

## Impacts on Agents

Determine Q's using individual demands and supplies

Evaluate each at  $P = P^* = 10$

Buyers:

A	$Q_A^D = 10 - 0.5P$	$Q_A^D = 5$
B	$Q_B^D = 20 - P$	$Q_B^D = 10$
Total		15

Sellers:

E	$Q_E^S = 0.5P$	$Q_E^S = 5$
F	$Q_F^S = P$	$Q_F^S = 10$
Total		15

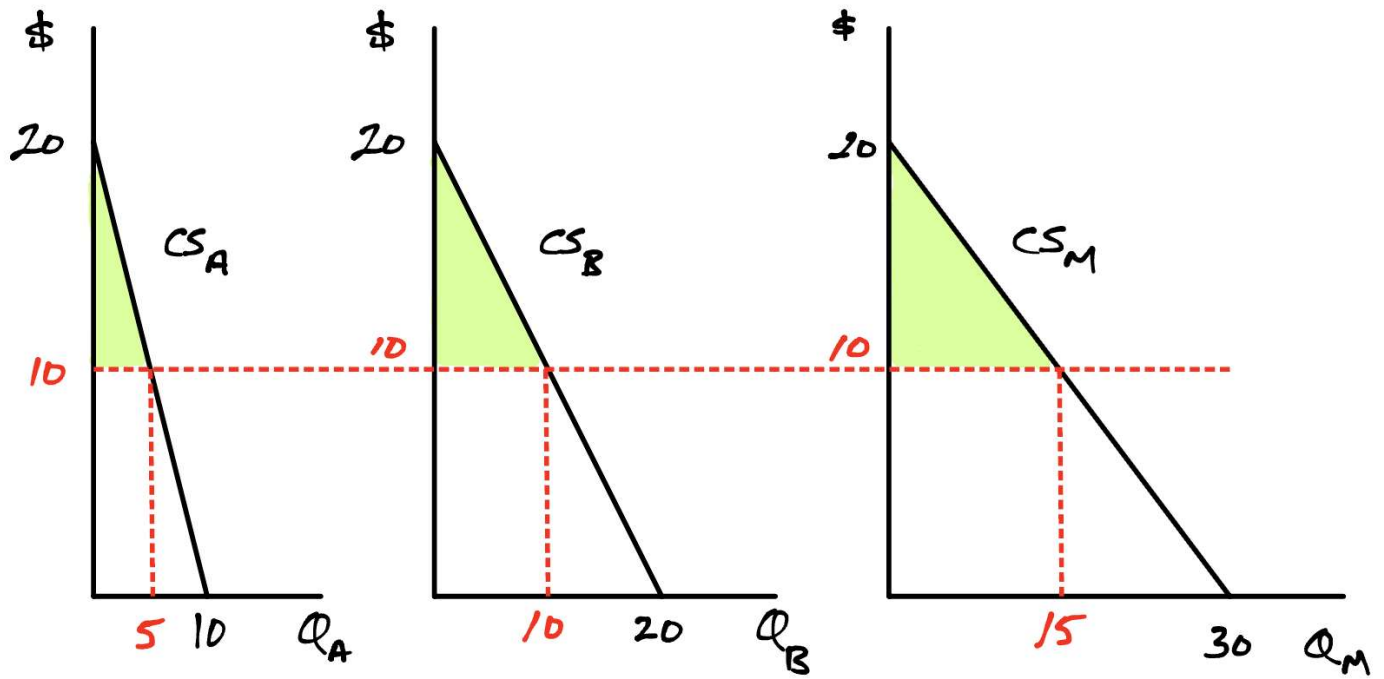
Note: it's a coincidence that  $Q_A^D = Q_E^S$  and  $Q_B^D = Q_F^S$

Now compute welfare impacts: CS and PS

With algebraic equations CS and PS are computed using areas:

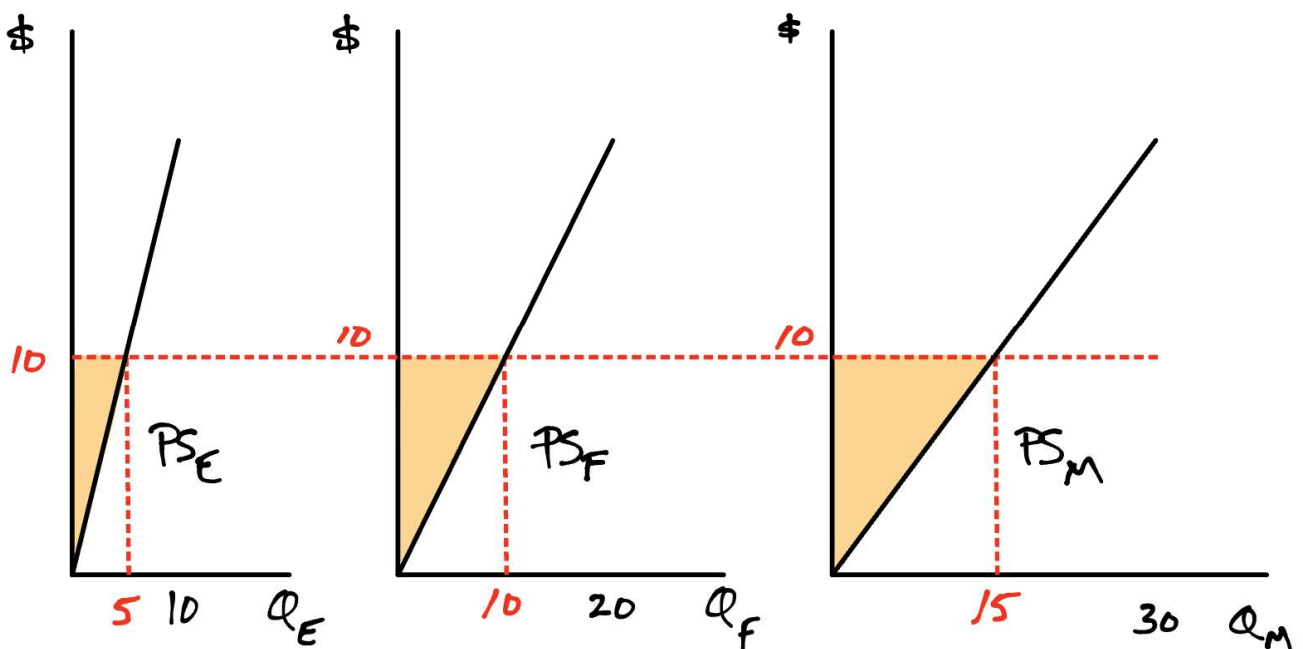
- CS is the area *below* WTP and *above* P (adds up  $WTP_i - P$ )
- PS is the area *below* P and *above* WTA (adds up  $P - WTA_i$ )

Implementing here:



$$CS_A = \frac{1}{2}(5)(20 - 10) \quad CS_B = \frac{1}{2}(10)(20 - 10) \quad CS_M = \frac{1}{2}(15)(20 - 10)$$

$$CS_A = \$25 \quad CS_B = \$50 \quad CS_M = \$75$$



$$PS_E = \frac{1}{2}(5)(10 - 0)$$
$$PS_E = \$25$$

$$PS_F = \frac{1}{2}(10)(10 - 0)$$
$$PS_F = \$50$$

$$PS_M = \frac{1}{2}(15)(10 - 0)$$
$$PS_M = \$75$$

Total gain:

$$SS = CS + PS$$

$$SS = \$75 + \$75 = \$150$$