



**ΟΙΚΟΝΟΜΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ
ΑΘΗΝΩΝ**

Innovation in Greece
Comparative Evaluation with
International Indicators, Policies,
Strategy Recommendations

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Executive Summary

The current study describes and evaluates innovation performance in Greece in comparison with European and other countries. The study is based on an analysis of indicators from three international sources: the European Innovation Scoreboard, the World Competitiveness Yearbook of IMD, and the Global Competitiveness Report of the World Economic Forum. For the purpose of this research, indicators were selected that measure innovation inputs (resources -financial, human), conditions (policy context, social attitudes and values) and innovation outputs (new products, innovations, etc.). In addition the study relies on data from other international sources that compare several aspects of national culture and values (Hofstede, World Values Survey), the quality of the educational system (PISA) as well as comparative analysis of national policies.

The general impression emerging from the investigation of these indicators is that innovation adds value. This is evident from the strong relationships between individual indicators and the gross domestic product or with indicators of national competitiveness. Countries with higher levels of economic development generally have higher levels of innovation on most indicators.

Especially striking is the fact that some small countries (e.g. Sweden, Finland, Switzerland, and others) are leaders in innovation. So innovation does not constitute an exclusive privilege of big countries (USA, Japan, etc), which invest large amounts of resources in R&D, have sizeable research centers, attract high-level researchers and have large corporations with hefty R&D budgets. Innovation today increasingly spreads to the entire world. Thus, small countries, with appropriate policies, can become leaders in innovation.

The findings from the comparative analysis of innovation indicators rank Greece in multiple dimensions and offer comparative data on policies, thus facilitating the formulation of policy recommendations aimed at improving the country's innovation performance. More specifically the following points summarize the main findings and recommendations.

1. Greece's lag in innovation is systemic

Comparisons show that Greece performance is generally lagging in most dimensions of innovation, with rankings significantly lower than those achieved by other small countries that are leaders in innovation. This makes the task of improving Greece's performance especially daunting given that reforms will have to be simultaneously implemented across many policy areas and levels.

In the majority of the indicators, the rankings of Greece are below the average ranking of the European Union (EU). In particular the country's ranking in R&D expenditures, in firms' capacity to innovate, and in trademarks and patents is especially low. Other areas with significant underperformance appear to be found in the quality of the educational system, in the university-industry relationships, in business start-up requirements, and in technology infrastructure.

Of particular concern is the fact that the evolution of Greece's rankings along time does not show signs of convergence towards the European average levels. By contrast, other small countries in the periphery have made important steps in improving their positions in the last years.

2. The strengths of Greece are few and some go against each other

In some indicators Greece shows performance above the European average, even though this performance is lower than that achieved by small leader countries. Specifically, Greece appears to be particularly open to new ideas (as per the indicator on "national culture adaptation to new ideas") but underperforms in the final result, the implementation of the ideas. Total business expenditures on innovation (in a wider comprehensive sense, including expenditures beyond R&D) as well as public subsidies for innovation are also high. However they do not seem to drive the country to higher innovation rankings. Tertiary educational attainment is high and so is the availability of scientific personnel. But achievement on these

dimensions may be offset, at least to an extent, by the low quality of the educational system, as suggested by the respective indicators.

Greece performance is high in the “new-to-the-company” products and in in-house innovation indicators (organizational, etc.). This explains the relatively high expenditures on innovation, which are understood in a wide sense, including all expenditures on modernization and development of products/services which are “new-to-the-company” but not necessarily “new to the market”. It also explains the low rankings in the number of patents, as the focus of the indicator is not on R&D as such. Therefore, a model of adoption and diffusion of new products, technologies and methods seems to prevail. It is quite possible that the solutions adopted have been tried elsewhere, most often abroad, with these solutions –e.g. products, technologies and methods - being adapted to the conditions of the Greek market.

3. There is a wide range of public policies on innovation but they lack focus on a clear national innovation strategy

In comparison with other countries, Greece does not lack in innovation policies and programs. Actually, in many cases (e.g. innovation programs) Greece applies policies that are European best practices. However, the plethora of policies and programs has not been followed by results. National resources are dispersed into many programs that cover all aspects of the modernization of business enterprises, with a low and rather vague threshold requirement in order to be categorized as innovative. The notion of “new to the company” is widespread. Existing policies seem to strengthen general entrepreneurship rather than focusing on e.g. innovative entrepreneurship.

The national plan for innovation, research and technology recently produced represents an effort to create an integrated innovation policy. Although it makes a significant step forward, it nevertheless seems to lack a distinctive philosophy and innovation specific strategy. So it fails to align the fragmented recommendations proposed by multiple organizations (there are over 40 organizations involved with innovation) into a cohesive and focused innovation strategy. Rather it seems to reproduce and extend the existing activities into the future without really serious screening and selection based on a specific strategy. For instance open

innovation is essentially bypassed although it may better offer a better solution for the Greek realities.

4. Toward a new strategy that recognizes the “Greek Model of Innovation” and builds on it

To improve innovation performance one must start from the strong points of the country and build on those. And these strong points do not seem to be the original R&D and the endogenous production of innovation, like in the Scandinavian model. The fact that Greek enterprises and organizations are better at absorbing technology and innovations that have originated elsewhere, and can be creative in the marginal modification and adaptation of these technologies and innovations, are realities of the Greek situation that must be recognized. A specific model for Greece would be built on such qualities and capabilities.

Exploring a Greek model of innovation may entail putting emphasis on the adoption and adaptation of proven technologies and solutions through small – incremental innovations, applications in new context, in their adaptation to consumer needs, in customer service, or in internal organizational processes. This is probably more operational in an economy wide scale than emphasizing a model focused on basic, radical innovations. Such incremental adaptations and improvements may be inspired and enriched by the Greek reality, the rich traditions and social values.

The Greek model emerging from actual practice can be strengthened by targeted policies: through the promotion of international collaborations and networking, in a global search for new proven ideas and technologies, through the promotion of absorption capabilities and mechanisms with specific programs and institutional structures, as well as through support to innovative entrepreneurship. In essence this direction points to a model of open innovation, tailored to the adoption and diffusion of solutions and technologies. Gradual progress toward this direction will lead to an increase in the capacity of adaptation and generation of innovations and, in turn, in endogenous innovation.

The recent national plan for innovation, research and development does not seem to give emphasis to such a model of open innovation. Rather, it seems to include as strong

component a model of immediate R&D and endogenous innovation, a Scandinavian-style model. The proposal made in this study is to shift the focus to the open Greek model. Ignoring this model raises questions about the suitability and effectiveness of the national plan, even though the results of the plan will become evident only in the long-run.

5. The underlying value system matters

The correlation of innovation performance with social values and national culture indicators suggests that the value system plays a role. Indicators such as trust, the avoidance of power distance, and promotion of collectivism have a positive impact on innovation. This would be attributed to further sharing and mobility of ideas, to the operation in practice of a model of open innovation. Given its value characteristics, Greece can create an advantage on these dimensions.

Nevertheless, we must keep our reservations towards these conclusions because the statistical results are preliminary. Further composite econometric models and methodologies are needed in order to test such research hypotheses. Such an endeavor is beyond the scope of the present study.

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