

## WHAT IS STATISTICS?

*Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write.*

Herbert George Wells  
(English writer and journalist, 1866-1946)

The word “statistics” is diverse and has multiple meanings. At present, it has about one thousand definitions. Philosophers, mathematicians, economists, sociologists, statesmen and, of course, statisticians have tried to give the definition of statistics.

The origins of statistics date back to antiquity. The word “statistics” derives from the Latin *status* meaning state of things or state of affairs. As a term the word “statistics” came into use in the Middle Ages and designated the political situation of a state. It was first introduced by the German scientist Gottfried Achenwall who suggested to replace the name of the course “Science of State” taught in German universities with “Statistics”, thus having marked the start of the development of statistics as a science and an academic discipline.

Before statistics became a science in its modern understanding, it had gone through a centuries-old history. Numeric data relating to certain phenomena came into use as early as antiquity. This was driven by public needs – population and cattle counts, land and property inventories, etc. Without these minimum sets of data state activities would be impossible. The earliest information on such activities in China dates back to the 5<sup>th</sup> century of the 2<sup>nd</sup> millennium BCE. In ancient Rome, free citizens were enumerated by age and gender; data were collected about their property as well as about industry and agriculture.

Such data were obtained through different methods. For instance, to count the force of his army, the Persian king Darius (522-486 BCE) ordered that every soldier must bring a stone and put it down in a designated place. By the way, a person engaged in accounting was called the “eyes and ears of the king” in Persia.

The Middle Ages had left a unique monument, the Domesday Book (1061). It is a body of manuscript records of the great survey of England's population and their holdings and possessions that contain the data about 240 thousand manors.

In Ancient Rus', the first and primary statistical and accounting records were chronicles. They recorded the information about the emergence and development of towns situated on the waterways, about temples, churches, cloisters and houses in them.

In the course of practical statistical activities definite rules of collecting and processing data and analysis techniques started to evolve.

Nowadays the term *statistics* is used in several meanings.

Statistics is perceived as numerical information about different phenomena. In this sense it makes a part of various natural and engineering disciplines. We are surrounded with numerical data about weather, results of lotteries and sports matches, about the number of dwellings built and stocks of harvested grains, voting results at Eurovision, etc. And every pupil, receiving scores on subjects, forms his or her own performance statistics.

Statistics is also a branch of knowledge that integrates the principles and methods of work with numerical data describing mass phenomena and processes.

Statistics studies everything that is connected with economic activity of the society, demographic and environmental situation both in individual countries and at the global level. Statistical methods are employed in economic analysis, management, marketing, business planning, logistics and other areas of scientific and practical activity. Statistics as a method is applied in astronomy, physics, chemistry, biology, medicine and other sciences.

**Statistics is a science that represents a ramified system of scientific disciplines.** It was introduced in university curricula as a separate academic discipline in the second half of the 18<sup>th</sup> century.

In Belarus, a course in statistics is currently taught in higher and secondary specialised education programmes.

Moreover, statistics is a system of practical activities designed to collect, process, analyse and publish mass numerical data about diverse phenomena and processes of public life. Such activities are carried out in all countries. In Belarus official statistical information is produced by the National Statistical Committee (Belstat) which employs about 2 thousand people. Belstat compiles statistics about Belarus – how many of us are there, what are we, how we live and work.

If someone of you decides in future to engage in the production of official statistical information, analysis and comparisons of various data, you will be able to acquire this profession at the Belarus State Economics University.

What basic skills are required to become a statistician?

First, one should be a good mathematician.

Second, a person should be an advanced IT user to produce calculations and visualize data.

Third, one should speak English to communicate efficiently with colleagues from other countries and to discuss the findings of surveys within the framework of international comparisons.

A statistician is needed for a business, for a country and for the world as a whole. Only a statistical professional can count how many people are there on our planet!

New technologies have led to a snowballing growth of information one should know how to work with. One needs to know how to give quantitative estimation of phenomena and gather data, to systematise and arrange time series, to identify trends and estimate relationships, that is to do competently the job called statistics.

The world leading research companies predict that by 2015, 4.4 million jobs for statisticians and analysts will be created worldwide to ensure the management of big amounts of data.

***The quiet statisticians have changed our world – not by discovering new facts or technical developments but by changing the ways we reason, experiment and form our opinions...***

Ian Hacking  
(Canadian philosopher, 1936)

***Official statistics does not answer the questions:***

- How many bubbles are there in 1 litre of carbonated water?
- How many seeds are there in a ten kilogramme watermelon?
- How many spines does a hedgehog have?
- How long is a rainbow?

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