

**Economics 462**

Quiz 5

*Time: 25 minutes.*

December 2, 2008

Professor Parker

Suppose a small country can import “food” at a world price of \$200 per ton. In addition, there is a positive production externality from domestic food production that producers cannot appropriate. Assume that each unit of food produced yields a marginal external social benefit of \$50. Assume that at a price of \$200, domestic quantity-demanded equals 200 million tons, and domestic quantity-supplied equals 100 million tons. Assume that for every \$10 that price changes, quantity-supplied changes by 3 million tons, and quantity-demanded changed by 2 million tons.

- a) Using a supply and demand diagram, show the free-trade equilibrium for this small country, clearly showing the autarky price, the free-trade price, the quantity-supplied, the quantity-demanded, and the quantity of imports.
- b) Now suppose the small country’s government imposed a \$40 tariff on food imports. Calculate the effect of this tariff on the price, quantity-supplied, quantity-demanded, and imports, and show this on your graph. Calculate the effects on producer surplus, consumer surplus, the government budget, and the external social benefit from production from the \$40 tariff. Relative to free trade, is the country better or worse off?
- c) Assume instead that the country pays a production subsidy of \$40 per ton of food to domestic food producers. Relative to free trade, calculate the changes in producer surplus, consumer surplus, the government budget, and the external social benefit. Relative to free trade, is the country better or worse off? How about relative to the tariff?
- d) Recalculate and reconsider your answers to (b) and (c), assuming that the tariff and the subsidy were both increased to equal the amount of the marginal external benefit.