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Exam 1
Fall 2008

DO NOT OPEN THIS EXAM UNTIL YOU ARE TOLD TO DO SO.

Instructions

1. Write your SUID in the upper right corner of this exam. Do NOT write your name.

2. SHOW ALL YOUR WORK. Answers without supporting work will receive little or no credit.

3. There are 70 points possible on this exam and you will have 80 minutes to complete it. *Be sure to budget your time accordingly.*

4. Do all your work on this exam. If you need extra space, write on the backs of the pages. However, if you do write an answer on the back of a page, *be sure you've noted that near the question*.

Area of a triangle: $\frac{1}{2}bh$ Area of a trapezoid: $\left(\frac{b_1 + b_2}{2}\right)h$

Part 1 (20 points)

A government is considering whether or not to impose a $10 tariff in order to help a domestic firm compete against imports. The domestic firm is currently producing 2 million units and has a supply elasticity of 1.0. Total consumption of the good is 3 million units and the demand curve is known to have an elasticity of -2.0. It is also known that foreign firms have a perfectly elastic supply at a W2A of $200. At the moment, there is no tariff in place.

(a) *10 points.* Use the information above to calculate the effect of the tariff on the price, the quantity of domestic production, the quantity of imports, and the total quantity consumed. Show the new equilibrium with an appropriate graph (or graphs).

Part 1, continued

    (b) *10 points.* Calculate the revenue raised by the tariff and the change in consumer and producer surplus. Does the tariff create deadweight loss? If so, please calculate it.

Part 2 (30 points)

A good is purchased by two types of buyers, "X" and "Y". There are 20 type X buyers and each has a willingness to pay given by $W2P_X = 125 - 2*Q_X$. There are 40 type Y buyers and each has a willingness to pay given by $W2P_Y = 235 - 4*Q_Y$. The good is produced by 10 sellers (call them type "Z"), each of whom has a willingness to accept given by $W2A_Z = 54 + 0.1*Q_Z$. Initially, there are no taxes, subsides or other interventions in the market.

(a) *10 points*. Please determine the initial market equilibrium. What will the price and total quantity be? How much do typical people of type X and Y consume? How much does a typical type Z firm produce?

Part 2, continued.

(b) *10 points.* Now suppose the government would like people to purchase more of the good and establishes a $12 subsidy. Please calculate the new equilibrium. Find the price paid by buyers, the price received by sellers, the new total quantity, and the quantity consumed by a typical buyer of each type. Illustrate your results with an appropriate graph or graphs.

Part 2, continued.

(c) *10 points.* Evaluate the effects of the subsidy on overall consumer and producer surplus. How much does the government have to spend on the subsidy? Is it efficient? If not, please determine the deadweight loss. In addition, make a table summarizing the effects of the policy on a person of each type (X, Y and Z). Be sure to include changes in the quantity produced or consumed, and any changes in the producer or consumer surplus the person receives.

Part 3 (10 points)

Apartments in a city are supplied by two landlords, "A" and "B". Landlord A's supply is perfectly inelastic at 2000 apartments. Landlord B's supply is initially 2000 apartments as well but B's supply elasticity is 1.0. Apartments initially rent for $2000 a month and the elasticity of demand is known to be -1.0.

Suppose the city government imposes a rent control ordinance limiting the maximum rent to $1500. Please compute the effects of this policy on renters and each of the landlords. Be sure to calculate changes in quantities supplied or rented, changes in producer or consumer surplus, and deadweight loss, if any.

Part 4 (10 points)

A good is purchased by high ("H") and low ("L") income households. The willingness to pay of the H group is $W2P_H = 200 - Q_H$ while for the L group it is $W2P_L = 100 - Q_L$. Suppliers of the good have a willingness to accept given by $W2A = 12 + (1/20)*Q$. The government wants to increase consumption of the good by low income households and provides a subsidy of $10 *to low income households only.*

Please calculate the quantities consumed by each group of households when the policy is in effect. Also calculate the total dollar cost of the subsidy to the government.