



Academic Research in Romania - Critical Issues and New Challenges

1. Introduction

It is now widely recognized that research is one of the key factors required for achieving the objective of turning the EU into a competitive and dynamic knowledge-based economy. Research and development involve 3 main types of institutional actors: universities, public research organizations and enterprises (the concept of academic research used in this paper refers to research carried out in universities). In the context of the Lisbon (2000) and Barcelona (2002) goals, the future of the Europe's university research has become a key subject not only for policy makers but also for academic leaders, researchers, experts, as well as for the civil society. In particular, there is a strong requirement for Europe's universities to become more competitive in their research and to improve their interactions with the industry and the local society.

The enlargement of the EU with 12 members has increased the R&D capacity of the EU on the one hand but it has accentuated the discrepancies within the community on the other. The purpose of the present paper is to highlight some of the critical issues of the academic research in Romania, in the context of the new challenges facing universities world wide.

2. European Concerns with regard to the Europe's University Research

In the EU, universities are the main producer of scientific knowledge, they employ about 36% of researchers (compared to 14% in the US and 25% in Japan), they provide 20% of European research and the majority of fundamental research (80%).¹ Over the last years, European documents point out that the average quality of European University activities, mainly research, is good but not excellent.² International comparisons are not favorable to European Universities. In the main world classifications, 18 to 20 out of 25 top universities are from the US while the top 10 is traditionally dominated by 8-9 US universities. The EU is the largest producer of scientific output as measured by its share in the total world number of peer reviewed scientific articles, but lags significantly behind the US and Japan as regards the transfer of knowledge and experience between universities and industry and is less innovative than its partners.³ A number of weaknesses of the university systems in the EU (in particular of the universities research activities) have been identified in the recent European documents, notably:

1) EU's universities are seriously under-funded compared to those from other OECD countries. Total investment in higher education in EU is about 1,1% of GDP, which is on a par with Japan, but below the level of the US (2.7%), Korea (2.7%), Canada (2.5 %), Australia (1.5%).⁴

2) Many universities still receive public funding for research based exclusively on traditional indicators of inputs or non-research related parameters(number of students,

number of researchers, applications for research funding etc), rather than on institutional evaluation.

3) Quality assurance mechanisms have to be improved in order to enhance the performance of research activities within universities and to provide a level of assurance that public funds are being used in the most effective way.

4) Europe has too few centers of world-class excellence.

5) University –based research in the EU is less concentrated than in the US if one compares the research budget size of the research active universities, as well the share of the national research budget channeled to the top institutions in both countries.⁵

6) European universities are less active in answering societal needs.

7) Last but not least, European universities are attracting fewer students and in particular fewer researchers from other countries than their American counterparts.

Most of the problems above mentioned are experienced by Romanian universities, but there are also some specific issues that we are trying to highlight in the following part of the present paper.

3. General Framework of the R&D System in Romania

Romania has fully aligned its R&D national policies to the new framework provided by the revised Lisbon strategy (and this is a positive evolution, even if the rationale of this option was mainly the strive to become an EU member state). The consequences are not only a radical change of public R&D funding, but also the restructuring of the R&D system. As it is known, a large majority of the new EU member states, including Romania, have a multi annual and strategic approach to R&D offering a stable and predictable environment to an endeavor which is inherently long term in nature. These members have put in place specific strategies for stimulating both the quantity and the quality of the R&D activities. In Romania, such a strategy was adopted in February 2007, covering the period 2007-2013.⁶

The strategy sets down the objectives of the R&D system, offers the ground for the organization of the R&D system and establishes the principal domains of the public investment in the R&D and the instruments for stimulating innovation in the next years. The public funding of the Romanian R&D showed a radical change starting with 2005, together with the first substantial increase in the percentage of the GDP assigned to this field. The GDP share of public expenditures allocated to R&D was doubled in the period 2005-2007 (from 0.27 % to 0.5%), with a subsequent target of 1% in 2010.

The main components of the Romanian R&D system are: a) the National Research Institutes, b) The Research Institutes belonging to the National Academia, c) the public and private Universities.

4. Critical Issues of Academic Research in Romania

International performances in research involve two fundamental aspects: the number of articles in journals included in international databases and the number of patents granted by the main Patent Offices. The role of universities within the Romanian R&D system (as regards fundamental research) is primarily reflected by its share in the total scientific output (the number of articles published in journals included in the ISI database).

The scientific output per types of institutions in 2006 was as follows: public universities 55.67 %, national research institutes 20.30%, the Romanian Academy 15.02%, commercial societies 3.14%, medical institutions 3.08 %, other public institutions 1.06% , private universities 0.57%, other 1.16%.⁷

The above data reflect a good position of the public universities in the R&D system and a strong discrepancy between the public universities and the private ones as regards their contribution to the total scientific output. As it is known, in the higher education systems belonging to developed countries, where the private education has a long tradition, the private universities have higher performances than the public ones and are frequently better positioned in the international classifications.

In Romania, the evolution of private higher education had quite a different evolution-the private universities have low rankings in the domestic classifications in terms of education and research; some of these institutions had such poor performances in the last years that they were not able to obtain the functioning license, due to the lack of human resources and infrastructure.

The scientific domains with the greatest scientific output are: chemistry (35%), physics (29%) engineering (18%), mathematics (7%).⁸ It is worth mentioning that fundamental research is very concentrated: 80% of the University driven research is carried out in only 10 universities. This is also true for the research institutions. The results of applied research, measured by patents granted by the Patent Offices are rather unsatisfactory. In 2006 , the number of patents granted by the Romanian Patent Office to universities was only 11 compared to 83 granted to research institutes and 163 to national and international firms operating in Romania.⁹

Even if we accept the fact that universities are focusing on basic research, the results are poor, especially comparing them with the ones of the top "world" universities.

The strive (at governmental level) to evaluate the position of the Romanian universities in the international classifications is a recent one and it generated great concerns, taking into account that none of these universities are included in such rankings (Shanghai, THES etc).

The ranking exercise has become a "fashion" over the last years in Romania too, stimulating the efforts to improve the performance of Romanian universities, particularly from the point of view of the research activity (as it is known, the criterion "number of articles published in international recognized journals" receives an important weight in the international classifications).

An increased effort can be noticed at university level to integrate the Romanian scientific research into the international stream of publications, namely by publishing in journals included in the ISI databases. The problem is that the accessibility to such journals is very different according to discipline (field), so any ranking based with priority on ISI journals may be questionable when including institutions or persons working in different fields.¹⁰ As in the EU, in Romania there is a tendency of uniformity in the higher education sector, every university claiming to be at the same time research and education institute, although the performances are different from one to another. This has conducted to an uniform financing of the universities, with no stimulus for excellence.

In the most performing higher education systems in the world, the differentiation and concentration appeared as a result of natural evolution. For example, in the US, out of 4000 higher education institutes, only 13% have doctoral programs and only 3% are considered research intensive.¹¹ Out of these, 50% obtain the major part of funding, having an essential contribution to the national research capacity and the number of Noble prizes obtained. Canada has a similar situation.

There are also a lot of countries where there is a visible concern for differentiation. China decided to invest in only 100 of its universities in order to bring them to the “World class status” and Russia focus the financing on 40 out of 650 institutions. Some EU countries are following this model.

What are the consequences of this drive?

1) As well as a few winners, there are inevitably going to be a lot of losers. In the UK, for example, there have been department closures in different disciplines at various universities, as a consequence of low RAE grades (Research Assessment Exercise);

2) Concentration of research funding (as a means of ensuring world class status) has implications for the development of higher education systems in many ways.

In particular, having in view important regional differences between universities, there is a great risk that reduced regional research capacity(because of reduced funding)will have a negative impact on regional economic performance.¹²

3) The national role of universities may be ignored in favor of the international one(publication in the English language is more important than publication in the local language).

An important factor explaining the unsatisfactory results of the academic research in Romania is considered to be the chronic underfinancing of the R&D system until the last few years (the research intensity in the post-communist period was the lowest in the EU). The situation has changed over the last years, as a result of the commitments of Romania to become a UE member.

At present a paradox can be noticed: a more generous public funding risks to be wasted due to the fact that it is being awarded to persons or institutions with weak results in the research activity. The financing problem is not the sole explanation of the weak results of

the Romanian academic research. A questionnaire conducted in 2006¹³ to identify the main problems of the R&D system in Romania, concluded that, apart from financing, there were also other problems such as: an unsatisfactory process of evaluating researchers and institutions, the bureaucracy, the lack of qualified researchers.

The research projects proposals are evaluated only by Romanian researchers, some of them with poor research results and a high dose of subjectivism. Another restrictive factor is bureaucracy, which has a negative effect on research projects. The public acquisitions are a long and bureaucratic process, the consequence being that the price can get double or triple compared with buying directly from the suppliers.

On the other side, the grants winners have to spend a lot of time in order to accomplish bureaucratic tasks. As to the quality of human resources, in 2005, in Romania new principles were introduced in the system of academic staff evaluation, according to international practices. This approach conducted to a polarization of views in the group of Romanian researchers. On one side, there is a divergence of opinions as regards the high level of exigency of these criteria, having in view that many academics from the old generation are not able to satisfy the minimum requirements of these criteria.

On the other side there are controversies concerning the methodology that should be used in the evaluation process.

One extreme opinion is to give absolute priority to quantitative evaluation of the scientific merits, the other is to leave the evaluation in the responsibility of the scientific community. Besides, there are controversies regarding the status of the academics.

Some are arguing that the academic person must be first of all a good researcher and he must be evaluated mainly according to the quantity and quality of his publications, the education side having a secondary function.

Another opinion is focused on highlighting the education side of university, considered the first mission of it. In an ironical statement, V.Cojanu¹⁴ considers that if quality criteria were applied “over night” in the political field (having in view a good governance) Romania may remain without administration, or applied to the economic sector(having in view the productivity) Romania may remain with only several professions. As regards the type of research to be carried out in the universities, the debates are endless and passionate.

A quite frequent opinion is that the basic research is the traditional vocation of universities and must be encouraged and given priority. We must however note that the university is no longer the “sole” producer of such research. The university has been struggling in the last few years with a serious competition coming not only from public research institutes but also from great corporations. Today the main multinationals have an important number of scientific publications and some of them are highly quoted, which means that their publications have high scientific levels.

On the other side, the pressure is mounting for universities to do something useful in their research. The reconsideration of the importance of applied research by the universities relies on several reasons, out of which 2 are essential:

a) The research contracts with industry and business are an important source of funds for universities, in a context where public financing is under pressure as a consequence of the rise of higher education demand;

b) We may notice a growing capacity of the society to finance research.

The economic entities, in their global fight to compete successfully (innovation being a crucial factor), have a growing demand for applied research. What is the impact of this trend on the status of researchers in universities? The university researcher must be more efficient, he will have to meet dead-lines and to focus on things that are not too bold or risky, he must answer to practical needs and will not be able to select his own directions of research and lastly he will be confronted with a lot of bureaucracy. In Romania the private funds raised by universities are at a very low level. One explanation lies in the fact that the foreign companies acting with success in Romania have their own research activity carried out outside Romania. Another restrictive factor is the obsolete mentality still existing in some universities and considering the applied research specific to industry, difficult to manage at university level.

5. Final remarks

In Romania the Research Area is at present fragmented in at least 3 sectors: universities, the National Research Institutes and the National Academy and this is leading to overlapping activities and underperformance. Compared to research institutes, universities have as principal strength the autonomy, meaning that they have a higher

degree in choosing research directions and in organizing different types of partnerships with national or international entities.

The alignment of Romania to the European trends implies an increase of the weight and relevance of the university research. Attaining this objective means new challenges for the universities, which can be summarized as follows:

- 1) The dilution of the traditional barriers between disciplines and the promotion of transdisciplinarity;
- 2) The change of mentality of the academics (they have to better get involved in applied research);
- 3) Universities have to find a solution to the old dilemma: must all academics have at the same time education and research tasks?
- 4) Universities have to adapt to a new position in the social life;
- 5) There is a need to develop new university managerial techniques in order to identify the demand for research and to stimulate the interest of the community in this direction;

- 6) Regional and international cooperation represent at the same time an instrument and a challenge in gaining high quality standards in the research activity.

Dana Blideanu , Associate professor, Ph.D.,
Faculty of International Business and Economics
Academy of Economic Studies, Bucharest
Romania
Email : dana_blideanu@yahoo.com

¹ European Commission, “European Universities-Enhancing Europe’s Research Base”, *Report by the Forum on University based Research, May, 2005.*

² European Commission, “The Role of Universities in the Europe of Knowledge”, Brussels, 2003.

³ European Commission, “The European Research Area: New Perspectives”, Green Paper, Brussels , April 2007, 83.

⁴ European Commission, “Delivering on the Modernization Agenda for Universities”, Brussels”, 2006.

⁵ European Commission, “The European Research Area: New Perspectives”, Green Paper, Brussels, April 2007, 51.

⁶ Ministry of Education and Research, “National Research, Development and Innovation Strategy”, 2006, Bucharest.

⁷ Report CNCSIS (In Romanian), Bucharest 2006.

⁸ Ibid .

⁹ National Institute of Statistics, Romania, www.insee.ro.

¹⁰ C.Dragos, “About the Accessibility of Publishing in ISI Journals”(in Romanian) , *Review of Science Policy, nr 2/2007-* Bucharest, 72-78.

¹¹ Presidential Commission for Education and Research Policies in Romania, “Research and Education in Romania”, 2006.

¹² Rosemary Deem, Ka Ho Mok, Lisa Lucas, “Transforming Higher Education in Whose Image?”, *Higher Education Policy*, nr.21/2008, 83-97.

¹³ R. Florian N. Florian, “The Problems of the R&D System in Romania”, www.ad-astra.ro.

¹⁴ V. Cojanu, “The Standard of Academic Performance”, (in Romanian), *Review of Science Policy*, nr.1/2007, Bucharest, 10-15.