Foreword

Game theory was first conceptualized as a mathematical approach to explain the interaction between pairs of competing individuals or players in the 19th century. Later development of the domain in the 20th century saw an expansion of both the scope and sophistication of interactions that could be modeled using this approach. Concepts were developed such as cooperative games in which individuals not only compete but also manage incentives to deliver mutually beneficial outcomes. Game theory was able to examine behavior emerging from long-term interactions (repeated games) and bargaining scenarios in which players’ behavior included offers, counter offers, and side payments. These ideas caught the interest of a larger audience with the works of Nash and others who provided the basis for application of these concepts to economics and politics with later expansion to biology, computer science, and management research. In the latter domain, the ability of game theory to model behavior of groups and individuals using a complex set of assumptions including asymmetric access to information enabled an enhanced understanding of business phenomena at the firm, industry, and country level.

The contributions in this book build on this tradition to apply the concepts of game theory to explore a range of macro-level business and economic issues. In the business domain, a number of contributions in this volume explore interactions between organizations. Najar and Amami examine the issues around inter-organizational relationships in market and hierarchal governance schemes. By contrast, Şen looks at intra-organizational networks and the challenges of decision making under uncertainty within multinational business. Other researchers in the volume examine the wider issues of how interactions at the micro level between individuals aggregate into a range of outcomes at the county level. Jaffe examines how science influences the nature of interactions at a given location. Rather than the simple correlations of previous research between scientific output and productivity, his work shows that science increases the formality and rationality of interactions, resulting in a co-evolutionary dynamic between science and economic development. Windsor’s work applies game theory to examine the challenges multinational firms face when operating in emerging markets. Martins et al. use game theory as a basis to integrate perspectives drawn from biological and economic worlds. In this way, they overcome some of the assumptions of rational decision making to explore the domain of emerging markets where such assumptions may not hold. Cartwright examines the development of social capital through a game theoretic lens, identifying how macro-level properties such as strong institutions emerge from individual micro interactions. Tran applies game theory to ethical decision making, a complex issue that faces imperfect, ambiguous information. Finally, Bishop explores the potential of technological trends in the form of user contributed data and artificial intelligence to change the patterns of interaction in emerging markets to reduce corruption.
A highlight of this book is the four chapters that examine Turkey, an underexplored domain for management research in general and game theory research. Seçilmiş provides a general overview of Game theory applications in Turkey. Erdoğan and Karaca apply these ideas to the energy sector using these concepts to build a scenario that develops Turkey’s wind energy potential. In a similar vein, Karaca also examines the Turkish energy sector, but with a view to increase the contribution from biomass sources. Beyond the sector, these ideas were used to look at country macro-environments. Hernández-Catá examines the economic development of Cuba, providing an empirical illustration of the effect of external country actions on the domestic environment. Tuncel expands the domain even further to compare the South Korean and Turkish automotive industries to understand the effect of industrial policy.

This book is long overdue as management research has begun to examine emerging markets. The assumptions of strong institutions and sophisticated markets that underpin business activity in developed countries may not be suitable in emerging markets. Game theory’s strengths in examining interactions under conditions of uncertainty are useful in understanding business phenomena in emerging markets, and this book assembles a number of useful contributions that will support future research.

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