



ECON 101 – MIDTERM 1 REVIEW SESSION – SOLUTIONS (WINTER 2015)

BY BENJI HUANG



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CHAPTER 1: WHAT IS ECONOMICS

Key concepts:

Microeconomics: study of the choices that individuals and businesses make. With this tool, we can see how we can organize our activities in such a way that when people make decisions based on their self-interest, their actions ultimately promote the social interest.

Factors of production:		
Name	Description	type of income
Land	natural resources	rent
Labour	time and effort of people put into working (human capital: the skills and knowledge of the people working)	wages
Capital	machines and tools and factories (to be distinguished from financial capital e.g. money, stocks)	interest
Entrepreneurship	the act of coordinating land, labour, and capital to produce something	profit

Scarcity: we can't get everything we want, so we must choose amongst available options. Those choices are the focus of microeconomics. For instance, factors of production are scarce. That is why there is a cost associated with them. Scarcity gives rise to a very important concept called the opportunity cost.

Opportunity cost: when you choose something, opportunity cost is the best alternative that you gave up.

Margin: on the scale of one unit.

Marginal benefit: the benefit derived from one more unit of something

Marginal cost: the cost that comes along with one more unit of something

The big idea is that more is not always better. You always want one more unit of something until the marginal cost exceeds the marginal benefit. Then you don't want any more.

Concepts applied:

"There can be too much of a good thing." This statement suggests that

A) choices made in self-interest cannot be applied to many economic decisions.

B) a good may be produced to the point where its marginal cost exceeds its marginal benefit.

C) certain goods and services such as education and health care are inherently desirable and should be produced regardless of costs and benefits.

D) a good may be produced to the point where its marginal benefit exceeds its marginal cost.

E) a good may be produced to the point where its marginal benefit is equal to its marginal cost.

During the next hour John can choose one of the following three activities: playing basketball, watching television, or reading a book. The opportunity cost of reading a book

A) depends on how much the book cost when it was purchased.

B) is the value of playing basketball if John prefers that to watching television.

C) is the value of playing basketball *and* the value of watching television.

D) depends on how much John enjoys the book.

E) is the value of watching television if John prefers playing basketball to watching television.

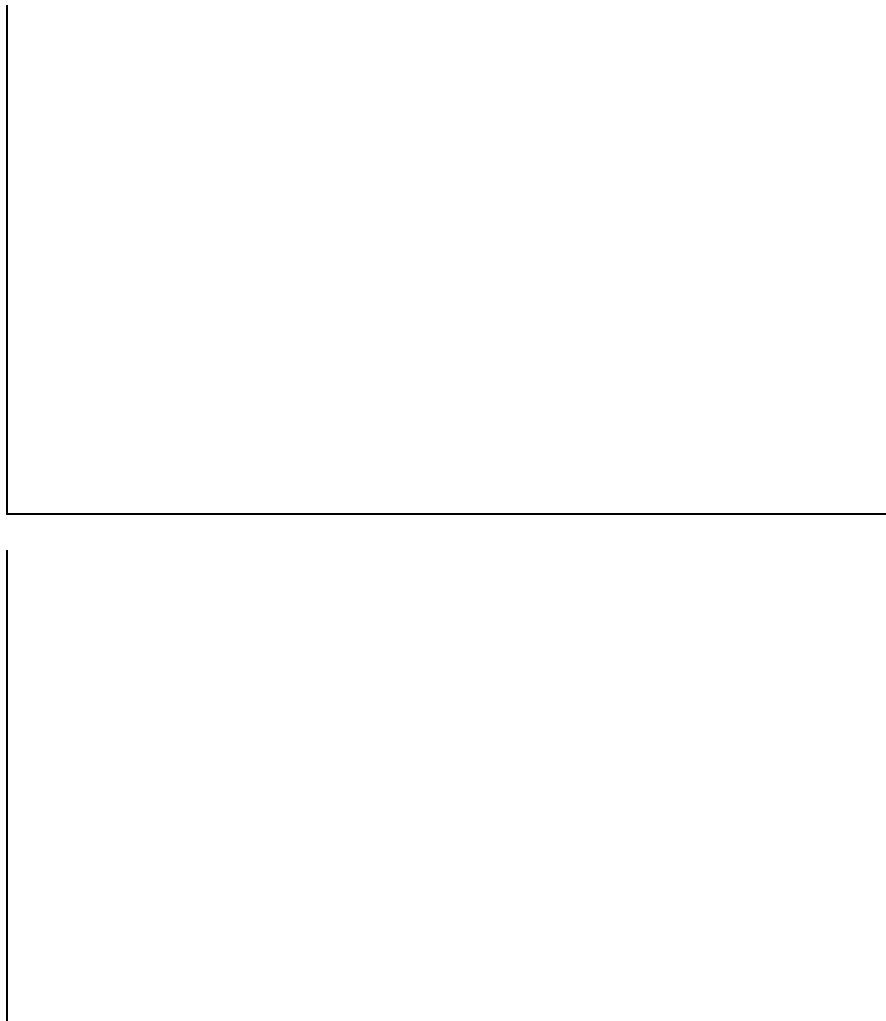
CHAPTER 2: THE ECONOMIC PROBLEM

Key concepts:

Production possibilities frontier (PPF): with a finite amount of factors of production at your disposal, you can produce varying quantities of different goods. Until you reach capacity, you can continue to produce ever more units of those goods. However at some point, you reach a limit after which you can't produce more units of one good without sacrificing production of another good. That limit is called the production possibilities frontier. For simplification in econ 101, you will only ever focus on 2 goods at a time.

Opportunity cost on the PPF: when you are on the PPF, you can't produce an additional unit of one good without sacrificing some units of another good. This situation is called a trade-off. If producing an additional unit of A requires you to give up 4 units of B, the opportunity cost of producing another unit of A is 4 units of B. Put another way, the marginal cost of A is 4 units of B.

Increasing opportunity cost: when the PPF is curved (as it always is in real life), opportunity cost of producing one more unit of a good increases as you produce more and more of that particular good.



Allocative efficiency: the point (essentially a bundle of goods) on the PPF that maximizes total benefit in excess of total cost. This point is also where the marginal benefit of good A equals the marginal cost of good A. The next unit of A (should you choose to produce it) will incur a greater cost than the benefit it will provide.

Economic growth: the outward expansion of the PPF. Achieved by sacrificing present consumption in favor of future consumption. More capital goods today leads to the possibility of more consumptions in the future.

Gains from trade: the idea that by specializing and trading, society as a whole can be better off than if everyone produces what he or she consumes. The same holds for every individual in the society who participates in the trading. It arises because of something called a comparative advantage.

Absolute advantage: person A is more efficient than person B in producing something. Person A has an absolute advantage.

Comparative advantage: person A's opportunity cost of producing something is lower than person B's opportunity cost of producing the same thing. Person A has a comparative advantage. For instance, in one hour, person A can make 18 pizzas or 6 burgers, while person B can make 10 pizzas or 5 burgers. Person B has no absolute advantage in anything, but does have a comparative advantage in burgers.

Concepts applied:

If Sam is producing at a point inside his production possibilities curve, then he

- A) can increase production of both goods with zero opportunity cost.
- B) is fully using all his resources and allocating his resources to their best use.
- C) must be doing the best he can with limited resources.
- D) is unaffected by costs and technology.
- E) has a high opportunity cost of moving from this point.

In general, if country A is accumulating capital at a faster rate than country B, then country A

- A) will soon have a comparative advantage in the production of most goods.
- B) is using a larger proportion of resources to produce consumption goods.
- C) will have a production possibilities frontier that is shifting out faster than country B's.
- D) will have a higher rate of inflation than country B.
- E) will have more unemployment than country B.

Which one of the following concepts is *not* illustrated by a production possibilities curve?

- A) scarcity
- B) monetary exchange
- C) opportunity cost
- D) attainable and unattainable points
- E) the tradeoff between producing one good versus another

CHAPTER 3: DEMAND AND SUPPLY

Key concepts:

Competitive market: a market with many buyers and sellers. No individual participant can influence the price.

Quantity demanded: the amount consumers in a market plan to buy in a given period at a certain price.

The demand curve: plots the different quantities demanded under different prices, holding everything else constant (i.e. expressing the concept of “demand” graphically). It illustrates the marginal benefit of a product to the entire society.

Influenced by: price of substitutes (positive) and compliments (negative)
Expected future price (positive)
Income (positive for normal goods, negative for inferior goods)
Expected future income and credit (positive)
Population (positive)
Preferences (depends)

Law of demand: the higher the price, the smaller the quantity demanded, everything else held constant

Substitution effect: when price rises, consumers might switch to substitutes

Income effect: when price rises, consumers can't buy as much as before given the same income

Quantity supplied: the amount producers plan to sell in a given period at a certain price.

Supply curve: plots the different quantities supplied under different prices, holding everything else constant (i.e. express the concept of “supply” graphically). It illustrates the marginal cost of a product to the entire society.

Influenced by: prices of factors of production (negative)
prices of substitutes (negative), compliments (positive)
expected future price (negative)
number of suppliers (positive)
Technology (depends)
State of nature (depends)

Law of supply: the higher the price, the greater the quantity supplied, everything else held constant

Market equilibrium: a state where the quantity demanded equals the quantity supplied. The price at that point is the equilibrium price (p^*) and the quantity at that point is the equilibrium quantity (q^*).

Price too high: surplus drives price down

Price too low: shortage drives price up

Concepts applied:

Farm land can be used to produce either cattle or corn. If the demand for cattle increases, then the

- A) demand for corn increases.
- B) supply of corn increases.
- C) demand for corn decreases.
- D) supply of corn decreases.**
- E) both B and C.

"As domestic car prices have increased, consumers have found foreign cars to be a better bargain. Consequently, domestic car sales have fallen and foreign car sales have risen." Based on this information alone, there has been a

- A) shift in the demand curves for both domestic and foreign cars.
- B) shift in the supply curves for both domestic and foreign cars.
- C) movement along the demand curves for both domestic and foreign cars.
- D) movement along the demand curve for domestic cars and a shift of the demand curve for foreign cars.**
- E) shift of the demand curve for domestic cars and a movement along the demand curve for foreign cars.

Suppose we observe a rise in the price of good A and a decrease in the quantity of good A bought and sold. Which one of the following is a likely explanation?

- A) The law of supply is violated.
- B) The demand for A decreased.
- C) The demand for A increased.
- D) The supply of A increased.
- E) The supply of A decreased.**

The price of a good will tend to fall if

- A) there is a surplus at the current price.
- B) the current price is below the equilibrium price.
- C) the quantity supplied exceeds the quantity demanded at the current price.
- D) both A and C are true.**
- E) none of the above are true.

In the late 1990s the prices of company shares on stock markets rose to levels which, for many firms, were much higher than warranted by the values of their assets and their profits. How can demand and supply analysis explain why this "bubble" in stock market prices was caused by expectations that share prices would continue to rise? Use a graph to illustrate the outcome. (3 points)

If both buyers and sellers expect share prices would continue to rise, the demand of stocks would go up and the supply of stocks would go down. Both resulting in a higher stock prices.

CHAPTER 4: ELASTICITY

Key concepts:

Elasticity of demand: a measure of the sensitivity of the quantity demanded to a change in price

$$= \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}} = \frac{(Q_1 - Q_0)/Q_{ave}}{(P_1 - P_0)/P_{ave}}$$

Special cases: **Perfectly inelastic demand** – vertical

Daraprim: CEO tried to hike the price up by more than 5000%. Would have worked if not for the public outcry.

Unit elastic supply – concaved inward

Perfectly elastic demand – horizontal

In a perfectly competitive market, the demand faced by any single supplier is perfectly elastic (you will learn this later on in the course).

In a linear downward sloping demand curve, the midpoint has an elasticity of 1. The revenue is maximized at that point. Below the midpoint, the demand is inelastic ($0 < e < 1$). Above it, the demand is elastic ($1 < e$).

Using this principle it is possible to test whether the demand is elastic at a certain point by observing the change to revenue following a very small increase in price – **total revenue test**

Price elasticity of demand is influenced by:

The closeness of substitutes – closer the substitute, more elastic

Proportion of income spent on the good – greater the proportion, more elastic

Time elapsed since price change – longer the time, more elastic

Additional types of demand elasticity

$$\text{cross elasticity of demand} = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price of a compliment or substitute}}$$

Positive for substitutes and negative compliments

$$\text{income elasticity of demand} = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in income}}$$

Positive for normal goods and negative for inferior goods

Elasticity of supply: a measure of the sensitivity of the quantity supplied to a change in price

$$= \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in price}} = \frac{(Q_1 - Q_0)/Q_{ave}}{(P_1 - P_0)/P_{ave}}$$

Special cases: **Perfectly inelastic supply** – vertical

Explained by low resource substitution possibilities

Unit elastic supply – touches the origin

Perfectly elastic supply – horizontal

Explained by high resource substitution possibilities

Time frame for the supply decision

Momentary supply: inelastic for things like fruit/vegetable, elastic for things like digital goods

Long-run supply: after all all adjustments to supply has been made (both labour and capital)

Short-run supply: only after some adjustments are made (usually only labour)

Concepts applied:

Which one of the following illustrates an inelastic demand?

- A) A 10 percent rise in price leads to a 5 percent decrease in quantity demanded.**
- B) A 10 percent rise in price leads to a 20 percent decrease in quantity demanded.
- C) A price elasticity of demand equal to infinity.
- D) A price elasticity of demand equal to 1.0.
- E) A price elasticity of demand equal to 2.0.

Luxury goods tend to have income elasticities of demand that are

- A) greater than 1.**
- B) greater than zero but less than 1.
- C) less than the income elasticities of demand for necessary goods.
- D) negative.
- E) first positive and then negative as income increases.

A rise in the price of good A shifts the

- A) demand curve for good B rightward if the cross elasticity of demand between A and B is negative.
- B) demand curve for good B rightward if the cross elasticity of demand between A and B is positive.**
- C) supply curve of B rightward if the cross elasticity of demand between A and B is negative.
- D) supply curve of B rightward if the cross elasticity of demand between A and B is positive.
- E) demand curve for B rightward if the income elasticity of demand for B is positive.

When the price of a bicycle falls from \$220 to \$180 and other things remain the same

- I. the quantity demanded of bicycles increases from 150 to 250 an hour
- II. the quantity demanded of skateboards decreases from 125 to 75 an hour
- III. the quantity demanded of bicycle helmets increases from 170 to 230 an hour.

Skateboards and bicycles are _____ because a fall in the price of a bicycle brings _____ in the quantity demanded of skateboards. The cross elasticity of demand for skateboards with respect to bicycles is _____.

- A) complements; an increase; -0.4
- B) complements; a decrease; 0.4
- C) substitutes; an increase; -2.5
- D) substitutes; a decrease; 2.5**
- E) substitutes; a decrease; 0.4

Preferences for brussels sprouts increase. The price of brussels sprouts will not change if the price elasticity of

- A) demand is 0.
- B) demand is 1.
- C) supply is 0.
- D) supply is 1.
- E) supply is infinity.**

Your uncle owns a bakery shop, and he has never studied economics. He believes raising the price of his breads would increase his revenue. Explain to your uncle why that might not be the case. (2 points)

Whether revenue would go up depends on the elasticity of demand. If the demand for his breads is elastic, then his revenue would fall when he increases the price. His thinking is only true if demand is inelastic.

CHAPTER 5: EFFICIENCY AND EQUITY

Key concepts:

A consumer benefits from the consumption of a product
this benefit determines willingness to pay for a marginal unit
graphically represented by the individual's demand curve

Market Demand Curve: adding up all consumers' demand curve HORIZONTALLY

Consumer Surplus:

- 1) area under the demand curve = the total \$ that consumers are willing to pay
 - 2) area under the price line = that total \$ that consumers actually pay
- CS = the area under the demand curve and above the price line

Producer must sell to cover the cost of making a product

Marginal Willingness to Sell: to deliver 1 more unit, the price producers must charge equals the cost to produce that unit = Marginal Cost
graphically represented by the producer's supply curve

Market Supply Curve: adding up all suppliers' supply curve HORIZONTALLY.

Producer Surplus:

- 1) area under the price line = total \$ the producers receive
 - 2) area under the supply curve = actual cost of producing a given quantity
- PS = area below the price line and above the supply curve

Total surplus = CS + PS = total area under the demand curve and above the supply curve

Total surplus is maximized when market is Efficient

Deadweight Loss: occurs when price $\neq p^*$, quantity $\neq q^*$ (when market isn't efficient)
benefit are lost that should have been available to society if market was Efficient
... or harm done to society when more than the efficient quantity is produced

Concepts applied:

Charlene is willing to pay \$5.00 for a sandwich. If the price of a sandwich is _____, Charlene _____.

A) \$4.00; does not receive any consumer surplus

B) \$4.00; receives a consumer surplus

C) \$6.00; receives a consumer surplus

D) \$6.00; receives a marginal cost

E) \$4.00; receives a producer surplus

CHAPTER 6: GOVERNMENT ACTIONS IN MARKETS

Key concepts:

Ways government can influence a market:

- Price ceiling (e.g. rent ceiling)
- Price floor (e.g. minimum wage)
- Tax
- Subsidy
- Quota

When a policy forces the market equilibrium away from the efficient price and quantity, it always leads to inefficiency and DWL. However politician often have other agendas that differ from maximizing total surplus.

Price Controls

Price ceiling/cap: maximum price producers can charge

no effect if ceiling $\geq p^*$, otherwise shortage occurs

rent ceiling leads to less than efficient quantity of houses, longer Search Time, Black Market and DWL

Price floor: minimum price that must be paid to producers

no effect if floor $\leq p^*$, otherwise excess of supply

minimum wage leads to unemployment (i.e. quantity of labour available in excess of the quantity demanded)

effects: increased job search, DWL

Taxes:

1. Tax on consumers, demand curve shifts down by per unit tax

2. Tax on producers, supply curve shifts up by per unit tax

In essence consumers and producers want to be able to return to the state prior to taxes

Taxes create a NEW equilibrium that is NOT efficient.

There are exception, for instance the marginal cost of production (supply curve) doesn't fully reflect all social costs. One of these costs that are usually not reflected is the cost of pollution. Thus a pollution tax CAN help the market to reach a truly efficient equilibrium.

Tax Incidence: how much of the tax ultimately falls on consumers vs producers; careful! doesn't matter who is taxed; results are the same. Who bears the burden is not determined by who gets taxed but by whose curve is more inelastic. The more inelastic, the greater the burden. The more elastic, the lesser the burden.

Production quota: the max the producers can make

no effect if quote $\geq q^*$, otherwise underproduction and leads to:

decrease in supply

increases price

decreases marginal cost

producers wanting to cheat and produce more than quota

Subsidy: government gives monetary aid to firms to help with production
opposite of taxing the producer
encourages overproduction and DWL

The market for illegal goods is just like any other market. The only difference is that penalties (in the form of fines and jail terms) can serve to decrease supply and demand.

Concepts applied:

Based on the discussions in class, argue whether a price ceiling on rent is going to help the tenants. (2 points)

With the absence of search activity and black market, the consumer surplus is going to be higher when the government imposed an effective rent ceiling. However, in a market with an effective price ceiling, search activity and black market are likely to happen and are going to reduce the consumer surplus to a level which could be lower than the market equilibrium. So renters could be worse off.

Consider the market for coffees. Suppose the market demand and supply curves are as given below. Price is the price per unit in cents. Quantity refers to units of coffee per month.

$$\text{Demand: } P = 60 - 4Q_d \qquad \text{Supply: } P = 2Q_s$$

a. Compute the equilibrium price and quantity. (1 point)

$$Q^* = 10, P^* = 20$$

b. Now suppose the government imposes a tax of 6 cents per unit of coffee on the buyers. What is the new equilibrium price and quantity? (2 points)

$$Q = 9, P = 18 \text{ but consumer pays } 18+6 = 24$$

c. Compute the (per unit) tax burden on the consumer and producer. (1 point)

$$\text{Tax burden on consumer} = 24 - 20 = 4$$

$$\text{Tax burden on firm} = 20 - 18 = 2$$

If the price of a good is not affected by a tax, then

- A) supply is perfectly elastic.
- B) demand is perfectly elastic.**
- C) the elasticity of supply is greater than elasticity of demand.
- D) demand is unit elastic.
- E) supply is unit elastic.

The seller pays most of a tax if demand is relatively elastic because

- A) the buyer can easily substitute to other markets.**
- B) the seller can easily substitute to other markets.
- C) the government forces the seller to bear the burden of the tax.
- D) there is a black market for this good.
- E) the seller cannot easily substitute to other goods.

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As always, knowledge comes first. Exam-taking finesse comes second.