Answers to Questions from Chapter 8

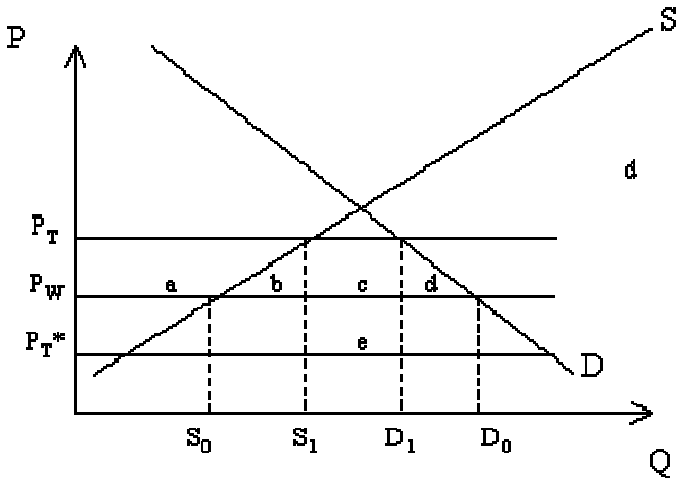
(1) a. Ad valorem tariffs are measured as a fraction of the value of the imported good. If we levy a 30% tariff on Foreign televisions this increases their price to \$5,000 + .30(\$5,000) = \$6,500 which is equivalent to the Home price. Given such a tariff, domestic consumers will no longer "buy foreign" because of lower prices. The Home infant television industry can be protected in this way, but such protection can be quite costly. Note that our framework does not fully capture the infant industry story since you would really need to analyze the potential for future reduced costs in the Home industry which arise because of higher operations in the current, protected time period.

b. Before the tariff, domestic assembly of televisions would take place only if it could be done for \$2,000 or less. With the tariff in place, domestic assembly will occur even if it costs \$3,500, which is the difference between \$6,500 and the cost of parts. Consequently, a 30% tariff rate provides domestic assemblers with an effective rate of protection of 75%.

c. By raising the Home price of televisions and lowering the Foreign price of televisions, consumers in the importing country (Home) lose while consumers are better off in the Foreign country. Foreign producers are made worse off while Home producers are made better off. In addition, the Home government receives tariff revenues.

(2) In the diagram below, imports are initially $D_0 - S_0$. A tariff increases the price domestically from P_W to P_T and imports fall to $D_1 - S_1$. The large country is able to reduce the foreign price to P_T^* because the demand for the imported good is reduced on world markets. The tariff reduces consumer surplus by the area abcd and raises producer surplus by the area a because the domestic price of the imported good has increased. The government also receives tariff revenues equal to the area ce --the amount of new imports ($D_1 - S_1$) multiplied by the tariff amount ($P_T - P_T^*$). The net change in welfare is area e - area (b + d). Area b and d represent the efficiency losses from over-production and under-consumption, respectively. Area e represents the terms of trade gain, as the large country was able to force the price of its imported good lower with the tariff. The country now buys $D_1 - S_1$ imports at the price of P_T^*.

A VER has the same impact on consumer and producer surplus as an equivalent tariff. However, the government does not receive any tariff revenue with a VER. Instead, the area ce goes to foreign producers whose cost of production reflects P_T^* but whose selling price is P_T in the importing country. Thus, the VER reduces overall welfare by the area bcd. The VER is clearly more costly than the tariff. The bulk of the costs reflect a transfer of income from domestic consumers to foreign producers (i.e., area c versus the efficiency losses of area b + d). VERs are used in practice because they avoid the rules of the WTO, which does not police restrictions of exports. Furthermore, exporters prefer to face a VER, rather than a tariff or import quota (where the licenses go to domestic firms), because they earn the rents that would otherwise accrue to the importing country's government or firms.



(3) a. The price in the exporting country (Home) rises from $6,000 to $6,450, while the price in the Foreign country falls from $6,000 to $5,550. The price increase at Home is less than the $900 subsidy because the Home country is large enough to reduce the world price as it expands export production.

b. As a result of the price increase, Home's production of tractors expands from 70 to 80 units and exports expand by 20 units, from 50 to 70 tractors. Notice that domestic sales have fallen by 10 units, from 20 to 10 tractors.

c. Tractor consumers at Home are hurt by the price increase, while tractor producers gain. The government loses because it must pay for the subsidy.

d. Graphically, the consumer loss is equal to the area ab, the producer gain is the area abc, and the government loss is equal to bcdefghi. The government pays the subsidy of $900 ($6,450 - $5,550) on the 70 tractors that are exported.

e. The export subsidy worsens Home's terms of trade by lowering the export price in world markets.