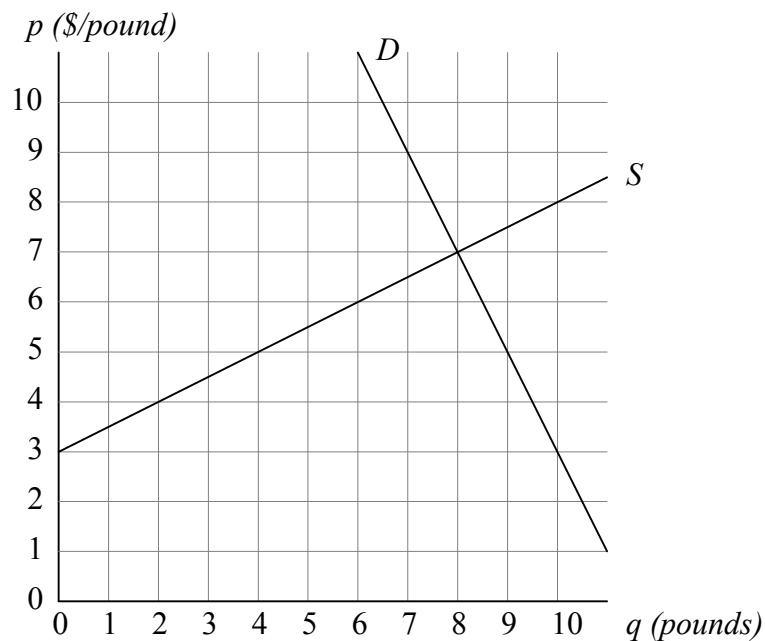


## Problem Set 6 Tariffs

1. The graph below shows domestic supply and demand for a good in a small country. Suppose that it faces a world price of the good of \$4 per pound. Show the effects on this market of a 25% ad valorem tariff on the good by drawing the equilibria with and without the tariff, then using the grid lines in the figure to calculate the changes in quantities supplied, demanded, and imported, and the welfare effects of the tariff on suppliers, demanders, government, and the country as a whole.



2. Use the partial equilibrium, small-country model of a tariff to work out the effects of an *increase* in a tariff that was already positive. For each case below, find the effects on domestic price, domestic quantities supplied and demanded, quantity of imports, and the welfare of suppliers, demanders, government, and the country as a whole. Also note, by comparing with your notes from class, whether any of these results differ from the effects of a positive tariff starting from a zero tariff.
  - a. A tariff increase that is small enough so that the quantity of imports remains positive.
  - b. A tariff increase that is large enough to reduce the quantity of imports to zero.

3. In a partial equilibrium model, a country's autarky price is \$10, while its price with free trade is \$8. What will be the domestic price if the country levies a specific tariff of \$3 and the country is
  - a. Small?
  - b. Large?
4. In the partial equilibrium, large-country model, show how the import supply curve can be derived as the excess supply in the Foreign country's domestic market. Then use this to show how a tariff levied by the Home country affects prices, quantities, and welfare (of Foreign suppliers, demanders, and government) in the Foreign economy.
5. Using the partial equilibrium model of a large importing country, suppose that the country is initially in equilibrium with a certain non-prohibitive tariff.
  - a. Assuming that the tariff is a specific tariff and that its size does not change, what will be the effects on prices, quantities, and welfare of
    - i. A shift to the right in the domestic demand curve (more of the good demanded at each price).
    - ii. A shift to the right in the foreign supply curve (more imports of the good supplied at each price).
  - b. How, if at all, would part (a) be different if the tariff were fixed in ad valorem instead of specific terms?
6. In the partial equilibrium model, when a tariff reaches a certain level it becomes prohibitive. Does that happen also in the general equilibrium small-country model? If not, what happens instead as the size of the tariff becomes ever larger? If so, how would you identify the prohibitive level of the tariff?
7. Use the two-good Heckscher-Ohlin Model to work out how a country's PPF is expanded when it experiences equal percentage increases, say 10%, in *both* its labor force and its capital stock. Then, assuming homothetic preferences and the presence of a fixed, positive but non-prohibitive, ad valorem tariff on its imports of (relatively labor-intensive) Food, work out the effects of this growth on its tariff revenue (in units of Cloth) and also on the real wage of labor under the assumption that the country is
  - a. Small.
  - b. Large.

8. The diagram below shows the PPF of a small, two-sector economy, together with points representing the goods that it consumes under free trade,  $D_f$ , and those that it consumes under a certain tariff,  $D_t$ . Perhaps surprisingly, this should be enough information for you to derive the free-trade relative price of food, the domestic relative price of food under the tariff, and therefore the quantities of food and cloth produced both with and without the tariff. In addition, if you assume homothetic preferences, you can make a good guess at what the indifference curves look like through  $D_f$  and  $D_t$ . Do all this. And then, with the help of a ruler, estimate the ad valorem size of the tariff.

