April 2006

Economics 201C
Spring 2006
Instructor: J. Ostroy
Office Hours: Monday 2–3, and by appt.
Teaching Assistant: Michael Powell

Course Outline and Reading List

THEME: The course will focus on the meaning of competition and its relation to efficiency. We will begin with the standard general equilibrium model and its definition of perfect competition, referred to here as price-taking equilibrium. We will compare price-taking with a stronger definition called perfectly competitive equilibrium. The goal is to make perfectly competitive equilibrium—through its connection with the concept of full appropriation—an organizing principle of economic analysis that is relevant to issues of strategic behavior and incentives. Appropriability is an informal, heuristic logic commonly employed in economic reasoning. The tools of convex analysis and duality theory will be used to formalize the concept of appropriability. The inefficiencies of strategic behavior, imperfect competition, public goods and externalities will be analyzed as consequences of inappropriability.

TEXTS, ARTICLES AND LECTURE NOTES: Debreu’s Theory of Value is the standard reference for general equilibrium. Ellickson’s [E] Competitive Equilibrium: Theory and Applications is a more recent, comprehensive and accessible presentation. Myerson’s Game Theory is a useful reference for topics overlapping with game theory. Mas-Colell, Whinston and Green’s [MWG] Microeconomic Theory is a reference for several of the topics below. Lecture Notes will be distributed covering most of the course material, along with Makowski’s “Competition, Appropriation, and Efficiency” (M). I have also assigned several articles and, where it seems appropriate, to give a more or less original source. The necessary mathematics will be developed in class and in lecture notes.

GRADING: Homework problems will be handed out during the quarter to check your understanding of the material. Some will be graded. The course grade is based on homework (10%), mid-term (35%) and final exam (55%).
Week 1: The standard model of general equilibrium

GOAL/SUMMARY: To describe the standard general equilibrium model; the definition of (price-taking) equilibrium; and the relation between equilibrium and efficiency. To highlight a feature of the definition of equilibrium leading to some paradoxical conclusions.

KEYWORDS: the data of an economy; the data of a private ownership economy; proprietary and non-proprietary technology; profits; equilibrium; replica invariance; decentralization role of prices; efficiency; First Theorem; Second Theorem; market socialism.

READINGS:

Model of price-taking equilibrium
- Lecture Notes, “Walrasian Theory According to Debreu, Part I”
- MWG, chps. 15, 17A-B

Efficiency of price-taking equilibrium
- Lecture Notes, “The Two Theorems of Walrasian Welfare Economics, Part II”
- MWG, chp. 16
- E, pp. 25–29, 77–78, 331–340

Privacy and the decentralization role of prices

Week 2: The Quasilinear Version of the Standard Model

GOAL/SUMMARY: To present the general equilibrium model with quasilinear preferences. To emphasize the model’s duality properties which include not only the prices of commodities, but also the “prices of individuals.” To show that the assumptions guaranteeing existence of price-taking equilibrium with quasilinearity are similar to those of the standard model. To contrast the conditions for existence of equilibrium with finite numbers of individuals, called replica invariance or integral optimality, with the conditions for existence with a continuum of individuals.

KEYWORDS: quasilinear utility; producer-consumer; concave and convex function; indicator function; subdifferential (= indirect demand function); conjugate (= indirect utility/profit) functions; supremal convolution; duality in linear programming; integral optimality.

1 “Weeks” do not necessarily track the calendar.
Week 3: Perfect Competition in the Quasilinear Model

GOAL/SUMMARY To define perfectly competitive equilibrium, to characterize and contrast it with price-taking equilibrium. To compare perfect competition with price-taking as the numbers of individuals increases.

KEYWORDS: marginal product of an individual; MP inequality; full appropriation; perfectly elastic demand and supply (PEDS); perfect substitutability among individuals; flats and discrete differentiability with respect to individuals in models with finite number of individuals; exact differentiability in continuum models; “master-servant” type counterexamples to perfect competition in the continuum.

readings
Lecture Notes
M, ch. 6

Week 4: The Individual as margin of analysis in cooperative games

GOAL/SUMMARY To describe a game in characteristic function form. To define the core of a game and give an interpretation as the pricing of individuals.

READINGS

The core
Myerson, pp. 417–436
Lecture Notes

The assignment model
Lecture Notes
Week 5: The Efficiency of Perfectly Competitive Equilibrium

GOAL/SUMMARY To demonstrate the strategic properties of perfectly competitive equilibrium by showing conditions under which the conclusions of the First Theorem can be obtained as the non-cooperative equilibrium of a game in normal form.

KEYWORDS: correlated equilibrium; Nash equilibrium; simple monopoly; perfectly discriminating monopoly; Cournot duopoly; perfect competition with innovation; no complements; reservation price property.

READINGS:

Myerson, Game Theory, p. 244–258.
M, ch. 5 and 7

Mid-term: In TA section

Week 6: Imperfect Competition and Increasing Returns

GOAL/SUMMARY To emphasize complementarity among individuals as the source of gains from trade. To show the limits to the convexifying effects of large numbers. To show that complementarity among individuals is the source of non-existence of both price-taking and perfectly competitive equilibrium.

KEYWORDS non-convexities with respect to commodities; non-convexities with respect to individuals; economy-wide increasing returns.

READINGS

Romer, ”Are Nonconvexities Important for Understanding Growth?” American Economic Review 80, May 1990,
Week 7: Externalities and Public Goods

**Goal/Summary:** To define pecuniary and real externalities and compare their efficiency consequences. To emphasize full appropriation as the internalization of externalities. To consider (pure) public goods as a particular kind of externality. To contrast duality theory for externalities and public goods with the duality theory for “private” goods. To emphasize the connections between property rights and competition as the origins of appropriability.

**Keywords:** pecuniary externality; real externality; public goods; free rider problem; Lindahl prices; the Coase Theorem.

**Readings:**

Externalities
- M, ch. 1
- MWG, chp. 16
- E, pp. 300–306

Public Goods
- E, pp. 84–90, 132–144

Week 8: Mechanism Design and Auctions

**Goal/Summary:** To introduce the findings of Vickrey-Clarke-Groves mechanism/auction design and to interpret them as applications of full appropriation.

**Keywords:** incentive compatibility; dominant strategy; VCG mechanisms; Bayesian incentive compatible mechanisms; budget-balance; individual rationality

**Readings:**

Efficient, dominant strategy mechanisms with privacy
- Lecture Notes, “Efficient Non-Manipulable Mechanisms,”
- M, ch. 3
Week 9: Privacy and delivery problems

GOAL/SUMMARY: To distinguish between those kinds of asymmetries of information (privacy) that are efficiently resolved because they are compatible with full appropriation and the kinds of asymmetries of information (delivery problems) that preclude full appropriation.

KEYWORDS: moral hazard; adverse selection; signaling; private value auction; common value auction.

READINGS:

MWG, chps. 13–14