

QUESTIONS OF METHODOLOGY

INTERNATIONAL RECOMMENDATIONS FOR THE SYSTEM OF ENVIRONMENTAL-ECONOMIC ACCOUNTING AND CHALLENGES RELATED TO THEIR IMPLEMENTATION IN THE NATIONAL STATISTICS

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The article describes Applications and Extensions to the «System of Environmental-Economic Accounting» (SEEA), which is built on the 2008 SNA for natural resources, environmental management and environmental protection. The author comments on directions and methods for analysis of statistical information which is formed using the SNA/SEEA accounts.

The article covers at length and diligently evaluates suggested in the «SEEA Applications and Extensions» methods of data compilation characterizing the level of resource management as well as the extent of negative impact on the environment and environmental protection on the basis of various modifying indicators of environmental capacity of specific types of resource management. The paper examines proposals for compiling environmental protection accounts as well as rationalization of resource management accounts. The paper also demonstrates ways to form «hybrid» (complex, integrated) input-output tables, combining elements of traditional schemes and innovative components of environmental management statistics.

The author focuses on analytical functions and methodology for deriving environmental intensity and productivity indicators (resource intensity and productivity, material intensity and productivity, energy intensity and productivity, etc.). Furthermore, in general terms are reviewed algorithms for the so-called decoupling analysis and decomposition analysis, along with schematic diagram of macro statistical reflection of operations in the Environmental Goods and Services Sector (EGSS) based on associated accounts; suggested avenues for new research are based on input-output tables. The international recommendations are analyzed according to whether they can be implemented in Russian statistical practice and if there is a need for improvement of specific national forms of statistical reporting.

Lastly the paper presents brief conclusions and proposals on the key problems of development and possible application of some provisions of «SEEA Applications and Extensions» to the national management of natural resource complex, organization of environment protection and resource management.

Keywords: 2008 SNA, System of Environmental-Economic Accounting (SEEA), SEEA Central Framework-2012, SEEA Applications and Extensions, protection of natural environment, resource management, indicators of environmental intensity and productivity, decoupling analysis, decomposition analysis, Environmental Goods and Services Sector (EGSS) and resource management, hybrid input-output tables.

JEL: Q20, Q50, C82, E01.

EVALUATION OF LEADING INDICATORS OF ECONOMIC ACTIVITY IN THE RUSSIAN FEDERATION USING OECD METHODOLOGY*

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The article discusses the relationship between two methods of calculating leading economic indicators, characterizing lines of economic activities on the basis of the balance method and the PMI (Purchasing Management Indexes) method. The paper substantiates mathematical and statistical model for estimating strength of relationship between actual development parameters of the national mining industry and «leading output indicator» in two specified ways. In authors' opinion results of empirical analysis allow for using the PMI method to tackle several differences in the processing data methodology applied by the Federal State Statistics Service in order to present it in international surveys, including those of the Organization for Economic Co-operation and Development (OECD).

Keywords: official statistics, forecasting, leading indicators, balance method, mathematical expectation, correlation model.

JEL: C18, C22, C53.

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ON THE ISSUE OF ASSESSMENT OF SOCIAL PROGRESS AND SUSTAINABLE DEVELOPMENT

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Currently there has been a wide discussion on further interpretation of the GDP as a basic indicator of economic development and the need for considering adding several other indicators specifying its performance capabilities. The experience of analytical studies of socio-economic level of the country shows that traditional macroeconomic indicators cover sustainable development as a whole with an emphasis on a particular aspect failing to characterize the existing situation of sustainable development amidst globalization in an integrated manner, moreover - from the point of view of its effective regulation. To solve this issue reproduction approach needs to be applied.

Growth rate of GDP at the comparable prices less added value in the point of blank turnover of economics, which represents the difference between the factual volume of exploited material resources and minimum of resource-intensiveness of final consuming produce, can be suggested as an alternative criterion of social progress. The received indicator may be called - the rate of effective GDP growth. It is possible to include the growth rate of the effective per capita GDP into the target group of indicators of sustainable development for the period of up to 2030, categorizing them as «gray». It can also be applied in addition to GDP, and included into the category of indicators responsible for measuring the progress in ensuring sustainable development.

Due to the regional specifics of the arid zone with the irrigated agriculture for addressing the problem of appropriate statistical valuation of water usage effectiveness in all sectors it would be reasonable to use the indicators of capital and current expenditures on melioration per irrigated square, including the expenditures on the introduction and exploitation of water-saving irrigation technologies.

Keywords: social progress, indicator of economic development, GDP, globalization, blank turnover of economics, effective GDP.

JEL: B41, F63, O11, R13.

WAGE INEQUALITY IN RUSSIA: REGIONAL AND OCCUPATIONAL ASPECTS*

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The article considers results of the study on wage inequality in Russia, which was based on data from a sample survey of companies by categories of personnel and occupational groups of workers, conducted by Federal State Statistics Service in October 2011 and 2013.

The authors compared wage inequality in Russia and other countries. The wage inequality within regions and occupational groups was analyzed in order to estimate the contributions of regional and occupational wage inequality into the total wage inequality. The authors identified the regions with the highest and lowest rates of intra-regional wage inequality and revealed the occupational groups with the highest and lowest rates of intra-group wage inequality.

Decomposition of the entropy indexes showed the effect of various socio-demographic factors and the factors characterizing the employment of workers on the wage inequality. It was shown that the wage inequality a worker faced within his occupational group on the local labor market is 30-50% less than the total wage inequality in Russia. In the meantime age, gender and type of ownership of the enterprise make a relatively small contribution. Such factors as the type of economic activity of the enterprise, education and employment of the employee group made a more significant contribution. Additionally, the analysis shows that all of these factors explain better the differentiation of the distribution in the lower wages, while in the upper part of distribution series their influence was not so significant.

Finally, the authors proposed solutions to reduce the differentiation of wages in Russia.

Keywords: regional statistics, wage inequality, index method, decomposition, interregional wage inequality, intra-regional wage inequality, wage inequality within professional groups.

JEL: J31.

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MATHEMATICAL AND STATISTICAL MODELING

VERIFICATION OF AN ECONOMETRIC MODEL BASED ON A PRIORI CONSTRAINTS ON THE STRUCTURAL PARAMETERS*

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The article describes a method for verification of a statistical model, which, firstly, is represented by the time series of original data and, secondly, is linear in the estimated parameters. Experience in statistical calculations on real empirical data shows that the most well-known and conventionally used in the econometric modeling of mathematical-statistical methods (least squares, maximum likelihood method, and similar methods) often do not ensure successful verification of theoretically required forms of econometric models. The developed method which is called an alternative method of linear regression (AMLR) provides an account of a priori restrictions on the absolute values and signs of the parameters identified by the model. The AMLR based on the concept of best linear index, is known in the theory of statistics from the end of the 1950s. Mathematically AMLR is based on the method of principal components. The article analyzes conditions for applying the AMLR in econometric modeling and methods of transformation of the initial statistical information to ensure correct application of the developed evaluation procedures.

Special problems of the proposed method are to determine the level of accuracy of approximation of the dependent variable of the model. In this regard, to assess the level of precision of the statistical model verifiable by using the AMLR, was developed an original method of decomposition of the time series on the regular and stochastic components. The author analyzes the properties of the proposed method of decomposition and gave a numerical illustration of its use in econometric calculations.

Keywords: statistical model, time series, best linear index, decomposition of the time series.

JEL: C01, C51.

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EDUCATION AND SCIENCE

RUSSIAN EDUCATION SYSTEM AND HOW IT IS REFLECTED IN STATISTICS

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The authors outline the modern state of Russian education system, demonstrate research possibilities of national statistics on the abovementioned segment of the national economy, and make suggestions on how to improve national statistical observation of education.

The article comments on contemporary purposes of education and basic governing principles (for it as a system) which have originated from international and national legal documents. The paper reviews fundamental principles of modern statistics of education. Specific attention is focused on the analysis of international standards that are directly relevant to the organization of the national education system, assessment of the quality of education. There is a summary of study on Assessment of Adult Competencies.

Questions of resource accounting of education activity in line with the 2008 SNA provisions are evaluated separately along with the issue of supplying the Russian economy with skilled workers. The authors formulate conclusions on the measures to ensure availability of quality education for the general population and meeting current and future needs of the economy and social sphere in the professional staff, and in promotion of science.

Keywords: education system, general education, vocational education, further education, vocational training, system of statistical monitoring of activities of educational institutions, indicators characterizing the activities of educational institutions, forms of federal statistical monitoring of educational institutions work, international statistical standards for statistics of education, development indicators for national education systems to ensure proper conduct of international comparisons, education quality assessment, system of educational standards.

JEL: C81, C82, I21, I23.