International Conference
Applications of Mathematics and Statistics in Economics (AMSE 2019)

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As usually, at the turn of August and September, from 28th August to 1st September 2019, already the 22nd international conference called *Applications of Mathematics and Statistics in Economics* took place. This year, the conference was organized by the Faculty of Economics of Matej Bel University in Banská Bystrica. As it is usual with Slovak organisers, the venue was in Slovak mountains, this time in *Nižná* in a picturesque foothills of the *Roháče* mountains. Over 60 experts from the Czech Republic, Slovakia, Poland, Austria, and the United Kingdom of Great Britain and Northern Ireland representing the University of Economics in Prague, Matej Bel University in Banská Bystrica, Wroclaw University of Economics, University of Economics in Bratislava, Vienna University of Economics and Business, Aston University in Birmingham, Comenius University in Bratislava, the Czech Statistical Office, and the Statistical Office of the Slovak Republic participated in the conference.

It is characteristic for the international conference that knowledge and experience are exchanged, the latest results of research are presented, and new procedures and methods are discussed there. Working meetings of representatives of cooperating workplaces and planning of further heading of scientific and pedagogical cooperation form an integral part of the conference. This year, the traditional meeting was supported by the auspices of presidents of the Czech Statistical Office and the Statistical Office of the Slovak Republic and by the participation of top representatives of both the offices.

It is because the conference was held in the year, in which we commemorate 100 years of Czechoslovak statistics; i.e. 100 years ago, the State Statistical Office in Prague was established. This anniversary, as well as the present and the future of the official statistics was reminded by representatives of both the statistical offices in their invited papers – Mr Marek Rojíček, President of the Czech Statistical Office, and Mr František Bernadič, Vice President of the Statistical Office of the Slovak Republic. Their papers provoked a rich discussion and interest of not only Czech and Slovak, but especially of foreign participants.

Among other important participants of the conference, who presented invited papers, were: Mikuláš Luptáčik, from the University of Economics and Business in Vienna, who in his paper *Efficiency vs. equity as a multi-objective optimisation problem* presented a new multiple criteria decision making model coupled with an extended Leontief input-output model taking into account the social dimension and obtain deeper insights into the so-called efficiency-equity trade-off, and Emmanuel Thanassoulis,

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from the Aston University in Birmingham, who in his paper called *The use of data envelopment analysis in regulation* showed how DEA has been integrated into regulatory systems and how the extension of DEA can improve the incentives aspect of regulation.

Other meetings of the conference took place in 9 sections as follows: Macroeconomic issues I, II, III, Social issues I, II, III, Multivariate statistical methods, Application in Insurance, and History of statistics. It is very difficult to highlight the most interesting papers. Therefore, I would like to underline only some papers of postgraduates and post-docs, which I consider to be of good quality, interesting, and innovative in terms of their methodology.

In the *Macroeconomic issues I* section, the most attractive was a paper called *How to value equity in National Accounts*, in which the authors (Kramulová, J., Vincenc, J., and Houžvičková, H.) presented possible methods of equity valuation with the aim to emphasize its relationship to revaluation of non-financial assets made in national accounts under the ESA 2010 manual. The paper highlights the worldwide initiative of the Czech Statistical Office in the field of equity valuation that results in the proposal of a new methodology of equity valuation, with an effort to stir up a debate about this topic. Their new methodology will undoubtedly be an inspiration also for other Member States of the EU.

In the *Macroeconomic issues II* section, papers based on utilization of an input-output analysis and DEA method were dominating. An exception to that was a paper of Gawthorpe, K. and Šafr, K., who in their paper called *Maintaining the well-being of ageing population in Czechia* presented government expenditures necessary to keep the current well-being unaltered to the dynamics of demographic prognosis. Their model is disaggregated with the so-called bottom-up approach to capture the nuanced differences among three selected ageing cohorts.

A practical application of multi-dimensional statistical methods (in the *Multivariate statistical methods* section) was presented by Stachová, M. and Král, P. in their paper called *Panel data clustering in financial distress prediction*. The goal of the paper has been to identify typical patterns in trajectories of financial indicators over time that could determine, via cluster analysis, whether a company tends to be in financial distress, or not, and also possibly the severity of this state.

In the *Applications in Insurance* section, what was undoubtedly interesting was the paper called *Equity release contracts with varying payments* (by the author: Marciuk, A.). The aim of her paper was to analyse varying payments of equity release contracts that have been in offer to clients in Poland for several years. Calculations were made on the basis of real Polish market data. Since the Solvency II directive requires the spot interest rate of the European Central Bank, the Svensson model was employed.

In the *Social issues III* section, the authors Čabla, A. and Habarta, F. in their theoretical paper called *Distribution of the wealth of the richest persons in the world* explored the probability distribution of wealth of the richest persons in the world based on estimates from the CEOWORLD magazine's rich list for March 2019.

A traditional section dealing with the *History of statistics* had a clearly determined topic this year, which was the 100th anniversary of establishment of the State Statistical Office in Prague. The paper called *Origin of the state statistical service in Czecho-Slovakia* (by the authors Závodský, P. and Šimpach, O.) was very interesting and it suitably completed the professional meeting of the conference the subtitle of which was namely to commemorate 100 years of the Czechoslovak official statistics.

A full programme of the AMSE 2019, including full texts of all presented papers can be found at: <http://www.amse-conference.eu>. There you can find also information about the history of the AMSE and links to preceding AMSE international conferences.

Papers presented at the AMSE 2019 conference are published in the book of proceedings that has been send to Thomson Reuters to be considered for inclusion into the Conference Proceedings Citation Index (CPCI). The proceedings of the past five AMSE conferences (i.e. AMSE 2014, 2015, 2016, 2017, and 2018) have been successfully indexed and are available in the Web of Science database.

The tradition of alternating organisation (Slovakia – Poland – the Czech Republic) further continues and the 23rd AMSE conference (to be organized by colleagues from the department of statistics of the Wroclaw University of Economics) will take place in *Wisla* in Poland at the turn of August and September 2020.