

**Problem Set 2 Answers** (corrected)

Due in Lecture on Wednesday, **October 31**.

KO6, #1

Cases *a* and *d* reflect external economies of scale since concentration of the production of an industry in a few locations reduces the industry's costs even when the scale of operation of individual firms remains small. External economies need not lead to imperfect competition. The benefits of geographical concentration may include a greater variety of specialized services to support industry operations and larger labor markets or thicker input markets. Cases *b* and *c* reflect internal economies of scale and occur at the level of the individual firm. The larger the output of a product by a particular firm, the lower its average costs. This leads to imperfect competition as in petrochemicals, aircraft, and autos.

KO6, #8

The Japanese producers are price discriminating across United States and Japanese markets, so that the goods sold in the United States are much cheaper than those sold in Japan. It may be profitable for other Japanese to purchase these goods in the United States, incur any tariffs and transportation costs, and resell the goods in Japan. Clearly, the price differential across markets must be non-trivial for this to be profitable.

KO6, #10

External economies are important for firms as technology changes rapidly and as the "cutting edge" moves quickly with frequent innovations. As this process slows, manufacturing becomes more routine and there is less advantage conferred by external economies. Instead, firms look for low cost production locations. Since external economies are no longer important, firms find little advantage in being clustered and it is likely that locations other than the high-wage original locations are chosen.

1. Consider the following diagram of the home country. Assume the home country is small, and is importing steel.

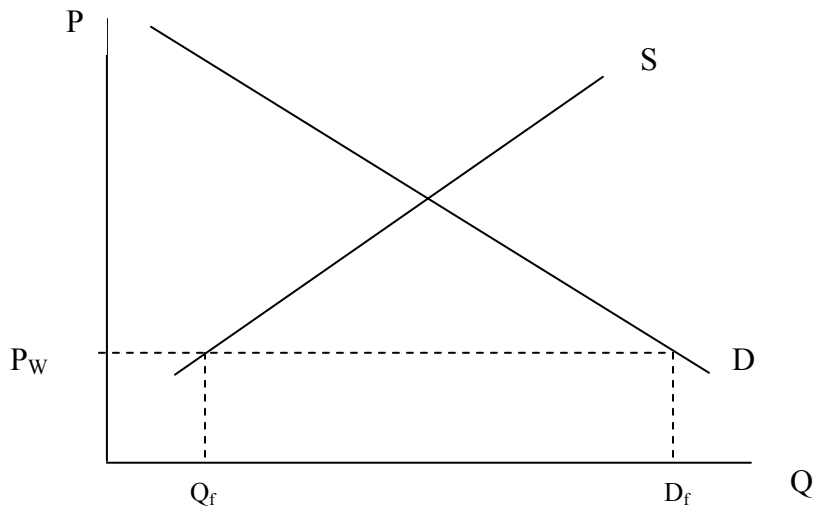


Figure 1

Draw a diagram based upon Figure 1 above.

1.1 Indicate the extent of imports.

Imports equals  $D_f - Q_f$  in Figure 1 above.

1.2 Show what happens if a specific tariff of amount  $t$  is imposed. Indicate the new quantities produced and demanded at home ( $Q_t$  and  $D_t$ , respectively), and the amount of imports.

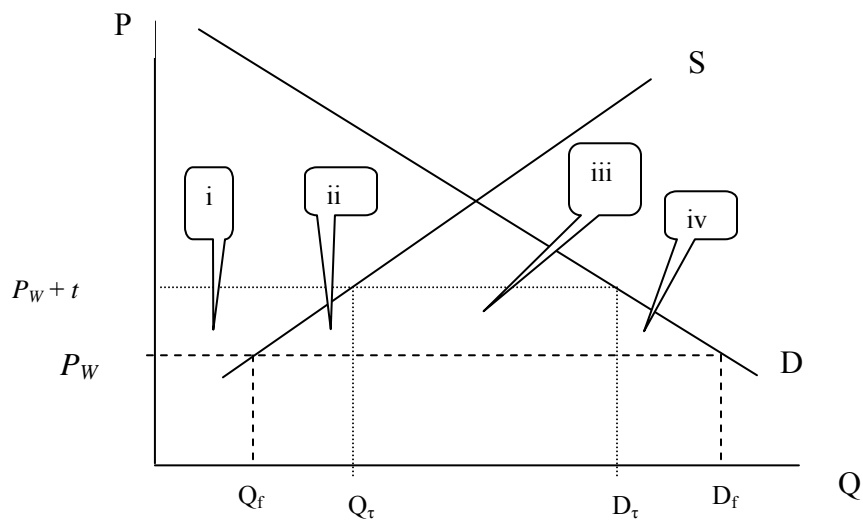


Figure 1.a

1.3 What is the amount of tariff revenue?

$(D_f - Q_f) \times t = \text{area (iii)}$  in Figure 4.a above.

1.4 What is the change in consumer surplus?

Loss of area (i)+(ii)+(iii)+(iv) in Figure 4.a above.

1.5 What is the change in producer surplus?

Gain in area of (i) in Figure 4.a above.

1.6 What is the net effect on welfare?

Net loss equals areas (ii) and (iv) in Figure 4.a above.

2. Consider the following diagram of a small country that exports shirts.

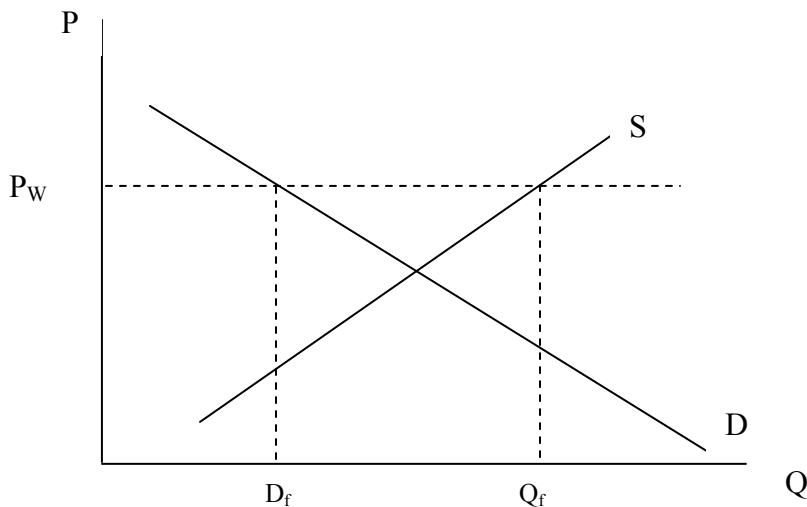


Figure 2

2.1 Indicate the extent of exports.

Exports equal  $Q_f - D_f$  in Figure 2 above.

2.2 Show what happens if an *ad valorem* export subsidy of amount  $s$ . Indicate the new quantities produced and demanded at home ( $Q_s$  and  $D_s$ , respectively), and the amount of exports. Also show the price at which shirts sell at home ( $P_s$ )

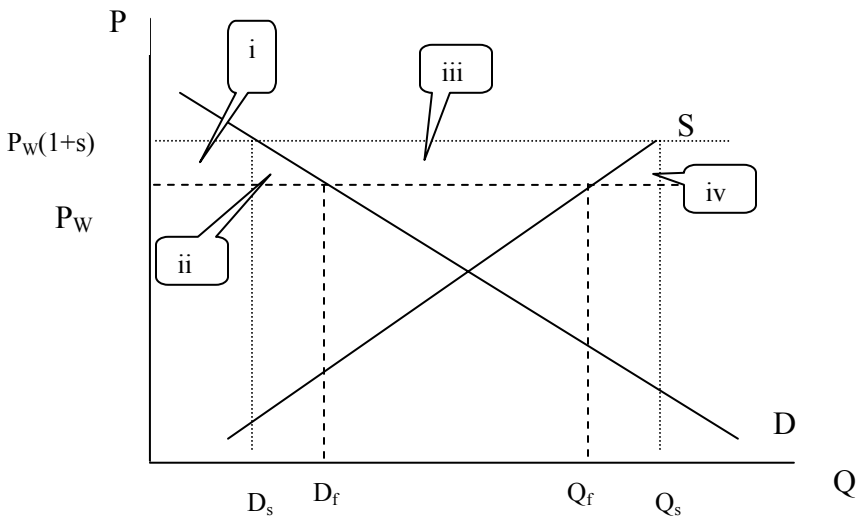


Figure 2.a

New exports equal  $Q_s - D_s$

2.3 What is the expense to the nation's treasury?

Total area = (ii)+(iii)+(iv) in Figure 5.a above.

2.4 What is consumption side dead weight loss?

Area (ii) in Figure 5.a above.

2.5 What is the production side dead weight loss?

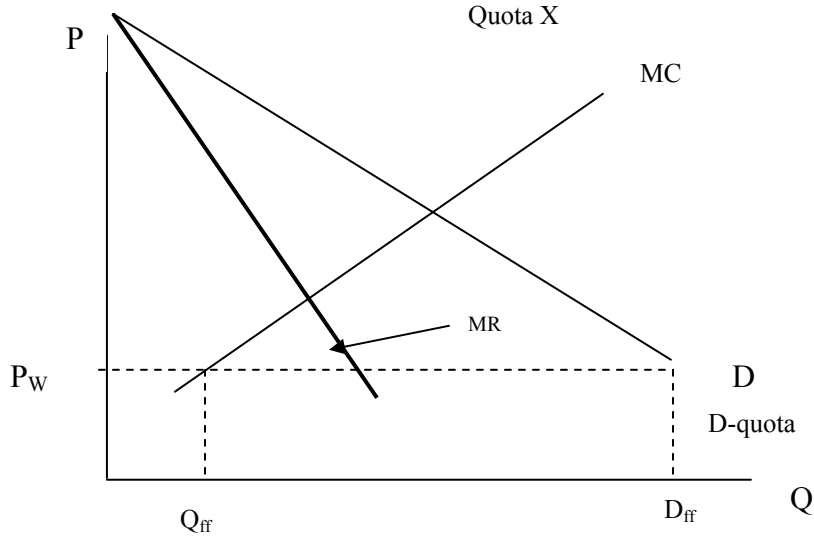
Area (iv) in Figure 5.a above.

2.6 What is the overall effect on national welfare?

Loss of area (ii) and (iv) in Figure 5.a above.

3. Now assume the home country has only one steel producer.

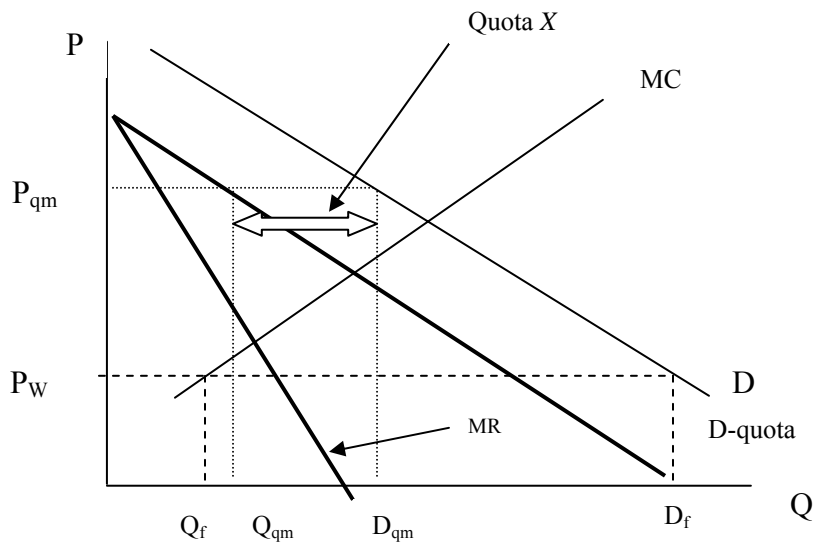
3.1 Draw the equivalent to Figure 1, with each of the curves clearly indicated. Indicate the quantities produced and demanded at home ( $Q_{ff}$  and  $D_{ff}$ , respectively), and the amount of imports.



3.2 Suppose that the same tariff as one in question 1 is introduced. Indicate the new quantities produced and demanded at home ( $Q_\tau$  and  $D_\tau$ , respectively), and the amount of imports.

The monopolist cannot exert her monopoly power. She sets her price at  $P_w + t$ . Hence, the analysis is the same as question 4.

3.3 Indicate what happens if a quota of  $X$  amount of widgets is imposed. Indicate the quantities produced and demanded at home ( $Q_{qm}$  and  $D_{qm}$ , respectively), and the amount of imports. In addition, indicate the price at which widgets will be priced at,  $P_{qm}$ .



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