

Preface

This book is a result of my research in game theory and oligopoly theory. It has also been influenced by my teaching experiences. Countable infinite repetition of strategic form noncooperative games with discounting of future payoffs has been the focus of my research interest for about 20 years. In most of my work, I have tried to analyze solution concepts that also take into account the deviations by the coalitions of players (if possible, by all coalitions). The emergence of cooperation between patient players, who are forced to be competitors in a static setting (or even in a dynamic setting with a finite horizon), is a fascinating phenomenon from both the intellectual and human points of view. From the intellectual point of view, the development of strategy profiles that are immune to the deviations by coalitions is a challenging and interesting work. From the human point of view, it is nice to know that – when there is a sufficiently long shadow of the future – selfish behavior, aimed at prospering at the expense of another individual, need not be rational. It is a good news that when all players agree on a cooperation scheme, no one can gain by distorting it unilaterally. If it turns out that no coalition can make any of its members better off without making another member worse off by distorting a cooperation scheme, it is a pleasant news. My sensitivity to the human side of results on infinite repeated games increased in last three years during which I was teaching the course “Models of competition and cooperation” at the Faculty of Social and Economic Sciences, Comenius University, Bratislava. This course includes the issues of the evolution and stability of cooperation. This motivated me to think more deeply about the eternal struggle between those who want to preserve mutually beneficial cooperation and those who want to distort or abuse it to achieve their selfish goals.

My interest in cooperative behavior in infinite repeated games led me to think about an important economic phenomenon of our world at present – trading between (relatively small) farmers and other producers of foodstuffs (or producers of other consumer goods) and chain stores. The producers of foodstuffs are weaker partners in this relationship; chain stores have considerable market power. They take advantage of myopic price taking behavior of their suppliers. The resulting static supply functions narrow the space of attainable contracts. Obviously, an interaction with an infinite horizon enlarges this space. This motivated me to study a class of games that includes the models of infinite repeated interactions between chain stores and their suppliers as a special case – infinite countably repeated games between firms

on both sides of a market with discounting of future profits. This book deals with the analysis of such games that takes into account coordinated actions of all coalitions.

A cooperation between firms on the same side of a market is vulnerable to a legal challenge on the basis of antitrust laws. In my model, some of the cooperating firms are on the same and some are on the different sides of a market. This raises a question as to whether or not the equilibrium behavior in it can be defended against the charges of the violation of antitrust laws. Therefore, I identify (some) conditions under which the equilibrium behavior in my model has socially desirable properties – it minimizes the cost on the levels of economic activity repeated along the equilibrium path and increases consumer welfare.

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