Economics 102
Spring 2018
Homework #2
Due 2/22/18

Directions:

- The homework will be collected in a box **before** the large lecture.
- Please place your name, TA name and section number on top of the homework (legibly). Make sure you write your name as it appears on your ID so that you can receive the correct grade.
- Late homework will not be accepted so make plans ahead of time. **Please show your work.** Good luck!

Please realize that you are essentially creating "your brand" when you submit this homework. Do you want your homework to convey that you are competent, careful, professional? Or, do you want to convey the image that you are careless, sloppy, and less than professional. For the rest of your life you will be creating your brand: please think about what you are saying about yourself when you do any work for someone else!

1. Joint PPF and trading range of prices

Steven and Tim are both hired for 8 hours to work on a farm. Steven can pick 40 apples (A) in an hour, or 10 bananas (B) in an hour. Tim can pick 20 apples in an hour, or 60 bananas in an hour. Only 420 apples and 420 bananas grow on this farm, and no more fruits can be harvested if the job is finished early.

a. Who has a comparative advantage in picking apples, and who has a comparative advantage in picking bananas? Explain your answer using the concept of opportunity cost.

b. Draw the individual PPFs for Steven and Tim. Put apples (A) on the horizontal axis.

c. Draw the joint PPF for the two people if they work together and trade.

d. What is the trading range of prices for an apple?

e. If Steven and Tim work together, can they produce 400 apples and 240 bananas? If they produce this combination of the two goods, how many apples and bananas will they each produce?

2. Qualitative Supply and Demand

Big Macs, an iconic fast food item sold by McDonald's, are made of beef patties, cheese, and bread buns. Soda is usually consumed together with Big Macs. Many calorie-conscious consumers consider grilled chicken salad a healthier substitute for Big Macs.

State whether the new equilibrium price and quantity for Big Macs is higher or lower after the following changes. Assume that the market for Big Macs is initially in equilibrium and that you are analyzing the effect of the desired change on the equilibrium price and equilibrium quantity in the market relative to the initial equilibrium price and equilibrium quantity. (Hint: Drawing graphs might help!)

a. Suppose that an outbreak of mad cow disease kills many cows and makes people afraid of eating beef.

b. Suppose that the government levies a sugar tax on all soft drinks, and soda is now more expensive.

c. Suppose that both soda and grilled chicken salad are now more expensive than before.

d. Suppose that McDonald's pays most of its workers the minimum wage, and now the federal minimum wage is raised by the government.

e. Suppose that the government raises the tariff on chicken imported from Mexico, while lowing the tariff on beef imported from Argentina. (Assume the U.S. imports positive amounts of chicken and beef from the two countries.)

f. Suppose that more people are now into healthy food. At the same time, McDonald's is opening 500 new restaurants across the country.

3. International Trade

Prior to the 1978 market reform, China was a closed economy and did not trade with the United States. Suppose that the domestic supply and demand for socks in the U.S. are represented by the following equations:

Domestic Supply Curve: $Q = P - 1$
Domestic Demand Curve: $Q = 10 - 0.5P$

where quantity (Q) is in terms of thousands, and price (P) is in terms of U.S. dollars (USD) per pair.

a. Prior to 1978, what are the equilibrium price and quantity for socks in the United States? (Assuming that the U.S. did not import and export socks at the time.) Find the consumer surplus, producer surplus, and total surplus.

b. After 1978, Chinese socks are imported into the U.S. Chinese socks are priced at 50 cents per pair in China, and it costs $1.50 per pair to transport socks across the Pacific. Given this information, find the new equilibrium price and quantity of socks in the U.S. How many socks are produced by American companies, and how many socks are imported from China?

c. Calculate the consumer surplus, producer surplus and the total surplus once imported socks are allowed into the U.S. market. Who benefits from the trade? Who loses?

d. What is the dead weight loss (DWL) if the U.S. bans the import of socks from China?

4. International Trade with Tariff and Quota

In the region of Winterfell, there is a market for wildfire. The domestic demand, supply, and world price are described below.

Domestic Demand: $P = 10 - Q$
Domestic Supply: $P = Q$
World price of a unit of wildfire: $P^{world} = 2$

a. Assuming free trade, will Winterfell import or export wildfire? How many units of wildfire will be imported or exported?

b. Calculate the consumer surplus, producer surplus and total surplus under free trade.

c. Suppose that the ruler of Winterfell, Eddard Stark, implements a tariff of 2 gold coins on each unit of imported wildfire to prevent fires inside his castle. How many units of wildfire are now imported? How much money does Eddard Stark make from the tariff? Verbally explain where the tariff revenue comes from, and who pays for the tariff.

d. Calculate the consumer and producer surpluses with the implementation of the tariff. Also calculate the resulting dead weight loss (DWL). Who benefits from the tariff and who loses?

e. Suppose that the tariff is now raised to a total of 4 gold coins per unit of imported wildfire. How many units of wildfire will be imported or exported?

f. Eddard Stark decides to implement an import quota on wildfire instead of a tariff. The quota is set at 2 units. How many units of wildfire will now be imported, and at what price?

g. Eddard Stark gives the exclusive right to import wildfire to his friend Littlefinger. How much money does Littlefinger make?

h. Calculate the consumer and producer surpluses with the implementation of the quota. Also calculate the resulting dead weight loss (DWL). Which is better from an efficiency perspective - a tariff of 2 gold coins or a quota of 2 units?

i. Instead of giving it to Littlefinger, Eddard Stark decides to auction off the license to import wildfire. Every merchant could submit a bid with his or her price for the license. What will be the likely price for the license? How much profit does the license-holding importer make?