

## (Undergraduate) Principles of Microeconomics

Peter Thompson

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### Objectives

When I was first asked to teach Principles of Microeconomics, my instinct was to get copies of all the Principles textbooks that I could lay my hands on. So I did. And I didn't enjoy them: they sent me to sleep. Don't get me wrong, some of them are very good at what they do. But I didn't really like what they set out to do. You see, Principles textbooks teach a subject matter. In these books, microeconomics is the study of individual markets, firm behavior and consumer behavior; macroeconomics is the study of the economy as a whole. These books seemed to me to miss the point. Economics is not a subject matter. It is a way of thinking. It is a moral philosophy. And if everyone in the world thought like an economist, the world would be a much happier place.

Economics is a way of thinking about every aspect of life. Of course we want to know how Proctor and Gamble chooses what to produce, how much to produce, and what price to sell at. Of course we want to understand how consumers decide what to buy, how much to buy, and what they are willing to pay. But the same tools that enable us to understand these issues also enable us to understand

- Why celebrity endorsements work, even though we know they are being paid,
- How the police can persuade two suspects to squeal on each other,
- How safety belts in cars have increased the death toll on roads,
- Why your next boyfriend or girlfriend will be a disappointment,
- Whether you should leave the toilet seat up or down.

among many other questions of life.

Economists, unlike politicians, religious leaders, philosophers, and just about anyone else, have a clear moral philosophy. We employ a small but precise set of criteria by which we judge whether people's actions are good for themselves and good for others. We use exactly the same criteria to assess whether government's actions are good for society. Economists are precise about when we can use these criteria to state that one outcome is superior to another. Economists are equally precise about when two outcomes cannot be ranked, and we don't invent ad hoc philosophies to fill in the gaps.

My job is to get you to think like an economist. If I succeed, you will be a smarter, happier, and more moral person, and the world will be a better place. If I fail, you can continue your business studies program none the wiser.

### **Textbooks**

Thompson, Peter (2008): *Principles of Microeconomics*. Manuscript, Florida International University.

The text is available on the course web site, and can be printed chapter by chapter in each section.

The following slim book is recommended:

Steven Landsburg (1995): *Armchair Economist: Economics And Everyday Experience* (paperback; approx. \$11 from Amazon).

### **Powerpoints**

In the past I made Powerpoint slides for this course. Students objected that with slides the lectures went too fast, so I now use old-fashioned chalk. I have left the slides available, but note that they are in parts out of date. The slides for this section can be downloaded here.

### **Class Attendance and Exams**

Class meets Tuesdays and Thursdays from 3:30pm to 4:45pm in GL 100B.

My job is to make class attendance worthwhile and interesting. It's your decision whether or not to attend. But I have an incentive scheme. There will be four open-book in-class exams. The dates will not necessarily be announced in advance. The best two of your in-class exams will account for 50%, or the best three will account for 75%, of the grade, depending on what you decide to do about the final.

Two versions of the final exam will be offered. Both are 1.25 hours in duration, both are comprehensive and open-book. The first version will be given in the final class period, Thursday, 17 April. The second version will be given during exam week. Here is how they will be scored:

- 1) If you only show up to take the first final exam, that will count for 25% of the grade, and your best three mid terms will count for 75% of the grade.
- 2) If you only show up to take the second final exam, that will count for 25% of the grade, and your best three mid terms will count for 75% of the grade.
- 3) If you take both final exams, the total score will count for 50% of your grade and the best two mid terms will count for 50%.

It is your choice what you do. Your optimal choice is an interesting economic problem, and by the end of the semester you will have the tools to solve it yourself. But here is the deal: I will not discuss the answers in general or your answers to, or performance in, the first exam before the second exam has been given.

So you can get a clear picture of what these exams are like. [Here](#) is a copy of 2005's first mid-term exam, and [here](#) is a copy of 2005's final exam.

No make-ups on the in-class exams will be permitted. If health or other events prevent you from taking an exam, you must contact CAS's Assistant Dean for Student Affairs. I will only respond to requests for a make-up received directly from the Dean's office.

### **Grading**

I am frequently asked whether I curve the exam scores. As I have not announced how many points you must get for an A, etc., this is a meaningless question. What many of you really want to know is how tough a letter grader I am. The answer is that I'm about average for FIU. Click [here](#) for a graph of the grade distribution I gave out in Spring 2005. It is quite likely that the distribution will be quite similar this year.

### **Problem Sets**

Most of the sections of this course have short problem sets, which can be found at the end of each chapter in the lecture notes. You are expected to complete these in the same week that we cover the material. However, I will not be collecting problem sets, and I will not be grading them. You may meet with me or the TA to discuss if your answers are on the right track. There is an important incentive for you to stay on top of this material: the exams will consist largely of close variations of these questions. If you do not seriously attempt the problem sets in a timely fashion, you will almost certainly fail the course. On the other hand, if you take the problem sets seriously, you will likely get a very good grade. Answers to the problem sets are available on the course website.

## **1. Auctions and Economics**

We kick off the first set of classes with some auctions. I'll try and sell you some stuff and I'll try to buy some stuff back from you. Maybe we'll learn something from that.

Having participated in some auctions, we will then spend some time thinking about them. We will look at auctions that have different rules. After doing so we will focus on one particular type of auction, the Vickrey auction. It turns out that this type of auction behaves in much the same way as ordinary markets (such as what you participate in when you buy things from a store).

We will see that under certain conditions, Vickrey auctions maximize the sum of the benefits of all the participants (including those who decide not to buy or sell). This is a feature that makes them very attractive to economists. However, we will also see that when these "certain conditions" are not satisfied, the Vickrey auction fails to work so well. When the auction fails to do the job expected of it, we might like to devise a change of rules to make people better off.

These lessons from Vickrey auctions apply quite generally. As economists, we understand that under certain conditions a market left to itself will generate the maximum amount of benefit to its participants. When those conditions are met, therefore, we should leave the market alone. But when those conditions are not met, we might be able to change the rules of the market with a government policy to make people better off. As an economic policymaker, our task is therefore to identify *when* we need to intervene in a market and *how* we should do it. To understand how we should do it, we need to understand how people might behave if we change the rules.

### **Text chapter for this section**

Thompson, Peter (2008): [\*Auctions and Economics\*](#). Manuscript, Florida International University.

### **Additional required reading for this section**

Boyes, William J., and Stephen K. Happe (1989): "[Auctions as an allocation mechanism in academia: The case of faculty offices.](#)" *Journal of Economic Perspectives*, Vol. 3, No. 3. (Summer, 1989), pp. 37-40.

Steven Landsburg (1995): "Cursed winners and glum losers". Chapter 17 in *The Armchair Economist: Economics And Everyday Experience*, pp. 174-180.

### **Concepts you will learn in this section**

- private-value auction
- common-value auction
- oral auction
- sealed-bid auction
- English auction
- Dutch auction
- first-price auction
- second-price auction
- Vickrey auction
- consumer surplus
- producer surplus
- profits
- revenue
- costs
- winner's curse
- market failure

### **Further ideas we explore in this section**

- Why it is always in the interests of potential buyers to bid "honestly" in a Vickrey auction, but not in other types of auctions.
- How to calculate consumer surplus and producer surplus from information about bids made and seller costs in a Vickrey auction.
- Why a Vickrey auction maximizes the sum of consumer surplus and producer surplus, if people accurately know the value of the good they are bidding for.
- Why a Vickrey auction may not maximize the sum of consumer surplus and producer surplus, if people do not accurately know the value of the good they are bidding for.
- That a Vickrey auction is very much like many other types of market, so that what we have learned about Vickrey auctions may apply to non-auction markets.

## 2. Three Principles of Economics

Economists adhere to a core set of ideas that govern how we approach problem-solving. While the details of any particular problem may become quite complex, underlying much of the analysis are some simple principles that we will do well to think about now.

- Economics is about happiness
- Incentives Matter
- The indifference principle

### Text chapter for this section

Thompson, Peter (2008): [\*Three Principles\*](#). Manuscript, Florida International University.

### Additional required reading for this section

Steven Landsburg (1995): "The computer game of life: learning what it's all about". Chapter 5 in *The Armchair Economist: Economics And Everyday Experience*, pp. 42-45.

Steven Landsburg (1995): "The power of incentives: how seatbelts kill". Chapter 1 in *The Armchair Economist: Economics And Everyday Experience*, pp. 3-9.

Steven Landsburg (1995): "The indifference principle: who cares if the air is clean?". Chapter 4 in *The Armchair Economist: Economics And Everyday Experience*, pp. 31-41.

### Concepts you will learn in this section

- utility
- budget
- marginal utility
- diminishing marginal utility
- opportunity cost
- marginal utility of income
- consumption bundle
- indifference curve
- Giffen goods
- normal and inferior goods

### Further ideas we explore in this section

- Why smart people drop out of college.
- How seat belt laws are dangerous.
- How people choose between taking the escalators and the stairs.
- Why you are indifferent between cleaning your apartment and watching tv.

## 3. Efficiency and Equity

In the section on auctions, we concluded that the Vickrey auction set a price such that the sum of the welfare of consumers and the welfare of the seller is maximized, and that there was no other allocation that makes society better off. We concluded that this seems to be a desirable state of affairs. And of course it is: we would surely like everything in the world to be arranged so as to make society as well off as possible.

Unfortunately, “make society as well off as possible” is too vague an instruction to be of any practical use. Economists, being practical people, have developed a far more useful guide as to how the world should be organized. The guide rests on two distinct ideas – **efficiency** and **equity** – that form the basis of how economists evaluate the desirability of different outcomes and different policies.

In this section, we study the concepts of efficiency and equity separately, and in that order.

#### **Text chapter for this section**

Thompson, Peter (2008): [\*Efficiency and Equity\*](#). Manuscript, Florida International University.

#### **Additional required reading for this section**

Steven Landsburg (1995): "Telling right from wrong: the pitfalls of democracy". Chapter 6 in *The Armchair Economist: Economics And Everyday Experience*, pp. 49-59.

#### **Concepts you will learn in this section**

- Pareto efficiency
- Pareto improvement
- efficiency
- equity
- utility possibility frontier
- social welfare function
- Hick compensation criterion
- Kaldor compensation criterion
- Arrow impossibility theorem
- Rawls' veil of ignorance

#### **Further ideas we explore in this section**

- Why gas royalties are inefficient
- How the introduction of tradable sulfur dioxide permits made everyone better off.
- Why voting doesn't work.

## **4. Supply and Demand**

This section introduces some of the basic meat of the economic analysis of markets: supply and demand curves. We will see how a few small logical steps allow us adapt the concepts we learned in our study of Vickrey auctions for the study of other types of markets. We then turn to study how changes in the economic environment cause prices and quantities bought and sold to change. Finally we develop some of the basic tools we need to put numbers on our analysis -- to produce dollar values of the consequences of different policies. In the next section of the course, we will use these policy tools to analyze a variety of policy interventions.

#### **Text chapter for this section**

Thompson, Peter (2008): [\*Supply and Demand\*](#). Manuscript, Florida International University.

#### **Additional required reading for this section**

Steven Landsburg (1995): "Why prices are good: Smith versus Darwin." Chapter 8 in *The Armchair Economist: Economics And Everyday Experience*, pp. 73-82.

**Concepts you will learn in this section**

- posted-offer markets
- demand and supply curves
- market equilibrium
- changes in quantity demanded versus changes in demand
- changes in quantity supplied versus changes in supply.
- income elasticity of demand
- price elasticity of demand
- price elasticity of supply
- normal and inferior goods
- substitutes and complements

**Further ideas we explore in this section**

- How production costs and capacity constraints define the supply curve.
- Why new firms fails so often.
- Equilibrium and welfare in the US softwood lumber market.

## 5. Messing with Markets

Governments throughout the world intervene in markets all the time. In some markets, governments pay firms to produce more. In others, they force them to produce less. In some markets, governments use policy interventions to transfer wealth from consumers to producers. In others they do the opposite. In yet other markets, governments pay high prices to induce producers to increase output, and then impose quantity restrictions to prohibit them from doing so.

We saw in Chapter 4 how a well-functioning market, if left to itself, is efficient in the sense that the sum of consumer and producer surplus is maximized. Inevitably then, a common theme of this chapter is that policy interventions that force price or quantity to differ from its free-market equilibrium will involve a decline in economic welfare. We will develop the tools to analyze how much these interventions cost us.

**Text chapter for this section**

Thompson, Peter (2008): [\*Messing with Markets\*](#). Manuscript, Florida International University.

**Additional required reading for this section**

Steven Landsburg (1995): "Why taxes are bad: the logic of efficiency". Chapter 7 in *The Armchair Economist: Economics And Everyday Experience*, pp. 60-72.

**Concepts you will learn in this section**

- price floors
- price caps
- production quotas
- subsidies
- taxes
- the burden of taxation
- Laffer curves

### Further ideas we explore in this section

- Why you have to dress well to rent an apartment in San Francisco.
- Why New York cops went undercover in 2003 to bust limo drivers.

## 6. Messed-up Markets I - Externalities

Not all markets function well. As a society we should care about *all* the costs of production, not just those that are paid by the producers. And we should also care about *all* the benefits or costs of consumption, not just those that are considered by the buyer. If there are some production costs that are not paid by the producer, then too much of the good will be produced. If there is a benefit to society from consumption beyond the benefit enjoyed by an individual buyer, then too little of the good will be consumed.

Differences between social and private costs of production, and between social and private costs or benefits of consumption are called externalities. In this chapter we study this type of market failure -- what it does to the optimality properties of the free market, and what policies are available to us remedy problems that arise.

### Text chapter for this section

Thompson, Peter (2008): [\*Messed-up Markets I: Externalities\*](#). Manuscript, Florida International University.

### Additional required reading for this section

Steven Landsburg (1995): "Of Medicine and Candy, Trains and Sparks: Economics in the Courtroom". Chapter 9 in *The Armchair Economist: Economics And Everyday Experience*, pp. 83-94.

### Concepts you will learn in this section

- Negative & positive externalities
- Internalizing externalities.
- Pigouvian taxes & subsidies
- Network externalities
- Coase Theorem
- Contingent valuation

### Further ideas we explore in this section

- Why we should preserve the Monteverde Rainforest.
- The value of a nice toilet in Ghana.
- The we should tax burglar alarms and subsidize surveillance cameras.
- Why MBA students pay higher tuition.

## 7. Messed-up Markets II –

### Public Goods, Common Property Resources and Club Goods

A good is called a public good if, when it is consumed, everyone else gets to consume it as well. A good example is defense. A missile defense shield in my back yard also defends my neighbor, whether or not they contribute towards its cost. With public goods, everyone waits for someone else to pay for it. But when everyone does that, a free market left to itself will never produce the good. What's a poor government to do?

There are other types of goods that share some but not all features of a public good. These include common property resources, club goods, and congestion goods. In this chapter, we study why for each of these types of good there is a market failure, and we ask what government can do to correct it.

#### Text chapter for this section

Thompson, Peter (2005): [\*Messed-up Markets II: Public Goods, Common Property Resources and Club Goods\*](#). Manuscript, Florida International University.

#### Concepts you will learn in this section

- Non-rival goods
- Non-excludable goods
- The Groves-Clarke mechanism
- Common property resources
- Tragedy of the commons
- Club goods
- Congestion pricing

#### Further ideas we explore in this section

- Why people build lighthouses.
- Why Jamie Kellner doesn't want you to go to the bathroom.
- How to make inveterate liars tell the truth.
- Why my Dad plays golf with a flashlight.

## 8. Messed-up Markets III - Monopoly Power

Although we have looked at a several types of market failures, we have continued to assume that there are in each case many potential suppliers of the good. This is a central feature of competitive markets. When there are many potential suppliers, no one firm can exert an influence on price. Each firm therefore simply compares the market price with its production costs and decides how much, if any, to produce. But many markets don't have this feature at all. Miami has only one cable TV company.

In these cases, firms have the power to adjust the price at which they sell their products without suffering extreme changes in quantity demanded. If a firm in a competitive industry raises its price, it will lose all its sales to other firms. But firms in which there is only one, or there are only a few, sellers can usually raise their price without losing all their customers. If they can do so and raise profits, then we expect that such firms will charge higher prices than they would if they had to compete in a market with many sellers of an identical good.

Markets that have only one supplier are called **monopolies**. Markets with a small number of buyers are referred to as **oligopolies**. In this chapter and the next, we will look at each type of market. We shall take a selective look at some features of markets in which firms have power to set the price they sell at. In this chapter we focus on the optimal pricing decisions for a firm. In the next chapter, we focus on the problem of strategic interaction.

**Text chapter for this section**

Thompson, Peter (2008): [\*Messed-up Markets III: Monopoly Power\*](#). Manuscript, Florida International University.

**Additional required reading for this section**

Steven Landsburg (1995): "Why popcorn costs more at the movies". Chapter 16 in *The Armchair Economist: Economics And Everyday Experience*, pp. 157-167.

**Concepts you will learn in this section**

- Monopoly
- Marginal revenue
- Natural monopoly
- Average-cost pricing
- Two-part pricing
- Decreasing block rates
- Price discrimination

## 9. Messed-up Markets IV - Oligopoly and Games of Strategy

In Chapters 4 through 7 we assumed there are many firms in each market. From the perspective of each firm, it is as though all the other firms have already collectively arrived at the market price in conjunction with the forces of demand. Given this market price, the firm simply has to decide whether to produce and, if so, how much to produce. In Chapter 8 we went to the other extreme: the industry consists of just one firm. The market demand curve is also the firm's demand curve. The monopolist sets the price, and usually (unless it is a contestable market) need not worry about other firms at all.

In this chapter we consider markets in which that are just a small number of producers. Such markets are called **oligopolies**. The key feature of oligopolies is that the decisions of any one firm have a significant impact on the profits and the optimal choices of the other firms. Because what each firm does depends upon how other firms react, oligopoly markets are probably the hardest type of market to study. However, we will learn some very handy tools to help us tackle these problems.

**Text chapter for this section**

Thompson, Peter (2008): [\*Messed-up Markets IV: Oligopoly\*](#). Manuscript, Florida International University.

**Concepts you will learn in this section**

- Oligopoly
- Nash equilibrium
- Cournot competition
- Bertrand competition
- Cartel
- Prisoner's dilemma
- Repeated games
- Threats

- Reaction functions
- Collusion
- Time inconsistency

## 10. Messed-up Markets V - Imperfect Information

Throughout pretty much the entire text we have assumed that every participant in a market and every decision maker knows everything that he or she needs to to make the best decision. In many facets of life, however, that is an ideal that is rarely met. When we look for an apartment we are constrained by the fact that we don't know how many good apartment are out there. When you order illegal software on the internet (and don't deny it -- you students do it), you don't know whether you will get functioning software. When a firm hires a worker or a college admits a student, they have only limited information about how good that person will turn out to be.

In this chapter we study various settings in which limited, or imperfect information affects the functioning of markets. We ask why traditional pricing methods don't work well in each setting, and what, if anything, decision makers can do to resolve the problem. We will find that in most cases there is no perfect solution to the information problem, but there are many partial solutions.

### Text chapter for this section

Thompson, Peter (2008): [\*Messed-up Markets V: Imperfect Information\*](#). Manuscript, Florida International University. (incomplete preliminary draft)

### Concepts you will learn in this section

- Adverse selection
- Moral hazard
- Credence goods
- Experience Goods
- Search goods

## 11. Challenges for Economics

Economists and economics face many challenges. In this concluding section, I will talk about some of them. But I want to be very narrow about what I talk about, because I only want to talk about important things.

I am going to talk about a new area of research into human behavior that crosses the boundaries between economics and psychology. This line of research, which we might call *the new behavioral economics*, is providing consistent evidence that people often do not behave at all as we assume they do in our economic modeling. The evidence raises troubling questions about the accuracy of the way economists traditionally model human behavior. But is the core validity of conventional economics really undermined by these questions? Or is that there are just a few questions our conventional methods cannot address? If so, then how would we decide when we need to get more sophisticated about human psychology, and when the conventional methods work just fine? It is an exciting area of research, primarily because these questions remain unanswered.

**Text chapter for this section**

Thompson, Peter (2008): [Challenges for Economics](#) . Manuscript, Florida International University.

**Additional required reading for this section**

Gertner, Jon (2003): "[The futile pursuit of happiness](#)." *New York Times Magazine*, September 7, 2003.