

Preface

The authors of this book had several decades of research in different areas of game theory until the mid 1990s, when they met in a conference in Odense, Denmark. Since then they work together on oligopolies and different dynamic economic systems, and meet at least once every year in Tokyo and either in Tucson, Arizona or in Pécs, Hungary.

This book has two origins. First it is based on game theory short courses presented in several countries including Japan, Hungary, China, and Taiwan among others. The second author introduced and taught for several years a one-semester graduate-level game theory course at the University of Arizona for students in engineering and management. The class notes of that course is the second origin of this book. The objective of this book is to introduce the readers into the main concepts, methods, and applications of game theory, the subject, which has continuously increasing importance in applications in many fields of quantitative sciences including economics, social science, engineering, biology etc. The wide variety of applications are illustrated with the particular examples introduced in the second and third chapters as well as with the case studies of the last chapter.

We strongly recommend this book to undergraduate and graduate students, researchers, and practitioners in all fields of quantitative science where decision problems might arise involving more than one decision makers, stake holders, or interest groups. As we will see later in the different chapters, the most appropriate solution concept and the corresponding solution methodology for any problem is a function of the behavior of the decision makers and their interrelationships, and the available information. So before applying any method from this book, these conditions have to be examined. Then the most appropriate method has to be selected and applied to get the solution, which has to be then interpreted and applied in practice.

We sincerely hope that this book will help the readers to understand the main concepts and methodology of game theory and it will help to select the most appropriate model, solution concept and method, and to use the obtained result in applying it in their practical problems.

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