23 SCIENCE, RESEARCH, AND INNOVATION

Methodological notes

*Science, research, and innovation statistics provides basic data on key activities in the areas of **science, technologies, and innovations** in the Czech Republic (CR) from the point of view of inputs, i.e. financial and qualified human resources as well as their results such as innovations, granted patents, or international trade in high-tech products.*

***Science** refers to a consistent system of verifiable observations and findings on a given set of phenomena as well as of methods used to obtain, process, to explain in theory, and apply these observations and findings.*

***Research and development** comprise creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture, and society – and to devise new applications of available knowledge.*

***Technologies** take three fundamental forms: **tangible**: knowledge embodied in physical objects (machinery, equipment, instruments, etc.); **intangible**: knowledge accumulated in people (human capital), information embodied in electronic media and documents (software, plans, projects, results of observations, mathematical calculations, maps, etc.), and **institutional**: arrangement of activities and relations (organisational structure, management system, standards, regulations, etc.). Thus, while science is concerned about how and why certain things happen, technology is focusing on the means by which they are implemented.*

*An **innovation** is the introduction of a new or significantly improved product (good or service) or business process that involves new or significantly improved methods of internal processes (production, logistics, IT systems, administrative activities), marketing or significant organisational changes in the company.*

Data provided in the Chapter had been mainly obtained from regular statistical surveys of the Czech Statistical Office (CZSO), primarily from the survey on research and development, survey on licences, and from other data sources of the CZSO. In some cases, data had been obtained from other national data sources, e.g. the Industrial Property Office of the CR, the Office of the Government of the CR, the Ministry of Education, Youth, and Sports, etc.

Notes on Tables

Tables 23-1 and 23-2 Science and engineering professionals

***Science and engineering professionals** are a narrow group of experts. Within their work activities, they conduct research, improve or develop concepts, theories and operational methods, or apply scientific knowledge relating to fields such as physics, astronomy, meteorology, chemistry, geophysics, geology, biology, ecology, pharmacology, medicine, mathematics, statistics, architecture, engineering, design, and technology.*

*Science and engineering professionals are defined since 2011 based upon the **Classification of Occupations (CZ-ISCO)** and contain the following minor groups of occupations of the CZ-ISCO sub-major group 21, which are sources of their main income:*

211 Physical and earth science professionals;

212 Mathematicians, actuaries and statisticians;

213 Life science professionals;

214 Engineering professionals (excluding electrotechnology);

215 Electrotechnology engineers;

216 Architects, planners, surveyors and designers.

*In the Table **23-1**, data on persons working in the CZ-ISCO 211 and 212 occupations are reported together in the category of Physicists, chemists, mathematicians, statisticians and related professionals.*

*Data on the **numbers** of science and engineering professionals (Table **23-1**) come from **the Labour Force Sample Survey (LFSS)**. In order to ensure higher reliability and to eliminate considerable year-on-year fluctuations of values for this group of employees, data in the table are provided as **three-year moving averages** (i.e., for example, the value for 2021 is calculated as an average from the values for 2020, 2021, and 2022). More detailed information on the LFSS can be found in the Chapter **10** Labour Market, Part B.*

*Data on **wages** of science and engineering professionals (Table **23-2**) come from **the structural employee wage statistics**, which is generated by merging of databases of the sample survey of the **Information System on Average Earnings** of the Ministry of Labour and Social Affairs, which covers the **wage sphere**, and of the administrative data source of the **Salary Information System** of the Ministry of Finance, which exhaustively covers the **salary sphere**. More detailed information on the structural employee wage statistics can be found in the Chapter **10** Labour Market, Part A, namely in notes on Tables **10-4** and **10-5**.*

Tables 23-3 and 23-4 Students of and graduates from science and engineering fields of education at universities

Education at universities *presented in the table belongs to the tertiary level of education and includes a* ***bachelor, follow-up master, master****, and* ***doctoral*** *study programme. The follow-up master and master study programmes are given in tables together as* ***master study programmes****.*

Fields of education given in the table are defined based on ***the International Standard Classification of Education: Fields of Education and Training 2013 (ISCED-F 2013)*** *as follows:* ***Science fields of education*** *correspond to the broad field of Natural sciences, mathematics and statistics (code 05) and* ***Engineering fields of education*** *correspond to the broad field of Engineering, manufacturing and construction (code 07).*

Numbers of students and graduates in tables are given as ***headcount****, i.e. each student is included in a particular piece of data only once, including students, who study in more study programmes or more fields of education at the same time. The total numbers of students and graduates thus do not have to be equal to the sums of students and graduates of respective types of study programmes and groups of fields of education.*

The data were obtained from data sources of the Ministry of Education, Youth, and Sports, namely from ***the Union Information from Students' Registers (the "SIMS")****. The source database of* SIMS *is continually completed and updated, including retrospective corrections. Data published in this Yearbook correspond to the state of processing as at 20 January 2023. Data on students of universities are always related to 31 December of the relevant year; data on graduates are related to the entire school year.*

Tables 23-5 to 23-10 Research and development (R&D)

Research and experimental development *(hereinafter referred to as R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture and society – and to devise new applications of available knowledge (OECD 2015, Frascati Manual). For an activity to be a R&D activity, it must satisfy five core criteria; it must be: novel, creative, uncertain, systematic, transferable and/or reproducible.*

The term R&D covers three types of activity: basic research, applied research, and experimental development. ***Basic research*** *is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.* ***Applied research*** *is original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific, practical aim or objective.* ***Experimental development*** *is systematic work, drawing on knowledge gained from research and practical experience and producing additional knowledge, which is directed to producing new products or processes or to improving existing products or processes.*

Characteristics of research and development *are surveyed by* ***the Annual report (questionnaire) on research and development****, which includes questions on human and financial resources earmarked for R&D activities realized in the territory of the Czech Republic in respective sectors of R&D performance. The statistical survey fully complies with methodological principles of the European Union (EU) and of the Organisation for Economic Co-operation and Development (OECD) mentioned in the Frascati Manual and in the Regulation (EU) 2019/2152 of the European Parliament and of the Council.*

Reporting units *in the R&D survey are all legal and natural persons performing R&D in the territory of the Czech Republic as their principal (CZ-NACE 72 – Scientific research and development) or secondary economic activity, irrespective of the number of personnel, sector, or CZ-NACE activity.*

Sector of research and development performance *is a basic category used in R&D statistics, which groups all institutional units performing R&D based on their main functions, behaviour, and objectives. R&D indicators are usually measured and published, also at an international level, in four sectors of R&D performance (hereinafter referred to as sectors): the business enterprise sector, the government sector, the higher education sector, and the private non-profit sector. These sectors were defined based on the Classification of Institutional Sectors and Subsectors used in the national accounts (the European System of National and Regional Accounts (ESA 2010)) and definitions given in the Frascati Manual:*

– ***business enterprise sector*** *(S.11: Non-financial corporations; S.12: Financial corporations; S.141: Employers, and S.142: Own-account workers), which comprises all companies, organisations, and institutions, principal activity of which is market production of goods or services for sale to the general public at an economically significant price. The business enterprise sector mainly focuses on applied research and experimental development. Results of these activities are especially related to innovations, i.e. development of new products or improvement of the existing ones or of provided services. Entities and R&D workplaces in the business enterprise sector are broken down by type of workplace based on the ownership, namely to public enterprises (corporations), private national enterprises (corporations), and foreign-controlled enterprises (corporations).*

– ***government sector*** *(S.13: General government) comprises bodies of central and local government, except for publicly managed higher education institutions (CZ-NACE 85.4). This sector especially includes in the Czech Republic workplaces of the Czech Academy of Sciences and other public research institutions. It further includes public libraries, archives, museums, health establishments (excluding teaching hospitals), and other workplaces of the government sector, which perform R&D as their secondary activity;*

– ***higher education sector*** *(CZ-NACE 85.4: Higher education) comprises all public and private universities and other institutions of post-secondary education with R&D activities and also all research institutes, experimental facilities,*

and clinics, work of which is directly controlled or managed by higher education institutions or that are associated with them (e.g. teaching hospitals). This sector is not a separate institutional sector, however, it has been separately identified by the OECD because of its important role in R&D;

– ***private non-profit sector*** *(S.15: Non-profit institutions serving households) comprises private institutions, including private persons and households, whose primary aim is not generation of profit but providing of non-market services to households. They include, e.g., associations of research organisations, associations, unions, societies, clubs, federations, movements, or foundations. The private non-profit sector is insignificant as for R&D performance.*

Research and development activities are especially measured in the government sector and the higher education sector in the following six ***main fields of R&D (broad fields)*** *defined according to an international classification called* ***the Fields of Research and Development Classification (FORD classification)****:*

– ***Natural sciences*** *(Mathematics, Computer and information sciences; Physical sciences; Chemical sciences; Earth and related environmental sciences; Biological sciences; Other natural sciences);*

– ***Engineering and technology*** *(Civil engineering; Electrical engineering, electronic engineering, information engineering; Mechanical engineering; Chemical engineering; Materials engineering; Medical engineering; Environmental engineering; Environmental biotechnology; Industrial biotechnology; Nano-technology; Other engineering and technologies);*

– ***Medical and health sciences*** *(Basic medicine; Clinical medicine; Health sciences; Medical biotechnology; Other medical science);*

– ***Agricultural and veterinary sciences*** *(Agriculture, forestry, and fisheries; Animal and dairy science; Veterinary science; Agricultural biotechnology; Other agricultural sciences);*

– ***Social sciences*** *(Psychology and cognitive sciences; Economics and business; Education; Sociology; Law; Political science; Social and economic geography; Media and communications; Other social sciences);*

– ***Humanities and the arts*** *(History and archaeology; Languages and literature; Philosophy, ethics and religion; Arts (arts, history of arts, performing arts, music); Other humanities).*

Data on the R&D by main fields of R&D (broad fields) are based on the prevailing field of the surveyed R&D workplaces.

Research and development (R&D) personnel

Persons employed in research and development (hereinafter only referred to as ***R&D personnel****) comprise researchers, technicians, administrators, and other supporting staff working at R&D workplaces in individual reporting units, who ensure direct services for those workplaces. The R&D personnel category includes all persons aged 15+ years paid in employment. The formal job attachment mainly refers to an employment contract, an agreement on work performance, and an agreement on work activity.*

*R&D personnel are broken down according to the work they perform (****occupation****) as follows:*

– ***researchers****, who are engaged in the conception or creation of new knowledge, products, processes, methods, and systems or who manage such projects. They are mainly professionals and R&D managers;*

– ***technicians and equivalent staff*** *(hereinafter only referred to as* ***technicians****) who participate in R&D by performing scientific and technical tasks involving the application of concepts, operational methods and the use of research equipment, normally under the supervision of researchers;*

– ***other supporting staff*** *who are skilled and unskilled craftsmen, and administrative, secretarial, and clerical staff participating in R&D projects or directly associated with such projects; also included are managers, administrators, and clerical staff, activities of whom are a direct service to R&D.*

The number of R&D personnel is surveyed by ***two main measurement units****; they are the headcount and the full-time equivalent of R&D personnel (engaged in work on R&D activities equalling to one year of full-time work):*

– ***headcount*** *of R&D personnel refers to the registered number of persons fully or partially engaged in research and development activities, employed in the reporting units in main or secondary employment as at the end of the reference year. Primarily in the higher education sector and partially also in the government sector, a huge amount of R&D personnel, especially researchers, have an employment contract in more entities. Therefore, in these sectors, the indicator is overestimated and does not provide the real number of persons working in R&D;*

– ***full-time equivalent*** *(FTE) refers to the average registered number of R&D personnel converted to annual full-time workload devoted to R&D activities. One FTE equals one-year (full-time) work of a member of personnel who is 100% engaged in R&D activities. The FTE indicator also includes the number of persons working for the reporting unit under agreements on work performance and agreements on work activity converted according to the methodology valid for the FTE.*

Research and development (R&D) expenditure

Research and development expenditure *includes all current expenditure (wages and salaries and other current expenditure) and capital (investment) expenditure spent during the reference year on R&D performed in reporting units (intramural R&D) in the territory of a given country regardless the source or the way of funding.*

Surveyed (intramural) R&D expenditure ***does not include*** *extramural expenditure on R&D performed outside a reporting unit, sector, or country. The intramural R&D expenditure thus excludes expenditure spent on purchase of external R&D from entities*

performing R&D, sources transferred to other experts within a common R&D project, and subsidies or contributions (financial transfers) provided to third persons for R&D performed at their place.

Total expenditure on R&D made in the territory of a given country is statistically measured by the indicator of ***the gross domestic expenditure on R&D (GERD)****. The indicator includes funds received from abroad (i.e. the "rest of the world") for R&D performed in the territory of the given country; however, it excludes domestic funds provided for R&D performed abroad.*

The amount of R&D expenditure made in sectors of performance is measured by the ***main sources of funding*** *of R&D activities:*

– *funds from the* ***business enterprise sector*** *mainly comprising own (internal) sources of surveyed enterprises earmarked for R&D performed within these enterprises and sources of parent companies funding R&D in their foreign affiliations in the Czech Republic. As for the government sector and the higher education sector, funding from business enterprise sources mainly includes income from sale of R&D services (orders for R&D) and income from royalties and licence fees for intangible results of R&D;*

– *funds from the* ***government sector – national*** *that come from the state budget or budgets of Regions earmarked for R&D performed in the territory of the Czech Republic;*

– *funds from the* ***government sector – from abroad****, which especially include income from the European Structural Funds. They also include other sources from the EU budget and sources from international organisations outside the EU (CERN, ILL, NATO, UNO, WHO, Norway grants and EEA grants, etc.).*

Besides the aforementioned main sources, also ***other national sources*** *contribute to R&D funding, which mainly comprise*

own sources of universities and private non-profit institutions originating neither from the state budget, the business enterprise sector, nor from abroad. These sources are insignificant in the CR within the total R&D expenditure.

Tables 23-11 to 23-15 Government budget appropriations for R&D (GBARD)

Statistics of government budget appropriations for R&D (GBARD) is made with annual periodicity based on the Regulation (EU) 2019/2152 of the European Parliament and of the Council and on the methodology provided in the Frascati Manual (OECD, 2015). A list of socio-economic objectives is provided in the Nomenclature for the Analysis and Comparison of Scientific Programmes and Budgets (NABS, Eurostat 2007).

In the Czech Republic, statistics of government budget appropriations for R&D (GBARD) is compiled based on administrative data obtained from the ***Information system of research, development, and innovation****. Data are also partially obtained directly from individual providers of public support of R&D. Statistics of direct government support of R&D takes into account terminology and specification of expenditure pursuant to the Act No 130/2002 Sb, on the Support of Research, Experimental Development, and Innovations from Public Funds (as amended).*

Government budget appropriations for R&D (GBARD) include in the case of the Czech Republic all ***financial sources provided from the state budget to support R&D****, including sources flowing to the R&D abroad. According to the valid international methodology, the government support of R&D excludes support of R&D via loans to be repaid, pre-financing of programmes of the EU covered by income from the European Union, and support of innovations.*

All data on the government budget appropriations for R&D (GBARD) result from data provided in the State Final Account of the Czech Republic for the area of R&D. It applies to expenditure, which was really drawn for R&D from the state budget in the given year (not to amounts approved in the Act on the State Budget of the CR for the given year).

Table 23-16 Government tax relief for R&D expenditure (GTARD) in private enterprises

Government tax relief for R&D expenditure (GTARD) *is applied deduction of expenditure on realisation of R&D projects from income taxes of legal and natural persons.*

Data on the government tax relief for R&D expenditure (GTARD) have been surveyed by statisticians since 2007. ***Tax returns*** *are the administrative data source. Only legal persons (enterprises) in institutional sectors S.11 Non-financial corporations and S.12 Financial corporations are surveyed. Information on natural persons (entrepreneurs) is not available.*

Government tax relief for R&D expenditure (GTARD) *is calculated based on the following formula: Government tax relief for R&D expenditure (GTARD) = applied deduction of expenditure on R&D from the tax base multiplied by the tax rate.*

Deductions cannot be applied on services and intangible results of research and development (except for those purchased from public universities, public research institutions, and other research organisations mentioned in the Act No 130/2002 Sb, on the Support of Research, Experimental Development, and Innovations from Public Funds). A complete list of properties / eligible costs can be found in the instruction of the Ministry of Finance No MF-17.

Table 23-17 Patents granted in the Czech Republic

*A **patent** is a public deed issued by the relevant patent office, which provides legal protection to an invention for the period of up to 20 years (provided that maintenance fees are paid), namely in the territory for which it was issued by the office. Patent protection in the territory of the Czech Republic is ensured by the Industrial Property Office of the CR (IPO CR).*

*Patents are granted for **inventions**, which are novelties, they are a result of activity of inventors, and are industrially applicable. The following can be patented: not only products and technologies, but also chemically produced substances, drugs, industrial production microorganisms, as well as microbiological ways and products obtained by those ways. What cannot be patented, on the contrary, are discoveries or scientific theories, programmes for computers, new cultivars of plants and breeds of animals or ways of surgical or therapeutic treatment of human or animal bodies, and diagnostic methods used at human or animal bodies.*

***Patent statistics** brings information about results and successfulness of research, development, and innovation activity in selected areas of technology. Data in the Chapter were processed by the CZSO based on data sources of the IPO CR. Patent data are broken down according to the Patent Statistics Manual of the OECD (OECD, Paris 2009). Granted patents can be classified to selected technological areas based on the International Patent Classification.*

*Patent data by **way of patent granting** are broken down to national granted patents by the IPO CR or European patents validated in the Czech Republic by the IPO CR. The second way is mainly used by foreign applicants.*

*Patent data broken down by **applicant's country of residence** are classified using the so-called fractional method (e.g., if two applicants from different countries file together a patent application, a half of the patent is assigned to each country).*

Table 23-18 Patent licences

*A **licence** is one of the possibilities to use industrial rights and intellectual property on a commercial basis. A **licence agreement** refers to granting of the right, in an agreed scope and in an agreed territory, for acquisition or provision of patented or non-patented inventions. The licensor entitles the licence acquirer to exercise industrial property rights in an agreed scope and in an agreed territory and the licence acquirer undertakes to provide some payments (licence fees) or another asset.*

*By subject of a licence there are **patent licences**, the subject of which is to provide the right to use a valid patent either in the country of the acquirer (purchaser) or in countries, to which the acquirer of the licence intends to export the licence product, **utility model licences**, the subject of which is an industrial design or a utility model, **know-how licences**, the subject of which is to provide unprotected production and technical knowledge or experience.*

*The Czech Statistical Office has been surveying data on licences valid in the territory of the Czech Republic in the area of industrial property protection since the year 2005 by the Annual questionnaire on licences. It is an exhaustive survey. In terms of dissemination of results of research and development and their capitalisation, the most important subjects of licence agreements are provided **patent licences**, on which the CZSO primarily focuses in its survey. Since 2008, all legal persons with a valid patent for the territory of the Czech Republic as at 31 December of the reference year have been **reporting units** in the survey on provided patent licences.*

*Data on the number of patent licensors and on the value of received royalties and licence fees are always the totals of processed data from collected questionnaires (reports).Data are available in the breakdown by institutional sector (the business enterprise sector, the government sector, and the higher education sector) defined in accordance with the methodology of sectors of research and development performance (see definitions in the Notes on Tables **23-4** to **23-9** Research and development (R&D)).*

Table 23-19 International trade in high-tech goods

Goods with high technology intensity (hereinafter only referred to as high-tech goods) mean products, production and processing of which require (in a large extent) top, technologically highly advanced, and intensive operations. Development of those products is usually accompanied by rather high costs for research, development, and innovation.

Within international trade statistics (change of ownership), high-tech goods are defined by the Standard International Trade Classification (SITC). Eurostat elaborated a list of high-tech goods based on the fourth revision of the aforementioned classification (SITC Rev. 4) that became effective from 2007. According to the classification, high-tech goods are divided to nine main categories (aggregations).:

Data on exports and imports of high-tech goods are obtained from data outputs of the international trade statistics, which measures the real trade in goods carried out between Czech and foreign entities, i.e. a change of ownership between residents and non-residents.

Table 23-20 Technology balance of payments

Technology balance of payments monitors sale and purchase of intangible technologies of a given country in relation to other economies. Data on receipts (or payments) received within international trade in technology express technological level of an economy, i.e. they inform about the scope of international trade with industrial property and knowledge related to advanced technologies.

*Basic methodology and concept of **technology balance of payments statistics**, which comprises international trade in technology, is based on the Technology Balance of Payments Manual, OECD, 1990.*

*Data on exports and imports of technology come from a **direct survey of the CZSO on exports and imports of services**. Individual TBP items are defined based on **the Extended Balance of Payments Services Classification (EBOPS 2010)** as follows:*

***Computer services and software** (codes: SI2 and SH3) – for more information see Chapter **22** Information Society.*

***Architectural, engineering, scientific and other technical services** (code SJ31), which include:*

– architectural services;

– engineering services, which include the design, development and utilization of machines, materials, instruments, structures, processes and systems. Services of this type involve the provision of designs, plans and studies related to engineering projects;

– scientific and other technical services include surveying; cartography; product testing and certification; and technical inspection services.

***Research and development** (code SJ1), which includes provision of customised and non-customised research and development services, exchange and transfer of R&D funds are funds with or without a compensatory return flow of R&D and sale of proprietary rights arising from research and development (patents, copyrights arising from research and development, industrial processes and designs, other sales of proprietary rights arising from research and development).*

***Royalties and licence fees** (codes SH2 and SH42; hereinafter referred to as "licence fees"), which include received or paid licence fees for provided ownership right to temporarily use products arisen based on performed R&D activity (inventions, new technological solutions, new cultivars of plants and breeds of animals, new pieces of knowledge and know-how), i.e. income from authorised temporary use of subjects of industrial rights (e.g. patents, industrial and utility models), know-how, and other intangible results of R&D activity including trademarks and design.*

Tables 23-21 and 23-22 Basic indicators of enterprises in high-tech sector

A group of industries with high technology intensity (hereinafter only referred to as high-technology sector or high-tech sector) is an aggregation of economic activities largely using highly advanced or top technologies and development of their outputs is often accompanied by high costs for innovation and/or research and development.

*Industries of **high-technology sector** comprise businesses of the business enterprise sector the prevailing economic activity of which corresponds to the following divisions and groups of **the Classification of Economic Activities (CZ-NACE)**:*

***High-tech manufacturing industries** (Table **23-21**):*

Manufacture of pharmaceuticals (division 21);

Manufacture of computers and electronic components (groups 26.1 and 26.2);

Manufacture of consumer electronics and optical instruments (groups 26.3, 26.4, 26.7 and 26.8);

Manufacture of scientific electronic equipment (groups 26.5 and 26.6);

Manufacture of aircraft and related machinery (group 30.3).

***High-tech service industries** (Table **23-22**):*

Audio-visual activities (divisions 59 and 60);

Telecommunications (division 61);

IT activities (division 62);

Information service activities (division (63);

Scientific research and development (division 72).

Table 23-23 Manufacturing by technology intensity – basic indicators

In accordance with the Classification of Economic Activities, manufacturing (industry) can be divided into industries with high technological intensity (high-technology or high-tech), medium high technological intensity (medium-high-technology), medium low technological intensity (medium-low-technology), and low technological intensity (low-technology). Businesses of the business enterprise sector are classified to aforementioned categories based on their prevailing economic activity according to the CZ-NACE classification:

***High-technology industries** – Manufacture of basic pharmaceutical products and pharmaceutical preparations (division 21), Manufacture of computer, electronic and optical products (division 26), and Manufacture of air and spacecraft and related machinery (group 30.3);*

Medium-high-technology industries *– Manufacture of chemicals and chemical products (division 20), Manufacture of electrical equipment (division 27), Manufacture of machinery and equipment n.e.c. (division 28), Manufacture of motor vehicles, trailers and semi-trailers (division 29), Manufacture of railway locomotives and rolling stock; Manufacture of military fighting vehicles; Manufacture of transport equipment n.e.c. (groups 30.2, 30.4, and 30.9), Manufacture of weapons and ammunition (group 25.4), Manufacture of dental instruments and supplies (group 32.5);*

Medium-low-technology industries *– Manufacture of rubber and plastic products (division 22), Manufacture of other non-metallic mineral products (division 23), Manufacture of basic metals (division 24), Manufacture of fabricated metal products, except machinery and equipment (division 25 excluding 25.4), Reproduction of recorded media (group 18.2), Manufacture of coke and refined petroleum products (division 19), Building of ships and boats (group 30.1), and Repair and installation of machinery and equipment (division 33);*

Low-technology industries *– Manufacture of food products; Manufacture of beverages (divisions 10 and 11), Manufacture of textiles; Manufacture of wearing apparel; Manufacture of leather and related products (divisions 13 to 15), Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials; Manufacture of paper and paper products; Manufacture of furniture (divisions 16, 17, and 31), Manufacture of tobacco products (division 12), Printing and service activities related to printing (group 18.1), and Other manufacturing (division 32 excluding 32.5).*

Indicators in Tables ***23-21*** *to* ***23-23****, besides R&D expenditure,, are obtained from* ***an annual structural survey in businesses from selected production industries*** *(structural business statistics, SBS) providing a more detailed range of final data, which are, however, available with a greater time delay. More detailed information about the data from the annual SBS of selected production industries, including definitions of individual indicators, can be found in the Chapter* ***15*** *Industry and in the Chapter* ***18*** *Trade.*

* * *

Further information can be found on the website of the Czech Statistical Office at:

– www.czso.cz/csu/czso/science_and_research_veda