

N=26 (10 AM)

ECO 103, Winter 2015, Exam #1

Name: Key

Instructions: Answer all parts of all questions. You have 80 minutes to complete the exam. This exam is open note. You are welcome to use any written materials that you might find helpful. Calculators, but no other electronic devices, are allowed. Here are some things to keep in mind.

- i. Explain all of your answers. Unsupported answers will receive little or no credit.
- ii. On true/false questions, I only care about the quality of your explanation. Simply writing “true” or “false” will yield no credit.
- iii. Avoid extensive irrelevance, this will also cost you points. Your goal should be to provide clear and concise explanations.
- iv. It is more important to demonstrate that you understand the correct method. Minor math errors will result in only minor deductions.
- v. All parts of all questions are worth the same amount.
- vi. Many questions ask you about a deviation from something that we did in class. If you simply copy down what we did in class, I will award no credit.

1. Assorted Questions

a. Chad says that "oil prices have decreased because people are starting to use more solar power." Zoe says "oil prices have declined because new sources of oil have been discovered." How could empirical economics be used to resolve this disagreement?

• The former claim suggests reduced demand. This predicts that the quantity of oil should fall.

• The latter predicts increased supply. This predicts that the quantity should rise.

• We can test these claims by going to the data and seeing if the quantity rose or fell.

b. Suppose I have \$100 to distribute between Tonya and Nancy. I give Nancy \$90 and Tonya \$10. Provide a scenario where this allocation is not Pareto efficient.

There are many.

Suppose that Nancy is altruistic toward Tonya so that her utility is the minimum of their consumption. If Tonya is self-interested only, both would benefit from giving Tonya more.

~~Or, etc.~~

c. It is often said that good macroeconomics requires strong "microeconomic foundations." It is rarely said that good microeconomics requires strong "macroeconomic foundations." Why is this?

Macroeconomics is the aggregation of all microeconomic behavior. So to understand macro, we need to understand the micro that comprises it.

d. What is the major difference between the fields of economic growth and business cycles.

Economic growth is the study of long run macroeconomic performance whereas business cycles are the study of the short run.

e. Is the following statement normative or positive: "Congress should raise taxes on upper income households?"

Normative, it advocates for a specific policy.

f. Which is probably more desirable: a 4% increase in GDP or a 4% increase in GDP growth?

The latter. It includes the former as well as future increases in GDP.

g. Critique the following claim: "rents on apartments are much higher than they used to be. People can't afford as much rental housing as they used to. Inflation is harming them."

This claim refers to people having a lower quantity of rental housing. By definition, this is a decline in output, not higher inflation. Inflation is socially harmful in other ways.

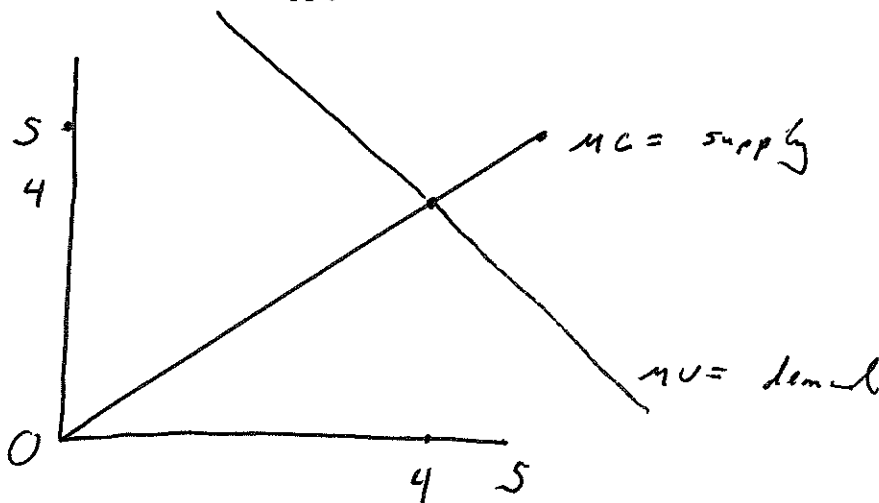
2. Microeconomics

Consider the market for Air Travel.

Table 1: The Market For Air Travel

Units	Total Utility	Marginal Cost	MU
1	10	1	10
2	18	2	8
3	24	3	6
4	28	4	4
5	30	5	2

a. Plot the demand and supply curves.

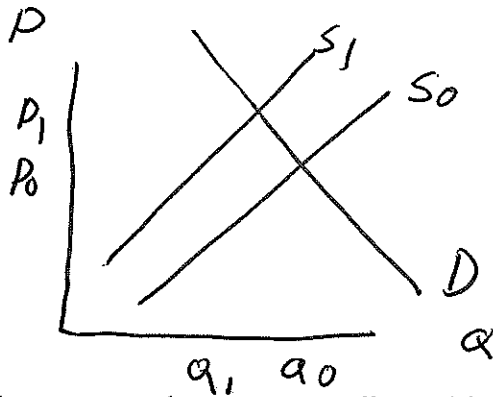


b. Solve for the equilibrium quantity and price.

$$P = Q = 4$$

c. Suppose that jet fuel becomes more expensive. What are the effects on the equilibrium price and quantity?

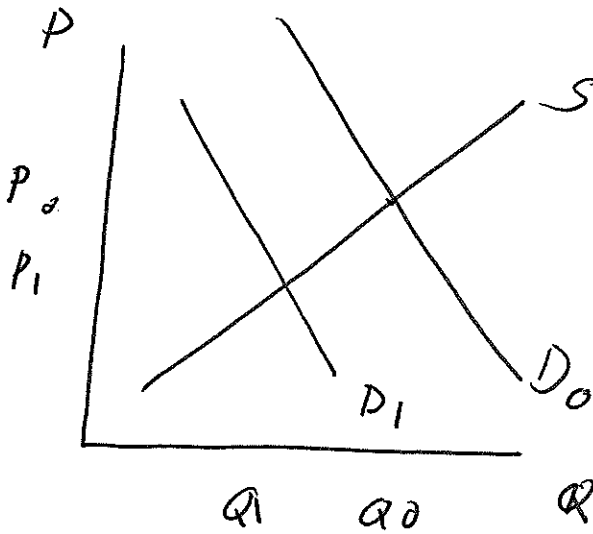
This would increase the cost of air travel. Supply is reduced.



$P \uparrow, Q \downarrow$

d. Now suppose that access to rail travel becomes much better (more routes, more comfortable train cars, etc.) What are the effects on the equilibrium price and quantity?

this increases the marginal utility of a substitute to air travel. Demand is reduced.



$P \downarrow, Q \downarrow$

How would the following assumptions affect the market for air travel:

e. Planes emit pollution that reduces air quality and make noise that bothers people living near airports.

This is a negative externality. The private market does not take into account the cost of air travel experienced by the public. Left unaddressed, the private market will provide too much air travel.

f. Some airlines have poor safety records and consumers do not have the ability to identify which ones they are.

This is moral hazard. Consumers cannot accurately estimate the utility provided by the good. As a result, they will reduce their demand and there will be too little air travel.

3. Macroeconomic Variables

Table 2: Economic Activity on Cow Planet

Good or Service	Q_{14}	P_{14}	Q_{15}	P_{15}
Imported Beer	2	2	3	1
Domestic Beer	8	1	4	3
Tractors	7	2	8	3
Tractor wheels	7	1	6	2

a. Calculate nominal GDP and consumption in 2014.

Imported beer and tractor wheels do not count because GDP excludes both imports and intermediate goods.

$$C = 8 + 4 = 12, \text{ imported beer counts}$$

$$I = 14$$

$$Y = 22 \quad (G = \cancel{I} = 0)$$

$$= C + I - X$$

b. Using 2015 as the base year, calculate real GDP growth.

$$GDP_{14} = P_{15} \times Q_{14} = 8 \times 3 + 7 \times 3 = 45$$

$$GDP_{15} = P_{15} \times Q_{15} = 4 \times 3 + 8 \times 3 = 36$$

$$GDP_{\text{growth}} = \frac{36 - 45}{45} = \frac{-9}{45} = -20\% \text{ , down}$$

c. Using 2014 as the base year, calculate inflation using the GDP Deflator

~~$$P_{14} = 1$$~~

$$GDP_{\text{Def}}_{14} = P_{14} \times Q_{14} = 8 \times 1 + 7 \times 2 = 22$$

$$GDP_{\text{Def}}_{15} = P_{15} \times Q_{14} = 8 \times 3 + 7 \times 3 = 45$$

$$\pi_{15} = \frac{45 - 22}{22} = \frac{23}{22} = 105\%$$