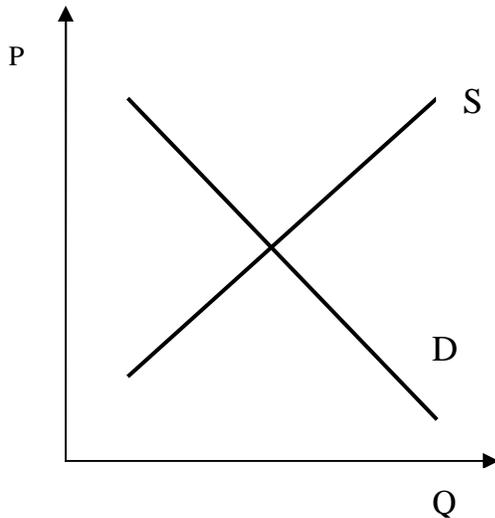


1. Supply and Demand:



The graph to the left represents the domestic demand and supply for Apple's iPod. What happens to the demand and supply curves as well as equilibrium price and quantity with the following changes?

- (a) The prices of earphones and iPod cases drop.
Price of Compliments fall, demand increases, supply stays the same, Q and P rise!
- (b) The price of downloading music on-line increases.
Price of Compliments increase, demand decreases, supply stays the same, Q and P fall!
- (c) Creative, a competitor of Apple, lowers the price of all their mp3 players?

Price of Substitutes decrease, demand decreases, supply stays the same, Q and P fall!

- (d) Suppose Brad Pitt and Angelina Jolie show their newborn kid on TV and name their kid after "iPod".

Preferences change, demand may increase, supply stays the same, Q and P rise!

- (e) Suppose iPods are made in China, and Chinese government decides to reduce tax for foreign companies in order to attract more investment.

Capital for production increases, demand stays the same, supply increases, Q rises and P falls!

- (f) Then suppose that in China the inflation (rise of general price) is so severe that the factories have to increase workers' wages.

Wages for labor in production increase, demand stays the same, supply decreases, Q falls and P rises!

- (g) Suppose the factories used to work for Apple now realize that it's more profitable for them to work for Creative and decided to break up with Apple.

Labor for production decreases, demand stays the same, supply decreases, Q falls and P rises!

- (h) What happens to equilibrium prices and quantity if (a) and (e) occur at the same time?

Supply and Demand increase, Q rises and P is indeterminant.

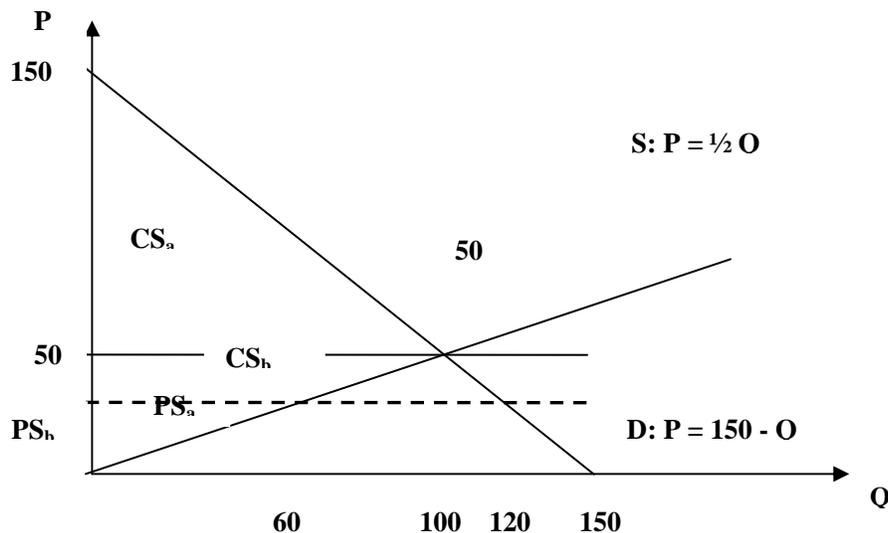
- (i) What is indeterminacy, and what other situations could cause it?

Indeterminacy occurs when the change in price or quantity could rise or fall, depending on the magnitude of change. Changes in both supply and demand give rise to situations of indeterminacy.

2. Surplus and Trade

Examine the aggregate tuna market in Tropicia, a closed island economy in the Pacific Ocean ruled by monarchy. Tropicia is small enough that it does not affect world price of tuna. The MONTHLY demand and supply for tuna (in terms of lbs and \$) in Tropicia is:

Demand: $Q_d = 150 - P$
 Supply : $Q_s = 2P$



- (a) What is the equilibrium quantity and price of tuna in Tropicia without trade? What is the consumer surplus, producer surplus, and total surplus of Tropicia? Graph these regions along with demand and supply.

$Q = 100, P = 50, CS = (1/2) * 100 * (150 - 50) = 5000, PS = (1/2) * 100 * 50 = 2500, TS = 7500, CS_a$ and TS_a are graphed, TS is the combination of the two.

- (b) One day this island is discovered and Tropicia starts to trade tuna with the rest of the world. Modern fishery techniques outside of Tropicia permit the market price of tuna in the international market to be \$30/pound.

Describe the new equilibrium of tuna market in Tropicia. Will tuna be imported or exported, and if so what is the trade amount? What is the consumer surplus, producer surplus, and total surplus of Tropicia (and graph these areas)? Who benefits and who loses? What do you suggest the king of Tropicia should do?

$Q_s = 60, Q_d = 120, \text{Import} = 60, P = 30, CS = (1/2) * 120 * (150 - 30) = 7200, PS = (1/2) * 60 * 30 = 900, TS = 8100, CS_b$ and TS_b are graphed; TS_b is the combination of the two. Consumers better off, producers worse off, trade if overall welfare is of interest and split the excess surplus.

- (c) The queen of Tropicia wants to buy an Ipod from the US, to raise funds the king imposes an import tariff on tuna: 10\$/pound. What happens to consumer surplus and producer surplus? What's the dead weight loss? How much tuna would Tropicia import with this tariff?

$Q_s = 80, Q_d = 110, \text{Import} = 30, P = 40, CS = (1/2) * 110 * (150 - 40) = 6050, PS = (1/2) * 80 * 40 = 1600, \text{Tariff Revenue} = 10 * 30 = 300, \text{DWL} = (1/2) * (80 - 60) * (40 - 30) + (1/2) * (120 - 110) * (40 - 30) = 150$

- (d) The king falls in love with another woman on the island, a fisherman's daughter. She recommends abandoning the tariff and setting a quota of 30 pounds/month on the import of tuna to the king? What would result from such a policy change and how would this policy be implemented? Which policy would you like and why?

$Q_s = 80, Q_d = 110, \text{Import} = 30, P = 40, CS = (1/2) * 110 * (150 - 40) = 6050, PS = (1/2) * 80 * 40 = 1600, \text{Quota Revenue} = 10 * 30 = 300, \text{DWL} = (1/2) * (120 - 90) * (40 - 30) = 150.$ Implement the policy with quota licenses or tariff revenue, both give same impact on consumers and producers.