

14.01 Fall 2010
Problem Set 6

1. (10 points) In Cambridge, shoppers can buy apples from two sources: a local orchard, and a store that ships apples from out of state. The orchard can produce up to 50 apples per day at a constant marginal cost of 25¢ per apple. The store can supply any remaining apples demanded, at a constant marginal cost of 75¢ per unit. When apples cost 75¢ per apple, the residents of Cambridge buy 150 apples in a day.
 - (a) (5 points) Draw the marginal cost curve of apple production in Cambridge.
 - (b) (5 points) Assume that the city of Cambridge sets the price of apples within its borders. What price should it set, and should the price vary depending on where you purchase your apples?

Problem 1 by MIT OpenCourseWare.

2. (20 points) Tariffs are usually imposed in order to decrease imports, but they don't always have the same effect. Please draw graphs that demonstrate how shifts in the domestic supply curve for a product subject to a tariff could result in the following scenarios.
 - (a) (10 points) No imports at all of that product.
 - (b) (10 points) The country becoming an exporter of that product.

Problem 2 by MIT OpenCourseWare.

3. (35 points) (*Suggestion: It may be helpful to read section 9.6 before doing this question.*) Moldavia is a small country that currently trades freely in the world barley market. Demand and supply for barley in Moldavia is governed by the following schedules:

$$\text{Demand: } Q^D = 4 - P$$

$$\text{Supply: } Q^S = P$$

The world price of barley is \$1/bushel.

- (a) (12 points) Calculate the free trade equilibrium price and quantity of barley in Moldavia. How many bushels do they import or export? On a well-labeled graph, depict this equilibrium situation, and shade the gains from trade relative to the autarkic (no trade) equilibrium in Moldavia.
- (b) (12 points) The Prime Minister of Moldavia, sympathetic as always, believes he can help those hurt by free trade in barley relative to the situation in autarky. He taxes the party that has benefited from free trade (either consumers or producers) an amount per bushel that is the difference between the autarkic price of barley and the free trade price. Furthermore, he rebates the entire government revenue of the tax back to the party harmed by free trade (again, either consumers or producers). In a new, well-labeled diagram, show this post-tax equilibrium situation. Calculate and show:
 - The new equilibrium price and quantity of barley in Moldavia
 - Changes in the quantity of imports or exports
 - The amount of revenue collected by the Prime Minister

Who pays the larger burden of this tax, consumers or producers in Moldavia? Why?

- (c) (11 points) Are the free trade losers better off or worse off after the rebate than they were under autarky? Why?

On your diagram from (b), shade the DWL (if any) of this tax rebate policy, relative to the free trade equilibrium you found in (a).

4. Problem removed due to copyright restrictions. This content is presented in audio form in the Solution Video for Problem Set 6, Problem 4.

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