

STATISTICAL TRAINING FOR RUSSIAN-SPEAKING COUNTRIES: COMBINATION OF INTERNATIONAL QUALITY AND AVAILABILITY

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ABSTRACT

There is a strong demand for well-trained staff among national statistical offices of the former USSR countries. Before the USSR collapse, most of statisticians were educated in Moscow. Currently, there is a lack of own training facilities in most of countries of the Commonwealth of Independent States (CIS), so the staff training is a very significant problem. Language is an additional problem, because most of international training courses are conducted in English, but English speakers are still rare among local statisticians. At the same time, average share of Russian speakers in NSOs of all countries of the CIS region is about 96%. A special training center (International Institute for Training in Statistics - MISO) was established in Moscow in the year of 2011. Currently it provides a random set of short courses on different statistical topics in Russian in cooperation with international partners. But this is only the first step. NSOs are interested in well prepared systematically educated managers in official statistics and high-level experts/methodologists. Thus, the next step should be the development of a Master in Official Statistics Program (MOS). Paper describes concept of this MOS program.

BACKGROUND

Availability of well-prepared professionals is a critical factor for successful reforming and long-term developing of national official statistical institutions. This fully applies to national statistical system (NSO) of Russia and other countries of former USSR, which are usually referred as transition countries. Unfortunately, this problem is still a quite serious in region.

In line with research conducted by Moscow-based Higher School of Economics (HSE) in 2011, all NSOs of former-USSR transition CIS countries are short of professionals. There are not so many general vacancies – about 6% in central offices and only 3% in regional offices on average for the region. The problem is that employees without special skills conduct statistical works. In the Russian Statistical Agency's (Rosstat) central office, for example, share of employees with specialized diplomas (statisticians, economists, accountants and IT engineers) is slightly above 60%, and in the regional offices this proportion is much lower. Another problem is that employee average age is over 40 years old in all CIS NSOs, so most of professionals had received their degrees in Soviet times and actual skill level of such professionals is not in line with modern requests. Besides, even Soviet educated top-level professionals will be replaced in coming years due to retirement.

NSOs of the region try to solve the problems using all possible ways – from developing of domestic facilities to international assistance. But opportunities for quality domestic training are limited in most of the countries. International agencies provide free services on statistical training through the regional training centers in Vienna (JVI) and in Tokyo (SIAP) but most of international training courses are conducted in English, while English speakers are still rare among local statisticians. There is only 1.5% of English-speakers among NSO employees in region (about

11% at central offices). In some countries, this share is much lower. In addition, international training centers provide mainly short courses on specific statistical issues, such as price statistics or household surveys. This is important, but in line with HSE research, statistical offices of the region have the highest demand for programs on statistical management. Generally speaking, NSOs need more systematic educational programs of its employees, including managers and methodologists, than ad hoc courses on specific statistical issues.

To solve language problem, a special training center (International Institute for Training in Statistics - MISO) was established in Moscow in the year of 2011 with support of The World Bank. Basic idea was to deliver in cooperation with international partners statistical training of international quality for official statisticians of CIS countries in Russian. Currently MISO provides a random set of short courses on different statistical topics in Russian. But this is only the first step. Since NSOs are interested in well prepared systematically educated managers in official statistics and high-level experts/methodologists, the next step should be the development of a Master in Official Statistics Program (MOS).

INTERNATIONAL EXPERIENCE

Master programs in statistics are not rare. Some universities around the world including HSE offer degree programs without consultation with, or consideration for, the needs of official statisticians. At the bachelor level, there are no significant differences between the programs for the training of workers for the official statistical agencies and programs for the training of marketers, business analysts and pollsters. All students are expected to know the theory of probability, be able to calculate the parameters of a sample survey, process and analyze the results using some methods of mathematical statistics. But at the level of master's programs there should be different requirements. Development of official statistics is a special kind of activity with specific objectives and constraints, which is based on the original technology, which is different from business and science. It must be taken into account to design master's programs to prepare high-level managers and methodologists for official statistics.

At the other hand, official statisticians are subsequently provided with additional training/education - after being hired - in government sponsored/developed courses. Different approaches are taken in providing this training. It can be special training divisions of statistical agencies, like in Australian Bureau of Statistics (ABS) which provides extra training for its university educated statisticians, economists, and other professionals. Many countries share this approach but it does not include Master degree level.

Another option is a program where students can pursue an academic major tailored to official statistics. Example is Joint Program on Survey Methodology (JPSM) which is the oldest and largest program offering graduate training in the principles and practices of survey research in the United States. While the JPSM is based on academic principles and its faculty is world-class researchers, it recognizes the importance of grounding its programs in the practicalities of official statistics. Among other forms, JPSM offers a Master of Science in Survey Methodology with two areas of concentration: Statistical Science and Social Science. JPSM is very close to our understanding of the essence of MOS but it covers only survey methodology, while other aspects of official statistics are not considered.

Indian experience is also very interesting. The Indian Government sponsors the National Academy of Statistical Administration (NASA) in collaboration with such specialized institutions of national and international repute namely IIM Lucknow, Indian Statistical Institute, Jawaharlal Nehru University, Administrative Staff College of India and the VV Giri National Labour Institute. Training for government employees includes a two year induction training program for Indian Statistical Service (ISS) Officers, which looks very similar to Master program.

In Europe, Eurostat sponsors so called European Master in Official Statistics program (EMOS) which still in progress. Content of this program is not still defined and it is not clear whether it will meet the practical requirements of the statistical offices or will be built in the academic manner, that is, with a predominance of mathematical disciplines. Organizational forms are also not clear.

OBJECTIVES OF THE MOS PROGRAM

In line with our vision, MOS is the complex of post-graduate courses for persons with B.A., B.Sc., M.A. or M.Sc. degrees (relevant level of knowledge of mathematics, statistics, ICT or equivalent subjects), with practical experience of work in official statistics and other government bodies producing or using statistics. MOS is also addressed to the professionals with other experience, who are willing to extend their knowledge in management of statistical processes and systems, designs and organization of statistical surveys, dissemination of statistical data and in use of advanced statistical technologies and the ICT.

The statistical professional staff of all active stakeholders of official statistical processes should have complex, modern knowledge on theoretical foundations, methods, techniques, tools and practices necessary for designing, implementing, managing statistical processes and systems in globalized economy and modern ICT environment. This knowledge is only partly delivered in the programs of education of statistics at the universities. Traditional education of statistics at the universities is limited to the basics of theory of statistics and to methods and tools of analysis of statistical data. The graduates coming from universities to statistics and the statisticians educated in traditional statistical knowledge based on existing “best practices” and on training-on-the-job petrifying existing habits of statistical activities, should be equipped with modern knowledge on how to develop and manage statistical processes and systems in modern information environment of economies, societies and states. This is the main objective of the MOS program.

Specific additional tasks for the MOS program in the CIS transition countries are to providing a better understanding of the modern market economy and basic social processes taking place in society, as well as the creation of a basis for easy communication with foreign colleagues and joining the international professional community.

Main profile of the MOS studies is the delivering to the people who are actively working in statistical production systems and in statistical units of other economic, administrative and social subjects, the knowledge necessary for optimal realization of statistical processes and for the development of statistical systems in modern social, economic and technological environment, taking into account specific duties and functions of official statistics in the building of information infrastructure of the world of today, i.e.:

- democratic information society,
- knowledge – based economy,
- globalized, market – driven economy,
- deep institutional interventionism of international organizations, supranational institutions, governments, professional and social corporations in economic and social life,
- common use of global ICT technologies
- global, sectorial, national and regional information infrastructure,
- strategic role of the R&D sector in economic, social and political development.

The MOS post – graduate program has the educational profile similar to that of the MBA (Master of Business Administration) or MPA (Master of Public Administration).

WHO SHOULD BE THE MASTER IN OFFICIAL STATISTICS?

The future MOS program can represent the minimal common denominator of knowledge and skills necessary for managerial, methodological, analytical and research staff of all:

- international and supranational official statistical agencies and institutes,
- national statistical agencies and statistical services of governments,
- other institutes involved in the realization of official statistical processes and systems,
- agencies realizing professional statistical activities.

The MOS knowledge and skills are necessary for staff of all statistical agencies and stakeholders playing active role in programming, planning, coordination, management of units and realization of statistical processes of statistical offices and other institutes mentioned above:

- high level managerial staff of statistical agencies and institutes (decision – makers and coordinators),
- middle – level managerial staff (heads of division and sections, regional statistical offices, statistical divisions of ministries and other governments) of statistical institutes,
- managers of statistical surveys and statistical production processes, data bases and warehouses, metadata bases and warehouses,
- methodologists responsible for development and maintenance of statistical metadata and other methodological standards, for statistical methodology of domains of statistics and surveys,
- analysts elaborating output data and official statistical analyses,
- ICT managers and experts developing and maintaining statistical ICT infrastructure, database systems,
- high – level experts responsible for development of system of dissemination of statistical information and cooperation with mass media, journalists specialized in domains of economic and social life, for which professional knowledge of statistical production is necessary.
- scientists, researchers and teachers of statistics,
- scientists and experts professionally using statistical data for research, consulting, advisory works for governments, social organizations and businesses.

GENERAL SCOPE OF COMPETENCES OF MOS

The general scope of knowledge to be included to the common denominator of competences provided by MOS program maybe following:

General competences. Masters in official statistics should understand principles of operation of modern market economy and basic social processes taking place in society. They should be able to evaluate the quality of estimated statistical data, their reality and conformity to situation in the country and in the world. To do this, they need to understand the economic and / or social content of the indicators as well as to have necessary competence to analyze them.

Masters in official statistics should be the part of international professional community. It means that they have to speak English well enough to independently study methodological papers and other documents, participate in discussions during international meetings, make presentations and understand the presentation of the other participants. They must possess the international terminology in both Russian and English.

As a potential leader, Master in the official statistics must have the necessary communication skills, to be able to form a team and manage subordinates.

Professional competences. Scope of professional competences consists of two parts: (1) competences necessary for statistical management and (2) competences necessary for methodological work. High-level and middle-level statistical managers should know:

- Mission of official statistics in democratic societies and in modern economies.
- Institutional frameworks of co-ordination and integration of official statistics in global scale (UN, ISI).
- Deontological, methodological and legal principles of official statistics of ISI, UN, EU and other organizations.
- Organization of information systems of official statistics on global scale, models of national systems of official statistics and their interrelations.
- Legal and institutional frameworks of national systems of official statistics. Model of co-operation between national official statistical agencies, governments, businesses and research.
- Models of information infrastructure of modern society and economy. Place and functions of official statistics in the information infrastructure. The system of official statistics as semantic and methodological integrator of social and economic information systems, especially of administrative records and information systems.

- Information standards relevant to statistics. Standardization of information systems in society and economy in modern ICT environment. Methodological foundations of standardization of metainformation. Types of information standards. Processes of standardization of information.
- Statistical standards and their role in harmonization and integration of social and economic information, with special reference to metainformation and methodological standards.
- Sources of official statistics in modern ICT environment. Administrative information systems and “big data” as the sources of statistical information.
- Statistical production processes in modern ICT environment. Basic types of statistical production processes. Impact of modern ICT on statistical production processes.
- Quality of statistical information: criteria, methods, and tools of quality control.

High-level methodologists should know internationally accepted methodological principles, standard definitions and approaches. Of course, none can be the expert in all fields of statistics. But beside general principles methodologists should know in details international methodological standards and relevant national methodologies in the field of their competence. They should know necessary sources of data, including administrative ones, technique of compilation of statistical indicators and their analysis. Masters in official statistics with specialization in statistical methodology should be able to formulate innovative approaches and rules, prepare necessary methodological documents and to know the procedure of their acceptance. They should be able to participate in discussions, to write papers to explain position of their institutions.

Traditional training and education of statisticians at the universities does not cover the topics listed above satisfactorily. The profile of teaching statistics at universities is mainly oriented to statistical theory, sampling methods and techniques, basics of analyses of statistical data. Official statisticians are – as a rule – educated at work (training on the job). Because of that, they are accepting and following the approaches and habits existing in statistical units, in which they start their carrier after school. Those habits and approaches are often not adjusted to the needs of globalized society and economy and to the possibilities of modern ICT. The domination of “on the job” education of professional statisticians is the reason and cause of strong methodological inertia of official statistics. In practice of many statistical units there is acting the “fundamental law of development of official statistics”: the inertia is the main internal driving force of progress in official statistics. The MOS studies should help to re-profile the attitude of official statisticians from inertia to creativity.

The re-education of all official statisticians helping them to meet the expectations of users and external stakeholders of official statistics in global information society and knowledge – based economy should be the objective of statistical education of today.

Transformation of professional profile of official statisticians should be started from upper level of official statisticians – managers, methodologists, and organizers of surveys, coordinators and disseminators of statistical information. Typical profile of education of most of employees in official statistical agencies is not adjusted to the needs of knowledge – based economy and information society. Often the common level knowledge of an official statistician of today is adjusted to the survey based on paper -embedded questionnaires (although replaced by electronic digits) and production of tables (“Q-T model”, i.e. from questionnaire to table). It is not what statistics needs today. Statistical production systems should be designed as flexible technological processes.

Education of statisticians today should be focused on the formation of statisticians for the future. In information society of the dear future official statisticians will be the providers of highly professional information services on the basis of data accessible for them by law. They will be responsible for the development of official standard methods and indicators for measuring social and economic phenomena and processes. The task of official statistics shall be also the development and maintenance of metadata standards for economic and social official information systems. Production of statistical “raw material”, dominating in official statistical agencies of today,

could be outsourced to specialized firms offering data processing services or could be executed by the offices or institutions managing administrative information systems.

Official statistical agencies should be prepared to deep structural changes of professional profile of statistical staff. Designers of questionnaires and tables, data entry staff and so called EDP personnel will be significantly reduced. The knowledge of the statisticians of the future cannot be limited to “classic statistics”, data processing technology and production of publications. Education of professional statisticians should include “classic statistical knowledge” and the following basic problem areas:

- statistical ethics and its practical implications for official statistical activity,
- statistical metainformation theory and practices,
- standardization and standards in official statistics, standard driven coordination of official information systems,
- information infrastructure of global economy and information society, official statistics as a segment of the infrastructure,
- economic and social indicators for measuring social and economic phenomena in global, open economy,
- adjustment and use of administrative information systems for statistical production,
- organization of statistical production using modern ICT,
- dissemination methods and techniques of statistical data and metadata using ICT and mass media
- TQM in statistics and administrative information systems,
- IT assisted design of statistical surveys,
- economy of information activity and official statistics.

The knowledge “beyond classic statistics” is also necessary for official statisticians for realization of the functions of official statistical agencies as integrators and coordinators of information infrastructures of states and supranational agencies within the frames relevant to statistics.

POSSIBLE STRUCTURE OF MOS PROGRAM

Structure of MOS program should meet the basic requests of interested statistical agencies and potential sponsors. Nevertheless, the following general structure looks optimal. It includes:

(a) Obligatory courses of professional cycle: statistical management (role and organization of global official statistical system, models of national systems of official statistics, programming, planning and coordination of official statistics on national and supranational level, etc.), basic international methodological standards (SNA, standard classifications, etc.), survey methodology (statistical surveys based on questionnaires, statistical surveys based on administrative records and “big data” sources, etc.).

(b) Electives of professional cycle: 10-15 subject courses delivering detailed knowledge needed by statisticians in their specific occupations and duties, such as:

- Electronic questionnaires
- Electronic censuses
- Impact of internet on statistical methodology and organization of surveys
- Municipal statistics
- Statistical GIS
- Dealing with non-response
- Bringing data to integrity: conceptual integrity, completeness, comparability, timeliness
- Statistical data capturing and editing techniques in ICT environment
- Documenting of statistical surveys and data
- Optimization of information sources (administrative records vs. questionnaires vs. interviews)
- Standardized problem – oriented statistical analyses
- Methodological standards for selected domains of surveys
- Supranational official statistics

Regional statistics
Transborder statistics
Small area statistics

International standard methodology of statistical surveys of specific subjects (relevant to the professional profile of students and/or requirements of statistical agencies).

(c) Obligatory courses of general cycle: English for statisticians.

(d) Electives of general cycle: economics/sociology/demography, organizational behavior, business physiology, etc.

(e) Short probation (ideally – 1-2 weeks in international agency or in foreign statistical agency).

(e) MOS thesis. It is recommended to agree the topics of the theses with statistical agency. The topics should be relevant with the needs of agencies and/or with the duties or responsibilities (actual or planned) of a participant in a statistical agency or other unit.

Full MOS course – 4 semesters (2 years). A short tailored course (2 semesters) can be offered for advanced participants.

CONCLUSION

Currently the MOS program for Russian-speaking statisticians is at an early stage of its development, however, it is supported by the statistical services of the region, which consider the process of MOS education of leading staff as an integral part of the programs of capacity building of official statistical systems and agencies. HSE has necessary experience in statistical training. Program already has international partners who are ready to support it. Thus, despite the relevant problems, MOS program for Russian-speaking statisticians has necessary chances to be established and be successful in providing advanced education. Perhaps these approaches would be interesting for other regions where local international languages are used as professional languages on national level.