Intermediate Microeconomics
Fall 2015

**Problem Set 1**
Due Lecture 2 in class on paper

1. GLS Chapter 2, Question 14

(a) We first find the market equilibrium quantity.

$$P = 100 - Q^D = Q^S = P$$

$$Q_E = 50$$

The equilibrium price is $P_E = 50$.

The slope of the inverse demand curve is -1; hence, the price elasticity of demand is

$$E_D = \frac{1}{-1} * \frac{50}{50} = -1$$

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What does this mean? A 1 percent price in price yields a 1 percent decrease in demand.

(b) The market equilibrium quantity is

$$P = 10000 - 100Q^D = 100Q^S = P$$

$$Q^E = 50$$

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The equilibrium price is $P_E = 5000$ cents.

The slope of the inverse demand function is -100. The price elasticity of demand is

$$E_D = \frac{1}{-100} * \frac{5000}{50} = -1$$

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Note that although this new slope is 100 times larger than the slope in part (a), the price elasticity of demand is unchanged. This is because price elasticities of demand and supply are not affected by the unit of measurement used.

2. Elasticity

(a) Suppose that house prices increase by 10%, and the total quantity of homes in the market increases by 8%. What is the elasticity of supply of housing? Interpret your answer in the context of a 1% change in home prices.

Elasticity of supply is

$$E_S = \frac{\%\Delta Q}{\%\Delta P} = \frac{0.08}{0.10} = .8$$

If the price of housing increases by 1%, housing supply increases by 0.8% – so the housing supply increases by less than the price.

(b) There is substantial disagreement in the economics profession about the exact magnitude of the housing supply elasticity (note that this is critically important in the policy discussion about rising home prices). One seminal article (Topel and Rosen, 1988) estimates that the elasticity if 1.0 for a one-year change in prices, and 1.7 for an eight-year change in prices. Interpret each elasticity in light of a 1% change in home prices, and give some intuition about why the 8-year elasticity is larger than the one-year elasticity.

A 1.0 estimate of housing supply elasticity means that if home prices increase by 1%, the supply of homes increases by 1%. The estimate of 1.7 means that an increase of 1% in home prices implies a 1.8% increase in the supply of homes. (Note that if supply outpaces demand, we anticipate home prices will fall.)

In general, we expect long-run elasticities to be larger than short-run elasticities because suppliers have a greater ability to respond in the long run. In the case of home builders, there may be a lag between an increase in prices and the builder's ability to acquire land, get permits, and get construction underway – particularly for large builders.

3. Give two recent examples of (i) when you have moved along the demand curve and (ii) when your personal demand curve has shifted. Briefly explain why each behavior is a shift or a move along the curve.

Here we accept any well-reasoned argument. The key is that movements along the demand curve are caused by changes in price. Shifts in the demand curve are due to other factors, such as changes in taste, or changes in income.

4. There have been a number of recent news articles suggesting that President Obama is considering lifting the current U.S. ban the on domestic oil exports. What impact do you think lifting this ban would have on oil prices in the U.S.?

Make your assumptions clear (they can be strong ones), and illustrate your argument with

graphs.

Suppose that the price of oil in the rest of the world exceeds the U.S. price. This is a natural assumption, because U.S. oil producers wouldn't be interested in exporting oil if prices in the rest of the world were lower. Suppose also, for simplicity, that all types of oil are perfect substitutes.

If the U.S. exports some oil, domestic supply will decrease, or shift inward on a graph. This inward shift will lead to an increase in prices.

Note, however, that U.S. oil producers – and workers who work for oil producing firms – will be better off, so the net effect on welfare is not necessarily negative.

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If you would like additional practice, I suggest working through question 13 (answers in the back of the book).