

## Preface

One of the main objectives of science in general is to predict the future state of the world. For econometrics – the quantitative study of economy – this means that we want to predict how the economy will progress – and how different possible interventions will affect the future dynamics of various economic characteristics. These predictions will enable us to select the interventions that lead to the best possible state of the economy.

To make such predictions, we need to understand how different economics processes affect each other, what causes various changes in the economy. From this viewpoint, the study of prediction and causality is one of the major aspects of econometrics. Prediction and causality in econometrics is the main focus of this volume.

Papers presented in this volume cover various aspects of prediction and causality challenges, from innovative statistical techniques (including quantum techniques) and their foundations, to game-theoretic analysis of situations when several agents have somewhat different interests, to practical applications of all these techniques.

In most cases, techniques developed for other applications – e.g., quantum techniques originally developed for studying micro-scale physical processes – are adjusted to cover economic phenomena. Interestingly, in some cases, it works the other way too: techniques developed for solving economy-related optimization problems can be adjusted to be efficient in other application areas – e.g., in solving optimization problems related to image processing.

This volume shows what has been achieved, but even more important are remaining open problems. We hope that this volume will inspire practitioners to learn how to apply various prediction and causality techniques to economic problems, and inspire researchers to further improve the existing techniques and to come up with new prediction and causality techniques for economics.

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