 1990, p. 125). He tried to show the link through a diamond shape model which identifies the determining factors that have to interact in order competitive advantage to be gained. Those factors are the demand and factor conditions, the structure and culture of domestic rivalry of a firm and the related industries.

D. Measuring Entrepreneurship and Innovation

As difficult as it is to define entrepreneurship it is even more difficult to measure entrepreneurship. In literature we find many different methods, indexes and models used for empirical research trying to link entrepreneurship with economic growth. OECD (1998) points out that measuring entrepreneurship is a very complex task, since the set of indicators used for measurements is not common.

An important amount of studies use self-employment data, which can be found easily for many countries and regions (OECD 2000, Audretsch and Thurik 2001) although self-employed consists of a very heterogeneous group involved in entrepreneurial activities (Braunerhjelm, 2010). Another way of assessing the impact of entrepreneurship on economic performance is to gauge the impact of entries and exits of businesses on productivity (Baldwin, 1995, Disney et al. 2003, Foster et al. 2001) or the effect of turbulence (entry plus exit) on productivity (Fritsch, 1996, Callejon and Segarra, 2000). A significant amount of studies have showed correlation between entry rates and (un)employment (Acs & Armington, 2004, Reynolds 1994, Carree & Thurik, 2003) and others have used business ownership rates (Carree, and Thurik, 2002) or net birth rates (entry less exit) (Dejardin, 2008) to show some impact of entrepreneurship with economic performance.

The Global Entrepreneurship Monitor project has compiled a new set of data based on surveys, experts’ interviews and questionnaires to capture entrepreneurship. GEM surveys random samples of people (18-64 years old) in order to produce an index of “Total Entrepreneurial Activity” (TEA) for each country. They identify also nascent entrepreneurship, opportunity and necessity entrepreneurship and their data contain additional information such as motives or constraints of entrepreneurial activity etc. The GEM data are further supplemented by macroeconomic indicators such as the level and growth of GDP, (un)employment, investments, cost levels, inflation and interest rates level gathered from statistical services (Braunerhjelm, 2010). The World Bank and Eurostat maintain datasets on entrepreneurship quite similar with those of GEM.

OECD has also developed a framework for measuring entrepreneurship indicators and especially those related with entrepreneurial performance (Figure 2). What is considered important is that each indicator will shed some light into the complex phenomenon of entrepreneurship, this is why they have undergone categorizations either related to performance or the impact they have. Ideally for a clearer view of the relationship between entrepreneurial performance and impact a perfect correlation would exist but cannot be
expected yet (Ahmad & Hoffman, 2008). The framework of the determinants is exhibited below (Figure 3).

**Determinants**
- Regulatory Framework
- Market Conditions
- Access to Finance
- R&D Technology
- Entrepreneurial Capabilities
- Culture

**Performance**
- Firms
- Employment
- Wealth

**Impact**
- Job Creation
- Economic Growth
- Poverty reduction
- Formalising the informal sector

**Figure 2:** OECD/ EUROSTAT framework for entrepreneurship indicators with categories of entrepreneurial performance and impact.

**Figure 3:** OECD/ EUROSTAT framework for entrepreneurship indicators with categories of entrepreneurial performance adding indicators of entrepreneurial performance.

Coming to the innovation measurement things are not less complicated. Many are those indicators used in order to be able to quantify innovation. Audretsch (2004) suggests that “Measures of technological change have typically involved one of the three major aspects of
the innovation process: (1) a measure of the inputs into the innovative process, such as R&D expenditures, or the share of the labor force accounted for by employees involved in R&D activities; (2) an intermediate output, such as the number of inventions which have been patented; or (3) a direct measure of innovative output.” In empirical research the most commonly applied measures are those of R&D expenditures and patents (Wong et al., 2005).

GEM (2010) assesses innovation with a focus in entrepreneurial businesses by trying to rate the newness of the products and services offered according to entrepreneurs opinion and the level of newness they think their customers perceive. In OECD (1997) attention has been drawn in creating new indicators able to measure innovation flows, which can be comparable across countries since conventional indicators give only a rough idea of the innovative process.

III. Methodology

The methodology used for the conduct of this research is analysis of secondary data regarding Greece, available from databases and previously published surveys. There will also be an analysis of primary data gathered from interviews with entrepreneurs in order to have more information about their views on the entrepreneurial climate during crisis. Primary data analysis will be complementary to the analysis of the secondary data and due to limited response the results will be only indicative of the situation. A comparison between the two will assist in having a clearer view of the actual conditions prevailing in national entrepreneurial activity. The sources of secondary data are the National Observatory for Small and Medium Enterprises General Entrepreneurship Monitor, IOBE-Foundation of Economic and Industrial Research, the World Bank, World Economic Forum, OECD and Eurostat. Interviews have been conducted either in person or via e-mail.
IV. Characteristics of the General Business Environment in Greece

In order to give a clear picture of the entrepreneurial activity in Greece we are going to present first some basic things about the general business environment of the country.

Greece has been fiscally challenged since 2008 with the levels of public debt to have increased in unprecedented levels. In 2009 the country’s fiscal deficit rose up to 15% of the GDP, while public debt in 2010 has reached 140% of GDP\(^1\). Increased levels of debt have led to increased interest rates, meaning higher cost of capital for enterprises which combined with other factors has suffocated investments and business activity in general. The severe deterioration of the country’s macroeconomic environment combined with factors such as low efficiency of markets and poor institutional setup undermine the country’s competitiveness.

In order to correct its imbalances Greece has agreed to proceed with an economic programme which includes very ambitious structural reforms. The strict implementation of this programme gives some possibilities for the public finances to return to a sustainable path. Unfortunately this very challenging consolidation effort has not eliminated the chances of a default in the near future which retains an uncertainty in the markets. The country according to the Global Competitiveness Index ranked 83\(^{rd}\) for 2010-2011 twelve places lower than the ranking of 2009-2010 and holds the lowest position among the EU-27 countries.

<table>
<thead>
<tr>
<th>Table 3: Rankings of the EU27 in the Global Competitiveness Index 2010–2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economy</td>
</tr>
<tr>
<td>Sweden</td>
</tr>
<tr>
<td>Germany</td>
</tr>
<tr>
<td>Finland</td>
</tr>
<tr>
<td>Netherlands</td>
</tr>
<tr>
<td>Denmark</td>
</tr>
<tr>
<td>United Kingdom</td>
</tr>
<tr>
<td>France</td>
</tr>
<tr>
<td>Austria</td>
</tr>
<tr>
<td>Belgium</td>
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<tr>
<td>Luxembourg</td>
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<tr>
<td>Ireland</td>
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<tr>
<td>Estonia</td>
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<tr>
<td>Czech Republic</td>
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<tr>
<td>Poland</td>
</tr>
<tr>
<td>Cyprus</td>
</tr>
<tr>
<td>Spain</td>
</tr>
<tr>
<td>Slovenia</td>
</tr>
<tr>
<td>Portugal</td>
</tr>
<tr>
<td>Lithuania</td>
</tr>
<tr>
<td>Italy</td>
</tr>
</tbody>
</table>

\(^1\) OECD, Economic Surveys Greece, August 2011
In the macroeconomic environment Greece shows the worst performance by taking the 123rd place, 10 places lower than the 2009-2010 ranking while the same decline is observed in the measures of financial markets development taking the 93rd place. Another major area of concern is the inefficient labor market (125th place) and the evaluation of public institutions that also rank low (83rd place) that make imperative the need for reforms. The country shows also strengths like good market size, technological readiness and highly educated workforce, where effort should be invested for outreaching current problems.  

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### Source: WEF, Global Report on Competitiveness

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2 Analytical information on Greece’s competitive position as shown by all indicators measured is exhibited in the Appendices.
In the World Bank Survey “Doing Business 2011” on the ease of doing business the country was ranked 109/183 falling 12 places since 2010 while it ranked even lower on the ease of starting a business (149th). Bureaucracy, corruption and restrictive regulations have been characterized as the top three problematic factors in doing business in Greece.
V. Characteristics of Innovation in Greece

First we have to mention the characterization of the Greek economy as an innovation driven economy according to WEF country classification by economy and geography. In this phase according to WEF businesses are more knowledge intensive and the service sector has expanded. Innovation driven economies offer great potential of innovative entrepreneurial activity.

Greece’s performance relatively to innovation is assessed by the Innovation Union’s performance Scoreboard for research and innovation. Greece has been characterized as a moderate innovator performing below the average of the EU27 member states. According to the Summary Innovation Index which is a composite indicator showing the average performance of 24 innovation indicators per country Greece takes the 19th place in innovation performance. As far as growth in innovation performance is concerned the country has a 4.7% growth rate over a five year period which is below the average growth rate of the moderate innovators’ group of countries.

Greece shows both strengths and weaknesses in the assessment of the 25 main indicators of 8 different innovation dimensions. The figures below shows that the strengths of Greece are spotted in human resources and innovators and outputs while the weakest performance is in finance and support, firm investments and intellectual assets. The indicators that seem to have higher average growth rate are venture capital, community designs and sales of new to markets and new to firm innovations. A strong decrease is observed in non-R&D expenditure and license and patent revenue from abroad.

According to the Global Competitiveness Index which evaluates the relative competitive position of the country, Greece was ranked 79th in the pillar of innovation out of the 139 countries that are evaluated. The pillar of innovation is composed by separate indicators where it is observed that the country has both strong and weak performance. The most competitive place is achieved in the availability of scientists and engineers (21st place) and the distribution of utility patents per million of the population (37th place). The sectors where the country is not very competitive are the university-industry collaboration in R&D (112th place) and the company spending on R&D (126th place) where the country takes one of the lowest places in the worldwide ranking. Even though the country has a big platform of highly educated human resources it seems that the transition to labor market and their involvement in the business world appears to be problematic. Greece’s competitive position is also very low in the other indicators such as the capacity for innovation, the quality of scientific research institutions and the government’s procurement of advanced tech products.
Figure 7: Innovation Performance Indicators, Source: Innovation Union Scoreboard 2010
Figure 8: Innovation Performance Indicators’ growth rates

Source: Innovation Union Scoreboard 2010

Table 4: Innovation Indicators for Greece (showing relative competitive position)

<table>
<thead>
<tr>
<th>12TH PILLAR: INNOVATION (INDICATORS)</th>
<th>RANK/139</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity for innovation</td>
<td>105</td>
</tr>
<tr>
<td>Quality of scientific research institutes</td>
<td>88</td>
</tr>
<tr>
<td>Company spending on R&amp;D</td>
<td>126</td>
</tr>
<tr>
<td>University-industry collaboration in R&amp;D</td>
<td>112</td>
</tr>
<tr>
<td>Gov’t procurement of advanced tech products</td>
<td>108</td>
</tr>
<tr>
<td>Availability of scientists and engineers</td>
<td>21</td>
</tr>
<tr>
<td>Utility patents per million population</td>
<td>37</td>
</tr>
</tbody>
</table>

Source: WEF Global Report on competitiveness 2010-2011
VI. Characteristics of entrepreneurship

The data that are going to be exhibited in this section are provided by the National Observatory of the General entrepreneurship Monitor. Those data have also been used in IOBE’s surveys on entrepreneurship since 2003, when Greece started participating in the project. The data presented are dated since 2007 until 2010 the latest available. An emphasis is going to be paid on the evolution of indicators the years to follow. It is since 2008 that the global economic crisis became evident in Greece; it was followed by the serious national fiscal problems and a continuously deepening recession. The main purpose is to find out what was the influence of these conditions on the domestic entrepreneurial activity.

A. Basic indicators of Early-Stage Entrepreneurial Activity

The main indicator measured in the entrepreneurship measurement framework of GEM refers to entrepreneurial activity of early stages and is defined as Total Early-Stage Entrepreneurship Activity (TEA) and combines both nascent and new businesses. The table below shows the TEA rates as they have been shaped since 2007. It is observed that while in 2008 TEA almost doubled compared with 2007 and in 2009 slightly declined, in 2010 the decrease was substantial amid the debt crisis. This change is due to the fact that nascent entrepreneurs have probably been affected by the unfavorable economic conditions and the uncertainty about the future that have acted as an obstacle for potential entrepreneurship activity.

<table>
<thead>
<tr>
<th>Years</th>
<th>Nascent Entrepreneurship Rate</th>
<th>New Business Ownership Rate</th>
<th>Total Early-Stage Entrepreneurship Activity (TEA)</th>
<th>Established Business Ownership Rate</th>
<th>Business Discontinuance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>4.6</td>
<td>1.1</td>
<td>5.7</td>
<td>13.3</td>
<td>2.6</td>
</tr>
<tr>
<td>2008</td>
<td>5.3</td>
<td>4.6</td>
<td>9.9</td>
<td>12.6</td>
<td>2.3</td>
</tr>
<tr>
<td>2009</td>
<td>4.5</td>
<td>4.7</td>
<td>8.8</td>
<td>15.1</td>
<td>2.6</td>
</tr>
<tr>
<td>2010</td>
<td>2.0</td>
<td>3.5</td>
<td>5.5</td>
<td>14.8</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Source: GEM Database of Adult Population Surveys

On the other hand established business ownership rate appears to be boosted in 2009 reaching the highest levels of the last five years. In 2010 the decline was less than 0.5% showing that the crisis has not affected established businesses as much as the new ones. Among the innovation driven economies Greece had the highest established business rate. High rates of established business combined with low or average TEA rates might indicate low competitiveness of the industry environment that discourages the entrance of new businesses.
In the Global Report of GEM in 2008 where for first time the typology of economies based on the stage of development was used, it was identified that different TEA levels mean different things for different economies. The findings showed that TEA levels are inversely proportional to the level of economic development. TEA rates are higher for poorer countries that show decline trends until reaching the efficiency level, where it is observed some permanence and then some slow increase towards the innovation stage, followed by faster rates of increase when moving to higher levels of wealth.

![Figure 9: Total Early-Stage Entrepreneurial Activity Rates and Per Capita GDP 2010](source: GEM Adult Population Survey (APS) and IMF World Economic Outlook Database)

As far as business discontinuance rates are concerned they have been kept in steady levels for the 2007-2009 period and show increase of almost a unit in 2010. This rise shows that in 2010 the negative economic climate is perceived more intensely by entrepreneurs and has a stronger effect on the viability of businesses. Almost two out of three respondents to the GEM survey mentioned financial problems as the number one reason for deciding to stop their business activity. The same amount of respondents mentioned financial problems as the first reason for business discontinuance in Italy and Spain, where economies are facing serious problems as well.

Entrepreneurial intentions (Table 6) have showed alterations the last years as well. In 2009 the over 17% percent of the population between 18-64 years old expressed the intention to start a business in the near future. According to IOBE analysis this amount should be attributed to the adverse conditions of the domestic labor market: either due to a real loss of jobs or the fear of a potential loss of jobs or even dissatisfaction about the present working condition. Self employment seemed like an appealing career choice at that point.
while the impact of the crisis was not yet quite noticeable. In 2010 the crisis deepened and led to reconsideration of intentions to start a business dropping the amount to the lowest levels ever measured by GEM for the country.

*Table 6: Entrepreneurial Intentions*

<table>
<thead>
<tr>
<th>Years</th>
<th>Entrepreneurial intentions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>13.7</td>
</tr>
<tr>
<td>2008</td>
<td>16.6</td>
</tr>
<tr>
<td>2009</td>
<td>17.2</td>
</tr>
<tr>
<td>2010</td>
<td>12.8</td>
</tr>
</tbody>
</table>

*Source: GEM Database Adult Population Surveys*

Analyzing the TEA levels relatively to the factor that drives people to undertake entrepreneurial activity GEM identifies two main categories: necessity driven and improvement driven opportunity entrepreneurship. In innovation-driven economies like Greece opportunity-driven entrepreneurship is usually in significantly higher levels than necessity-driven. The same happens for Greece showing though a significant upward trend of necessity entrepreneurship after 2008 that the first signs of the crisis were visible and respectively a downward trend of opportunity driven entrepreneurship (Table 7).

*Table 7: Necessity and Opportunity driven Early-stage Entrepreneurial Activity*

<table>
<thead>
<tr>
<th>Years</th>
<th>Necessity-driven Entrepreneurship (% of TEA)</th>
<th>Improvement Opportunity driven entrepreneurship (% of TEA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>10</td>
<td>57</td>
</tr>
<tr>
<td>2008</td>
<td>31</td>
<td>39</td>
</tr>
<tr>
<td>2009</td>
<td>26</td>
<td>47</td>
</tr>
<tr>
<td>2010</td>
<td>28</td>
<td>39</td>
</tr>
</tbody>
</table>

*Source: GEM Database Adult Population Surveys*

Analyzing the indicators of attitudes towards entrepreneurship (Table 8) will help us understand better how entrepreneurial intentions are shaped. An economy’s general attitude towards entrepreneurship reveals a lot about the energy of the economy and the policy implications for the stimulation of these attitudes.

In Greece people show great confidence in their capabilities for starting a business over time. The confidence does not seem to be affected by the difficult economic situation and even in 2010 Greece scored one of the highest percents among the innovation driven economies. The same thing does not happen though with the perception of opportunities. The indicator of perceived opportunities for starting a business in the near future has decreased significantly in 2010 showing that the crisis has affected the recognition of opportunities. Among those who perceive good opportunities to start a business a higher amount expresses the fear of failure. Being the highest among all economies shows that

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3 Denominator: 18–64 age group that is not involved in entrepreneurship activity.
there must be a serious reason for the strong risk aversion involved in starting a new business. Even though the fear of failure is high for those who think of starting a business, entrepreneurship as a career choice seems to be more appealing in 2010 with significant increase. The large number of layoffs in the private sector and the rise in the levels of unemployment probably has made a lot of people to turn to self-employment.

Table 8: Entrepreneurial Attitudes and Perceptions in Greece for 2009-2010

<table>
<thead>
<tr>
<th>Years</th>
<th>Perceived Opportunities</th>
<th>Perceived Capabilities</th>
<th>Fear of Failure</th>
<th>Entrepreneurship as a Good Career Choice</th>
<th>High Status to Successful Entrepreneurs</th>
<th>Media Attention for Entrepreneurship</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>26</td>
<td>58</td>
<td>44</td>
<td>45</td>
<td>66</td>
<td>68</td>
</tr>
<tr>
<td>2010</td>
<td>15,9</td>
<td>52,2</td>
<td>59,9</td>
<td>65,6</td>
<td>70,2</td>
<td>34,5</td>
</tr>
</tbody>
</table>

Source: GEM Database Adult Population Surveys

B. Qualitative characteristics of entrepreneurial activity:
Growth expectations, innovation and internationalization.

The qualitative characteristics of initial stage entrepreneurship constitute, what has been characterized by GEM as "aspirations" of the entrepreneurs\(^5\). Aspirations differ among entrepreneurs and can have different orientation. Entrepreneurs have different ambitions about the growth perspectives of their company. They also have different beliefs about the innovativeness and the newness of the product or service they offer and the level of newness these represent for their target market. The international orientation of new entrepreneurs is another characteristic of high importance which includes not only export activity but also the attraction of foreign customers in the economy (e.g. tourists).

**Growth expectations in terms of new jobs creation:**

Growth expectations in terms of creating new jobs are not very positive for Greece. Young entrepreneurs that expect to create at least 5 more work positions are extremely low the last years. For the period of 2008-2010 this amount was a little bit more than 20%. The amount of entrepreneurs that expect creation of at least 20 new work positions in the next five years is less than 5%. In both categories Greece has the lowest amounts among the innovation-driven economies showing very constraint prospects for growth.

**Innovation orientation:**

For this dimension of early stage entrepreneurship unfortunately the data available are not quite analytical for Greece. GEM’s measures for the years 2008-2009 show that almost half

\(^4\) Denominator: 18–64 age group perceiving good opportunities to start a business.

\(^5\) Figures showing the relative position of Greece on the issue of entrepreneurs’ aspirations can be found in the Appendices
of early stage entrepreneurs believe that the product or service they offer is new to at least some customers. For 2010 it seems like there are no significant alterations in this amount.

**Internationalization:**

Almost half of early-stage enterprises have at least some international customers that do not overcome the 25% of their customer base. Businesses that have more than 25% customers outside Greece are only one out of ten. This shows that Greek businesses do not have very strong export orientation especially in times, when the domestic market does not show high demand and entrepreneurs should seek to expand their customers in other more profitable markets.

Aspirations of the entrepreneurs show the potential impact their activities can have in national economies by reducing unemployment and creating comparative advantage. High growth expectation firms can help significantly in reducing unemployment by creating jobs. Innovation driven ventures can lead to creation of new products that will be able to enter to new markets and ensure bigger customer base that can bring more profits. Internationalization of local brands will affect positively the trade balance. All the above together can have serious impact on the Greek economy comparative advantage and eventually lead to economic growth.

**C. Entrepreneurship framework conditions**

Relatively with entrepreneurship growth it should be underlined that the national socio-economic conditions play an important role and have significant impact on facilitating innovation and technology. Among those conditions nine of them have been recognized as those that influence more the development of entrepreneurship and innovation. These nine Entrepreneurship Framework Conditions are described in the Figure 10.

Those conditions are assessed every year by national experts relatively to their evolvement. National experts identify the conditions with the most positive and the most negative progress and indicate the top three from each category (Table 9).

Greek experts have evaluated positively the last two years as the most positive conditions the commercial and the physical infrastructure. Both of those conditions were positively evaluated in 2009 and 2010, showing that Greece provides infrastructure that can support adequately business activity. The most negative condition for both years was the national policy relatively to regulations. In 2009 higher education and R&D transfer had the weakest performance while in 2010 the low score of availability of financial resources was an expected outcome because of the financial crisis. It is expected that the crisis might sharpen the problematic conditions and or reveal new ones. Policy makers can benefit from those evaluations and understand the entrepreneurship framework better in order to take correct actions.
Table 9: Entrepreneurship Framework Conditions: Three Valued Most Positive (+) and Three Most Negative (-) in Greece per year

<table>
<thead>
<tr>
<th></th>
<th>1 Finance</th>
<th>2a Nat. Policy — General Policy</th>
<th>2b Nat. Policy — Regulation</th>
<th>3 Government Programs</th>
<th>4a Education — Prim. and Second.</th>
<th>4b Education — Post-School</th>
<th>5 R&amp;D Transfer</th>
<th>6 Commercial Infrastructure</th>
<th>7a Internal Market — Dynamics</th>
<th>7b Internal Market — Openness</th>
<th>8 Physical Infrastructure</th>
<th>9 Cultural and Social Norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: GEM, IOBE National Expert Survey 2009-2010

**Entrepreneurial Finance**

The availability of financial resources—equity and debt—for small and medium enterprises (SMEs) (including grants and subsidies).

**Government Policy**

The extent to which taxes or regulations are either size-neutral or encourage SMEs.

**Government Entrepreneurship Programs**

The extent to which taxes or regulations are either size-neutral or encourage SMEs.

**Entrepreneurship Education**

The extent to which training in creating or managing SMEs is incorporated within the education and training system at all levels (primary, secondary and post-school).

**R&D Transfer**

The extent to which national research and development will lead to new commercial opportunities and is available to SMEs.

**Commercial & Legal Infrastructure**

The presence of property rights and commercial, accounting, and other legal services and institutions that support or promote SMEs.

**Entry Regulations**

Contains two components: (1) Market Dynamics: the level of change in markets from year to year, and (2) Market Openness: the extent to which new firms are free to enter existing markets.

**Physical Infrastructure**

Ease of access to physical resources—communication, utilities, transportation, land or space—at a price that does not discriminate against SMEs.

**Cultural and Social Norms**

The extent to which social and cultural norms encourage or allow actions leading to new business methods or activities that can potentially increase personal wealth and income.

Figure 10: GEM Entrepreneurship Conditions Framework, Source: GEM, 2010 Global Report
D. Interview results

For the purpose of the study there have been conducted some interviews\(^6\) with entrepreneurs that own small or medium size enterprises in the region of Thessaloniki and represent different business sectors. Unfortunately the number of entrepreneurs that responded was quite limited and the data gathered can only be indicative and do not apply for the whole population. The interviews aimed at gathering more information about entrepreneurs’ views on the linkage between innovation and entrepreneurship, the aspirations of entrepreneurs especially during recession, the general entrepreneurial environment of the country and finally their suggestions for improving the conditions of doing business in Greece. The entrepreneurs that were interviewed all own healthy enterprises and employ more than one employee.

The profiles of the interviewees and the companies they own are quite different. The enterprises represent various business sectors; they are of different size and age and their annual turnover is of different levels. The entrepreneurs were all males and over forty years old. They had different educational level and different motives for becoming entrepreneurs though the recognition of an opportunity as a motive for starting up their own business was significant for all of them. Some of them have many years experience as entrepreneurs and others less but as it is going to be exhibited they share common views in many issues related to entrepreneurship.

For all companies, technology and innovation play an important role either for the production processes or the final product itself. More than half of them mentioned that they offer to the market a very innovative product or service according to their judgment. Only one of those companies spends a really high amount for R&D activities that has been affected little by the general economic crisis. The others spend a low amount from the annual budget which has been declined a lot and for one of the companies no R&D expenses were budgeted for this year due to lower profits.

It was a common opinion among the interviewees that there are no incentives provided by the state aiming at the promotion of innovation and R&D; few subsidies and grants given for R&D are very difficult to get since there are many obstacles mainly bureaucratic. When asked about their suggestion for achieving a more effective linkage between innovation and entrepreneurship, some suggested a stronger link between university research and the business world while another suggestion was the better exploitation of the EU’s funding programs intended for development.

All entrepreneurs believe that it is very difficult nowadays to start a business mainly due to the lack of financial resources and the high uncertainty about the future. One of them mentioned that it was most promising to become entrepreneur at older times. The crisis has added on the difficulties that entrepreneurs face at the start of their venture. In terms of procedures they mentioned that it is easier now than in the past, but there is still too much bureaucracy. When asked about the most problematic factors of doing business in Greece

\(^6\) Interview questionnaire can be found in the Appendix.
there was strong consensus on excessive bureaucracy and the very fluid tax scheme; lack of funding and lack of entrepreneurial culture were also issues mentioned.

Regarding the recognition of entrepreneurial opportunities amid the recession and how they have been affected from it the answers varied. All agreed that even now there are opportunities where someone can base business activity. One of the interviewees believes that there are definitely much less now while another claimed that what has changed is mainly the distribution of opportunities among the business sectors. Another opinion expressed was that new businessmen will just have to adjust their expectations and not try to undertake very risky and big ventures; but to take advantage even the small opportunities that come up, to show patience and take bigger steps when the general business conditions will be more favorable.

When asked if they recognize opportunities for development for their businesses in the recent future their answers were quite ambiguous. They all answered that they do but each one mentioned that faces some limitations.

Positive answers came from all entrepreneurs on whether entrepreneurship can help national economic growth. Some mentioned that this could be better achieved if new start-ups would come from sectors where Greece has comparative advantage like agriculture and tourism. They all identified the same benefits in having increased entrepreneurship activity like creation of new jobs, more revenues for the state through tax collection and maybe after some time increased exports. All these would generate wealth for the state and would help in economic recovery.

At the end entrepreneurs were asked their suggestions for an improved policy framework. The main issues mentioned were alleviation of bureaucracy and corruption in public services. Rationalization of the taxation scheme and remodeling of institutions would be of some important help. An emphasis was put from some of them on young people and the cultivation of entrepreneurial culture. More programs should be available for the education of young entrepreneurs in order to provide them with tools that would increase the viability of the new businesses.

E. Main findings
Comparing results from secondary data analysis and the interviews with the entrepreneurs, we can sum up to some main findings from data analysis.

- TEA levels and entrepreneurial intentions have decreased significantly through the last years that the national economy has entered in recession because of the debt crisis.
- Necessity and opportunity driven entrepreneurship levels have shown opposite trends since the crisis appeared. Necessity driven opportunity has almost doubled while opportunity driven has decreased significantly.
- Even though the recognition of opportunities is low, Greeks believe in their entrepreneurial capabilities and becoming an entrepreneur is still presented as good career choice.
• The effects of entrepreneurship on the economy depend on the type of business, the motivation of the entrepreneur and the aspirations for the future.
• Entrepreneurship framework conditions do not favor the new start-ups and place difficulties in established enterprises for further development and need immediate improvement.
• Expectations for future growth through increased entrepreneurship activity are enhanced by the cultivation of entrepreneurial culture in the society, the involvement of the young generation in entrepreneurship, the promotion of innovation driven ventures and the international orientation of the business activities.

VII. Discussion

In this chapter, after having taken into consideration the literature review and the analysis of secondary data and data coming from the interviews conducted with entrepreneurs, it is going to be discussed which are those issues that draw attention as most problematic for the entrepreneurial environment and the promotion of innovation and which are the strong points of the economy’s entrepreneurial capacity. Policy recommendations are going to be described aiming at improving the prevailing conditions and creating a sound framework for supporting entrepreneurship both at theoretical level and for country specific policies. ³

A. General recommendations

The general recommendations following aim to the understanding of some basic needs for country specific policies.

An economy does not necessarily get favored by a larger number of entrepreneurs. Entrepreneurs can hold various roles and their motivation, aspirations, attitudes and activities can have differential impacts on the economy. Entrepreneurship should meet quality criteria so as to have a positive impact. Only the enterprises that meet those criteria have better chances of introducing innovation, achieve high growth rates and expand in an international level.

Necessity and opportunity entrepreneurship should both be present in an economy but at the correct balance. People especially during economic downturns, turn to self-employment out of necessity in order to ensure a source of income. Necessity entrepreneurship may be positive at certain times but opportunity entrepreneurship will make significant difference by introducing new ideas and covering market niches. Societies should meet basic requirements for facilitating necessity entrepreneurship but also to

provide highly motivating integrated framework for attracting opportunity entrepreneurs as well.

New entries are very important for the economy but so are exits. It is a good thing to have creation of new businesses that can bring new ideas that can refresh the markets. Policy makers should think of providing friendly processes and conditions to those who want to make a start-up effort. It also very important, to help the laggards leave the system without setting impediments to the exit, or even better to orient them to make a transition to another entrepreneurial activity. The entry–exit process is that adds the dynamism needed for the entrepreneurial society.

B. Proposals for further action

On a governmental level particular attention should be given to the following issues, which are considered critical for creating a friendly environment for entrepreneurial activity. All of the policy recommendations have a common goal which is to increase productivity and boost Greece’s competitiveness. The main actions that have to be taken are the following:

*Improve the entrepreneurs’ access to financial resources.*

Funding is inextricably linked to the creation, survival and development of SMEs since their operations depend a lot on the availability and accessibility of financial resources. Bank lending is a major source of funds which has been significantly reduced, hindering entrepreneurship activity. Banks and the financial community have to become part of the solution to entrepreneurs’ financing problem.

*Simplify procedures and requirements.*

Complex processes and increased bureaucracy create a lot of obstacles that lead to increased costs for businesses. Bureaucratic burden can become a serious barrier for new entrepreneurs that want to start a business or for existing entrepreneurs that want to expand. Especially during a time of economic downturn these costly roadblocks should be eliminated because it is very difficult to be afforded.

*Rationalize and modernize the tax system.*

The lack of taxation stability can be very inconvenient for businesses that need to feel secure for their future. New businesses could be facilitated on their obligations towards insurance services and the state during the first year of operations or to provide some tax benefits to the companies that reinvest their earnings in order to facilitate their self-financing.
Amplify innovative and high-growth enterprises.

This can be achieved through a series of actions as proposed below.

- Establish the reward and support of innovative ideas and the businesses that implement them.
- Give additional motives for R&D-driven investments in order to help them move to incremental innovation. Promote also favorable tax treatment for innovation-driven enterprises.
- Strengthen education system and invest in in-house programs in order to build a competitive labor force that will be able to foster innovation. Improving entrepreneurs’ competencies and access to information through business development services and training programs for entrepreneurs is also very important.
- Increase public spending in R&D especially in areas of increased interest, e.g. renewable energy and develop the cooperation between companies and research centers to create technology-based firms. Additionally a closer and more efficient relationship between universities and businesses should be achieved for promoting innovation and entrepreneurship.
- Encourage businesses to connect with the global market. Entrepreneurs should consider the largest possible market for their activity in order to achieve high growth.
- Manage better EU programs’ funds provided for entrepreneurship promotion and development, so as to achieve increased growth.

VIII. Conclusion

In this study the main goal was to suggest innovation and entrepreneurship as sources of economic growth and development that would help in Greece’s economic recovery from the recession due to the debt crisis.

Through literature review what was shown is that entrepreneurship matters and has drawn the attention of academics regarding the impact it has on economic performance. The facilitation of innovation has made more imperative the promotion of entrepreneurship and the identification of its mechanisms.
The exhibition of data about the entrepreneurial environment and the national innovation system clarified the conditions under which entrepreneurs are called to do business in Greece. Through an analysis of secondary data and data coming from interviews with entrepreneurs, important findings came out about the views of established and nascent entrepreneurs on the entrepreneurial framework conditions, their motivations and aspirations, the problems they are facing, their needs and future intentions.

Those findings have led in making some concluding remarks which can be very helpful for the design of policies and programs that can best promote innovation-driven entrepreneurship.

Although the crisis has already shown its negative impact in the Greek economy, the exploitation of opportunities that exist even amid the crisis should not be wasted and implementation of structural reforms and effective policies will provide a sound framework for this process.
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# Appendices

## Appendix 1: Figure and tables

### The Global Competitiveness Index in detail

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Source: World Economic Forum, Global Competitiveness Report
Figure: Job Growth Expectations for Early-Stage Entrepreneurship Activity, 2008–2010

Source: GEM Adult Population Survey (APS)

Figure 19: Percentage of Early-Stage Entrepreneurs with International Orientation, 2008–2010

Source: GEM Adult Population Survey (APS)
Figure: Innovation for Early-Stage Entrepreneurship Activity, 2008–2010

Source: GEM Adult Population Survey (APS)
## Appendix 2
### Interview Questionnaire

1. **General Information on the Enterprise**

   1. Business sector of the enterprise:
      - Extractive
      - Transforming
      - Business Services
      - Consumer Oriented

   2. Size of the enterprise (number of employees):
      - 0-10
      - 10-50
      - 50-100
      - 100-150
      - 150-200

   3. Annual Turnover:
      - <500,000€
      - 500,000€-1 million€
      - 1 to 2 million€
      - >2 million€

   4. Maturity of the company (years of function):
      - <5 years
      - 5-10 years
      - 10-20 years
      - 20-30 years
      - >30 years

2. **General Information on the Entrepreneur**

   1. Gender
      - Male
      - Female

   2. Age
      - <30 years
      - 30-40 years
      - 40-50 years
      - 50 years

   3. Years of entrepreneurial activity in general
      - <5 years
      - 5-10 years
      - 10-20 years
      - 20-30 years
      - >30 years

   4. Education Level
      - Compulsory Education
      - High-school degree
      - Technical Education
      - University Degree
      - Master’s Degree
      - Doctorate

   5. Motive for becoming an entrepreneur
      - Opportunity for better income
      - Opportunity for work independence
      - Combination of opportunity and need
      - Necessity for maintaining income level
3. **VIEWS ON INNOVATION AND R&D**

1. What role does technology and innovation play in your business?
   
   Not important □ Slightly Important □ Quite Important □ Very Important □

2. What amount out of the total budget does your company spend in R&D? How much has the crisis affected this amount?

3. How much innovative do you believe is the product you offer?
   
   Not innovative □ Little innovative □ Slightly innovative □ Very innovative □

4. Do you think there are strong incentives by the state for promoting innovation and R&D in the private sector?

5. What is your suggestion that would help to achieve a more effective linkage between innovation and entrepreneurship?

4. **VIEWS ON THE ENTREPRENEURIAL ENVIRONMENT**

1. How difficult do you believe it is to set-up a business? Has the economic crisis added on the difficulties and how much?

2. What are the most problematic factors in doing business in Greece?( Name the three most important)

3. Do you think there are entrepreneurial opportunities during recession? How much they have been affected?

4. Do you recognize opportunities for development for your business in the recent future?

5. Evaluate the conditions for the development of entrepreneurship in your country for the present year on how they have evolved
(+ is for positive, - is for negative evaluation)

- Finance
- National Policy and Regulation
- Government Programs (Subsidies, Grants)
- Education (Higher)
- R&D Transfer
- Commercial Infrastructure
- Internal Market Dynamics
- Physical Infrastructure
- Cultural and Social Norms

5. **Views on the Linkage of Entrepreneurship with Economic Growth**

1. Do you believe that an increase in the levels of entrepreneurial activity can help the country to improve in terms of economic growth?

2. How do you think this will be achieved? Which would be your recommendations for an improved policy framework?