HUMANIORA BROEDERS
SINT-NIKLAAS

Naam ..... Subsidies

Datum ..... Klas ..... Nr. .....

Taak ..... module exercise 2

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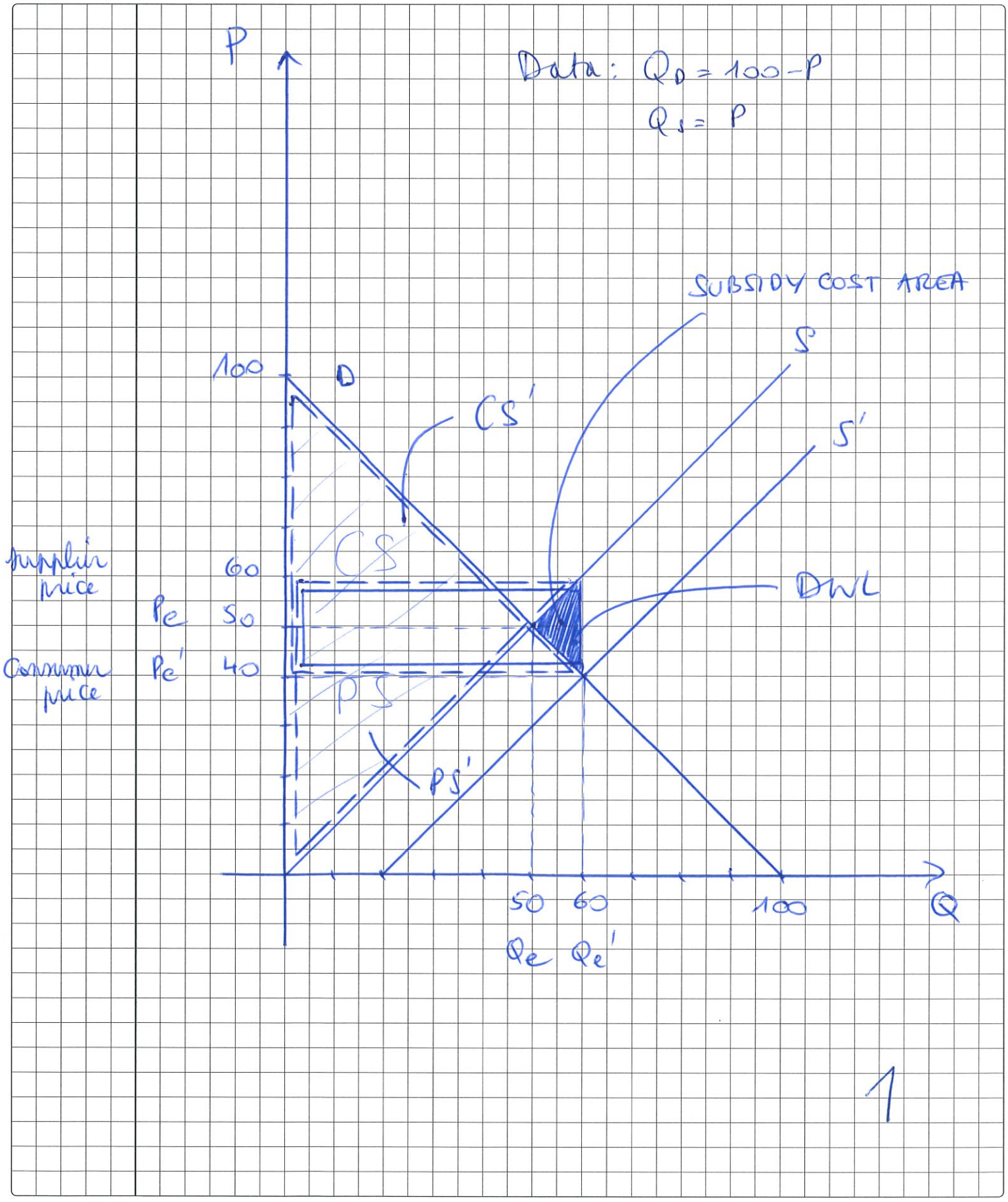

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Naam .....

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Taak .....

3

(1) Draw D and S modul

(2) Draw market equilibrium (P_e, Q_e)

(3) Calculate market equilibrium (P_e, Q_e)

$$Q_d = Q_s$$
$$100 - P = P$$
$$100 = 2P$$
$$P_e = €50$$
$$Q_e = 50$$

(4) Draw CS, PS and TW 

(5) Write-down formulas CS, PS and TW

$$CS = \frac{[(P_{Q_d=0} - P_e) \cdot Q_e]}{2}$$

$$PS = \frac{[(P_e - P_{Q_s=0}) \cdot Q_e]}{2}$$

$$TW = CS + PS$$

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(6) Calculate CS, PS and TW

$$CS = \frac{[(100-50).50]}{2} = €1250$$

$$PS = \frac{[(50-0).50]}{2} = €1250$$

$$TW = €2500$$

Imagine government grants a subsidy of €20 (per unit)

(7) Which curve is impacted?

S-curve

(8) What is the impact? Why?

S-curve shifts to the right (parallel)

Subsidy = cost decrease for supplier

⇓

S ↑

(9) What is Q_s'?

$$Q_s' = P + 20$$

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(10) Draw new supply curve S'

(11) Draw new market equilibrium (Pe', Qe')

(12) Calculate new market equilibrium (Pe', Qe')

$Qd = Qs'$

$100 - P = P + 20$

$80 = 2P$

$Pe' = €\ 40$

$Qe' = 60$

including new $P_{consumer}$ and $P_{supplier}$

(13) Draw new CS, PS and TW

↓

CS', PS', TW'

(14) Write-down formulas CS', PS' and TW'

$$CS' = \frac{[(P_{Qd=0} - Pe') \cdot Qe']}{2}$$

$P_{consumer}$ €40

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€ 60
$P_{supplier}$

$$PS' = \frac{\left[\left(P_{supplier} - P_{Q_s=0}\right) \cdot Q_e'\right]}{2}$$

$$TW' = CS' + PS'$$

(15) Calculate CS', PS' and TW'

$$CS' = \frac{[(100-40) \cdot 60]}{2} = €\,1800$$

$$PS' = \frac{[(60-0) \cdot 60]}{2} = €\,1800$$

$$TW' = €\,3600$$

(16) Draw subsidy cost area ☐ SCA

(17) Calculate subsidy cost area

$$\text{Subsidy} \cdot Q_e' = €\,1200$$

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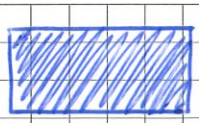
(18) Draw DWL 

(19) Calculate DWL

DWL = TW' €3600
− TW €2500
⊖ SCA €1200
€ −100

Extra: What is the impact of the subsidy?

€20 → 50% granted to consumer
(Pe → Pe' = ⊖ €10)

→ 50% "kept" by supplier
= €10

Conclusion: Subsidy "internalizes" external benefit.
Social price is lower.

But the government means generates a loss of market wealth.

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