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EE211 Assignment 1

1. PPC

a)

- There are total 120 units of wood. Making a spear use 4 units of wood, the maximum number of spears that can be made is 30 ($\frac{120}{4}$).
  For bow, it takes 3 units of wood to make a bow. The maximum number of bows that can be made is 40 ($\frac{120}{3}$).
- A and B represents a possible choice that society can choose to produce in this PPC.

b) opportunity cost of a spear in terms of bow

30 spears cost 40 bows

1 spear cost $\frac{1 \cdot 40}{30} = \frac{4}{3}$ or 1.33

$\therefore$ opportunity cost of 1 spear equal to 1.33 bows

C) The possibility to produce 20 spears and 12 bows

- It is possible to have 20 spears and 12 bows at the same time.

Spear

1 spear use 4 units of wood

20 spears use $20 \cdot 4 = 80$ units of wood

bow

1 bow use 3 units of wood

12 bows use $12 \cdot 3 = 36$ units of wood

If we combine the units of wood together, we will get $80 + 36 = 116$ units of wood, which is possible as it is under 120 units and stay below the PPC line.

$\therefore$ This choice is efficient as point C is below the line.

D) A new method with 1.5 units of wood for each bow

- The old method requires 3 units of wood for 1 bow, but the new one requires only half units of wood in the old method for 1 bow. Therefore, the maximum number of bow will exceed double from 40 to 80 units as shown in the orange line.

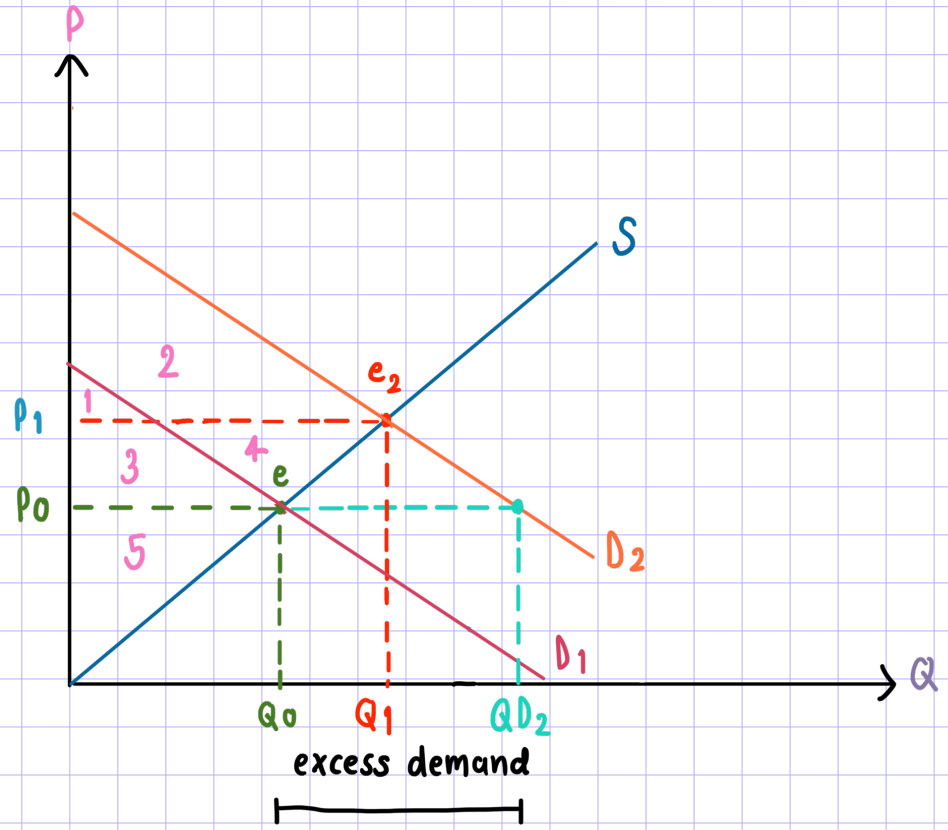
30 spears cost 80 bows

1 spear cost $\frac{1 \cdot 80}{30} = \frac{8}{3}$ or 2.67

$\therefore$ opportunity cost of 1 spear equal to 2.67 bows

2. Equilibrium price

a)



- During the pandemic situation, most people need to work from home, and computer devices are crucial. As a result, people have higher demand on computers. Making the demand line shift to the right ($D_1 \rightarrow D_2$) and that leads to the increasing of the quantity demand. Thus, the equilibrium price changes from original (Q_0, P_0) to (Q_1, P_1).

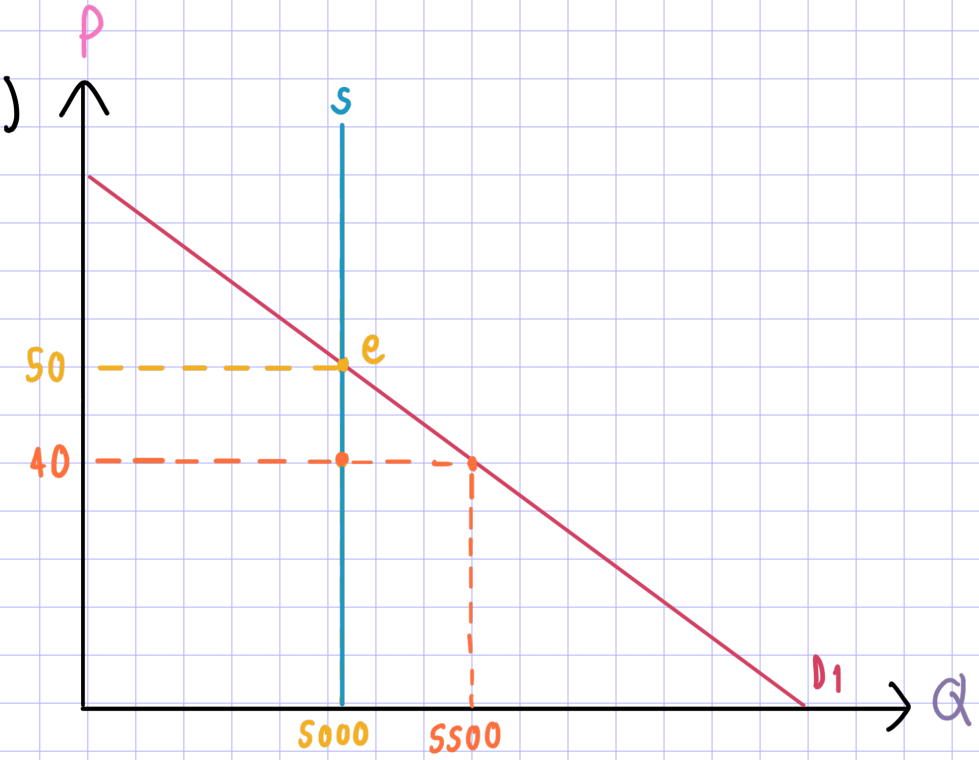
b) After demand shifted, there will be a change from the equilibrium price point e to e_1. This increases the quantity demand and supply. Therefore, there will be excess demand at the original equilibrium as people are willing to pay at any price for computers.

C) compare consumer surplus and producer surplus

Surplus	Before	After	Difference
CS	1 3	1 2	2 - 3
PS	5	3 4 5	3 4
Total	1 3 5	1 2 3 4 5	2 4

3.

a)



b) Calculate price elasticity of demand and supply at the equilibrium.

$$\varepsilon d = \frac{\%\,\Delta Qd}{\%\,\Delta P}$$

$$\%\,\Delta Qd = \frac{5500 - 5000}{5000} \cdot 100 = \frac{500}{50} = 10\%$$

$$\%\,\Delta P = \frac{40 - 50}{50} \cdot 100 = \frac{-10}{50} \cdot 100 = -20\%$$

$$\varepsilon d = \frac{10\%}{-20\%} = -0.5\%$$

$$\varepsilon_S = \frac{\%\,\Delta Q_S}{\%\,\Delta P}$$

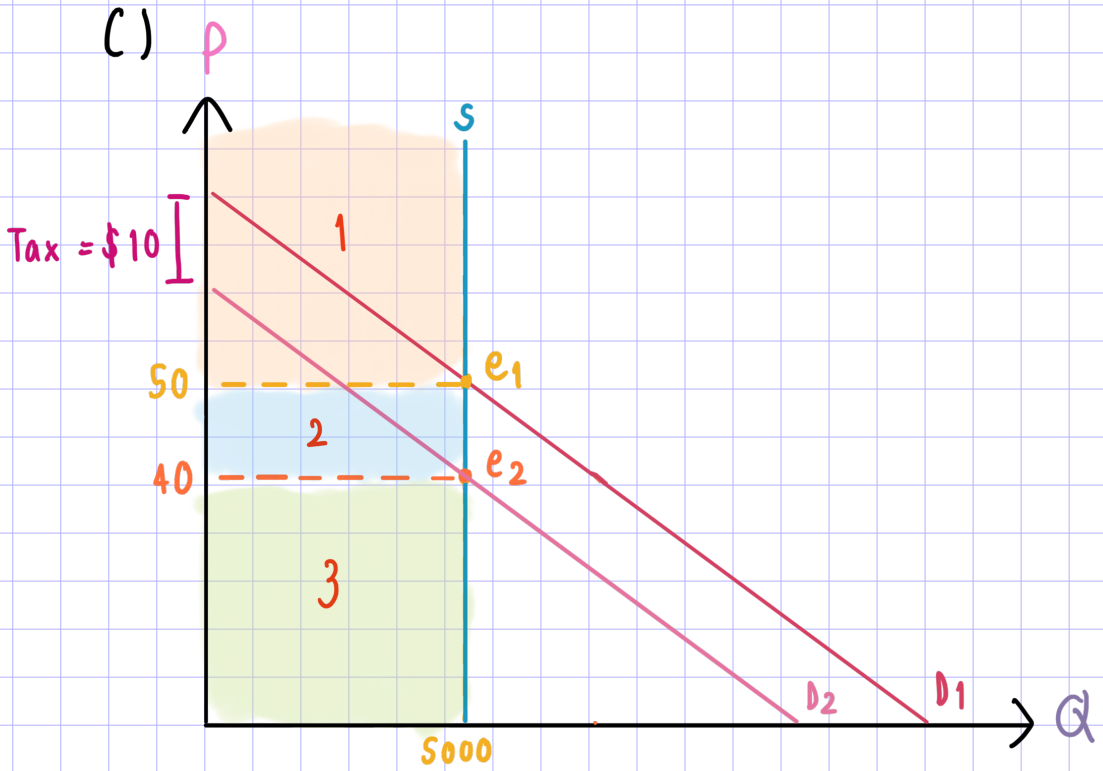
$$\%\,\Delta Q_S = \frac{5000 - 5000}{5000} \cdot 100$$

$$\varepsilon_S = 0$$

∴ Price elasticity of demand equal to -0.5

Price elasticity of supply equal to 0

c)



	Before	After	Difference	Tax burden
CS	1	1	-	-
PS	2 3	3	-2	2
GOV	-	2	2	-
Total	1 2 3	1 2 3	-	2

- From the result above, there is no DWL here and the entire burden belongs to sellers.
- From the graph, the demand shifts downward as the consumer's willingness to buy has decreased as a result of having to pay unit tax to the government