

Introduction

Without the adequate amount of financial support from the government and the business sector cannot be expected that **research and development (R&D)** in the Czech Republic could bring internationally competitive knowledge, innovation and technology, which will contribute to raising productivity and employment in the Czech economy, thus contributing not only to economic growth, but indirectly also to the sustainable development of society and social cohesion. **The importance of investment in R&D** is currently being emphasized in all developed countries, partly because the results of these activities and their applications transforming virtually all spheres of the contemporary society.

The Czech Republic's science policy is declared in the document "*National Research and Development Policy for the period 2009–2015, including its updating with a view to 2020*". The efficient allocation of financial resources in this area is not possible without knowledge of the history and current status. For the prioritization and direction of future policy in this area is necessary quality and reliable statistical data.

Research and development activities are financed not only by private but also from public sources. At the same time, these activities are carried out across the entire economy, i.e. both private enterprises and public research institutions and universities, regardless of employment or economic activities of the entity.

For these reasons, the Czech Statistical Office monitors main characteristics of R&D funding (total R&D expenditure, domestic and foreign public funds used to finance R&D, indirect tax support for R&D etc.) through multiple data sources.

Methods of R&D funding from public sources

Public support for R&D can generally be of two kinds:

- **Direct support** through the provision of funds for certain research and development projects or intentions by state authorities and specialized agencies. Specific methods and conditions for receiving public support may differ across countries, but almost in every country is supported basic research. Applied research focused on specific pre-defined priorities (e.g. defence, environment etc.) is very often promoted. Not the exception, that also R&D activities of start-ups in high-tech sectors is supported. Direct public support for R&D can be further divided into:
 - **National**, i.e. provided from the state budget and
 - **Foreign** principally comprising funds from EU structural funds used to finance the R&D in selected subjects through individual operational programmes and other resources from the EU budget (mainly research framework programmes) and resources from international, governmental and public organizations outside the EU (CERN, ILL, ESA, NATO, OECD, UN, WHO, Norwegian funds / EEA etc.).
- **Indirect support** that can take several different forms as different tax incentives and credits, accelerated depreciation, reduction in social security contributions, exemption from customs duties, mechanisms guarantees, soft loans, venture capital support and advantageous lease of state and regional infrastructure (Adámková (2009)). Choosing the structure of the tax scheme depends on the preferences and habits of the country. Among the most commonly used tax tools include: tax credits, deductions from the tax base (i.e. tax allowance), other tax incentives, depreciation policy, reducing social security contributions of employers for research and development personnel or venture capital support.

The main advantage of direct R&D support is that it can be focused on specific predetermined research objectives, which should be oriented so that the social returns have been as high as possible (Hægeland & Moen (2007)). Another advantage is that the research projects which are subsidized by public funds are pre-screened and monitored throughout the project process. The disadvantage of direct support for R&D

remains high financial costs associated with the administration of applications, selection procedure and the subsequent control of projects.

Among the advantages of indirect support for R&D include, in particular, the possibility of general use (i.e. all the firms could use it indiscriminately), which does not interfere with the competitive environment. Because of the indirect R&D support is not selective and not through it is stimulated research and development in some areas, so there is no rigid market allocation of R&D investments (Janecek (2004)). Firms can run R&D activities in areas which have chosen, so that these activities could bring them the most efficient allocation of its resources in future. Finally, providing indirect support is less administrative demanding than in direct support. In addition, the use of indirect support of R&D can help prevent potentially subjective influences and interests, which could play a vital role in providing direct support for R&D. Among the disadvantages of using indirect R&D support in the form of tax breaks belong complicated predictions of expected tax revenues, the higher complexity of tax legislation as well as the inability to respond flexibly to emerging research priorities of the company.

Direct and indirect public support for R&D used in the Czech Republic

Public support for R&D activity currently represents one of the main pillars of the funding system for research, development or innovation in the Czech Republic. In the area of public budgets the Czech government currently uses two main tools in the form of direct financial support and tax incentives (indirect support). Through these tools the government is engaged in R&D activities in the Czech Republic.

The Czech Republic has granted direct support for R&D under the Act no. 130/2002 Coll., on support for research and development from public funds and amending certain related acts. The law states that support should be focused on the objectives and areas defined in the National Research, Development and Innovation Policy, which is approved by the Czech government. Direct support includes targeted support (support for a grant project, program project, specific university research and funding of large infrastructures) and institutional support (support for long-term conceptual research organization development, promoting international cooperation in R&D, promoting projects financed from EU funds and costs associated with ensuring public tenders and administrative activities of research, development and innovation bodies).

The state in the case of direct public support for research and development allocates funds to the R&D area, which promotes the expansion of capacity of research institutions and the improvement of infrastructure for R&D activities (capital expenditure) or finances the R&D performance (non-investment expenses). Among the most important providers of financial sources of direct public support for R&D in recent years belong the Ministry of Education, Youth and Sports, Ministry of Industry and Trade, Grant Agency and Technology Agency of the Czech Republic.

Czech Statistical Office measures direct public funding of R&D through two statistics: Annual Survey on Research and Development (VTR 5-01) in terms of R&D performers and GBARD – Government Budget Appropriations on Research and Development from the perspective of providers of public support (administrative data).

Direct public R&D support provided through the government budget appropriations (GBARD) reached in 2017 the amount of 30.7 CZK billions, while the private enterprise R&D performers from the business sector received 3 CZK billions. In 2016 figures were following 28 CZK billions and 2.6 CZK billions respectively.

The second tool how to support R&D is an indirect public support for R&D. This is a relatively new form of public support, which firms could benefit since 2005. The indirect method of public support for R&D is commonly used in a number of European Union member countries and is monitored using statistics government tax incentives for R&D expenditure (GTARD). Entities may draw support in the form of deduction of eligible expenditure on R&D activities from the tax base (R&D tax allowance). The Czech Statistical Office measures government tax incentives (GTARD) in the business sector since 2007.



In 2016, R&D conducting firms drew indirect support through the government tax incentives (GTARD) worth 2.4 CZK billions.

In total direct and indirect support, the Czech state provided from its budget R&D support reaching 30.4 CZK billions in 2016, from which private enterprises from the business sector received the total volume of equal 5 CZK billions.