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DEVELOPMENT OF STATE STATISTICS

STATE AND DEVELOPMENT PROSPECTS OF THE SYSTEM OF NATIONAL ACCOUNTS OF RUSSIA

Irina Masakova

Author affiliation: Federal State Statistics Service (Moscow, Russia). E-mail: masakova_id@gks.ru.

After an overall assessment of the extent to which the Russian system of national accounting is in accordance with international standards for the SNA the author discusseы the current state of compilation of the SNA in the Russian Federation, development trends of the Russian SNA, system of classification used in it, introduction to the national practice of the 2008 SNA provisions, revision of series of macroeconomic indicators. The article also pays attention to regulatory and legal documents and plans needed to produce the SNA.

It is noted that the following SNA accounts are compiled annually: the goods and services account, the production account, the generation of income account, the primary and secondary distribution of income accounts, the use of disposable income account, the use of adjusted disposable income account and the capital account. Consolidated production accounts and generation of income accounts are built by economic activities and are published at the OKVED subdivisions. From the accounts recommended to be built within the SNA are not yet compiled on a regular basis: the financial account, the other changes in assets and liabilities account, the revaluation account, the balance sheet.

Among the purposes for further developing the national accounting the author identifies: completing the implementation in practice the compilation of the national accounts in accordance with the previous UN standard - 1993 SNA (development of the financial account, compiling a balance of assets and liabilities, estimating the value of accommodation services provided by owner-occupied dwellings in line with international recommendations, implementing quarterly accounts and further integration of the «input-output» tables in the main building block of the System of National Accounts). Separately the article considers the development issues of the national classifications used in the SNA, priority of fundamentally new provisions of the 2008 SNA in the national accounting, as well as describes the plans to review retrospective time series on the major macroeconomic indicators.

Keywords: Federal State Statistics Service (Rosstat), international statistical standards, 1993 SNA, 2008 SNA, SNA of the Russia, implementation of the 2008 SNA in the national statistical practice, international classifications, Russian classifiers, input-output tables, quarterly accounts.

JEL: C67, C82, E01, F60, H11.

MATHEMATICAL AND STATISTICAL METHODS AND ANALYSIS METHODOLOGY

METHODS FOR RESTORING THE PER-CAPITA INCOME DISTRIBUTION IN LARGE SAMPLES TO GENERALIZED POPULATION LEVELS*

Vladislav Zharomskiy

Author affiliation: National Research University - Higher School of Economics (Moscow, Russia). E-mail: zharomskyvs@gmail.com.

Alexey Rudberg

Author affiliation: National Research University - Higher School of Economics (Moscow, Russia). E-mail: arudberg@hse.ru.

Sergey Ter-Akopov

Author affiliation: National Research University - Higher School of Economics (Moscow, Russia). E-mail: sterakopov@hse.ru.

This paper provides an analysis of popular methods for correcting sample distribution of income per-capita and proposes a methodology for evaluating the parameters of a lognormal income distribution, taking into account unequal response rates between individuals with different income levels, income deciles - a result of survey design and the survey non-response rate. The authors propose the fitting of a lognormal distribution on the basis of comparing mean and boundary income levels for defined population intervals between the sample and general distribution, instead of the more common approach of frequency analysis between the two. The mean income value of a given interval, with enough observations, is less volatile than the individual frequencies on the interval. This is especially important in situations where individual frequencies in the sample distribution significantly differ from the population distribution itself.

The authors examine two different criteria for estimating the optimal lognormal distribution parameters. The first method is similar to the methodology used in Russian statistics, and does not require preliminary information on the share of the poor population. The parameters are estimated using the condition of equality between the sample and population mean income, and the right-income boundary of the first income deciles. The second criterion is based on minimizing the squared sum of deviations between the mean income levels for the middle eight income deciles of the sample and population mean values. Neither of the two criteria uses the hypothesis of non-response rates increasing with households' income growth, which allows one to assess the representative-value of the sample survey.

The results of the calculations show that the method achieves the highest parity between sample and population distributions in the middle-part of the lognormal distribution, but suffers from underrepresentation in the lower part of the distribution, i.e. for poor households and individuals.

Keywords: lognormal distribution, parameter estimation, sample survey, non-response rate, mean income, general equilibrium, income deciles.

JEL: C83, D31.

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A BAYESIAN METHOD FOR CONSTRUCTING INPUT-OUTPUT TABLES

Oleg Lugovoy

Author affiliation: The Russian Presidential Academy of National Economy and Public Administration (Moscow, Russia). E-mail: olugovoy@gmail.com.

Andrey Polbin

Author affiliation: The Russian Presidential Academy of National Economy and Public Administration (Moscow, Russia). E-mail: apolbin@gmail.com.

Vladimir Potashnikov

Author affiliation: The Russian Presidential Academy of National Economy and Public Administration (Moscow, Russia). E-mail: potashnikov.vu@gmail.com.

Methods of updating, balancing, disaggregation of Input-Output Tables (IOT) are widely used in applied economic and statistical research (for example, for the calibration of computable general equilibrium models), as well as by statistical services for compilation of IOTs. As compared to the well-known popular methods (RAS, cross-entropy minimization, and their analogs), which provide point estimates of unknown tables, the proposed approach targets estimation of joint probability distribution of input-output (IO) coefficients. With this goal we develop a probabilistic model of joint distribution of the IO coefficients as a likelihood function of observed information (for example, output, value added, intermediate demand). This information from newly

arrived data is being mixed with prior information of IO parameters (for example, known IOTs from former years) by Bayes rule.

The resulting posterior joint distribution can be estimated using Markov chain Monte Carlo (MCMC) sampling methods. The sample of IOTs from the targeted distribution is a set of IO matrices consistent with the observed data, constrains, and also near to the prior information. In contrary to the point estimates, the stochastic IOTs naturally incorporate uncertain information of each estimated IO parameter, taking into account all the multivariate correlation between the cells. The proposed methodology can be applied to updating, interpolation, disaggregation, and balancing of IOTs, and more widely - national accounts. We test the methodology with experimental updating of IO table for the Russian economy for 2003 year, based on tables from 1998 to 2002 years.

The results suggest adequacy and computational accessibility of the proposed methodology.

Keywords: balancing, Input-Output Tables, Bayesian method.
JEL: C11, C6, C8.

STATISTICAL STUDY OF CONSUMER DEMAND

SHAPING THE MARKET CONSUMER DEMAND AND ANALYTICAL INDICES OF DEMAND

Vladimir Gorbunov

Author affiliation: Ulyanovsk State University (Ulyanovsk, Russia). E-mail: vkgorbunov@mail.ru.

Lyubov Kozlova

Author affiliation: Ulyanovsk State University (Ulyanovsk, Russia). E-mail: love792003@mail.ru.

The paper describes the essence of crisis state of the neoclassical theory of consumer demand and a way to overcome the crisis based on the concept of statistical «assembly» of consumers as an origin of the theory of aggregate market demand.

Market demand is modeled via utility maximization problem elaborated in frame of the neoclassical paradigm for an individual consumer. The nonparametric demand analysis is used for testing the adequacy of such a model to the trade statistics. Analytical index numbers of consumers' demand and their variants, invariant and quasi-invariant indices, are presented. The use of nonparametric demand analysis is based on real trade statistics of food products in the Russian Federation, and the quasi-invariant indices are constructed.

Keywords: market demand, nonparametric demand analysis, Afriat inequalities, invariant and quasi-invariant indices.
JEL: B41, C02, C43.

STATISTICAL ANALYSIS OF CONSUMER PREFERENCES IN ELECTRONIC COMMERCE

Olga Nikitina

Author affiliation: National Research University Higher School of Economics (Moscow, Russia).
E-mail: o.nikitina@rospravo.ru.

This article addresses the issues concerning statistical analysis of consumer preferences in e-commerce (on the example of the hotel industry). The author conducted multiple regression analysis to assess the impact of various factors on consumer choice and the internet-sales in the industry. Using value-based marketing approach the article proposes the method for calculating the index of perceived customer value (value maps) in e-commerce. The data array used in an article for the statistical analysis composes of about 1.5 million

observations (customer feedback on the quality of hotel services in 13 most popular cities for tourism by Euromonitor International ranking).

The most crucial result of studying consumer preferences in e-commerce (on the example of hotel market) appears to confirm the hypothesis that the availability of other customers' evaluations using information technology allows users to more accurately predict the value of these services for themselves rather than by focusing on the other quality signals, such as hotel's star rating and brand (being part of a hotel chain). Therefore, making hotel reservations through the online system will lead to greater customer satisfaction

compared with other channels for selling hotel services.

Keywords: consumer preferences, perceived customer value, methods of product quality measurement, statistical analysis of large data arrays, electronic commerce (e-commerce), online tourism.

JEL: C35, D46, L83, M31.

FACTS, ESTIMATES, FORECASTS

BUSINESS TRENDS IN SMALL BUSINESS IN RUSSIA

Georgy Ostapkovich

Author affiliation: National Research University Higher School of Economics (Moscow, Russia).
E-mail: gostapkovich@hse.ru.

Ludmila Kitrar

Author affiliation: National Research University Higher School of Economics (Moscow, Russia).
E-mail: lkitrar@gmail.com.

Inna Lola

Author affiliation: National Research University Higher School of Economics (Moscow, Russia).
E-mail: ilola@hse.ru.

Strategic objectives of the State policy, mentioned in various development programmes, clearly state small business as a tool for fine tuning the competitiveness of economic agents on the internal and external markets, and also as one of the main sources of economical growth in the short term. In this article the study of business climate in small businesses of real economy sector in Russia is presented through a variety of short-term indicators. Results of the pilot survey of business activity undertaken in nearly 3 thousand of small business entities from 30 regions of Russian Federation, covering spheres of industry, construction and retail trade served as a database for current study (pilot survey was undertaken by the Information and Publishing Center «Statistics of Russia» in October 2014).

Current Russian statistical practice mainly uses quantitative evaluation methods in small business studies. The major part of expert activity is occupied by marketing and sociological approaches of studying entrepreneurship. At the same time, application of the information support, based on not quantitative statistical data, can significantly increase and expand the importance of analytical opportunities of expeditious economic monitoring of branch processes. Comprehensive study of a financial and economic situation in the specified branches fills the existing gap in information on the researches based on conjuncture surveys.

Keywords: small business, business climate, conjuncture, business confidence index, industry, construction, retail trade.

JEL: C81, M21.

A SURVEY ON POPULATION EMPLOYMENT IN THE SECTOR OF INDIVIDUAL ENTREPRENEURS AT THE MUNICIPAL LEVEL

Tatyana Sharshova

Author affiliation: Rosstat Territorial Statistical Office for Republic of Khakassia (Abakan, Russia).
E-mail: SharshovaTV@gks.ru.

The article sums up the analysis of the key performance indicators for individual entrepreneurs based on the continuous monitoring which helps to determine the development of this category of business entities at the municipal level. The author stated the problem of systematic updating of information on the relevant sector of economy from the perspective of towns and districts in the Republic.

To obtain the information on the number of employed in the business sector (by municipal entities) apart from continuous monitoring was used the specific sample survey which made it possible to account for the part of population that is involved in small business activities as employees, partners, and assisting family members.

In the author's opinion the proposed ways for improving statistical monitoring (conducted with a focus on the municipal territory) allow for a more accurate assessment of the current economic and social situation in each region, enable timely forecast calculations (without having to wait for the results of the full-scale observation of small business).

Keywords: individual entrepreneurs, small business, continuous monitoring, municipal entities, economically active population, employment, unemployment.

JEL: C80, E24, J01, M21.

INTERNATIONAL STATISTICS

SNA 2008 IMPLEMENTATION ISSUES IN THE CAPITALISATION OF RESEARCH AND DEVELOPMENT

(in English)

Robin Lynch

Author affiliation: private consultant (United Kingdom). E-mail: robin.lynchltd@ntlworld.com.

Guidance for Member States in the European Union on the implementation of the capitalisation of Research and Development (R&D) in Europe has been released in the form of a manual (EUROSTAT, 2014). Preparation of this manual has raised issues on both concepts and measurement. This paper considers these issues and how the manual deals with them.

The paper also considers the main recommendations of the Handbook on Deriving Capital Measures of Intellectual Property Products (OECD, 2010), and comments on them in the light of the discussion in preparation of the EUROSTAT manual.

Finally, the paper discusses the SNA 2008 model for the creation and use of R&D intangible assets, and proposes an alternative model which does not increase the level of GDP from previous standards.

Keywords: intangible assets, research and development, intellectual property products, national accounts.

JEL: E01.