SUID: | |

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Exam 1

Spring 2018

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 75 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 (30 points)

A good is purchased by 60 households of type A and 40 households of type B, and it is produced by 20 sellers of type X. The WTP and WTA curves for an individual household or seller of each type are shown below.

Individual A household:	$WTP_{Ai} = 450 - Q_{Ai}$
Individual B household:	$WTP_{Bi} = 600 - 2 * Q_{Bi}$
Individual X seller:	$WTA_{Xi} = 150 + Q_{Xi}$

In addition, it is known that A households each have an income of $40,000 per year and that B households each have an income of $100,000 per year.

(a) *15 points.* Please compute: ☐ the market equilibrium price and quantity; ☐ the quantity purchased by an individual A household; ☐ the quantity sold by an individual X seller; and ☐ illustrate the market equilibrium with an appropriate graph.

Part 1, continued

Now suppose the government is considering a subsidy of $100 on the good and would like to know if the distribution of *benefits* from the policy will be progressive or regressive. The distribution of benefits is progressive when low income households receive a relatively larger *gain* than high income households.

(b) *15 points.* Please compute the following when the subsidy is imposed: ☐ the new buyer and seller prices; ☐ the new equilibrium market quantity; ☐ the change in CS received by an individual A household; ☐ the total dollar value of the subsidy received by household of each type; and ☐ indicate whether the subsidy is progressive or regressive, including any necessary calculations.

Part 2 (15 points)

A $50 tariff currently applies to imports of a particular good. The market price of the good is currently $200 (that is, with the tariff in place). A total of 2000 units are being consumed and the elasticity of demand is known to be -2. Domestic firms are supplying 1000 units and the elasticity of supply by domestic producers is known to be 2. Foreign suppliers are known to have a perfectly elastic supply curve with a WTA that will need to be deduced from the information above.

(a) *15 points*. The government is considering removing the tariff. Please determine the following: ☐ the WTA for foreign suppliers; ☐ the new market price after the tariff is removed; ☐ the new total quantity consumed; ☐ the new quantity produced by domestic firms; ☐ the new quantity produced by foreign firms; ☐ the change in CS; ☐ the change in the domestic firm's PS; ☐ the change in the government's revenue; and ☐ the overall change in SS from removing the tariff.

Part 3 (15 points)

Suppose that consumption of a good creates a positive externality. The market WTP and WTA curves for the good are given below, as is the MB curve for the externality. Initially there is no tax or subsidy.

$$WTP = 1900 - 5 * Q$$
$$WTA = 100 + 4 * Q$$
$$MB_{ext} = 16 + 1 * Q$$

(a) *15 points.* Please determine: ☐ the initial market equilibrium price and quantity in the absence of a policy; ☐ the efficient quantity; ☐ the efficient buyer and seller prices; ☐ the subsidy rate that would move the market to the efficient equilibrium; ☐ the resulting change in CS; ☐ the change in PS; ☐ the change in government revenue; ☐ the change in the benefits created by the externality; and ☐ the change in SS from the policy.

Part 4 (15 points)

Until the 1980's airfares in the US were regulated by the federal government. Airlines were allowed to charge a premium (more than their WTA) for tickets on low cost routes (typically between major airports and having large numbers of passengers) in exchange for charging less than their costs on high cost routes (between small airports with few passengers). This question examines that policy.

Suppose an airline during that period serves low (L) and high (H) cost routes and has the initial data given in the table below. The airline is subject to rule and is currently breaking even overall.

Variable	**L**	**H**
Initial Q	100,000	50,000
Initial P	$400	$600
WTA	$300	See below
Demand elasticity	-0.5	-1.5

(a) *15 points*. Please determine: ☐ the airline's extra revenue in the L market; ☐ the value of WTA_H; ☐ the new quantity in each market if the cross-subsidy policy were eliminated and the airline charged the corresponding WTA for each market; ☐ the change in CS in each market; ☐ the overall change in SS from eliminating the policy.

Additional page for calculations
If you use this, please remember to indicate near the question that part of the answer is here.