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INSTITUT DE HAUTES
ÉTUDES INTERNATIONALES
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International Economics

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Microeconomics I

EI037 - Autumn - 6 ECTS

Course Description

First part of the compulsory microeconomic sequence for the MIS. Bread and butter models of producer and consumer behavior, essential models of strategic interaction and elementary general equilibrium theory (the famous existence proof and the welfare theorems). In an attempt to keep things interesting, I have opted for a mix of standard textbooks and the original papers.

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Syllabus

1 The usual blurb

This is the first part of the compulsory microeconomic sequence for the MIS, and the crown jewel of what our profession has produced in terms of aesthetic beauty and understanding of rational human behavior (there's lots of irrational behavior that is better explained by our brethren in other disciplines within the social sciences...). We will cover bread and butter models of producer and consumer behavior, essential models of strategic interaction and elementary general equilibrium theory (the famous existence proof, the welfare theorems and the elementary theory of the second best).

I am writing a textbook for this course and for its sequel, Micro II, which will be posted on the course moodle as the semester and the book progress. All comments and corrections are most welcome: simply send me an email. The subsections in the syllabus correspond to chapters in the textbook. You will find that the material in chapter 1 ("the cookbook") has been covered in the math bootcamp, though we will do a quick refresher to make sure that you really master the stuff, which is key to what follows. I have also thrown in a few original articles to keep you on your toes and render things (hopefully) more interesting.

For those who want, quite reasonably, to work through an established textbook (and, more importantly, work through a sizeable set of exercises), there are two that I like. My favorite is the old staple by Varian (1992) who is now the Chief Economist at Google and whose book was originally based on Dan McFadden's class notes at MIT. Another good choice is a relatively recent textbook by Jehle and Reny (2011), which is, however, less in-depth than Varian. I have referenced the appropriate chapters in the syllabus for those who want to follow them.¹ For stuff involving strategic interaction (as well as monopoly), one can safely rely on Tirole (1988). Since none of the material on consumer and producer theory is particularly new, the relevant chapters in the old 1982 *Handbook of Mathematical Economics* (*HBME* in what follows) are excellent choices for those who want to delve more deeply into the underlying theory —be forewarned that this is often a hard slog.

¹Many graduate level micro courses use Mas Colell, Whinston and Green (1995), but it is not my own first choice as I find sometimes overly long-winded.

There will be an in-class midterm (1/6 of the final grade), and a final in week 14 (1/3), as well as 3 problem sets (1/6 each). Given that the syllabus is extremely short, I expect you to do ALL of the readings before class.

2 The actual syllabus

2.1 Competitive producers

Read Varian (1992), chs. 1, 2, 3, 4, 5, 6 and/or Jehle and Reny (2011), ch. 3. A no-holds-barred treatment of all of the material is given in the *HBME* chapters by Nadiri (1982) and Diewert (1982).

2.1.1 Technology

Everything you see in undergraduate micro seems to assume the world is Cobb-Douglas, which of course it is *not*. On the other hand, please become one of the few current graduate students who has actually read Cobb and Douglas (1928).

When grown-ups do it today, things tend to be translog.² The original article is Christensen, Jorgenson and Lau (1973). You should also be aware of the fact that most technological processes in the real world are multi-output: all of basic producers theory for multi-output firms has been worked out in a remarkable book (which we will not have time to cover) by Baumol, Panzar and Willig (1982): skim if you are interested and mainly store the reference in your long-term memory banks for future reference.

2.1.2 Cost minimization

The Envelope Theorem applied in all its glory...

2.1.3 Profit maximization

...and again.

2.1.4 Applications

If you want to see producer theory applied in the context of real applied modeling (and what an actual translog production technology looks like in practice), take a look at my paper on sharecropping in Tunisia: Arcand, Ai and Ethier (2007).

²Generalized Leontief is another adult choice, though less common than the translog.

2.2 Monopoly and alternative specifications

2.2.1 Monopoly

An excellent treatment of monopoly, including various forms of non-linear pricing, is given by Varian (1992) ch. 14 and especially Tirole (1988) chs. 1 and 3.

2.2.2 Alternative specifications

Producers are often modelled in manners which differ from what we teach in standard micro courses. Two examples you should be aware of are efficiency wage models and the O-rings description of the production technology. At the very least, read the classic papers by Solow (1979) and Kremer (1993).³

2.3 Consumers

Read Varian (1992), chs. 7, 8, 9, 10 and/or Jehle and Reny (2011), chs 1 and 2 (up to and including section 2.3). The adult strength treatment is given in the *HBME* in the chapter by Barten and Böhm (1982).

2.3.1 Assumptions

I once took a course with the late great Frank Hahn at Cambridge in which he did all of general equilibrium theory without the transitivity axiom. I am certainly *not* Frank, so transitivity will be assumed.

2.3.2 Expenditures

The Envelope Theorem once more...

2.3.3 Slutsky

...and one final time (for the time being). My teacher Frank Fisher used to wear a special (very large) bow tie when he presented Slutsky's Theorem. No promises, but some celebratory attire will be attempted.

³Solow builds on much earlier work by Leibenstein (1957), which you should also peruse to see how theory was done before the duality revolution. We shall come back to this model a second time further below when we get to Shapiro and Stiglitz (1984).

2.3.4 Parametric examples

The translog for consumer theory is given by the original paper by Christensen, Jorgenson and Lau (1975).

2.3.5 Illustrations

For those of you interested in empirical applications of consumer theory, a Nobel-winning contribution is given by the supremely useful model proposed by Deaton and Muellbauer (1980).

2.4 Interaction

There are many good game theory textbooks out there. My personal favorite is by two of my old teachers: Fudenberg and Tirole (1991). For standard models in Industrial Organization, the old textbook by Jean Tirole (1988) is still, in my opinion, the best. His appendix (ch. 11) is still the most user-friendly short primer on applied game theory that I know of. Chapter 15 in Jehle and Reny (2011) is also very user-friendly. You *must* also read John Nash's original proof of the existence of equilibrium in a game once in your life: one page to read in Nash (1950): one of the great classics of all time, if only because it is so concise. Time (and energy) permitting, I will also introduce you to monotone comparative statics.

2.4.1 Homogeneous products

Basic Cournot and Bertrand models that most of you should already be familiar with. Read Tirole (1988), ch. 5.

2.4.2 Product differentiation

Standard horizontal and vertical differentiation models: read Tirole (1988), ch. 7.

2.4.3 Shapiro and Stiglitz

Yes...I know it's now used by the Dark Side of the Force, but one of my top-twenty articles of all time: Shapiro and Stiglitz (1984).

2.4.4 Repeated interaction

Basic Folk Theorems and illustrations of their use. Read Tirole (1988), ch. 6. For an application of the Folk Theorem to a developing country context, read Osmani (1991).

2.4.5 Bargaining

The second great contribution to Economics of John Nash. The current consensus is that the best introductory book on the topic is that by Muthoo (1999). Read chs. 1 and 2.

2.5 General equilibrium

2.5.1 Existence and welfare theorems

Varian (1992), ch. 17 is a very concise treatment of all of the essential elements of the famous existence proof using Brouwer's fixed-point theorem and the two welfare theorems, including the use of the Minkowski-Farkas separating hyperplane theorem. Ch. 5 in Jehle and Reny (2011) is also very nicely done.

You should also work through Debreu (1959) at least once in your life: welcome to the wonderful world of *Bourbaki*...

2.5.2 Applications

The simplest example of a proof involving general equilibrium arguments that I know is Cohen and Weitzman (1975): I like to call it Margaret Thatcher in the Middle Ages. If I have time, I will also illustrate general equilibrium arguments in action in my simple "China model" of state-run crony capitalism.

2.5.3 Incomplete markets and the theory of the second best

The classic paper is by Hart (1975). This is the theoretical crux of the theory of the second best. You should concentrate on the example. To conclude, a policy paper on the theory of the second best that I would really like to have written because it puts just about everything we do in terms of theory into a practical perspective: Blackorby (1990).

References

- Arcand, Jean-Louis, Chunrong Ai, and François Ethier, “Moral Hazard and Marshallian Inefficiency: Evidence from Tunisia,” *Journal of Development Economics*, 2007, 83 (2), 411–445.
- Barten, Anton P. and Volker Böhm, “Consumer Theory,” in Kenneth Arrow and Michael Intriligator, eds., *Handbook of Mathematical Economics*, Vol. 2 North Holland Amsterdam, The Netherlands 1982, pp. 381–429.
- Baumol, William J., John C. Panzar, and Robert D. Willig, *Contestable Markets and the Theory of Industry Structure*, New York, NY: Harcourt Brace Jovanovich, 1982.
- Blackorby, Charles, “Economic Policy in a Second-Best Environment,” *The Canadian Journal of Economics / Revue canadienne d’Economie*, 1990, 23 (4), 748–771.
- Christensen, Laurits R., Dale W. Jorgenson, and Lawrence J. Lau, “Transcendental Logarithmic Production Frontiers,” *Review of Economics and Statistics*, 1973, 55 (1), 28–45.
- , — , and — , “Transcendental Logarithmic Utility Functions,” *American Economic Review*, 1975, 65 (3), 367–383.
- Cobb, Charles W. and Paul H. Douglas, “A Theory of Production,” *American Economic Review*, 1928, 18 (1), 139–165.
- Cohen, Jon S. and Martin Weitzman, “A Marxian Model of Enclosures,” *Journal of Development Economics*, 1975, 1 (4), 287–336.
- Colell, Andreu Mas, Michael Whinston, and Jerry Green, *Microeconomic Theory*, Oxford, UK: Oxford University Press, 1995.
- Deaton, Angus and J. Muellbauer, “An Almost Ideal Demand System,” *American Economic Review*, 1980, 70 (3), 312–326.
- Debreu, Gérard, *Theory of Value. An Axiomatic Analysis of Economic Equilibrium* Cowles Foundation Monograph No. 17, New Haven, CT: Yale University Press, 1959.

- Diewert, W. Erwin**, “Duality Theory in Economics,” in Kenneth Arrow and Michael Intriligator, eds., *Handbook of Mathematical Economics*, Vol. 2 North Holland Amsterdam, The Netherlands 1982, pp. 535–599.
- Fudenberg, Drew and Jean Tirole**, *Game Theory*, Cambridge, MA: MIT Press, 1991.
- Hart, Oliver D.**, “On the Optimality of Equilibrium When the Market Structure is Incomplete,” *Journal of Economic Theory*, 1975, 11 (3), 418–443.
- Jehle, Geoffrey A. and Philip J. Reny**, *Advanced Microeconomic Theory*, third ed., Harlow , UK: Pearson Education, 2011.
- Kremer, Michael**, “The O-Ring Theory of Economic Development,” *Quarterly Journal of Economics*, 1993, 108 (3), 551–575.
- Leibenstein, Harvey**, “The Theory of Underemployment in Backward Economies,” *Journal of Political Economy*, 1957, 65 (2), 91–103.
- Muthoo, Abhinay**, *Bargaining Theory with Applications*, Cambridge, UK: Cambridge University Press, 1999.
- Nadiri, Ishaq**, “Producers Theory,” in Kenneth Arrow and Michael Intriligator, eds., *Handbook of Mathematical Economics*, Vol. 2 North Holland Amsterdam, The Netherlands 1982, pp. 431–490.
- Nash, John**, “Equilibrium Points in n-Person Games,” *Proceedings of the National Academy of Sciences*, 1950, 36 (1), 48–49.
- Osmani, S. R.**, “Wage Determination in Rural Labor Markets: The Theory of Implicit Cooperation,” *Journal of Development Economics*, 1991, 34, 3–23.
- Shapiro, Carl and Joseph E. Stiglitz**, “Equilibrium Unemployment as a Worker Discipline Device,” *American Economic Review*, June 1984, 74 (3), 433–444.
- Solow, Robert M.**, “Another Possible Source of Wage Stickiness,” *Journal of Macroeconomics*, 1979, 1 (1), 79–82.
- Tirole, Jean**, *The Theory of Industrial Organization*, Cambridge, MA: MIT Press, 1988.
- Varian, Hal**, *Microeconomic Analysis*, third ed., New York, NY: Norton, 1992.