

Preface to the book Vladik Kreinovich, Songsak Sriboonchitta, and Nopasit Chakpitak (eds.), *Predictive Econometrics and Big Data*

Econometrics is a branch of economics that uses mathematical (especially statistical) methods to analyze economic systems, to forecast economic and financial dynamics, and to develop strategies for achieving desirable economic performance.

Traditional econometric techniques have been focused on the quantitative description of economic phenomena. However, the ultimate goal of econometrics -- as well as the ultimate goal of science in general -- is to predict future development of economics, and to develop strategies that optimize the future state of economics. It is therefore desirable to develop techniques that are specifically aimed at predicting economic phenomena. Such predictive econometric techniques -- and their applications to real-life economic and financial situations -- are one of the main foci of this volume.

Another focus of this book is related to the fact that in the modern world, in which computers are ubiquitous, the amount of economic-related data generated and processed by these computers have grown exponentially. The amount of available economic data is so huge that many traditional statistical data processing algorithms are no longer capable of processing all this data in real time. To process this data, we need to utilize "big data" techniques specifically developed for processing such huge amounts of data -- and we need to develop big-data versions of the state-of-the-art econometric techniques and algorithms. This is a new and promising direction in econometrics. Big data is the main subject of this volume's keynote paper by Dr. Chaitanya Baru from the US National Science Foundation.

In addition to papers on predictive econometric techniques and on big data applications, this book also contains applications of more traditional statistical techniques to econometric problems.

We hope that this volume will help practitioners to learn how to apply new predictive and big-data econometric techniques, and help researchers to further improve the existing predictive and big-data techniques and to come up with new ideas on how econometric techniques can utilize large amounts of data to make more accurate predictions.

We want to thank all the authors for their contributions and all anonymous referees for their thorough analysis and helpful comments.

The publication of this volume is partly supported by the Chiang Mai School of Economics (CMSE), Thailand. Our thanks to Dean Pirut Kanjanakaroon and CMSE for providing crucial support. Our special thanks to Prof. Hung T. Nguyen for his valuable advice and constant support.

We would also like to thank Prof. Janusz Kacprzyk (Series Editor) and Dr. Thomas Ditzinger (Senior Editor, Engineering/Applied Sciences) for their support and cooperation in this publication.

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September 2017