Attracting top research and innovation performers as the way forward to exit the Greek crisis

By Alexander Kritikos[1] and Odysseas Cartalos[2]

Introduction

Greece is still in dire straits. Some reported reform progress during the last three years has contributed to improving the economic outlook, but it has become clear that as much as the reforms are needed, the economy will not become prosperous by cutting costs and making institutional reforms only. Shifting the emphasis from austerity to growth has dominated the political agenda almost since the beginning of the crisis. However, the Greek model for growth is not yet defined.

Urgent need to shift to the knowledge-based economy

While in recent years, the most developed countries around the world have largely invested in building innovation-driven economies, Greece has not. Greece needs to follow this role-model of those leading economies as Greece is even sharing with some of them one currency. In other words, Greece, if it wants to stay in this currency-union and make sense out of it, needs to create long-term sustainable wealth, by focusing on innovative industries with high added value.

In Greece of today, at first glance the preconditions for an innovation economy appear to be suboptimal, with only small parts of an innovation system being in place. Greece spends around 0.67 percent of GDP on R&D activities, less than any other Euro zone economy. In addition, private R&D investments make up less than 0.2% of GDP. Sweden, at the other end of the scale, allocates 3 percent of GDP only to private R&D, while most other Eurozone economies invest around 2.5-3% of their GDP into R&D. The "innovation performance index" prepared by the European Commission, finds Greece in 20th place out of the EU 27, close to Hungary and far below any other Eurozone country. And what is even worse, the Commission finds that Greece's innovation performance is declining in most recent years.

[1] Alexander S. Kritikos is Research Director at the German Institute for Economic Research (DIW) Berlin, Professor of Economics at the University of Potsdam, and Research Fellow of the IZA, Bonn. eMail: akritikos@diw.de
[2] Dr. Odysseas Cartalos is an innovation policy consultant and partner at LOGOTECH SA. eMail: cartalos@logotech.gr

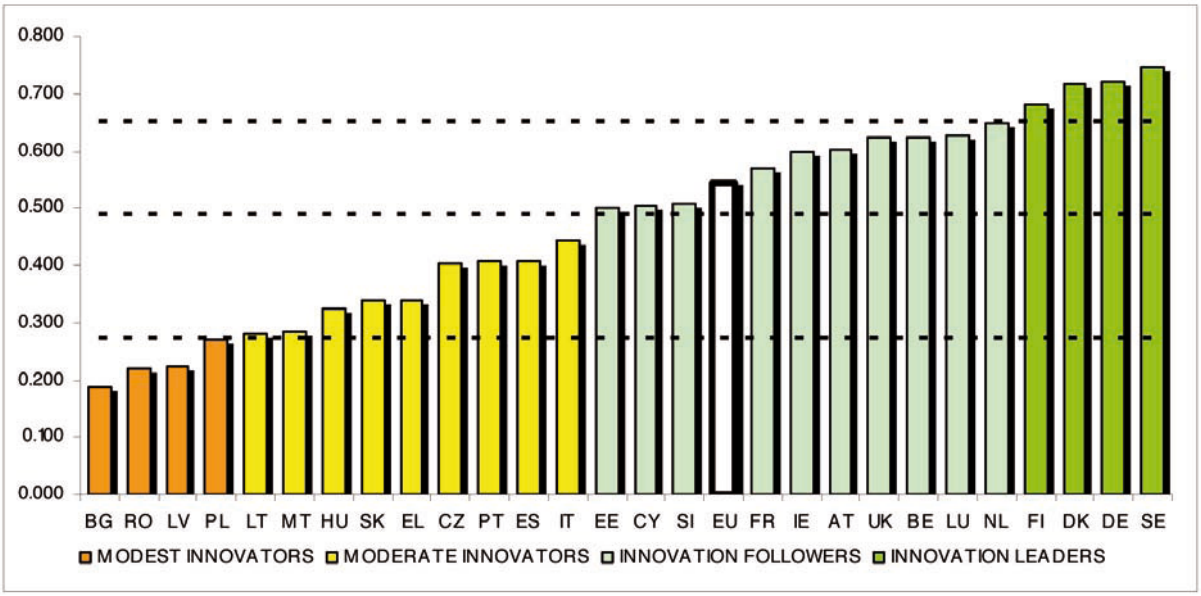

Figure 1: Innovation Performance Index of EU with Greece on 20th place out of EU 27.

The Greek innovation perspectives

A closer look on the research and innovation activities reveals that there exist some basic research institutes at the beginning of a typical innovation chain. These research centers were granted a considerable number of grants from the European Research Council (ERC), the most competitive funding scheme in Europe. However, what is crucial to know is that a larger number of top Greek researchers are working in the Diaspora. Taking again ERC grants as a proxy, one observes more researchers with Greek origins having received such a grant abroad than within the country. In total, Greeks in Greece and abroad obtained 52 ERC grants over the 2007-2011 period.

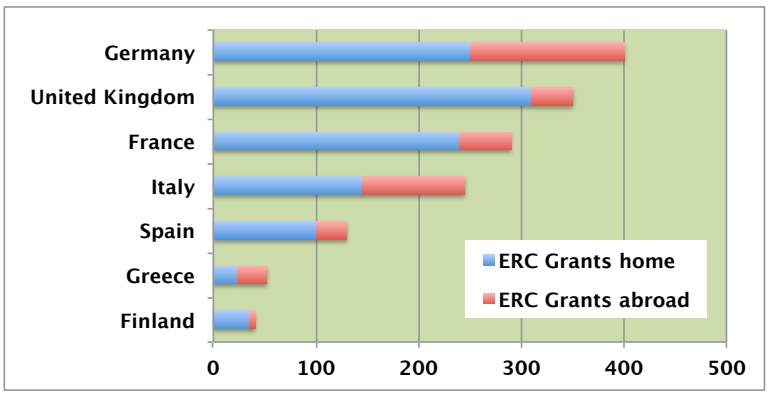

Figure 2: ERC grants home and abroad in absolute figures, source: ERC.

Averaging Greek researchers (in Greece and in Europe) over the Greek population shows that the ratio of grants to the population is similar to innovation economies like Germany or Great Britain.

Greece is the only Eurozone economy "exporting" more top scientists to other European countries than it is able to keep at home. This does not take into account that many top Greek scientists do their research at the natural sciences and engineering departments of the best research institutes of the US (such as MIT, Harvard, Cornell, CalTech, or Stanford, just to name a few). Thus, there are some excellent basic research institutes with the majority of their top researchers leaving the country. And while these research institutes have networks with multinational companies all over the world, with ideas and discoveries initiated in Greece currently being used by businesses abroad, the Greek research institutes still work in a relatively isolated way when it comes to cooperation with high-tech companies within Greece. Greek spin-offs can be counted on the fingers of a single hand.

At the other end of the innovation chain, there are a scattered number of small, but innovative, companies all over Greece. However, given the high regulatory burden, the unfriendly environment toward innovative companies in Greece, and the missing link between basic research and high-tech start-ups, only few of them take the final step, that is, to develop a product or service innovation within the country. Others that started in Greece advanced their innovations abroad. While some firms have remained in Greece despite the adverse innovation environment, many more great discoveries and inventions could quickly spill over into new businesses in Greece. This could happen if the gap in the innovation chain between basic research and high-tech start-ups were closed and if the administrative and regulatory environment in Greece became more business friendly. Or to put it more bluntly: the regulatory and administrative reality of Greece creates an adverse atmosphere for innovation-based businesses.

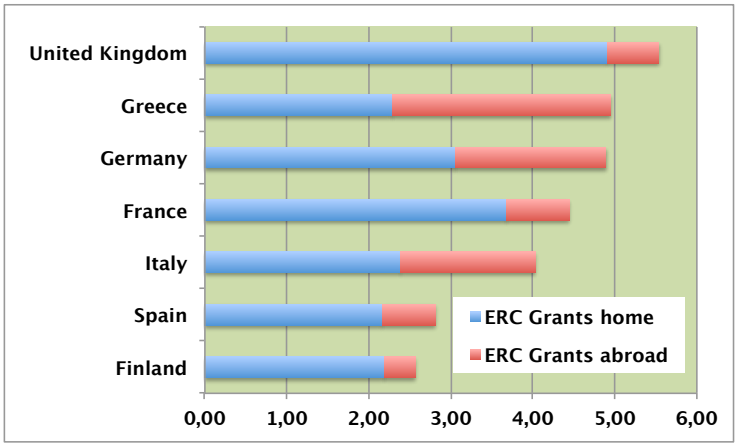

Figure 3: ERC grants home and abroad averaged over population, own calculations based on ERC figures.

A favourable policy context at the EU level

Innovation is at the heart of the next EU programming period and Brussels pushes regions and countries to concentrate on their innovative capacities. Commission funding in the next programming period are to be based on 'smart specialization' strategies proposed by the regions. Only actions that are in line with these directions will be eligible for support by structural funds. In addition, a number of new measures are included in Horizon 2020, the upcoming programme for Research and innovation to strengthen European and national research systems. These two new approaches are *the* most crucial opportunities for Greece to develop its innovation strategy at national and regional level.

The European Perspective

Of particular importance for Greece would be approaches designed in the spirit of the EU programme "teaming for excellence". The scheme will offer substantial funding on a competitive basis for projects aiming to develop cutting-edge research centers in less advanced EU regions. It calls for teams comprising (a) an internationally recognized research institute, among those of the European elite and (b) the hosting region. The key objective is to provide a high-speed lift to excellence in research and innovation in countries like Greece allowing them to align high-quality science with technology-based entrepreneurship, thus closing the existing gap in the innovation chain.

A recent study for the European Parliament by one of the authors[3] provided evidence that Europe is losing its historical leadership in top-level science and emphasised the need for the EU and its member states to re-enter the worldwide competition in science and technology against established and new fast-rising regional players. In this context, increased attention should be paid to the "top performers", who are most likely to make breakthrough discoveries and inventions that can trigger new areas of science, technology and industrial activities. The outstanding performance of top scientists will attract talented young researchers with strong motivations: the higher the reputation of top scientists, the stronger and more competitive the research teams around them will be. Moreover, the world leading research performers will be able to trigger private R&D activities and venture capital around them. ICT industries around Stanford, Bio Tech around Harvard and MIT, or Berlin-Adlershof, research labs of private companies in Zurich, close to ETH are examples of costly private investment to get access to the most advanced scientific results.

However, top research performers do not rank Europe as their first choice when selecting their place of work. Main obstacles are (1) insufficient flexibility in the research topics and the long processes to obtain funding needed for cutting-edge research; (2) unclear (or, in some cases, non-existent) career paths for leading scientists and the younger talents; and (3) non-competitive wage levels. USA, China, and other regions are very active in their headhunting activities, offering prospects for leading research and providing very attractive remuneration.

A strong message to the policy makers is that there is no way to get cutting-edge science and high-tech innovations without outstanding talents. Policies aiming to facilitate scientists to become world leaders in their fields may require considerable time and investment. Positive effects would be expected on a longer time-scale, typically 3-5 PhD generations. However, more urgent measures are needed. Programmes designed in the spirit of "teaming competition" which could also be financed with structural funds present a vital opportunity for much shorter-term results in turning the brain drain into brain circulation and in creating conditions for attarcting the world's best, provided that the accent is placed to serve such objectives.

The way forward for a new future for Greece

Approaches trying to attract top foreign research institutes to Greece could be a strong stimulus for regional innovation strategies, as they would enable Greek regions to boost their innovation capacity and economic growth. This can be accomplished by (1) enhancing science and know- how; (2)

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[3] Cartalos, O., available at:
http://www.europarl.europa.eu/document/activities/cont/201209/20120904ATT50415/20120904ATT50415EN.pdf

bringing in highly qualified innovation actors; (3) using public funds with a clear focus; and (4) attracting private funds for research and innovation. In addition to existing pockets of academic excellence, Greek regions may build on other important factors, such as civilsation, culture, quality of life that will attract top researchers.

Moving to the way a viable project could be designed, such approaches should become part of an integrated and comprehensive strategy for institution building towards scientific excellence. The partners – a foreign research organization and the regional government – should combine their competences to create a significant scientific research organization in Greece, having as key features (1) the development of core research topics and goals; (2) the provision of high-level training; and (3) the participation as a leading actor in international scientific and business networks.

The interest of top research centres to participate is strongly related to the degree of ambition of the project. Reputation is probably the strongest goal of the highest-ranking European Institutions, which means that the level of ambition of the project will be a significant factor to secure their involvement. With this approach, top European Institutions would have direct (and substantial) benefits from initiating cooperation with leading scientists, who might relocate from the USA or other parts of the world to work in a structure located in an economically weaker region. But a key pre-requisite should be that strategic research is to be funded in the new centre and conducted by the research teams that work there, otherwise the risk of enhancing brain-drain is considerable.

In conclusion, the final choices will very much depend on the proactive involvement of potential stakeholders – regional authorities and governments, research managers, regional business associations – and the development of a convincing plan for world leading research centers to be developed. As mentioned, major assets of Greece in the effort to actually obtain funding and launch such research centers are its current academic and research potential, its culture and living conditions, as well as its distiguished diaspora. But such projects should not be viewed as an occasion for additional funding of ongoing activities. **New research centers that could be financed partly through structural funds are, in fact, an occasion for Greece to help address a key challenge for Europe: enhancing EU competitiveness in Science and Technology, by inviting the world's best to advance science in a European region, thereby creating extremely dynamic innovation environments**.

For further information see also:

"Growing out of the crisis: hidden assets to Greece's transition to an innovation economy"

Published in the *IZA Journal of European Labor Studies*,

http://www.izajoels.com/content/2/1/14