

Ádám Török

## *A strategic sector without strategy?*

*The performance and competitiveness of Hungarian research and development in international comparison*

SAVARIA UNIVERSITY PRESS, SZOMBATHELY, 2006



Academician *Ádám Török* has chosen a very important subject area as the theme of his latest book. It is a widely accepted view that in a modern national economies, including Hungary, research and development and innovation are the main potential engine behind economic progress. The detailed review of the performance of Hungarian R&D opens up an opportunity for examining a key issue of the national economy.

The point of departure of the studies presented in the book is the statement made in the 1997 country report of the European Union according to which Hungary ranks among the top twenty countries in the world based on the development of science. This statement has urged *Ádám Török* to make a more detailed survey of the novel theme of scientific performance ranking. His work, which consists of six chapters, starts with an overview of the theory of R&D and innova-

tion systems, the conceptual sphere of scientific competition and the method of assessing R&D competitiveness, then it evaluates the performance of Hungarian science and formulates R&D strategy recommendations. As in his earlier works, the author supports these analyses with his profound knowledge of the technical literature, with statistical comparisons and empirical evidence.

■ The very thorough analysis of R&D and innovation systems, now a conventional topic, helps further develop the theory at several points and offers some food for thought to experts and, from time to time, incites debate among them. By highlighting the relationships and differences between R&D and innovation policies, first, he points out the duality that “it makes hardly any difference for political decision-makers whether the money is granted for R&D or innovation purposes” (page 20), whereas these two areas often fall under the

responsibility of different bodies which results in complicated coordination tasks. For instance, for a long time there were two directorate-generals in the EU and more than one institution is responsible for the field even in the Hungarian economy. The author then also stresses that neglecting basic research carries the risk of the national knowledge base becoming obsolete and narrow (he makes no mention, however, that low-standard R&D does not reduce the above risk).

The further investigation throws a strong light to the concept of the so-called National Innovation System. The author emphasises that – contrary to appearances – in today's international competition in R&D, instead of nations, the central role is played by R&D and innovation institutional systems within the country (page 25). He gives an elaborate description of the R&D capacities of the Central-European transition countries, the value of the human resources of strong academic networks (which value is diminishing during the transformation crisis in several countries), the slow regeneration of university R&D and the relatively favourable availability of info-communication technology (ICT). But he also mentions the resource gap and limited industrial relations of the sector and its weak ability to disseminate knowledge. He does not conceal the methodological problems of “objective” numerical assessments. He points out, for example, that the popular patent statistics are sometimes highly distorting because certain inventors concerned about the infringement of patent rights refrain from patent registration. Török also makes reference to the fact that a number of creative accounting and marketing actions have been introduced in recent years to “improve” the low level of domestic R&D spending. In 1999, a part of the normative support granted for education was transferred as normative research support to universities without setting R&D requirements (page

18). In 2003–2004, the VAT of research and development was raised, more R&D support was allocated to the sector, but the surplus was to be paid back as tax. On top of this, also from 2004, large but non-innovative firms are obliged to pay innovation contribution which does give an opportunity to increase the R&D spending to some extent. The government has also promised to complement the contribution base by an amount corresponding to the sum paid in, but so far it has failed to make the payment (page 217).

The author also states that “the developing countries lagging behind in converging the R&D system have not been given enough attention in these analyses” (page 87) and he aims to make up for this deficiency. To provide a precise description of the state of affairs, Török thinks it advisable to make a distinction between the groups of countries that are underachieving, incapable of performance and that have no R&D at all; while there is an innovation system in the first group, there is none in the other two (although there could theoretically be in the second). His warning should perhaps be considered even by experts of the first group of countries, i.e. innovation systems have a model (a so-called random model) “in which central control is meant to assume a fairly big role, but due to serious coordination problems between the various actors not only the control but also the innovation system itself are capable of operating only at a rather poor efficiency” (page 35).

■ The most interesting part of the book is perhaps the almost fifty pages dealing with the performance assessment of research and development and with the competitiveness of national R&D. The author touches on the five different ways of looking at competition to sum up the characteristics of R&D competition. He underlines that the analyses on “rivalry” are merely focused on the fight about the redistribution of the “cake”. The

neoclassical analysis is centred on the regularities of the idealised free competition which is actually non-existent in practice. The liberal approach concentrates on the criticism concerning the real limits of competition. For the political point of view the most important factor is the (large) number of actors present at the demand and supply sides of the given market. Finally, some investigations draw attention to the dangers of “stenographic” competition (or rather, *l'art pour l'art* competition in this reviewer's opinion) which does not contribute to social welfare. The above outlined viewpoints provide the basis for how Ádám Török measures R&D performance. The author suggests that there are generally no limits to market entry on the non-transparent R&D market, and as a result of the spiritual nature of products as well as the importance of the necessary trust in the transaction, the possibilities for price competition are also rare. Therefore, the definition of competitiveness is also special in this sector, and only two types of examination are possible. It can be analysed how R&D performance affects the competitiveness of an economy or how competitive the R&D itself is in the international market. Since the Central-European transition countries “are the former CMEA member countries in which the gap between the R&D sector and the other segments of the economy was wide even long before the transformation”, in the author's view, only the second type of examination will be likely to produce a well-founded assessment (page 108).

■ The main question of the survey, i.e. how Ádám Török evaluates the international competitiveness of Hungarian R&D, can be answered on the basis of the aforesaid. The conclusion is built on the input and output-related indicators of R&D available for several countries. The author recommends that a complex approach should be followed. In his judgement, R&D expenses as a percentage of GDP

and R&D staff statistics are the most reliable input indicators, whereas the indices of publications and patents as well as those of the export structure and technology balance of payments are the most reliable output indicators. He points out that by using the above-listed indicators, a realistic picture can be given of all characteristics of research and development, but only a vague idea about numerous other elements of the processes. He calls our attention to the distortions of international comparisons arising from the divergent features and structures of national economies. By taking account of all the foregoing, he arrives at the conclusion that the EU's assessment of the competitiveness of Hungarian science, which has been referred to in the preceding, is far too positive; the international ranking of the sector as a whole should realistically be somewhere around the 30th place. Among our major rivals are developed countries with poorer R&D performance, a wide range of moderately developed countries and a few large, but dynamically developing economies (page 214). But the standard of the different organisations varies, many small research points linked to colleges (or linked to several other networks, according to certain studies) have neither the necessary technical infrastructure nor the necessary human resources to create international competitiveness.

This reviewer – based on his own researches – finds the above-outlined judgement realistic. On the other hand, he deems it important that, in relation to the author's assertion, the points made about the modest economic utilisation of domestic research and development results should also be borne in mind. It is also an essential element of the market-oriented assessment of R&D to what extent the sector can “sell” its services (to what extent it can make users accept its results). It is of utmost importance for researchers to know: they must aim at breaking down the barriers

built in the previous decades separating the sector from the practice.

■ The last pages of the book offer – comparatively brief – recommendations concerning the Hungarian research and development strategy which should be followed in the years to come. The author voices his agreement with the views according to which the task is not to increase domestic R&D expenses, in general, especially not by the formal increase of this indicator via creative accounting, but the task is to widen corporate R&D and enhance its standard on a large scale. He considers it even more essential to speed up the spread of innovations. It is indispensable to strengthen the relationships between researchers and users and to boost the production sector's willingness for innovation. The study lays the greatest empha-

sis on the urgency to develop a detailed R&D strategy which is still missing today.

As I have demonstrated in the foregoing, Ádám Török's new book provides a comprehensive picture of the key issues which the Hungarian scientific world is concerned with today. It can be recommended to all who show an interest towards the domestic performance of the research and development sector. At the same time, it is of particular importance that those who are directly concerned, who formulate the R&D strategy and who work in this sector make a detailed study of the book, because significant conclusions can be drawn from the analyses about what is to be done in the near future.

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