

### Exercise 1

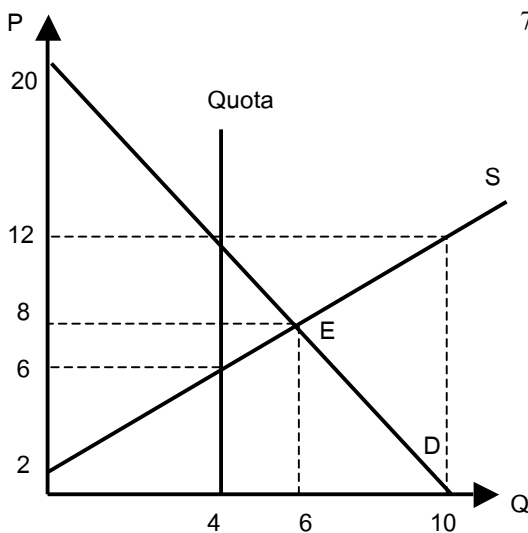
#### Demand and Supply Applications

1. A market for eggs is assumed to be perfectly competitive and is currently in equilibrium. The equilibrium price is 10 Baht and the equilibrium quantity is 36. From a previous research, we know that the price elasticity of demand is  $-0.4$  and the price elasticity of supply is  $0.8$ . Use the information to estimate the parameter that will fit the demand and supply function, assuming that they have linear form as follow:

Demand:  $Q_D = a - bP$

Supply:  $Q_S = c + dP$  (You need to estimate the values of a, b, c, and d)

2. Continue from Question 1, if the government set a price floor at 12 Bath
  - (a) What will be the size of either excess demand or supply? Explain.
  - (b) Calculate the size of welfare change for the consumer, producer, and the net welfare gain or loss.
3. Continue from Question 1, if the government set a price ceiling at 8 Bath instead.
  - (a) What will be the size of either excess demand or supply? Explain.
  - (b) Calculate the size of welfare change for the consumer, producer, and the net welfare gain or loss. Draw a picture and explain.
4. Suppose the government changes the tax policy from charging the producers to charging the consumers instead. Will this policy change have different impacts on the tax burden borne by each group and the net social welfare? Explain.
5. Suppose the government gives a specific production subsidy for a perfectly competitive good. What would be the welfare impacts on consumers, producers, the government and the society as a whole? Draw a graph and explain.
6. Does the deadweight loss of a tax keep rising as the tax rate increases? Does the deadweight loss keep rising as the absolute value of elasticity of either demand or supply increases? Explain.



7. Suppose a perfectly competitive product was in equilibrium at point E. Then, the government imposed a production quota at 4 million units as shown in the picture.
  - (a) What would happen to the equilibrium price and quantity. Explain.
  - (b) Calculate the welfare impact on each group of people in the society: consumers, producers, and the government. Is the producer as a whole group better off? Explain.
  - (c) Calculate the net social welfare. Identify the distortion, if any. Explain.