Handout 6: International Trade

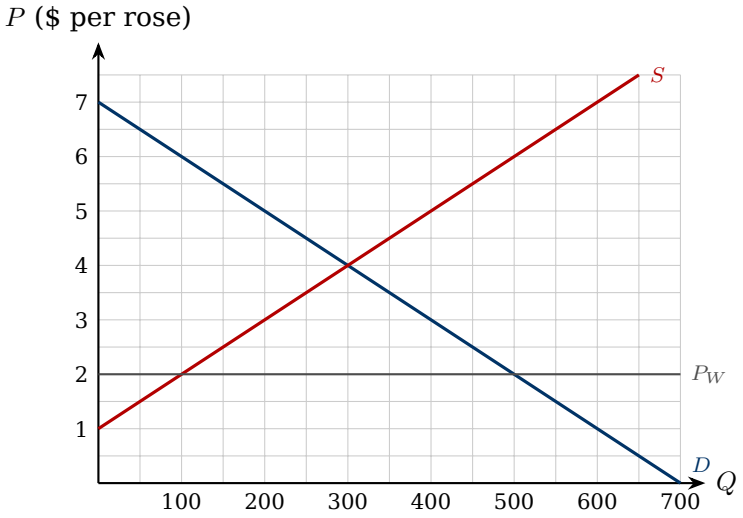
Mankiw Ch 9

Problem 1. Roses in Roseland

The daily market for roses in Roseland is

$$Q_d = 700 - 100P \qquad Q_s = 100P - 100$$

where P is the price of a rose in dollars and Q is roses a day. Roseland is a small economy, and the world price of a rose is $P_W = \$2$.



a) Without trade, find the equilibrium price and quantity. Compare this price with the world price. Does Roseland have a comparative advantage in roses?

b) Who has more reason to lobby for free trade in roses, Roseland's consumers or its producers? Answer in two sentences, without calculations.

c) Roseland allows free trade with no tariff. What is the price of roses in Roseland? How many roses do Roseland's buyers want, how many do its growers sell, and how many are imported? Mark them on the graph.

d) Find consumer surplus, producer surplus and total surplus without trade and with free trade. How much does each change? What is the gain from trade? Shade the areas on the graph.

e) Roseland now trades freely. Who has more reason to lobby for a tariff on imported roses, consumers or producers? Answer in two sentences, without calculations.

f) The growers win: Roseland puts a **$1 tariff** on each imported rose. Find the new price, the quantities bought and grown in Roseland, and imports. Then find consumer surplus, producer surplus, tariff revenue, total surplus and the deadweight loss.

g) Rank total surplus under no trade, free trade and the $1 tariff. Is the tariff better or worse for Roseland than no trade at all?

h) A bill would cut the tariff to \$0.50. Who lobbies for the bill, and who against? Find the deadweight loss of the \$0.50 tariff. The tariff is cut in half; what happens to the deadweight loss?

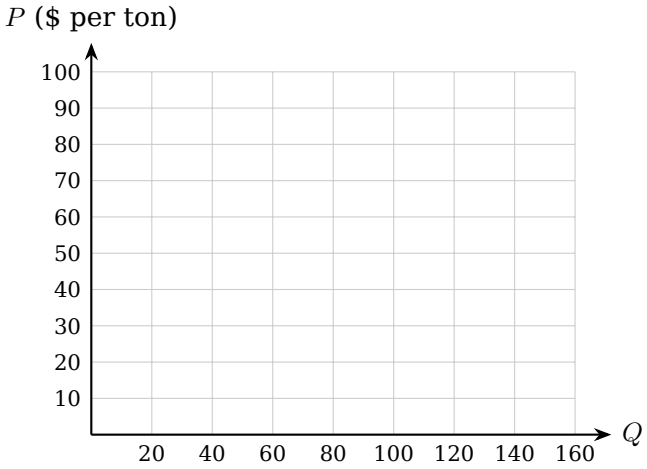
i) The president of Roseland opposes the cut: "Everything can be made more cheaply abroad. The tariff protects Roseland's jobs. Roseland first!" Do you agree? Answer in three or four sentences.

Problem 2. Steel exports and an export subsidy

The market for steel in Hamsterdam is

$$Q_d = 200 - 2P \qquad Q_s = 2P - 40$$

where P is the price in dollars per ton and Q is tons a day. Hamsterdam is a small economy.



a) Without trade, find the equilibrium price and quantity, consumer surplus and producer surplus. Draw both curves on the grid.

b) Hamsterdam opens to trade and **exports** steel. Is the world price \$50 or \$70? Explain. At that price, how much steel do Hamsterdam's buyers want, how much do its producers make, and how much is exported?

c) Find consumer surplus, producer surplus and total surplus with trade. Who is better off and who is worse off than without trade? By how much does total surplus change?

d) The government pays producers a **$10 subsidy for each ton exported**. Foreign buyers still pay $70, and steel sold abroad cannot be brought back. What price do Hamsterdam's buyers now pay? How much steel do they buy, how much do producers make, and how much is exported?

e) Find the change in consumer surplus, producer surplus and government spending from the subsidy, and the change in total surplus. Would you advise Hamsterdam to subsidize steel exports?

Problem 3. Televisions

The United States imports televisions, with no trade restrictions. U.S. buyers purchase 1.5 million televisions a year: 600,000 made in the United States and 900,000 imported.

a) Sketch U.S. demand and supply for televisions, with the world price. Mark the quantities bought, made at home and imported.

b) A technological advance in Japan lowers the world price of televisions by $80. U.S. buyers now purchase 1.8 million: 300,000 made at home and 1.5 million imported. Show the change on your graph.

c) Rank consumer surplus and producer surplus under no trade, trade before the price fall and trade after it. Then find how much consumer surplus and producer surplus change when the world price falls by $80 (take the curves to be straight lines).

d) U.S. television makers ask for a tariff. Who would gain from it, and who would lose? Would the United States as a whole gain?

Problem 4. Short questions

Answer each in two or three sentences.

a) Denmark imports computer chips at a world price of $12 and charges a $5 tariff on each one. If Denmark removes the tariff, what happens to the price of chips in Denmark, the number of chips Danish firms sell, imports, Danish buyers and total surplus?

b) A small country imports tricycles. The price of tricycle helmets falls. What happens to the price of tricycles in the country, the quantity its producers make, and its imports?

c) Instead of the $1 tariff in Problem 1, Roseland limits rose imports to 200 a day. What is the price of roses, and how does the outcome compare with the tariff? Who gets the $200 that the tariff raised?

d) “The cost of the 2018–2020 U.S. tariffs on Chinese goods fell mainly on American households.” Agree, disagree or uncertain? Use the tariff diagram.