Econ 12200
Section 04

Problem Set 6

Instructions
This problem set is due at the beginning of class on **Friday, October 21, 2016.** You are encouraged to use your book, notes, and discuss with your classmates. But you must turn in your own individual solution. You may type or hand write your solutions. You must show all work to receive a ✓+.

1. Hotel rooms in Ithaca go for $140 a night and 500 rooms are rented each night.

   (a) Suppose Svante Myrick decides to tax hotel rooms at $10 per room rented. The $10 tax results in a price increase to $146 and 450 rooms being rented each night. Calculate the tax revenue and the deadweight loss from the tax.

   (b) Suppose Svante Myrick decides to double the tax to $20 per room rented. The new price increases to $152 and the number of rooms rented drops to 400. Calculate the tax revenue and the deadweight loss with the $20 tax. Did tax revenue and deadweight loss increase by double, more than double, or less than double?

2. Suppose a market is characterized by the following equations: $Q^D = 180 - 12P$ and $Q^S = 6P$

   (a) Solve for the free market equilibrium price and quantity.

   (b) Graph the market.

   (c) Calculate the consumer and producer surplus.

   (d) Suppose the government decides to tax demand such that demand is now described by the following equation: $Q^D = 180 - 12(P + T)$. Add the new demand curve with the tax to your graph.

   (e) Solve for the price sellers receive, the price buyers pay, and the new equilibrium quantity with the tax.

   (f) Calculate the tax revenue.

   (g) Calculate the DWL.

3. Now suppose instead the tax, T, is placed on producers such that $Q^D = 180 - 12P$ and $Q^S = 6(P - T)$

   (a) Solve for the price sellers receive, the price buyers pay, and the new equilibrium quantity with the tax.

   (b) Calculate the tax revenue.

   (c) Calculate the DWL.

   (d) What are the differences when the tax is placed on consumers and producers?

4. Suppose the world price of tequila is above the price that would prevail in Mexico in the absence of trade.

   (a) If Mexico decides to open trade with the rest of the world will they import or export tequila? State how you know.

   (b) Graph the market for tequila in Mexico with free trade. Label the autarky quantity, autarky price, new price with trade, new quantity produced, new quantity consumed, imports or exports, consumer surplus, and producer surplus.

   (c) Suppose the world price of tequila rises. Identify using a graph the change to consumer surplus, producer surplus, and total surplus given the new price. Are consumers better off? Are producers better off? Is Mexico better off?

5. Suppose the US imports automobiles from Japan.

   (a) Draw the US market for automobiles. Label the world price, quantity domestically produced, quantity domestically consumed, and imports.

   (b) Show the consumer and producer surplus on your graph.

   (c) Suppose the US decides to restrict imports of automobiles by placing a tariff on imports. Add the tariff to your graph.

      i. Using your graph and a table, document the changes to consumer surplus, producer surplus, government revenue, and total surplus.

      ii. Who benefits from the tariff? Who loses from the tariff?

   (d) Suppose instead of the tariff, the US and Japan negotiate a voluntary export restraint (VER) in which Japan agrees to restrict exports to the US to $\frac{1}{2}$ the free trade level of exports.

      i. Using a graph and a table, document the changes to consumer surplus, producer surplus, government revenue, and total surplus.

      ii. Who benefits from the VER? Who loses from the VER?

   (e) Which trade restriction should the US prefer?

6. Idaho is a small state that produces and exports potatoes. The world price of potatoes is $7 per bag of potatoes. Idaho's domestic demand and supply of potatoes is given by the following equations:
$$Q^D = 10 - P$$
$$Q^S = -2 + P$$
   where P is in dollars and Q is bags of potatoes.

   (a) Draw a well labeled graph of the market for potatoes in Idaho before trade. Label the autarky equilibrium price and quantity. Calculate the producer surplus, consumer surplus, and total surplus when Idaho does not trade.

   (b) Idaho then opens their market for trade. Draw a new graph with the world price. Calculate the consumer surplus, producer surplus, total surplus, exports, and gains from trade.

   (c) Idaho decides to subsidize exports of potatoes. The new price of potatoes with the subsidy is $8 per bag. Show the effects of this subsidy. Calculate the quantity

consumed, quantity produced, exports, consumer surplus, producer surplus, total surplus, and deadweight loss.