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Exam 1
Fall 2004

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

Instructions

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

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

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*.

You may *not* discuss the exam with anyone until after 3:00 pm today.

Part 1 (20 points)

For the last several years, the best-selling prescription drug in the United States has been Lipitor, which is used to reduce cholesterol. Last year alone, 57 million Lipitor prescriptions were filled. The average retail price of filling each prescription was about $100.

As you are probably aware, prescription drug prices are substantially lower outside the United States. Lipitor, for example, is 25% cheaper in Canada. However, federal law prohibits the import of drugs from abroad. Assuming that the demand elasticity for Lipitor is -0.4, how much are US buyers of Lipitor hurt by the import prohibition? You may assume that the US could import as much Lipitor as needed at the Canadian price. Please illustrate your answer with an appropriate and well-labeled graph. *Please note: this question only asks you about buyers; you do not need to discuss the effect of the policy on sellers.*

Part 2 (40 points)

Suppose that a state government is concerned about air pollution would like to adopt a policy that would encourage people to buy more fuel-efficient cars. At the moment, two types of vehicle are sold in the state: high efficiency ("H") cars that get a lot of miles per gallon, and low efficiency ("L") cars that burn much more fuel. Type H cars are relatively expensive and sell for $40,000 each; type L cars sell for $25,000. Initially, 10,000 cars of type H are sold in the state, and 20,000 type-L cars are sold. The elasticity of demand for each type of car is -1.0.

A consultant has recently argued that a good solution would be to "level the playing field" by using taxes and subsidies to even out the difference in price between H and L vehicles. He suggests imposing a tax of $5,000 on each L car and providing a $10,000 subsidy for each H car sold; both cars would then sell for $30,000. Furthermore, he argues that it can be done at no cost to the government: the money raised by the L tax would be exactly equal to the money paid out in H subsidies.

What is wrong this proposal? Please discuss in detail, and calculate all relevant quantities. You may assume that the *supply* of each type of car is perfectly elastic.

Part 2: Additional Space for Answer, if Needed

Part 3 (40 points)

Suppose that the market demand and supply for a particular good are given by the equations below:

$$W2P = 2100 - Q$$
$$W2A = 2Q$$

(a) Calculate the initial market equilibrium. What will the price and quantity be?

(b) Now suppose the government imposes a $300 tax on sales of the good. The tax is collected from sellers. Solve for the new equilibrium price and quantity.

Part 3, continued.

(c) Draw a diagram illustrating the new equilibrium and indicate how the tax affects the surplus received by consumers and producers. Also indicate government revenue and deadweight loss, if applicable.

(d) Calculate the numerical values of the changes in surplus discussed in (c).

This is the end of the exam.