

## QUESTIONS OF METHODOLOGY

### **KEY ISSUES OF REFLECTION OF FOREST RESOURCES IN THE SYSTEM OF COMPLEX NATURAL-RESOURCE AND ECONOMIC ACCOUNTING**

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The authors of this article discuss the key issues and approaches to reflection of forest resources in the System of Environmental and Economic Accounting (SEEA), within the framework of the development of a common system of national accounting (SNA) for natural resources and environmental protection. To be more specific, key principles of the international standard - SEEA-2012: Central Framework No- are characterized from the point of view of information and methodological requirements for enabling statistical calculations. Critical analysis is performed; possibilities for using international provisions in the conditions of the Russian Federation are also reviewed, including the formation of the balance of natural resources on the example of forest timber, solving the issue of valuation of relevant resources, integration of the received indicators obtained in the general system of the SNA aggregates, etc.

The article begins with the analysis of the current statistical information on availability, use, restoration and protection of forest resources in our country. The performance of existing indicators is measured in terms of their alignment with the SNA-SEEA requirements and methodology. In addition, an assessment of completeness and quality of statistical data, systematically collected by the statistical and forestry authorities is provided. The complexity and multidimensionality of forest resources and forestry statistics, which must be taken into account when carrying out macro-statistical constructions in accordance with the SNA-SEEA requirements, are mentioned. Major shortcomings in the field of accounting and statistical surveys were also identified.

The centerpiece of the article, as already mentioned, is the issue of the valuation of forest wood, i.e. standing timber, as well as reflection of these valuables in the balance of assets of natural resources. For this purpose, the publication describes the types of this balance and analyzes in detail their specific differences in relation to the timber resources in all main balance aggregates. Particular attention is placed upon identification of harvested (cultivated), naturally grown (non-cultivated) forest resources and forest stands growing under promote natural afforestation (the implementation of specific and targeted forestry activities). In this regard the following statistical characteristics of one of the key parameters that operate within SEEA for all biological assets in general and assets of forest timber in particular are considered in detail: a) depletion; b) degradation of resources.

The article is elaborated upon specific methods of forest timber valuation on the basis of determining the relevant natural resource rents, using primarily the method of the net present value (NPV), along with other techniques and assessment methods (more specifically those, on the basis of the residual value method, appropriation method, access price method). An improved calculation formula based on the NPV method is proposed. The major advantages and disadvantages of each of the proposed methods of calculation are identified.

In this article are formulated the basic questions that need to be answered before the data collection is organized, calculations are carried out, and preliminary observations on them are presented. In the final chapter of the publication are given the concrete proposals for arranging further work that is essential for the quality

assessment of forest resources as an important part of the national wealth and an object of the environmental resource management.

*Keywords:* SNA-SEEA, SEEA basic structure, biological assets, forest timber (standing timber), asset (account) balance, valuation of forest timber, natural resource rent, discount rates, method of the net present value (NPV), appropriation method, forest management and primary accounting for forest resources.

*JEL:* C82, E01, F64, Q50.

## **ON THE SYSTEM OF STATISTICAL INDICATORS FOR THE INTEGRATION ACTIVITIES IN THE RUSSIAN ECONOMICS**

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The authors of this article attempt to consider practical and methodological aspects of the development of the system of statistical indicators for the integration activities, organize the currently available sources of information on mergers and acquisitions in Russia.

In the first part of the publication are presented results of the monitoring the current legislation of the Russian Federation in the field of statistics and creating statistical databases on mergers and acquisitions. It is shown that the absence of a formal executive body in charge of collecting and compiling information on integration activity leads to fragmentation of official statistical information on the integration of Russian companies. Under present circumstances, various international and Russian information and analytical agencies are responsible for collecting and generalization of the data. At the same time, there are distinctions to the information they publish on the Russian market for corporate control, associated with differences in the accounting systems.

In the second part of the article the authors substantiate their position on the system of statistical indicators of the integration activity in Russian economy (at the macro-, meso- and micro-levels). The proposed system of statistical indicators on the status and development of mergers and acquisitions of economic entities covers almost all participants of market relations and comprehensively meets both the requirements of institutions of state regulation and the information needs of the business. Based on the developed system of statistical indicators, it is deemed possible to carry out comprehensive study of major development trends in the integration activity, formation of highquality infrastructure market for corporate control, as well as the development of effective measures for government integration process management policy.

*Keywords:* integration activity, system of statistical indicators, information database on mergers and acquisitions (M&A) of companies (enterprises).

*JEL:* C81, C82, D40, D51.

## **IMPLEMENTATION OF STATISTICAL METHODS IN ANALYSIS**

### **DETERMINING THE CONVERSION FACTOR TO CALCULATE PER CAPITA CONSUMPTION OF FISH AND FISH PRODUCTS BY THE POPULATION OF THE RUSSIAN FEDERATION**

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Methodological approaches to the calculation of conversion factors (coefficients of consumption of raw materials) for fish products in accordance with the FEACN of the CU are determined in order to improve the methodology of official statistical information development related to the calculation of the indicators of per capita consumption level of fish and fish products by population of the Russian Federation.

The high variability of the conversion coefficients due to the type of fishing grounds, the structure of body tissues and the size-weight characteristics, seasons and fishing areas, types of cutting, characteristics of treatment processes, techno-chemical indicators of the finished product. For example, in the production of frozen Pollock fillets with skin and bones the coefficient equals 2.907, while in the production of Pollock fillets - skinless and boneless - coefficient increases up to 4.167. For invertebrates - in the production of frozen lobster coefficient is 1.134, and as for frozen mussels - 14.509.

On the basis of the discriminant analysis and average evaluation of the volume of production conversion factors are grouped by product code, the nature of their distribution in the product groups is identified along with the average and weighted average conversion factors. The database of technological standardization indices is created.

Variability of the resource base, size-weight and techno-chemical characteristics of raw materials, improvement of equipment and production technology, as well as the volatile nature of the range of export, imports and production goods, have an impact on the value of coefficients of raw materials consumption. Multifactor influence of various parameters on average and weighted average conversion coefficients predetermine their monitoring and adjustment frequency along with periodical updates.

*Keywords:* index of per capita consumption of fish and fish products by population, product group of commodities, conversion factors, discriminant analysis.

*JEL:* C10, C19, C46, C83, Q22.

## **APPLIED ASPECTS OF USING MULTIVARIATE STATISTICAL METHODS IN THE ANALYSIS OF MOVEMENT OF MATERIAL AND FINANCIAL RESOURCES**

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The rapid extension in the nomenclature and range of goods in warehouses, terminals, requires the development of methods to carry out a high quality systematization of multiproduct material (and the corresponding financial) flows and grouping multinomenclature stocks. In the meantime insufficient attention is paid to development issues associated with managing financial resource flows along with holding, processing of multiproduct stocks based on modern methods of structuring and classification of information about them, both in theory and practice.

Currently existing methods for dividing material resources into groups («ABC method») are too simple and often enough prevent from taking into account the factor of multidimensionality and flow permanence of both material and financial resources. Division of A, B and C groups, according to the author, is controversial and ill-substantiated. For these purposes it is necessary to use a much more powerful statistical tools based on the implementation of statistical methods of multivariate analysis. In this paper are explored the possibilities for

using such methods to identify individual groups of material and financial resources, and also is offered the technique for grouping the stocks using the proposed approaches, which, as opposed to existing techniques, makes it possible to more reasonably classify resources by groups and as a result to reduce the cost of management and maintenance of stock by supply chains.

*Keywords:* multivariate statistical methods, analysis of variance, cluster analysis, structuring of stocks, material and financial flows.

*JEL:* C38.

## **FACTS, ESTIMATES, FORECASTS**

### **QUANTITY ASSESSMENT OF THE IMPACT FOREIGN ECONOMIC ACTIVITY HAS ON THE DYNAMICS OF INDUSTRIAL PRODUCTION**

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This article discusses the dynamics of industrial production in Russia on the basis of the regression model. On the basis of economic analysis a set of factors influencing the growth rate of industrial production, including those reflecting Russia's foreign trade, was identified. The following indicators were used as independent variables: real disposable income of the population, exports value, fixed capital investments, accounts payable of enterprises, as well as imports of machinery, equipment and vehicles. All indicators were presented in the form of monthly time series of growth rates for 2007-2013.

The selected variables for multicollinearity were analyzed and, since a strong linear relationship of independent variables was identified, in order to evaluate the parameters of the model was chosen the method of ridge regression, which allows estimating the regression parameters under multicollinearity conditions. Next, were considered average private elasticity along with beta and delta coefficients of the regression equation.

The analysis showed that at the present stage of development of the Russian economy the greatest contributor of economic growth is the foreign demand for raw materials. Export dependence on growth of industrial production is a negative factor, because it once again demonstrates that the Russian economy is oriented towards raw materials. In the second place, influence wise, is the investment demand from enterprises that could be a factor of industrial growth, whilst solving the issue of import substitution in the engineering sector of economy.

*Keywords:* industrial growth, econometric model, regression analysis, ridge regression, the factors for industrial growth.

*JEL:* C32, E27.

### **ON THE NECESSITY OF UNIFICATION OF INTERNATIONAL APPROACH TO DETERMINING THE BOUNDARIES OF OFFICIAL STATISTICS AND ADMINISTRATIVE DATA**

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Using administrative data is essential for statistical observations that are carried out by official statistical offices; in order to reduce the respondent burden. This allows it to eliminate duplication of reporting indicators in the future, improving the legislations of the national accounting, interaction between separate government institutions. In recommendations of the international organizations, as well as in documents containing global estimates of national statistical system, application of administrative data is brought to the foreword. At the same time there are differences in recommendations of the international organizations and views of experts. As a result, decisions made based on these recommendations in CIS countries as well as changes made to statutory instruments are differed from each other.

The article presents the results of the research on defying the scope of official statistics and collections of administrative data are analyzed recommendations of global estimates of national statistical systems of some CIS countries as well as changes in statistical legislation, the definitions of UNECE, Eurostat and other international organizations and reviewed. Some examples of Azerbaijan practices related to use of administrative data are given, their relation with official statistics is commented on. Differences of the methodology used for preparation of administrative data, from the official statistics methodology are emphasized, challenges that non-statistical organizations associated with the use of official statistics methodology encounter are shown; questions regarding applying in official statistics the data collected for non-statistical purposes are investigated.

The authors formulate their position that the optimization of the relationship between official statistics and administrative data array is more appropriate on the basis of elaborating the single international approach.

*Keywords:* official statistics, administrative data, national statistical system, legislation, burden on respondent-subject of statistical observation, using administrative data in official statistics.

*JEL:* C40, C80, C81.

### **THE METHODOLOGICAL INNOVATIONS, MAIN RESULTS AND FINDINGS FROM THE 2011 ROUND OF THE INTERNATIONAL COMPARISON PROGRAM\***

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The International Comparison Program (ICP) is a worldwide statistical initiative designed to estimate purchasing power parities (PPPs) that can be used as currency converters to compare the performance of economies around the world. The ICP conducts surveys every six years to collect price and expenditure data for all goods and services that make up the gross domestic product (GDP) in economies worldwide in order to calculate the PPPs. PPPs enable levels of economic activity in different countries to be compared thereby providing in-depth views of the distribution of resources worldwide. The 2011 round of the ICP was leveraged

on the successful outcome of the 2005 round that included 146 economies. The 2011 round introduced various methodological improvements, mainly in linking the regions and aggregating results. The summary report and results from the 2011 round were released in April 2014, followed by more detailed results in June 2014. A comprehensive report was published in September 2014. The April release provided PPPs, price level indices, and real expenditures for the GDP and major aggregates for 199 economies. The final report in September provided a more in-depth analysis of volume and per capita indices. The purpose of this paper is to provide an overview of the major methodological innovations that were implemented in ICP 2011, and the main results and findings of the round.

**Keywords:** International Comparison Program (ICP), Purchasing Power Parities (PPPs), prices, National Accounts.

**JEL:** E01, E31, O57, P52.

## **PAGES OF HISTORY**

### **STAGES OF FORMATION AND DEVELOPMENT OF STATISTICS AS A SCIENCE IN UKRAINE AND THE UNIVERSITY OF KYIV**

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Retrospective journey into the creation of Ukrainian school of statistics is made in this article. As a result of the undertaken study key development stages of statistical science in the University of Kiev are identified, and the formation of Ukrainian school of statistics is divided into periods. Furthermore, in accordance with each stage the contribution of the Ukrainian scholars-statisticians to the development of the statistical methodology and statistical methods is defined.

**Keywords:** St. Vladimir University in Kyiv, Ukrainian school of statistics, history of statistics.