Lecture Notes in Microeconomic Theory

The Economic Agent

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Preface

This short book contains my lecture notes for the first quarter of a microeconomics course for PhD or Master's degree economics students. The lecture notes were developed over a period of almost 15 years during which I taught the course, or parts of it, at Tel Aviv, Princeton, and New York universities.

I am publishing the lecture notes with some hesitation. Several superb books are already on the shelves. I most admire Kreps (1990), which pioneered the transformation of the game theoretic revolution in economic theory from research papers into textbooks. His book covers the material in depth and includes many ideas for future research. Mas-Colell, Whinston, and Green (1995) continued this trend with a very comprehensive and detailed textbook. There are three other books on my short list: Bowles (2003), which brings economics back to its authentic, political economics roots; Jehle and Reny (1997), with its very precise style; and the classic Varian (1984). These five books constitute an impressive collection of textbooks for the standard advanced microeconomics course.

My book covers only the first quarter of the standard course. It does not aim to compete but to supplement these books. I had it published only because I think that some of the didactic ideas in the book might be beneficial to students and teachers, and it is to this end that I insisted on retaining the lecture notes style.

Throughout the book I use only male pronouns. This is my deliberate choice and does not reflect the policy of the editors or the publishers. I believe that continuous reminders of the he/she issue simply divert readers' attention. Language is of course very important in shaping our thinking and I don't dispute the importance of the type of language we use. But I feel it is more effective to raise the issue of discrimination against women in the discussion of gender-related issues, rather than raising flags on every page of a book on economic theory.

A special feature of this book is that it is also posted on the Internet and access is entirely free. My intention is to update the book annually (or at least in years when I teach the course). To access the latest electronic version of the book, visit: http://arielrubinstein.tau.ac.il/micro1/.

I would like to thank all my teaching assistants, who contributed comments during the many years I taught the course: Rani Spiegler, Kfir Eliaz, Yoram Hamo, Gabi Gayer and Tamir Tshuva at Tel Aviv University; Bilge Yilmiz, Ronny Razin, Wojciech Olszewski, Attila Ambrus, Andrea Wilson, Haluk Ergin and Daisuke Nakajima at Princeton; and Sophie Bade and Anna Ingster at NYU. Special thanks are due to Sharon Simmer and Rafi Aviav who helped me with the English editing and to Gabi Gayer and Daniel Wasserteil who prepared the figures.

Introduction

As a new graduate student, you are at the beginning of a new stage of your life. In a few months you will be overloaded with definitions, concepts, and models. Your teachers will be guiding you into the wonders of economics and will rarely have the time to stop to raise fundamental questions about what these models are supposed to mean. It is not unlikely that you will be brainwashed by the professional-sounding language and hidden assumptions. I am afraid I am about to initiate you into this inevitable process. Still, I want to use this opportunity to pause for a moment and alert you to the fact that many economists have strong and conflicting views about what economic theory is. Some see it as a *set of theories* that can (or should) be tested. Others see it as a *bag of tools* to be used by economic agents, and yet others see it as a *framework* through which professional and academic economists view the world.

My own view may disappoint those of you who have come to this course with practical motivations. In my view, economic theory is no more than an arena for the *investigation of concepts* we use in thinking about economics in real life. What makes a theoretical model "economics" is that the concepts we are analyzing are taken from real-life reasoning about economic issues. Through the investigation of these concepts we indeed try to understand reality better, and the models provide a language that enables us to think about economic interactions in a systematic way. But I do not view economic models as an attempt to describe the world or to provide tools for predicting the future. I object to looking for an ultimate truth in economic theory, and I do not expect it to be the foundation for any policy recommendation. Nothing is "holy" in economic theory and everything is the creation of people like yourself.

Basically, this course is about a certain class of economic *concepts* and *models*. Although we will be studying formal concepts and models, they will always be given an interpretation. An economic model differs substantially from a purely mathematical model in that it is a *combination* of a mathematical model and its *interpretation*. The names of the mathematical objects are an *integral* part of an economic model. When mathematicians use terms such as "field" or "ring" which are in everyday use, it is only for the sake of convenience. When they name a collection of sets a "filter," they are doing so in an associative manner; in principle, they could call it "ice cream cone." When they use the term "good ordering" they are not making an ethical judgment. In contrast to mathematics, interpretation is an essential ingredient of any economic model.

It is my hope that some of you will react and attempt to change what is currently called economic theory, and that some of you will acquire alternative ways of thinking about economic and social interactions. At the very least, the course should teach you to ask hard questions about economic models and in what sense they are relevant to the economic questions we are interested in. I hope that you walk away from this course with the recognition that the answers are not as obvious as they might appear.

Microeconomics

In this course we deal only with microeconomics, a collection of models in which the primitives are details about the behavior of units called *economic agents*. Microeconomic models investigate assumptions about economic agents' activities and about interactions between these agents. An economic agent is the basic unit operating in the model. Most often, we do have in mind that the economic agent is an individual, a person with one head, one heart, two eyes, and two ears. However, in some economic models, an economic agent is taken to be a nation, a family, or a parliament. At other times, the "individual" is broken down into a collection of economic agents, each operating in distinct circumstances and each regarded as an economic agent.

We should not be too cheerful about the statement that an economic agent in microeconomics is not constrained to being an individual. The facade of generality in economic theory might be misleading. We have to be careful and aware that when we take an economic agent to be a group of individuals, the reasonable assumptions we might impose on it are distinct from those we might want to impose on a single individual. In any case, with a particular economic scenario in mind, the decision about how to think of that scenario in the framework of a microeconomic model involves a decision about whom *we* want to view as the primitives.

An economic agent is described in our models as a unit that responds to a scenario called a *choice problem*, where the agent must make a choice from a set of available alternatives. The economic agent appears in the microeconomic model with a specified deliberation process he uses to make a decision. In most of current economic theory, the deliberation process is what is called *rational* choice. The agent decides what action to take through a process in which he

1. asks himself "What is desirable?"
2. asks himself "What is feasible?"
3. chooses the most desirable from among the feasible alternatives.

Rationality in economics does not contain judgments about desires. A rational agent can have preferences which the entire world views as being against the agent's interest. Furthermore, economists are fully aware that almost all people, almost all the time, do not practice this kind of deliberation.

Nevertheless, we find the investigation of economic agents who follow the rational process to be important, since we often refer to rational decision making in life as an ideal process. It is meaningful to talk about the concept of "being good" even in a society where all people are evil; similarly, it is meaningful to talk about the concept of a "rational man" and about the interactions between rational economic agents even if all people systematically behave in a nonrational manner.