Answer on Question #39250 – Economics - Macroeconomics

Assignment

Use the following supply and demand functions to answer the questions below:
Qd = 20-2P, Qs = 5+3P

A. Determine the equilibrium price and quantity and illustrate with a graph.

B. The government imposes a tax of $5.00. Find the new equilibrium price and quantity. Illustrate, using the same graph for part a.

C. Determine the total tax revenue earned by the government, the amount of the tax paid by consumers and the amount of the tax paid by sellers.

D. What determines whether consumers or sellers pay the greater proportion of a tax—such as the tax on cigarettes—in part a? Explain your answer.

Solution

Qd = 20 - 2P, Qs = 5+3P

A. The equilibrium price and quantity are in the point where Qd = Qs
20 - 2P = 5 + 3P
5P = 15
P = $3
Q = 20 - 2*3 = 14 units

B. If the government imposes a tax of $5.00, the new equilibrium price and quantity will be calculated as follows:
Qd = Qs(with tax)
20 - 2P = 5 + 3(P - 5)
P = $6
Q = 20 - 2*6 = 8 units

C. Total tax revenue earned by the government is T = Ptax*Q =5*8 = $40
The amount of the tax paid by consumers is (Pnew- Pold)*Q= (6 - 3)*8 = $24
The amount of the tax paid by sellers is $40 - $24 = $16

D. The elasticities of demand and supply determine whether consumers or sellers pay the tax, so the higher is elasticity, the lower is tax paid.