REPUBLIC OF CROATIA
CROATIAN BUREAU OF STATISTICS

150 YEARS OF CROATIAN STATISTICS

QUALITY REPORT FOR STATISTICAL SURVEY

Human Resources in Science and Technology, 2016

Organisational unit: Innovations, Science and Technologies Unit

Prepared by: Matija Škegro Vdović and Antonio Tomislav Marić

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0. Basic information

- Purpose and subject of the survey

  A rapidly changing economic environment and a growing emphasis on the knowledge-based economy have led to a mounting international interest in the role and measurement of relevant skills. Data on human resources can improve our understanding of both the demand for and supply of science and technology personnel on the labour market. The data are based on the Labour Force Survey data (LFS) and show current and potential stocks of human resources in science and technology.

- Reference period

  Calendar year

- Legal acts and other agreements

  Act on Scientific Activity and Higher Education (NN, Nos 123/03, 198/03, 105/04, 174/04, 02/07, 46/07, 45/09, 63/11, 94/13 and 139/13)

  Decision on the National Classification of Activities – NKD 2007 (NN, Nos 58/07 and 72/07)

  Register of Spatial Units (codes of cities/municipalities, settlements)

  Ordinance on the Register of Spatial Units (NN, No. 37/08)

  National Classification of Occupations, 2010 version – NKZ 10 (NN, No. 147/10)

  Decision No 1608/2003/EC of the European Parliament and of the Council of 22 July 2003 concerning the production and development of Community statistics on science and technology

  Commission Implementing Regulation (EU) No 995/2012 of 26 October 2012 laying down detailed rules for the implementation of Decision No 1608/2003/EC of the European Parliament and of the Council concerning the production and development of Community statistics on science and technology (OJ L 299, 27. 10. 2012)

  Canberra Manual – Manual on the Measurement of Human Resources Devoted to S&T, OECD, 1995

- Classification system

  National Classification of Occupations 2010 (NKZ 10), comparable to the International Standard Classification of Occupations ISCO-08

  International Standard Classification of Education ISCED 2011

- Statistical concepts and definitions

  The harmonised concepts, methods and definitions used to analyse and report data on human resources in science and technology originate from the Manual on the Measurement of Human Resources Devoted to Science and Technology, the Canberra Manual (OECD, UNESCO, International Labour Organisation, the European Commission Directorate-General for Research and Innovation and the Eurostat).

  The Canberra Manual describes highly skilled human resources as essential for the development and transfer of knowledge and as a crucial link between technological advancement, economic growth and social development. The aim is to explore basic characteristics of the part of the labour force with highly developed skills and the largest potential to contribute to the knowledge-based society.

  In order to obtain the full picture of demand for and supply of human resources in science and technology, the definition is based on two aspects, qualification and occupation. The qualification aspect presents the supply of human resources in science and technology, that is, the number of persons currently or potentially available for work at a particular level. The demand for human

resources in science and technology, that is, the number of persons actually needed in science and technology activities at a particular level, is connected with the occupation aspect. Because demand does not always match supply and because skills can be obtained outside the formal education system, the following combined definition is proposed.

The Canberra Manual defines human resources in science and technology as persons fulfilling at least one of the following two conditions:

– human resources by education (HRSTE): persons who have successfully completed a university-level education (ISCED 5, 6, 7 or 8)

– human resources by occupation (HRSTO): persons who are employed in science and technology occupations as professionals, technicians and associate professionals and managers.

The group that fulfils both criteria is called HRST core (HRSTC).

In the education system of the Republic of Croatia, the levels of education that we need for the analysis of data on human resources in science and technology by education (HRSTE) are as follows:

1. according to the pre-Bologna programme:
   – undergraduate professional study (ISCED level 5)
   – undergraduate university study (ISCED level 7)
2. according to the Bologna programme:
   – professional short-term study (ISCED level 5)
   – undergraduate professional study (ISCED level 6)
   – specialist professional graduate study (ISCED level 7)
   – undergraduate university study (ISCED level 6)
   – graduate university study (ISCED level 7)
   – integrated undergraduate and graduate study (ISCED level 7)
   – doctorate of science (ISCED level 8).

The Canberra Manual recommends the identification of certain occupation groups as those included in the HRSTO, as follows:

– NKZ 10, major group 2: (professionals) – occupations that increase the existing stock of knowledge, apply scientific or artistic concepts and theories and systematically transfer the mentioned knowledge or combine the mentioned activities,

– NKZ 10, major group 3: (technicians and associate professionals) – occupations that cover mostly technical and related tasks connected with research and the application of scientific or artistic concepts and operational methods as well as state administration tasks,

– NKZ 10, groups 12, 13 and 14: (administrative and commercial managers, production and specialised services managers, hospitality, retail and other services managers).

- Statistical unit

  Statistical unit for which data are collected are persons.

- Statistical population

  The target population for which data are collected are persons aged 25 to 64.

1. Relevance

1.1. Data users

Users of data on human resources in science and technology can be:

- external (national):
  - Ministry of Economy and Sustainable Development – data are used for the purposes of planning, creating policies and strategies, monitoring their implementation, analyses and for international comparisons
  - Ministry of Science and Education
  - Croatian Agency for SMEs, Innovation and Investments (HAMAG-BICRO)
  - science and research institutes (Institute of Economics) and individual researchers use the data for national and international scientific and research projects.
- external (international):
  - Eurostat

1.1.1. User needs

The standard prescribed by Eurostat meets the needs of national and international users.

1.1.2. User satisfaction

The first user satisfaction survey of the Croatian Bureau of Statistics was conducted in 2013, and then in 2015. The survey results can be checked on the website of the Croatian Bureau of Statistics https://dzs.gov.hr/highlighted-themes/quality/user-satisfactionsurveys/686.

1.2. Completeness

The survey covers all variables prescribed by EU regulations and Eurostat methodological standards.

1.2.1. Data completeness rate

The indicator is not applicable.

2. Accuracy and reliability

2.1. Sampling error

Not applicable.

2.1.1. Sampling error indicators

The indicator is not applicable.

2.2. Non-sampling error

Not applicable.

2.2.1. Coverage error

The difference depends on the data taken from the administrative source.

2.2.2. Over-coverage rate

The indicator is not applicable.

2.2.3. Measurement errors

Not applicable.

2.2.4. Non-response errors

Not applicable.

2.2.5. Unit non-response rate

The indicator is not applicable.

2.2.6. Item non-response rate

The indicator is not applicable.

2.2.7. Processing errors

Data entry and processing errors made at data source level are removed with automatic data editing process. Processing errors are possible due to inadequate automatic data editing process (overediting).

2.2.8. Imputation rate

The indicator is not applicable.

2.2.9. Model assumption error

Not applicable.

2.3. Data revision

2.3.1. Data revision – policy

In case of data revisions, the users of statistical data are informed about the revision on the website of the Croatian Bureau of Statistics.

2.3.2. Data revision – practice

Provisional data are not published in this survey and therefore there are no data revisions.

2.3.3. Data revision – average size

The indicator is not applicable.

2.4. Seasonal adjustment

Not applicable.

3. Timeliness and punctuality

3.1. Timeliness

Timeliness of statistics relates to the length of time between data availability and the reference period the phenomenon refers to.

Timeliness of final results is T + 12 months.

3.1.1. Timeliness – first results

The indicator is not applicable.

3.1.2. Timeliness – final results

Timeliness of final results is T + 12 months.

3.2. Punctuality

Timeliness of final results is T + 12 months.

3.2.1. Punctuality − delivery and publication

The data have been released on time, in line with the Calendar of Statistical Data Issues in 2017.

4. Accessibility and clarity

The medium used for the dissemination of survey data is the First Release 8.2.3. Human Resources in Science and Technology, 2016, published on the website of the Croatian Bureau of Statistics.

4.1. News releases

Survey data are released in the First Release 8.2.3. HUMAN RESOURCES IN SCIENCE AND TECHNOLOGY, 2016

4.2. Online database

Online database for this survey does not exist.

4.3. Microdata access

Conditions under which certain users can have access to microdata are regulated by Ordinance on conditions and terms of using confidential statistical data for scientific purposes.

4.4. Documentation on methodology

Methodological documents are available in the First Release in electronic version on the website of the Croatian Bureau of Statistics.

5. Coherence and comparability

5.1. Asymmetry for mirror flow statistics

The indicator is not applicable for the survey.

5.2. Comparability over time

Comparable data series are available for the period from 2011.

5.2.1. Length of comparable time series

Length of comparable time series is 5.

5.2.2. Reasons for break in time series

Not applicable.

5.3. Coherence – short-term and structural data

The indicator is not applicable.

5.4. Coherence – national accounts

The indicator is not applicable.

5.5. Coherence – administrative sources

The indicator is not applicable.

6. Cost and burden

6.1. Cost

It is not possible to estimate the cost connected to data collection.

6.2. Burden

There is no burden on reporting units because already collected data are processed.