Preface

These are lecture notes for Microeconomics III, the third course in the microeconomics Ph.D. course sequence at CERGE-EI, a joint workplace of Charles University of Prague and the Academy of Sciences of the Czech Republic in Prague. Microeconomics III is dedicated to game theory and related topics that involve *strategic interaction* of (economic) agents (more about this later).

Why these lecture notes?

The *baseline text* for this course sequence is *Microeconomic Theory by* A. Mas-Colell, W. Whinston, and J. Green (MWG). [1] Unfortunately, this texbook was written about a decade ago. While significant parts of it (especially the more canonized parts covered in Microeconomics I and II) have aged well, those chapters in MGW that cover the theory and practice of strategic interaction have not. Specifically, while much of that book's exposition of the theory of strategic interaction reflects our knowledge base (and remains highly readable), it does not adequately reflect numerous fascinating developments that often were inspired by experimental work (the laboratory study, or practice, of strategic interaction).

These developments have been authenticated through the Nobel prize awards, in 1994, to theorists John Nash, John Harsanyi and Reinhard Selten for their foundational work in game theory and, in 2002, to Daniel Kahneman and Vernon Smith for their work in behavioral and experimental economics[2]. Both game theory and experimental economics have for more than a decade been the highest growth areas in economics. Game theory has been used to reframe everything from micro theory (e.g. Tirole 1988 and Kreps 1990) to macro policy (e.g. Barro 1990). Experimental economics has been used to test these new theories. It has also been used to generate data that lacked good theories that could organize and rationalize them. Last but not least, both game theorists and experimentalists have been involved increasingly into the exploration of policy options (*e.g.* Plott 1982), the design of auctions (*e.g.* Plott 1997) and other economic institutions (*e.g.*Plott 2002)

By any measure the growth of published work in experimental economics and game theory has been astonishing, leading Charlie Plott to ask, only half in jest, "Is Economics on its way to Become an Experimental Science?" The following figure, which has been imported from ..., surely suggests so:

The present lecture notes try to reflect the exciting developments documented in these growth data.

[1] Footnote on other references

[2] Both Nash and Selten also did experiments. Selten in particular has contributed many important experimental studies. But he received his Nobel prize explicitly for his refinement of Nash equilibrium: subgame perfection and trembling hand perfection.

Figure 1:

Comments on typical lecture notes

Each set of lecture notes has 5 ingredients in various proportions: first, and constituting the major part of each lecture, is theory. Typically around 45-60 minutes are dedicated to it. Second, an experiment shows a way to test the theory under consideration. Some of the experiments draw on Holt (2002) Veconlab available at http://www.people.virginia.edu/~cah2k/ . Third, and often alternatively, a recent journal article or working paper ilustrates how theories can be tested, or how experiments can generate data that cry out for better theory. The fourth ingredient of the lecture notes is a problem set. Working these problems is rather important and while you are encouraged to do them in groups of up to three, you ought to make sure not to free ride on the efforts of others. Solutions will be provided in the exercise sessions. The fifth, and final, ingredient are hints for further readings.

How the baseline textbook has been incorporated into the lecture notes

I rely to quite some extent on the baseline text. Why? To the best of our knowledge, it is the textbook of choice of most good economics departments in Europe and the USA. CERGE-EI's Executive and Supervisory Committee has decided that we follow suit. Often I will literally cull from the baseline text without quotation marks. (*Quoting without quotation marks is not a practice that I accept in other contexts.*) This includes the numbering of theorems and propositions to ease comparison of the lecture notes with the baseline text. Throughout these lecture notes, with the exception of this preface, I use identifiers such as Theorem, Corollary, Proposition, Remark, Note 1,2,3, ... etc. This

makes for a jumpy narrative but makes it easier to refer to specific parts of the manuscript. The narrative is to be found in "Remarks" or "Notes" which contain commentary on theorems, corollaries and propositions.