Microeconomics I - Outline

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General Information

This course aims to provide students with an understanding of the determinants of the functioning of markets. The first part of the course provides a formal description of the behavior of consumers and producers. Under the postulate of utility and profit maximization, we derive a market’s demand and supply from individual preferences and technologies. The second part of the course compares different market structures; monopoly, oligopoly, and perfect competition. The course is self-contained but requires knowledge of basic differential calculus.

Books and Overviews

The following books all contain the topics covered by the course but differ in their (increasing) degree of mathematical complexity.


Problem Sets

Each topic contains a set of problems. These problems should be solved by students (preferably in groups) at home. They will be discussed in the practical sessions.
Evaluation

The (written) exam at the end of the course contributes 100% to the final grade. The exam contains two sections: A multiple choice section with short questions about the basic concepts and results of the course and a section with long questions similar to the ones contained in the problem sets.

Outline

1. Introduction

Microeconomics is the study of markets. We motivate the subject by discussing two examples for the power of market design: telecom license auctions and kidney exchange programs.


2. Preferences and Utility

We start our analysis of markets by focusing on the demand side. Consumers are described by preference orderings over consumption bundles. The main result shows that when preferences satisfy certain properties each consumer can be thought of as the maximizer of a numerical (expected) utility.

*Key concepts*: Preference ordering; Transitivity; Continuity; Monotonicity; Convexity; Utility functions.


3. Consumer Choice

Consumers choose the consumption bundle that maximizes their utility amongst all affordable bundles. The main insight of this lecture is the fact that the consumer’s optimal choice can be determined by equating the products’ price ratio to their marginal rate of substitution. We discuss an empirical study which estimates the marginal rate of
substitution between (human) life and money by considering the choice of speed limits.

*Key concepts*: Indirect utility; Marshallian demand; Inferior goods; Marginal rate of substitution.


4. Substitution and Income Effects

The Law of Demand states that a product’s demand decreases in its price. We discuss the validity of the Law of Demand both from a theoretical and an empirical perspective. The theory shows that in response to an increase in price, the demand of a product can go up when the good is inferior and income effects are sufficiently strong. This is the consequence of the Slutsky equation which constitutes the main result of this lecture. We discuss evidence for the violation of the Law of Demand by considering an experimental study about rice consumption in the Chinese province of Hunan.

*Key concepts*: Expenditure function; Hicksian demand; Roy’s Identity; Giffen goods; Slutsky equation.


5. Consumer Welfare and Policy Evaluation

Policies and regulation may affect consumers’ well–being by changing prices and incomes. We introduce equivalent and compensating variation as two important measures of a policy’s effect on consumer’s welfare. The main insight is that both measures can be approximated by consumer surplus defined as the area under the Hicksian demand curve. As an application we evaluate different policies aiming at a reduction of cigarette consumption during pregnancy.

*Key concepts*: Equivalent variation; Compensating variation; Money–metric utility; Consumer surplus.


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6. Technology

We introduce the production function as a description of a firm’s technology. As examples we consider Perfect Substitutes, Cobb–Douglas and Leontief production functions. How does output vary with the scale of production. We discuss evidence for increasing and decreasing returns to scale by considering US automobile production.

*Key concepts:* Technology; Production function; Isoquants; Marginal product; Marginal rate of technical substitution; Returns to scale.


7. The Profit Maximizing Firm

We solve the firm’s profit maximization problem in two steps. First we determine the cost minimizing way to produce a certain level of output. This gives us the firm’s cost function. Second, we determine the output level which maximizes the difference between revenue and cost. But do firms really maximize profits? We discuss evidence showing that there may exist conflicting objectives.

*Key concepts:* Cost function; Conditional and unconditional factor demand; Average and marginal costs; Economies of Scale


8. Production - Short Run versus Long Run

While in the long run firms are able to adjust all factors of production, in the short run some factors might be fixed. The description of firm behavior therefore requires a distinction between the short run and the long run. We derive the differences of a firm’s short run and long run supply behavior. But how long is the short run? We consider evidence from the automobile industry to shed light on this question.

*Key concepts:* Short run cost function; Opportunity costs; Sunk costs; Short run supply
9. The Competitive Market

We finally merge Consumer and Producer Theory. We first derive the short run equilibrium for a given set of suppliers. We then turn to study the market in the long run. Here we distinguish between the case where factor prices are constant and the case where factor prices are increasing with industry output. As the main result we obtain the First Welfare Theorem.

*Key concepts:* Aggregation of demand and supply; Short run and long run competitive equilibrium; Efficiency; First Welfare Theorem.

10. The Monopolistic Market

Why are regulators concerned about the monopolization of a market? We introduce the concept of concentration curves and the Herfindahl index. We solve the profit maximization problem of a monopolist and determine the welfare loss due to monopoly.

*Key concepts:* Concentration curve; Marginal revenue; Deadweight loss

11. The Oligopolistic Market

We introduce the standard model of quantity competition due to Cournot. The main focus lies on the dependence of market outcomes on the number of firms in the industry. We show that the competitive equilibrium emerges in the limit when the number of firms grows large. We discuss mergers in the airline industry as empirical evidence for the Cournot model.

*Key concepts:* Cournot–Nash equilibrium; Reaction Functions.


12. Critical Reflection

The basic assumption of Microeconomics, that economic agents are self-interested, rational maximizers of invariant preferences, are questionable in light of recent empirical
results. We review evidence from Behavioral Economics with a focus on the implications for market outcomes.

Key concepts: Rationality; Altriusm; Fainess; Loss–Aversion; Reference Points.


