

Preface

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.

Most traditional statistical techniques are based on the assumption that we know the corresponding probability distributions—or at least that we know that the corresponding distribution belongs to a known finite-parametric family of distributions. In practice, such probabilistic models are only approximate. It is therefore desirable to make sure that the conclusions made based on the statistical analysis are valid not only for the corresponding (approximate) probability distributions, but also for the actual distributions—which may be somewhat different. Statistical methods which are valid not only for the approximate model but also for all the models within its neighborhood are known robust.

There is also another important aspect of robustness: in day-by-day data, we often encounter outliers that do not reflect the long-term economic tendencies, e.g., unexpected abrupt fluctuations. It is therefore important to develop and use techniques whose results are minimally affected by such outliers.

Robust statistical techniques—and their applications to real-life economic and financial situations—are the focus of this volume.

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 robust econometric techniques, and help researchers to further improve the existing robust techniques and to come up with new ideas on how to best assure robustness in econometrics.

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