STATISTICS IN TRANSITION new series, Spring 2014
Vol. 15, No. 2, pp. 175–178

FROM THE EDITOR

At the outset of this issue, I would like to turn attention of the reader to the important change in the composition of the Editorial Board of the *Statistics in Transition new series*. First, let me take this opportunity to thank those who are stepping down after serving on the Editorial Board for the past seven years for all their help, inspiration and encouragement which I personally and other members of the Editorial Office have been obtaining from them over that period. And to express my, as well as of **Prof. Janusz Witkowski,** the President of the Central Statistical Office of Poland and of **Prof. Czeslaw Domanski**, the President of the Polish Statistical Association, gratefulness for their hitherto contributions and for readiness to continue to collaborate with us in a slightly different function, as members of the Associate Editors, to: **Prof. Prof. Walenty Ostasiewicz, Tomasz Panek, Jan Paradysz, Miroslaw Szreder,** and **Mr. Wladyslaw W. Lagodzinski.**

At the same time, I would like to welcome new members of the Board who were invited to serve in this function, starting with this issue. Given a vital role the body plays for the overall quality of the journal, and for its image and prestige, I would like to express - also on behalf of **Prof. Janusz Witkowski** and of **Prof. Czeslaw Domanski**, who are jointly co-chairing the new Board - our sincere appreciation for accepting this invitation to Prof. Prof.: **Sir Anthony B. Atkinson, Graham Kalton, Malay Ghosh, Miroslaw Krzysko,** and **Janusz L. Wywial**. We all look forward to keeping the journal on the ambitious track of its growing significance and usability for the community of statisticians, producers and users of statistics, worldwide.

Another thing the importance of which I would like to stress here is the announced earlier intention to prepare one of the future issues of the journal - actually, the first issue of the next year (i.e. Winter 2015) - as a thematic collection of papers devoted to subjective well-being as an object of survey research in both national and international contexts. With the invaluable aid of **Graham Kalton**, who has kindly agreed to act as a Guest (co)Editor of the planned issue, and helps us with the challenging task of arranging for such a collection of papers, we hope to be able to complete the needed input by the end of this year - see the ***Call for Papers*** below.

Along the line of our efforts to have the *Statistics in Transition new series* covered by monitoring systems of international indexation bases, we are pleased to inform our partners and collaborators that (in addition to the systems which are already monitoring our journal) currently the *SiTns* is under consideration for

being included in the system of Central and Eastern European Online Library (CEEOL).

As regards the contents of this issue, there are three articles devoted to *sampling methods and estimation*, one *research* paper and six articles based on papers presented at the conference *Multivariate Statistical Analysis* held in Lodz last year 2013. They are briefly characterized below.

Adulhakeem A. H. Eideh's paper ***On the Use of Sampling Weights and Sample Distribution When Estimating Regression Models Under Informative Sampling*** shows that the use of sampling weights when estimating regression models with survey data and the use of sample distribution in fitting regression models with survey data proposed in the literature are coincide methods, dealing with essentially the same statistical problem. Discussion of these two methods leads to conclusion that only difference between them lays in estimating the informativeness parameter (γ_2). Author hopes that his investigation will contribute to further theoretical and empirical research in these areas.

Kumari Priyanka and **Richa Mittal** discuss the problem of estimation of population median at current occasion in two-occasion successive sampling in ***Effective Rotation Patterns for Median Estimation in Successive Sampling***. They propose best linear unbiased estimators by utilizing additional auxiliary information, readily available on both the occasions. Asymptotic variances of the proposed estimators are derived and the optimum replacement policies are discussed. The behaviours of the proposed estimators are analyzed on the basis of data from natural populations. Simulation studies have been carried out to measure the precision of the proposed estimators. Authors believe that the proposed estimators may be useful for survey practitioners.

G. N. Singh and **D. Majhi** also use the information on two-auxiliary variables in order to propose in the paper on ***Some Chain-type Exponential Estimators of Population Mean in Two-Phase Sampling*** three different exponential chain-type estimators of population mean of study variable in two-phase (double) sampling. Properties of the proposed estimators have been studied and their performances are examined with respect to several well known chain-type estimators. Empirical studies are carried out to support the theoretical results. The proposed estimators show to be preferable over alternative estimators for the population which satisfies some conditions (derived in the text); therefore, they may be recommended for their practical applications.

Tomasz Gorecki, Miroslaw Krzysko, Lukasz Waszak, Waldemar Wolynski discuss some ***Methods of Reducing Dimension for Functional Data.*** They start with classical data analysis with objects being characterized by many features observed at one point of time and typically presented graphically in order to see their configuration, eliminate outlying observations, observe relationships between them, or to classify them. Authors propose a new method of constructing principal components for multivariate functional data, and illustrate its application

for data from environmental studies. Their research has shown that the use of a multivariate functional principal components analysis leads to desired results, though the performance of the algorithm needs to be further evaluated on both real and artificial data sets.

The series of articles based on aforementioned conference papers is opened by **Lukasz Feldman's, Radoslaw Pietrzyk's** and **Pawel Rokita's** article ***Multiobjective Optimization of Financing Household Goals with Multiple Investment Programs.*** They propose a technique of facilitating life-long financial planning for a household by finding the optimal match between systematic investment products and multiple financial goals of different realization terms and magnitudes. As this is a multi-criteria optimization, they consider several objectives, such as (i) compliance between the expected term structure of cumulated net cash flow throughout the life cycle of the household with its life-length risk aversion and bequest motive; (ii) financial liquidity in all periods under expected values of all stochastic factors; (iii) minimization of net cash flow volatility; and (iv) minimization of costs of the investment plan combination. The result is a set of systematic-investment programs with accompanying information which programs are destined to cover particular financial goal. As a result, an optimization procedure is proposed based on an original goal function (adjusted to the proposed household financial plan model).

Alina Jedrzejczak employs the Gini index decomposition procedures to analyze ***Income Inequality and Income Stratification in Poland***. Starting with an overview of several methods of decomposing Gini, selected approaches to the analysis of income distribution were used to show the extent to which the inequality in different subpopulations contributes to the overall income inequality in Poland. And to what extent members of the subpopulation groups (of households) form distinct segments or strata. Particular use was made of the Dagum procedure of Gini decomposition since it is based on the concept of economic distance between distributions and relative economic affluence and accounts for different variances and asymmetries of income distributions in subpopulations, and gives an important contribution to the understanding of the overlapping term. Also decomposition proposed by Yitzhaki and Lerman is discussed as it encompasses the stratification problem due to linking social stratification with inequality. The households were divided by economic regions using the Eurostat classification units NUTS 1 as well as by family type defined by the number of children.

Grazyna Trzpiot's paper ***Application of Coherent Distortion Risk Measures*** is devoted to solving the problem of portfolio selection. It presents an extension of the well-known optimization framework for Conditional Value-at-Risk (CVaR)-based portfolio selection problems to optimization over a more general class of risk measure known as the class of Coherent Distortion Risk Measure (CDRM). CDRM class of risk measures is the intersection of Coherent Risk Measure (CRM) and Distortion Risk Measure (DRM). CDRM includes many

well-known risk measures. In conclusion, the use of the discussed procedure to the development of a CDRM-based portfolio optimization framework is being offered.

In the next paper, ***Selected Tests Comparing the Accuracy of Inflation Rate Forecasts Constructed by Different Methods*** by **Agnieszka Przybylska-Mazur,** the problem of forecasts of macroeconomic variables - including the forecasts of inflation rate - is discussed in the context of projection of future situation in the economy. Knowledge of effective forecasts allows making optimal business, financial and investment decisions. Author applies selected tests to the evaluation of the accuracy of inflation rate forecasts determined by different methods. A general conclusion after employing different procedures to the problem of projection states that the differences in values result from the change in the assumptions about the projections in the different reports.

Malgorzata Markowska, Marek Sobolewski, Andrzej Sokolowski, Danuta Strahl present ***Tests for Connection Between Clustering of Polish Counties and Province Structure*** based on Sokolowski et. al. idea of statistical tests which allow to check the influence of geographical or administrative units of upper level onto clustering results of lower level units. They use so called "active border" notion for the borders between counties and also between provinces. The number and length of active boarders are used in the proposed test statistics, the distribution of which depends on the actual geographic division of a given country. Table for test critical values and the approximation functions are provided. According to the authors, the proposed test can be useful in testing the relations between administrative levels in Poland with respect to economic as well as to public administration and quality of life phenomena.

Bronislaw Ceranka's and **Malgorzata Graczyk's** paper ***On Certain A-Optimal Biased Spring Balance Weighing Designs*** is focused on the estimation of unknown measurements of p objects in the experiment conducted in accordance with the model of the spring balance weighing design. The weighing design is called biased if the first column of the design matrix has elements equal to one only. The A-optimal design is a design in which the trace of the inverse of information matrix is minimal. The main result is the broadening of the class of experimental designs so that we are able to determine the regular A-optimal design. Authors provide the lowest bound of the covariance matrix of errors and they give new construction methods of the regular A-optimal spring balance weighing design based on the incidence matrices of the balanced incomplete block designs. An example illustrates the procedure at work.

The issue is concluded with information on the conference on ***Coherence Policy and the Development of Cross-border Areas Along the European Union's External Border*** (27-28 June 2014, Krasiczyn-Arlamow, Poland)

Wlodzimierz Okrasa

Editor