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Exam 1
Fall 2003

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 4pm today.

Part 1

Suppose that a rent control law is in force in a particular neighborhood. The law limits the rent on a two-bedroom apartment to no more than $1,000 per month. The following equations give the monthly demand and supply of apartments in the form of willingness to pay by renters and the willingness to accept by landlords:

$$W2P = 8000 - 8Q$$
$$W2A = 2Q$$

(a) Determine the number of apartments that will be on the market *with the rent control law in effect*. What will be the values of W2P and W2A at this quantity? Illustrate your answer with a carefully labeled diagram. *Please note: a rent control law does not place any restrictions on the quantity of apartments demanded or supplied: it only limits the price that can be charged.*

(b) What would the price and quantity of apartments be if the rent control were *eliminated*? Draw a diagram showing the new situation. Also, use the results from this section plus that from part (a) to calculate the elasticities of demand and supply.

(c) Now draw a clearly labeled third diagram showing the changes in consumer and producer surplus that would result from elimination of rent control. Calculate the numerical values of the change in each surplus. Who gains and who loses from eliminating rent control? Explain.

Part 2

A government facing a $70 million budget deficit is looking for new sources of revenue. It has hired a consultant who has come up with two proposals:

- A new $10 tax on sales of good A. Currently, good A sells for $100 and 10 million units are purchased in the government's jurisdiction every year. Good A's elasticity of demand is -4.0.

- A new $20 tax on sales of good B. Good B now sells for $100 and 5 million units are purchased every year. Good B's elasticity of demand is -1.0.

The supply of both goods is perfectly elastic. The government is going to implement one tax or the other but not both. The consultant claims the two taxes are equally good. He argues that it doesn't matter which tax is adopted because both will raise $100 million: $10 times 10 million units for good A or $20 times 5 million units for good B. You've been called in to review the consultant's conclusion and to make the final decision.

(a) Explain why the consultant is wrong about the taxes being equally good. Calculate the actual revenue that would be raised by each tax and discuss which tax, if any, would satisfy the need for $70 million of revenue. Also, is revenue the only thing that should be considered in choosing between the taxes?

(b) Which tax would you recommend? Why? Please be quantitative wherever possible.

This is the end of the exam.