Problem Set 2- Econ 115
Due Jan 24, 2006

1. Maria can read 20 pages of economics in an hour. She can also read 40 pages of art history in an hour. She spends 5 hours per day studying.

a) Draw Maria’s production possibilities frontier (ppf) for reading economics and art history.

Note first that if Maria decides to read only one of the two subjects, i.e. if she spends 5 hours reading only economics or only art history, she will be able to read 100 pages of economics or 200 pages of art history. This will give us the intercepts of her ppf.

We still need to know if the ppf is concave, convex or linear. In other words, we need to know the slope of her ppf (formally, the slope of the ppf is the Marginal Rate of Transformation). In this case, the rate in which to trade-off economics and art history is 2.

![Figure 1:](image)

b) What is Maria’s opportunity cost of reading 100 pages of art history?

To read 100 pages of art history Maria needs to spend 2.5 hours. In this same time she could read 50 pages of economics.

Thus, Maria’s opportunity cost of reading 100 pages of art history is 50 pages of economics.

2. The following table shows the quantity of hot-dogs (with buns) supplied and demanded one afternoon last week on corner of Church and Elm:
a) Graph the demand and supply curves. What is the equilibrium price and quantity?
With the data available, we can plot as follows:

Or if you connect the points you get:

The equilibrium price is 2.00 and the equilibrium quantity is 96. This can be seen in the table and in the graph: where both curves intercept.

b) How would each of the events affect the market for hot dogs? For each event show which curve has shifted and the resulting change in the equilibrium price and quantity (up or down?)

i. A severe case of mold wipes out a large fraction of Connecticut’s buns on hand.
First, there is an effect in the market for buns, which will increase its price. But the buns are an input to the hot dogs.
Thus, the result is higher price and lower quantity.

ii. A new ad campaign from the Hot Dog Association of America is wildly successful.
   People are now willing to pay more for a hot dog.

   Equilibrium price and quantity increase.

iii. The price of buns falls sharply.
   Buns are cheaper, which has the effect of a decrease in costs to the hot dog suppliers.

   Equilibrium price decrease and quantity increase.

iv. The prices of lunches at the local sandwich shop falls.
   The price of a substitute falls will imply a shift down on the demand curve.
3. Consider the linear demand curve \( Q = 350 - 7P \). What is the price elasticity at \( P = 50 \)?

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\varepsilon = \frac{\Delta Q}{Q} \frac{P}{\Delta P} = \frac{\Delta Q}{\Delta P} \frac{P}{Q}
\]

At \( P = 50 \), \( Q = 0 \). Thus, \( \varepsilon = -\infty \).

4. For each of the following, discuss whether you expect the elasticity (of demand or supply, as specified) to be greater in the long-run or short-run.

a) The supply of seats in the local movie theater.
   The elasticity is greater in the long run.
   In the short run, there is not room for an increase (at least not for a large increase) in the number of seats. However, in the long run if the demand is large enough, the movie owner could perhaps increase the room and add more seats.

b) The demand for cigarettes.
   The elasticity is greater in the long run.
   Even if people want to quit smoking, it is hard to do it in a short period of time. However through time, more people might become convinced that smoking is bad and will not start smoking in the first place.

5. Consider the article in the reading packet by Gary Becker titled “How Uncle Sam Could Ease the Organ Shortage”.

a) What does Gary Becker believe about the slope of supply curve for organs?
   Mr. Becker believes that the supply for organs has a positive slope. In his own words: “the price is raised to suppliers in order to induce them to increase the quantities provided”.

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b) Do you believe there are negative consequences of allowing people to sell their organs for transplant after they die?

You could argue, for example, that there is a trade-off if you think of inequality (richer people would be better off).

Draw society’s PPF.

In this case, the trade-off would be equality of opportunities and supply of organs. But what is the opportunity cost of an additional supply of organ? What is the slope of the PPF?

Below is the depicted on possibility.

![Graph showing the PPF](image)

One way to argue is the following: If society allows for selling organs, there will be an initial big drop in the y-axis, whereas after supply and demand are in equilibrium, an additional organ will not affect the y-axis anymore...

c) Does Becker think that there is a free-lunch here?

No, Mr. Becker understands that there are trade-offs for increasing the supply of organs. Some of the trade-offs that he points out are: “take unfair advantage of poor people”, “too costly” and for many people it would be “immoral”.

d) In the case of organs, is it the proper role of the government to stand in the way of mutually advantageous exchanges? Why, or why not?

According to Mr. Becker, the government could regulate this new activity being the only authority with the power to buy organs, but it should allow people to sell them if they wanted to...Here you should give your own opinion...