

Principles of Microeconomics

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Summary

1. Good introductory textbook on microeconomics.

Key Takeaways

1. Preface: Why study economics? 1) it helps you understand the world you live in, 2) it will make you a more astute participant in the economy, and 3) it will give you a better understanding of both the potential and limits of economics policy.
2. Scarcity means society has limited resources and therefore cannot produce all the goods and services people wish to have and economics is the study of this.
 1. Question: is software changing the world from scarcity to abundance? Probably in certain ways but in others resources will always be somewhat limited.
3. Ten Principles of Economics (“The Big Ideas”) separated into how people make decisions (1-4), how people interact (5-7), and how the economy as a whole works (8-10)
 1. People face trade-offs. In other words, to get something we like, we usually have to give up something else we like. Making decisions requires trading one goal off against another.
 - i. A big tradeoff society faces is efficiency (size of the pie) versus equality (how the pie is split).
 - ii. People only make good decisions if they understand the options available to them so you must recognize these trade-offs.
 2. The Cost of Something Is What You Give Up to Get It
 - i. The cost of an action is not always as obvious as it first appears.
 - ii. College example: the benefits are clear, but people often cite the costs to be tuition, books, room and board. This doesn't truly represent what you give up to attend college.
 1. Room and board still a cost if you don't go to college. This is a cost that really isn't a cost.
 2. For most students, the earnings they give up (opportunity cost) to attend college are the single largest cost of their education.
 - iii. Opportunity Costs: whatever must be give up to attain some item. Decision makers should be aware of opportunity costs that accompany each possible action.
 1. **The cost of any action should be measured in foregone opportunities.**
 3. Rational People Think at The Margin
 - i. Rational people often make decisions by comparing marginal benefits and marginal costs.
 - ii. Airline example of pricing seat at marginal cost, not average cost.
 - iii. **Rational decision makers take an action if and only if the marginal benefit exceeds the marginal cost.**
 4. People Respond to Incentives
 - i. Many policies change the costs or benefits that people face and as a result, change their behavior.
 - ii. When policy makers fail to consider incentives, it often results in unintended consequences.

5. Trade Can Make Everyone Better Off
 - i. Trade between two countries can make everyone better off via specialization.
 - ii. By trading with others, people can buy a greater variety of goods and services at a lower cost.
6. Markets Are Usually a Good Way to Organize Economic Activity
 - i. Prices are the instrument with the invisible hand that directs economic activity.
 - ii. Government intervention that prevents this impedes prices ability to guide the economy.
7. Governments Can Sometimes Improve Market Outcomes
 - i. Government needs to enforce property rights so people can own and control scarce resources.
 - ii. Most government policies aim to either enlarge the economic pie or change how the pie is divided.
8. A Country's Standard of Living Depends on Its Ability to Produce Goods and Services
 - i. **Almost all variation in living standards is attributable to differences in a country's productivity, the amount of good and services produce by each unit of labor input.**
 - ii. Growth rate of productivity determines the growth rate of its average income.
 - iii. When thinking about how policy will affect living standards, the question is how will it impact our ability to produce goods and services.
9. Prices Rise when the Government Prints Too Much Money
10. Society Faces a Short-Run Trade-off between Inflation and Unemployment
4. Einstein: "the whole of science is nothing more than the refinement of everyday thinking"
5. Economists cannot conduct experiments and have to study the natural experiments offered by history.
6. Assumptions simplify the complex world and make it easier to understand.
 1. All models simplify reality to improve our understanding of it.
7. Production possibilities frontier is a simplified model that illustrates trade-offs and opportunity costs.
 1. Illustrates scarcity, efficiency, trade-offs, opportunity costs, and economic growth.
8. **An economist who says the benefits to a policy are clear shouldn't be trusted.**
 1. **Most policy involves a trade-off between efficiency and equality.**
9. Driving forces of specialization
 1. Absolute advantage: the ability to produce a good with fewer inputs than another producer.
 2. Comparative advantage: the ability to produce a good at a lower opportunity costs than another producer.
 - i. This is the same thing as saying a smaller opportunity cost.
 3. It is possible for one person (or country) to have an absolute advantage in two areas, but impossible to have a comparative advantage in both goods.
10. Specialization and comparative advantage increase economic efficiency or the size the pie.
 1. Gains from trade must lie between the opportunity costs of the two parties trading.
11. Production possibilities frontier shape: if its linear, the opportunity cost is constant but if bowed out its non-linear.
12. A market is a group of buyers and sellers for a good or service. Buyers determine the prices and sellers determine the supply.
13. Competitive market has many buyers and sellers so their individual impact on price is negligible.
 1. Monopoly would be the opposite of this.

14. Law of demand: quantity demanded falls when the price of a good rises, other things being equal.
15. There is a difference between moving along the demand curve (change in price) versus shifts in the demand curve. Common shifts in the demand curve are driven by:
1. Income: demand increases or decreases based on income for most normal goods. For inferior goods, a decrease in income leads to an increase in demand (i.e. bus rides).
 2. Prices of related goods: this is referring to substitutes and complements
 - i. Substitutes: two good for which an increase in price of one lead to an increase in demand for the other. For example, movie tickets & streaming services; hot dogs & hamburgers.
 - ii. Complements: two goods for which an increase in the price of one lead to a decrease in demand for the other. For example, gasoline & automobiles; peanut butter & jelly.
 3. Tastes: hard to measure.
 4. Expectations: about the future.
 5. Number of buyers
 6. Summary:

<u>Variable</u>	<u>A change in this variable</u>
Price of the good itself	Movement along the demand curve
Income	Shifts the demand curve
Prices of related goods	Shifts the demand curve
Tastes	Shifts the demand curve
Expectations	Shifts the demand curve
Number of buyers	Shifts the demand curve

16. Law of supply: quantity supplied of a good rise when the price of the good rises.
17. Shifts in the supply curve consist of an increase in supply (shift to the right) and a decrease in supply (shift to the left)
1. Input prices: raw materials and labor.
 2. Technology: tend to increase supply and/or reduce costs.
 3. Expectations:
 4. Number of Sellers:
 5. Summary:

<u>Variable</u>	<u>A change in this variable</u>
Price of the good itself	Movement along the supply curve
Input prices	Shifts the supply curve
Technology	Shifts the supply curve
Expectations	Shifts the supply curve
Number of sellers	Shifts the supply curve

18. What happens to price and quantity when supply or demand shifts?

	No change in supply	An increase in supply	A decrease in supply
No change in demand	P same; Q same	P down; Q up	P up; Q down
An increase in demand	P up; Q up	P ambiguous; Q up	P up; Q ambiguous
A decrease in demand	P down; Q down	P down; Q ambiguous	P ambiguous, Q down

19. Supply and demand together determine the prices of the economies many different goods and services; **prices are signals that guide the allocation of resources.**
20. Price elasticity of demand: measures how much the quantity demanded responds to a change in price; said to be elastic if it very sensitive and inelastic if not. Influences around this include:
1. Availability of close substitutes: goods with close substitutes have more elastic demand because it is easier for consumers to switch.
 - i. For example, margarine / butter vs. eggs which has no good substitute.
 2. Necessities versus luxuries: first tend to have inelastic demand with the latter being more elastic.
 - i. For example: doctor visits vs. sailboats. **Keep in mind this is driven by the preferences of the buyer.**
 3. Definition of the market: depends on the boundaries of the market. Narrowly defined (niche) markets tend to have more elastic demand as its easier to find close substitutes for narrowly defined goods.
 - i. For example, food has very inelastic demand as a broad category as becomes more elastic as you get into ice cream versus vanilla ice cream.
 4. Time Horizon: goods tend to have more elastic demand **as time horizon lengthens** because people can adjust.
 - i. For example, when price of gasoline rises, quantity demanded falls during first few months, but over time people start to take public transport or buy more fuel-efficient cars so demand will fall more substantially.
21. Price elasticity of demand and computed as % change in quantity demanded over % change in price and calculated using the midpoint method.
1. Demand is elastic when >1 and inelastic when <1 .
 2. The flatter the demand, the more elastic it is considered to be (pp 94).
22. Revenue and price elasticity of demand.
1. When demand is inelastic (<1), price and total revenue move in the same direction.
 2. When demand is elastic (>1), price and total revenue move in opposite directions.
 3. When demand is unit elastic ($=1$), remains constant.
23. Elasticity and total revenue along a Linear Demand Curve: the slope of a demand curve is constant, but elasticity is not.
1. At point with low price and high quantity, the demand curve is inelastic.
 2. At point with high price and low quantity, the demand curve is elastic.
24. Other demand elasticities
1. Income elasticity of demand: % change in qty demanded / % change in income.
 - i. Normal goods have (+) ones; inferior goods have (-) ones
 2. Cross-price elasticity of demand: % change in qty demanded of good 1 / % change in price of good 2.
 - i. Substitutes are + and complements are -
25. Price elasticity of supply: measures how much the quantity supplied responds to a change in price; said to be elastic if it very sensitive and inelastic if not. Influences around this include:
1. Flexibility of sellers to change supply
 - i. For example, beachfront land (inelastic) versus manufactured goods (elastic)
 2. Supply is more elastic in the long-run than short run
 - i. Firms can adjust factors of production
- 1. Note: Software has elastic supply characteristics**

26. Supply said to be inelastic if curve vertical and elastic if horizontal
27. Applications of supply, demand, and elasticity is the following process:
 1. Examine whether supply or demand curve shifts.
 2. Consider direction of shift.
 3. Use supply and demand diagram to see how market equilibrium changes.
28. Price ceiling (max price at which a good sold) and price floor (min price at which a good sold)
29. When a government imposes a price ceiling on a competitive market, a shortage of the good arises and sellers must ration scarce goods.
 1. Often inefficient and unfair.
 2. For example, long-run effects of rent control are damaging. Short-run supply and demand for housing is inelastic so you see no change initially. Then, buyers and sellers respond by not building new apartments and causes a shortage. Supply and demand become more elastic in the long-run
 - i. People respond to incentives.
30. A binding price floor causes a surplus.
 1. Minimum wage an example here are the supply of labor will exceed the demand for labor, causing unemployment.
31. Tax incidence refers to how the burden of a tax is distributed among the various people who make up the economy.
 1. Taxes discourage economic activity and buyers and sellers share the tax burden.
32. Taxes place a **wedge** between the price the buyers pay and the sellers receive and often distributed through prices the same regardless of size (at least according to theory).
33. **Elasticity and tax incidence: the burden of the tax usually falls on the side of the market that is less elastic.**
 1. Side of the market with fewer alternatives less willing to leave the market.
 2. For example, tax on yachts example falls on producers not the rich.
34. Equilibrium of supply and demand maximize the total benefits received by all buyers and sellers combined.
35. **Consumer Surplus** = A buyers' willingness to pay less the amount they actually pay and measures the benefits to buyers from participating in a market. The area below the demand curve and above the price measures the consumer surplus in a market.
36. **Producer Surplus** = The amount a seller is paid for a good minus the sells cost of providing it with cost being defined as the value of everything a seller must give up to produce a good.
 1. Cost can be interpreted as the sellers' opportunity cost (i.e. out of pocket expenses, value of time, etc.)
 2. The area below price and above the supply curve measures producer surplus in a market.
37. Another way to think about consumer and producer surplus.
 1. $CS = \text{Value to buyers} - \text{amount paid by buyers}$
 2. $PS = \text{Amount received by sellers} - \text{cost to sellers}$
 3. $\text{Total Surplus} = CS + PS$, or $\text{Value to buyers} - \text{Cost to Sellers}$ as amount paid by buyers and amount received by sellers cancel out.
 - i. Maximizing total surplus called efficient (size of the pie), but may not address equality, the split of the pie.
38. Thoughts on Market Equilibrium
 1. Free markets allocate the supply of goods to who value them most highly as measured by willingness to pay and the demand of goods to sellers who can product them at the lowest cost.

2. Free markets produce the quantity of good that maximizes consumer and producer surplus.
39. A tax raises the price a buyer pays and lowers the price a seller receives; it lowers consumers and producer surplus.
- Places a **“wedge”** between the price a buyer pays and a seller receives.
40. All countries benefit from trade because it allows each to specialize in what it does best.
41. Externality: arises when a person engages in an activity that influences the well-being of a bystander but neither pays nor receives compensation for that effect.
- Positive externality: if impact is beneficial; Negative externality: if impact is adverse.
 - Examples include exhaust from automobiles, restored historic buildings and dogs barking.
42. Internalizing an externality involves altering incentives so that people take into account the external effects of their actions.
- One of the 10 principles of economics: people respond to incentives.
 - If positive, you want to subsidize the activity (i.e. solar energy)
 - If negative, you may want to tax the activity (i.e. gas tax)
 - To summarize: negative externalities lead markets to produce a greater amount than is socially desirable. Positive externalities lead markets to produce a smaller amount than socially desirable. To remedy this problem, the government can internalize the externality by taxing goods with negative externalities and subsidizing goods with positive externalities.
43. Taxes can actually substitute for one another. If you are raised the gas tax (US is far below the rest of the world), you could probably lower income taxes.
44. Different kinds of goods determined by the properties of excludability and rival in consumption.
- Excludability: the property of a good whereby a person can be stopped from using it.
 - Rival in consumption: the property of a good whereby one person’s use diminishes another persons’ use.
45. Four Types of Goods

		Rival in Consumption?	
		Yes	No
Excludable?	Yes	Private Goods <ul style="list-style-type: none"> • Ice Cream Cones • Clothing • Congested Toll Roads 	Club Goods <ul style="list-style-type: none"> • Fire Protection • Cable TV • Uncongested toll roads
	No	Common Resources <ul style="list-style-type: none"> • Fish in the ocean • The environment • Congested non-toll roads 	Public Goods <ul style="list-style-type: none"> • Tornado Siren • National Defense • Uncongested toll roads

46. The idea of explicit costs that require an outlay of money by the firm versus the idea of implicit costs that do not require an outlay but are still costs (i.e. opportunity costs).
- Total economic cost of a business if the sum of both.
 - Cost of capital / foregone wages are other opportunity costs.
47. Economic profit versus accounting profit.
- Economic: Total revenue – implicit and explicit costs.

2. Accounting: Total Revenue – explicit costs.
48. The bottom of the U shape in average total costs is known as minimum efficient scale, or the quantity of output that minimizes average total cost.
1. Marginal cost curve crosses average total cost curve at its minimum. At low levels of output, $MC < ATC$ so average costs are falling, but after they cross marginal costs starts to rise.
49. Properties that cost curves share include:
1. Marginal cost eventually rises with the quantity of output.
 2. The average total cost curve is U shaped.
 3. Marginal cost curve crosses ATC curve at the minimum of ATC.
50. Cost curves become more elastic in the long run and depends on the time horizon considered.
51. Characteristics of competitive markets include 1) many buyers and sellers, 2) little differentiation, and 3) free entry and exit.
52. To maximize profit, marginal revenue needs to exceed marginal cost.
1. Marginal revenue $>$ marginal cost, firm should increase output.
 2. $MC > MR$, firm should decrease output.
 3. $MR = MC$ at profit-maximizing level of output.
53. Marginal cost curve becomes the competitive firm's supply curve.
54. Shutdown and exit considerations are a shutdown if $P < AVC$ and exit is $P < ATC$.
55. Sunk cost: a cost that has been committed and cannot be recovered.
- 56. In a competitive market, you can assume the price you pay if pretty close to the cost of making the good.**
57. Why wouldn't a monopoly charge any price it wants? Eventually less customers will buy (lower WTP) and alternatives likely develop at some point.
58. Types of monopolies include government created (patents), unique resources, and natural monopolies.
59. Price discrimination: the practice of selling the same good (or service) at different prices to different customers.
1. The monopolist tries to charge customers a price closer to his or her WTP.
 2. This requires an ability to separate customers according to their WTP.
 3. Examples of this include things such as movie tickets, airline prices, discount coupons, financial aid, and quantity discounts.
60. Competition vs. Monopoly

	<u>Competition</u>	<u>Monopoly</u>
<u>Similarities</u>		
Goal of firms	Maximize Profits	Maximize Profits
Rule for maximizing	$MR = MC$	$MR = MC$
Can earn economic profits in short run?	Yes	Yes
<u>Differences</u>		
Number of Firms	Many	One
Marginal Revenue	$MR = R$	$MR < P$
Price	$P = MC$	$P > MC$
Max Level of Output?	Yes	No
Entry in the long run?	Yes	No

Economic profits in the LT?	No	Yes
Price Discrimination?	No	Yes

61. Some markets do not fit the perfectly competitive or monopoly model and are described as “monopolistic competition”. These are markets where there are 1) many sellers, but with 2) differentiated products, and 3) have free entry and exit.
- 62. It is most often best to think of perfectly competitive markets and monopolies on a continuum.**
1. Competitive: $P=MC$; $P=ATC$; Economic profits are zero in the long run
 2. Monopoly: $P>MC$; $P>ATC$; Economic Profits >0 ; some deadweight loss
63. Good screen to determine what type of market you are in.
1. Number of firms?
 - i. If many, it depends whether products are differentiated and the market is most likely monopolistic competition or perfect competition.
 - ii. If few firms, it is likely a monopoly or oligopoly.
64. To maximize profit, a monopoly competitive firm would look at the level at which marginal revenue = marginal cost and use the demand curve to find the price at which is can sell that quantity.
65. Two differences between a monopolistically competitive firm and perfectly competitive firm is that of excess capacity because $P > MC$ and because of that markup they are always looking to add one more customer.
1. Trying to attract more customers only makes sense if price exceeds marginal cost.
66. Oligopolistic firms are interdependent in a way that competitive firms are not and key feature of this industry structure is a tension between cooperation and self-interest.
1. If they can collude, they will operate like monopolists.
 2. This is often difficult to do and illustrated by the game of prisoners’ dilemma which illustrates why cooperation is difficult to maintain even when it is mutually beneficial.
 3. As sellers in an oligopoly grow larger, it behaves more like a competitive market and price approach marginal costs and socially optimal level of output occurs.
67. Dominant strategies lead to a Nash Equilibrium in which players choose strategies given best strategies others likely choose.

What I got out of it

1. The 10 Principles of Economics are interesting and widely applicable. My favorites include:
 - a. People face trades off in most decision they make and in order to make good decisions you need to know your options and trade-offs.
 - i. For example, Big trade-off is size of pie (efficiency) versus how its split.
 - b. Opportunity costs are really important and are not always financial; for example, people cite room and board for college tuition but it’s a cost that is not really a cost it is the opportunity costs of foregone wages.
 - i. The cost of any action should be measured in foregone opportunities.
 - ii. For example, Explicit versus implicit costs in a business and economic profits versus account profits.
 - c. Rational people should think at the margin and compare marginal costs and benefits.
 - d. Other Ideas: People respond to incentives; markets usually a good way to organize economic activity; and trade makes people better off.
2. Supply and demand are what organize markets and are important concepts to understand.
3. Consumer Surplus and Producer surplus are important concepts to understand.

- a. Price does not equal value in a lot of contexts such as WTP versus price; price paid for a company versus value in brings, etc.
 - b. Taxes drive a wedge between these two items and how its split is driven by which side of the market is less elastic.
4. Understanding costs curves and their shapes are important.
5. Analyzing industry structure is an important economic consideration and is best as thought of as a continuum between perfectly competitive and a monopoly.
 - a. Exceptions include monopolistically competitive and oligopoly.
 - b. This will give you a good sense of the economic returns in an industry.
 - c. To maximize profits, increase quantity of output until $P=MC$

Note: I assume no responsibility or liability for any errors or omissions in the content of these note. The information contained in these notes is provided on an "as is" basis with no guarantees of completeness, accuracy, usefulness or timeliness and are based on my own interpretations of the author's work.

Note: Skipped Chapters 19 & 20 for this reading.