FROM THE EDITOR

With this issue, the *Statistics in Transition new series* enters 25th anniversary of serving its mission as its first edition appeared in 1993 under the title *Statistics in Transition*. Although it took more than a decade the journal has developed to a widely acknowledged quarterly and its current version was formed about ten years ago under slightly extended title ('new series' was added for strictly formal reason during its repeated registration). The main goals of its initially defined mission remain firm and unchanged: to facilitate exchange of ideas and information amongst statisticians while contributing to building community of professionals, scholars and practitioners, world-wide. Since it happens that 25th anniversary of the *Statistics in Transition new series* takes place together with the 100th Anniversary of Statistics Poland being celebrated by the 2nd Congress of Polish Statistics to be held on July 10-12 in Warsaw, we are happy to announce that a special session will be organized during the congress to commemorate also this important moment in the journal development – read it below.

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This issue is composed of XX articles distributed over the three sections, starting with Sampling Methods and Estimation, followed by Research Articles and Research Communicates.

In the paper entitled ***A Bayesian Inference of Multiple Structural Breaks in Mean and Error Variance in Panel AR (1) Model***, **Varun Agiwal, Jitendra Kumar,** and **Dahud Kehinde Shangodoyin** explore the effect of multiple structural breaks to estimate the parameters and test the unit root hypothesis in panel data time series model using Bayesian perspective. In particular, they obtain Bayes estimates for different loss functions using conditional posterior distribution, which is approximately explained by Gibbs sampling. For hypothesis testing, posterior odds ratio is calculated and solved via Monte Carlo Integration. The proposed methodology is illustrated with numerical examples. According to the authors, this model may be extended to panel AR (p) model with similar types of breaks as well as to VAR model.

In the next paper, ***Improved Rotation Patterns Using Two Auxiliary Variables in Successive Sampling***, **Jaishree Prabha Karna** and **Dilip Chandra Nath** discuss the role of two auxiliary variables on both the occasions to improve the precision of estimates at the current (second) occasion in two-occasion successive sampling. They use information on two auxiliary variables, which are positively correlated with the study variable, employing the exponential type structures and suggesting an efficient estimation procedure of population mean on the current (second) occasion. The proposed estimator has been compared with the sample mean estimator, when there is no matching from the previous occasion and natural successive sampling estimator. An optimal replacement strategy is also discussed along with justification of the use of the proposed sampling scheme. The conclusions are supported by results for real life data.

Seppo Laaksonen's and **Auli Hämäläinen's** paper on *Joint Response Propensity and Calibration Method* examines the chain of weights, beginning with the basic sampling weights for the respondents and converted next to reweights to reduce the bias due to missing quantities. In the case of availability of micro auxiliary variables for a gross sample, the authors suggest taking advantage of the response propensity weights, followed by the calibrated weights with macro (aggregate) auxiliary variables. They examined the calibration methodology that starts from the basic weights as well, employing simulated data for comparison. Eight indicators were examined and estimated leading to the main conclusion that the response propensity weights are the best starting weights for calibration.

The *Research Articles* section starts with the article by **Lahsen Bouchahed** and **Halim Zeghdoudi,** *A New and Unified Approach in Generalizing the Lindley's Distribution with Applications.* The authors propose a new family of continuous distributions with one extra shape parameter called the generalized Zeghdoudi distributions (GZD). They investigate the shapes of the density and hazard rate function, along with derivation of explicit expressions for some of its mathematical quantities. Various statistical properties like stochastic ordering, moment method, maximum likelihood estimation, entropies and limiting distribution of extreme order statistics are described. The results of the comparisons confirm the goodness of fit of GZ distribution.

Mirosław Krzyśko, Wojciech Łukaszonek and **Waldemar Wołyński** in the paper *Canonical Correlation Analysis in the Case of Multivariate Repeated Measures Data* present canonical variables applicable in the case of multivariate repeated measures data under the assumptions of (i) multivariate normality for the vector of observations and (ii) Kronecker product structure of the positive definite covariance matrix. These variables are especially useful when the number of observations is not large enough to estimate the covariance matrix, and thus the traditional canonical variables fail. Computational procedures for maximum likelihood estimates of required parameters are also provided.

Nicholas T. Longford's paper *Searching for Causes of Necrotising Enterocolitis. An Application of Propensity Matching* presents results of evaluation of the effect of changing the feeding regimen of infants in their first 14 postnatal days by analysing the data from the UK National Neonatal Research Database. The authors emphasize that they avoid some problems with drawing causal inferences from observational data by reducing the analysis to the infants who spent the first 14 postnatal days (or longer) in neonatal care and for whom NEC (necrotising enterocolitis, a disease of the gastrointestinal tract afflicting preterm-born infants) was not suspected in this period. Such limitation makes it possible to use summaries of the feeding regimen in this period as background variables in a potential outcomes framework. They emphasize the advantage of using a large size cohort and the usefulness of results for informing the design of a randomised clinical trial for preventing NEC, and the choice of its active treatment(s) in particular.

In the next article, Estimates of Trade Dependence of Ukraine: *Indicators of International Trade Orientation of Ukraine in the Context of Assessment Of The Effectiveness of its Export Relations,* **Nataliia Reznikova, Oleksandr Osaulenko** and **Volodymyr Panchenko** present the approach to analysing trade

relations between countries – especially trade dependence of Ukraine – by exploring economic vulnerability, economic sensitivity, symmetry and asymmetry of the established economic links. The estimated interdependence ratios for Ukraine and its largest trade partners – the EU, the Russian Federation, post-Soviet countries, China, the USA, Brazil and India – are compared with the respective ratios of Ukraine's dependence on these countries' markets. The analysed dynamics of Ukraine's GDP dependence on Ukraine's trade partners shows a growing relative weight of the countries that have not had a substantial role in the foreign trade of Ukraine. The proposed approach for estimating the quality of the established trade relations is supposed to contribute to transformation of Ukraine's foreign trade. The authors conclude that that the decreasing interdependence of partner countries, in parallel with establishing more diversified trade relations and/or reorientation to production of alternative goods/services with the respective growth in exports can be interpreted as a sign of economic development of a country.

In the paper ***Power Ishita distribution and its application to model lifetime data*** by **Kamlesh Kumar Shukla** and **Rama Shanker** the two-parameter power Ishita distribution (PID) is described and its important statistical properties – including shapes of the density, moments, skewness and kurtosis measures, hazard rate function, and stochastic ordering -are characterized, along with discussion of the maximum likelihood estimation of its parameters. An application of the distribution has been explained with a real lifetime data from engineering, and its goodness of fit shows better fit over two-parameter power Akash distribution (PAD), two-parameter power Lindley distribution (PLD) and one-parameter Ishita, Akash, Lindley and exponential distributions.

In the last section, Research Communicates and Letters, there are two papers related to different kinds of issues. In the first, **Jan Kordos** discusses ***Some results from the 2013 International Year of Statistics.*** Focusing on educational and other types of benefits brought about by the different conferences and workshops conducted occasionally to celebrate the International Year of Statistics, the author shares his observations on several challenges and problems involved in the development of statistics – as a science and as a field of experts' activities – taking the Workshop on the Future of Statistics as an example.

Shakti Prasad's article, ***Some product exponential methods of imputation in sample surveys,*** a product exponential method of imputation is presented together with discussion of a corresponding resultant point estimator proposed for estimating the population mean in sample surveys. The expression of bias and the mean square error of the suggested estimator has also been derived up to the first order of large sample approximations. The simulation studies show that the suggested estimator is the most efficient estimator.

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Editor