

24th International Conference *Applications of Mathematics and Statistics in Economics (AMSE 2022)*

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On 31 August to 4 September 2022 the 24th international conference *Applications of Mathematics and Statistics in Economy* took place in a beautiful landscape of the Jeseníky Mountains, in Velké Losiny town. This year's conference was organized by the Department of Statistics and Probability and Economic Statistics of the Faculty of Informatics and Statistics, Prague University of Economics and Business. The conference was attended by over 40 experts from the Czech Republic, Slovakia and Poland representing the Prague University of Economics and Business, Matej Bel University in Banská Bystrica, Wrocław University of Economics and Business, University of Pardubice, University of Chemistry and Technology in Prague and the Czech Statistical Office.

The characteristic feature of this traditional trilateral conference is an exchange of knowledge and expertise, presentation of the latest results of the research and discussion about the new procedures and methods. This conference traditionally includes workshops of representatives of co-operating institutions as well as planning of the future trends of scientific and pedagogic co-operation. After the break caused by Covid pandemic when in 2020 the conference was cancelled and in 2021 was held as an on-line one-day event, this year's meeting was even more enjoyable and not only for regular conference participants but also for post graduate students having chance to meet their colleagues from co-operating institutions.

The programme of the conference was opened by the President of the Czech Statistical Office, Marek Rojíček, by his speech called *Official statistics between past and future*, where he summarized the principal tasks which the modern state statistics faces at present, i.e. how to react to changing needs of users, to new data sources while preserving the quality of the information provided. There is a permanently increasing demand to statistical recording of the phenomena such as social welfare, environmental indicators, financial transactions, global value chains, etc. In addition, appearing are new and rich data sources processed by retailers or telecommunication operators (Big data), which can be used by the state statistics. And, finally, it is absolutely necessary to optimize also the ways of communication of the statistical surveys results so that they are able to accommodate the needs of all users.

Other conference sessions were organised in six sections: Macroeconomic issues, Impact of Covid pandemic, Insurance and demography, Time series analysis methods, Statistical methods in Economy and History of statistics. It is very difficult to highlight the most interesting contributions; let me point

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out just some of the presentations especially of young colleagues which I consider interesting and well prepared, when new methodologic approaches were applied.

In the section *Macroeconomic issues* the most interesting was the paper of J. Fischerová *National accounts and natural catastrophes – 20 years from devastating floods in the Czech Republic (case of insurance companies)*. The author summarised the manner of recording of damage from disasters in the national accounts (from the aspect of national economy at one hand and of insurance companies on the other hand) and emphasized the changes in the ESA 2010 standard compared to the ESA 1995 standard in response to terrorist attacks and national disasters after 2000. She also showed the differences between earlier recording of claims in current transfers and present recording in other capital transfers and highlighted the values connected with natural disasters in time series 1993–2021 in the Czech Republic.

Presented papers in the section *Impact of Covid pandemic* were focused on topical items such as impact of the pandemic on various areas of the life of the whole society – on demography (*The identification of changes in the structure of causes of death in Poland, Czechia and Slovakia or Impact of Covid-19 pandemic on the population projections*), on insurance (*The influence of coronavirus pandemic on the widows' reverse annuity benefits*), on private businesses (*Models of self-employed persons termination in pre-Covid-19 and Covid-19 period*) or on health care (*Excess deaths during a pandemic – numbers, causes, recommendations*). The last of the above mentioned contributions (M. Biernacki and C. Kozyra) try to identify the main causes of the situation which can be distinguish from the hidden Covid-19 but also point out the poorer (e.g. delayed) access to medical service during pandemic restrictions. The effects of relationship between the health status, mortality and (non) administration of vaccines. The analysis was based of official data provided by Polish Institute of Public Health.

In section *Insurance and demography* it is necessary to highlight the contribution of J. Novák and J. Sixta called *Evaluation of synthetic microdata from population census 2011 through correspondence analysis*. Authors present an original method of synthetic simulation of microdata from the population census and their comparison to the original microdata. A new (artificial) synthetic dataset of microdata was created while preserving the structure and relations between variables as in the original dataset. Synthetic microdata as a way of protecting microdata would enable the dissemination of microdata from the census via the SafeCentre of the Czech Statistical Office.

Contributions in section *Time series analysis* were focused mainly on the sphere of modelling of price and income development. Considering the importance and topicality of rapid price growth in the real estate market the paper *Model-based risk assessment of house-price developments* should be mentioned. The authors (M. Plašil and M. Andrlé) presented a simple model-based approach to assess uncertainty associated with future house-price development conditioned by current state of the economy. The application on the Czech data proved usefulness, reliability and flexibility of this model approach.

In section *Statistical methods in economy* papers on different topics were presented focusing mainly on two areas – education (*Coefficient of economic demands: Czech and Slovak comparison of higher education funding or Can universities buy rank for money? World university rankings in the perspective of institutional budgets*) and water management (*Efficiency evaluation of water sector in the Czech Republic: network SBM approach of Efficiency evaluation for regulatory purposes – DEA and SFA-based case study of Czech water companies*). In academic milieu a broad discussion has arisen about the paper compiled by a young team of authors (Š. Stiburek, S. Kováč, S. Brožová and H. Flusková), analysing the relationship between the size of budget of universities and their international ranking while a special attention was paid to the results of universities in the Czech Republic, Slovakia and Poland. These universities show worse ranking than majority of schools from western and northern Europe having comparable funds in proportion to the number of students. However, the authors showed that analysis of the data for 2018 covering 246 universities from 20 European countries (ETER register and THE ranking) does not allow to confirm or refute the analysed causal relations. In other words, it is obvious that the size of budget

of a university does not guarantee a specific ranking of the respective university but it may determine the interval for ranking. Quality and relevance of different rankings and institutional background in which universities in individual countries act, i.e. aspects not included in analysis were widely discussed.

In respect of traditional section dealing with *History of statistics* we should mention the paper *Statistical methods in the publications of official doctors in the Bohemian Lands in the first half of the 19th century*, where authors (P. Závodský, and O. Šimpach) focused on formation of the state-run healthcare which includes also regional (or city) official doctors whose reports they analyse. A special attention was paid to important publications of F. A. Stelzig.

It has become a tradition to organize interesting trips for the Conference participants. A group of the most physically fit colleagues set for the highest hill of the Jeseníky Mountains called Praděd. However, majority of participants preferred to make excursion to Dlouhé Stráně Pumped-Storage Hydro Power Station descending then to the village Kouty nad Desnou and admiring spectacular panorama of the Jeseníky Mountain. History lovers did not stay aside and visited chateau at Velké Losiny and other outstanding historical buildings nearby.

A complete AMSE 2022 programme including abstracts of presented papers see at: <http://www.amse-conference.eu/>. There you will also find the information about AMSE history and reference to previous years of this international event.²

Tradition of alternate organizing (Slovakia – Poland – Czech Republic) continues and the 25th AMSE conference will be prepared by the Department of Quantitative Methods of Matej Bel University, Banská Bystrica, at the end of August and beginning of September 2023 in Slovakia, at Rájecké Teplice.

² In this report on the Conference the texts of Book of abstracts www.amse-conference.eu were used.