Price Controls

Definition:

A regulation that prohibits transactions outside a given price range.

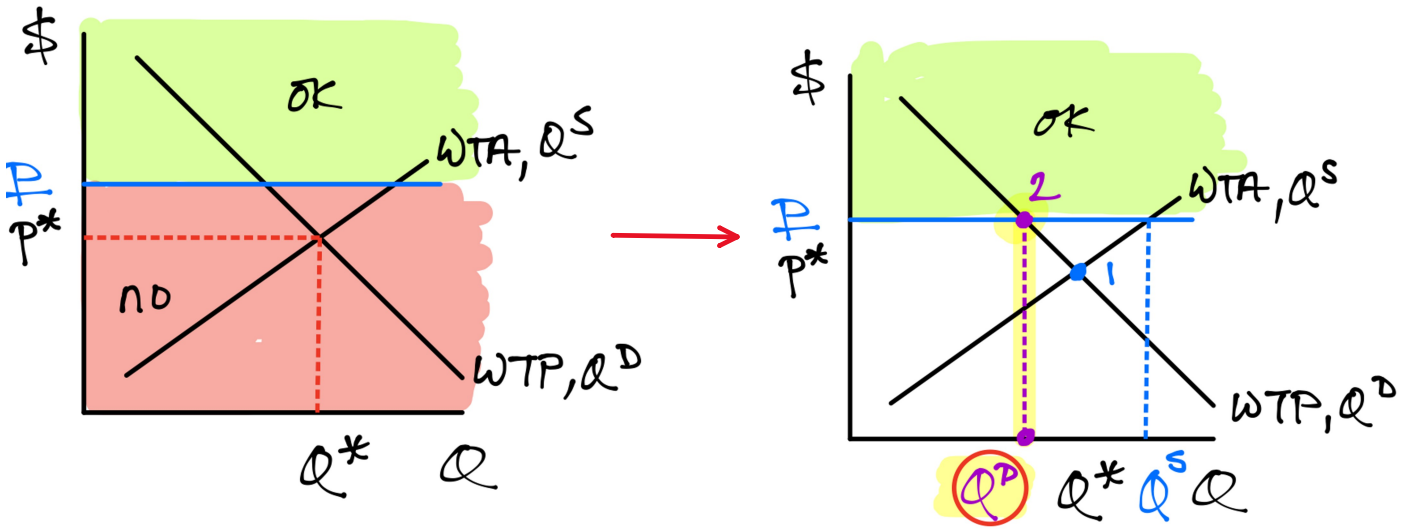
Two types:

Type	Symbol	Rule	Example
Price floor	$\underline{p}$	No transactions with $p < \underline{p}$	Minimum wage
Price ceiling	$\overline{p}$	No transactions with $p > \overline{p}$	Rent control

Graphing the impacts:

Price floor (eg, minimum wage):

Disallows transactions with **low** prices



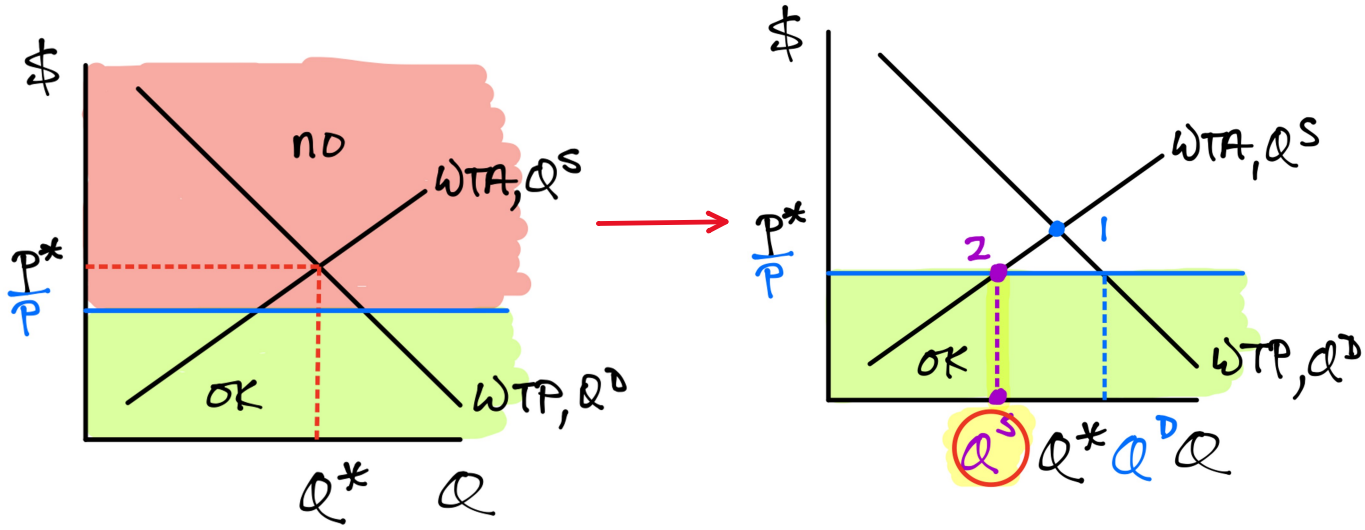
New Q determined by **demand**: $Q_M^D\left(\underline{p}\right)$

Not on WTA curve

Excess supply

Price ceiling (eg, rent control):

Disallows transactions with **high** prices



New Q determined by **supply**: $Q_M^S(\overline{p})$

Not on WTP curve

Excess demand

Price Floor: Minimum Wage

Model:

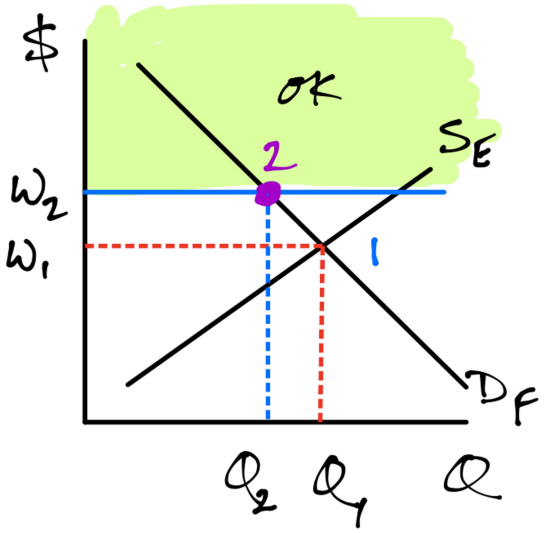
Suppliers: Employees (E)

Demanders: Firms (F)

Price: Wage (w)

Policy:

Sets minimum to $w_2 > w_1$



New employment: Q_2

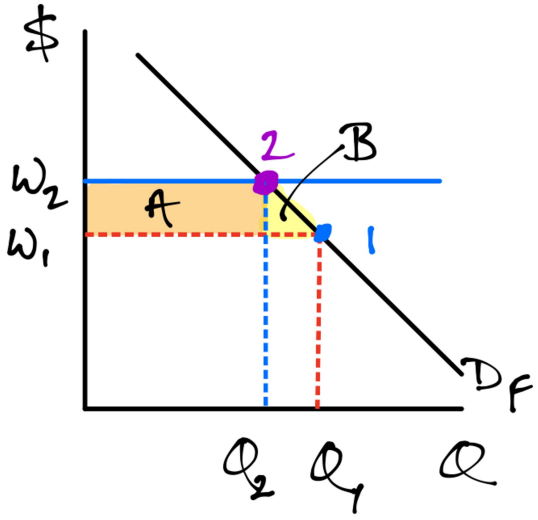
Creates two groups of employees:

Job **keepers:** Q_2

Job **losers:** $Q_1 - Q_2$

Impact on welfare:

Firms:

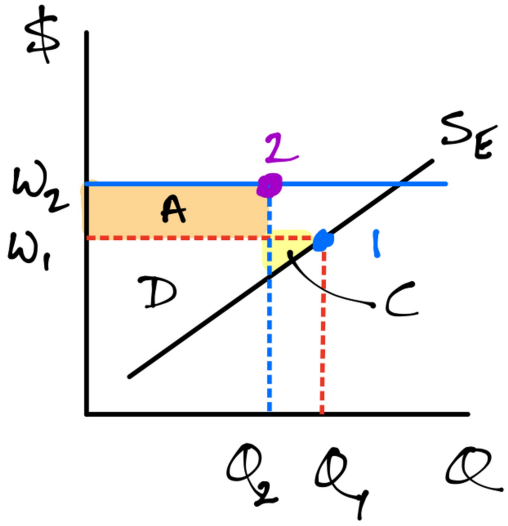


$$\Delta CS = -(A + B)$$

A: Transfer to job keepers

B: Lost gains on job losers

Employees:



$$PS_1 = D + C$$
$$PS_2 = A + D$$

$$\Delta PS = PS_2 - PS_1$$
$$\Delta PS = (A + D) - (D + C)$$
$$\Delta PS = +A - C$$

A: Transfer from firms

C: Lost gains to job losers

Total ΔSS:

$$\Delta SS = \Delta CS + \Delta PS$$
$$\Delta SS = -(A + B) + A - C$$
$$\Delta SS = -(B + C)$$

Numerical example:

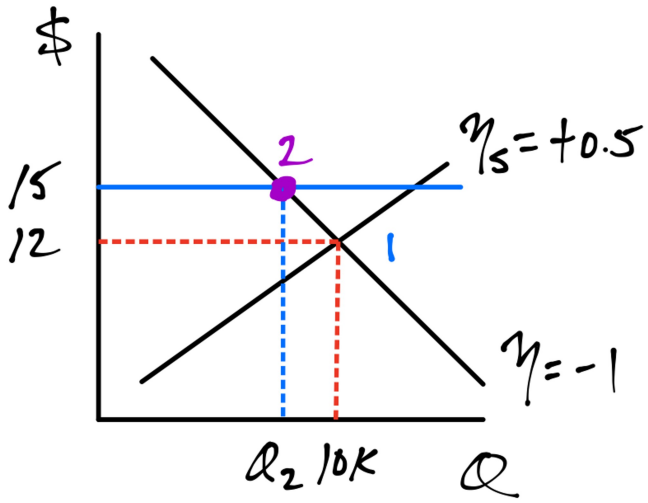
Case 1: BAU with no minimum wage

$w_1 = \$12$
$Q_1 = 10{,}000$
$\eta = -1$
$\eta_S = +0.5$

Case 2: Minimum wage

$w_2 = \$15$

Impact on Q:

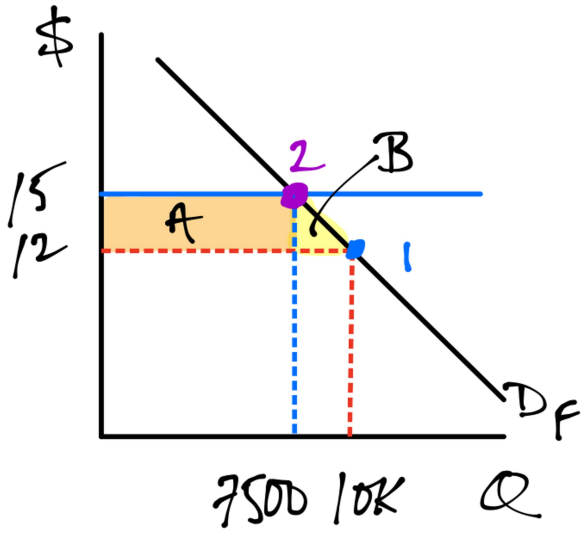


$$\%\Delta P = \frac{+3}{12} = +25\%$$

$$\%\Delta Q = \eta * \%\Delta P$$
$$\%\Delta Q = (-1) * (+25\%)$$
$$\%\Delta Q = -25\%$$
$$\Delta Q = -2{,}500$$

$$Q_2 = 7{,}500$$

Firms:

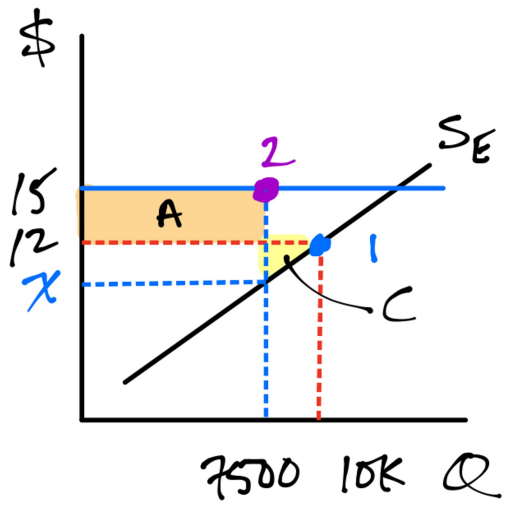


$$\Delta CS = -(A + B)$$

A = 3*7500 = 22,500
B = 0.5*3*2500 = 3,750

$$\Delta CS = -\$26{,}250$$

Employees:



$$\Delta PS = +A - C$$

A = 22,500
C = 0.5*(12-X)*2500

Need to find X

Interpretation of X:

Minimum wage causes labor **demand** to be 7500
X = wage that would have caused labor **supply** to be 7500

Calculating it:

$$\frac{\%\Delta Q}{\%\Delta P} = \eta_S$$

$$\frac{-25\%}{\%\Delta P} = +0.5$$

$$\%\Delta P = \frac{-25\%}{+0.5} = -50\%$$

$$\Delta P = (-0.5) * 12 = -6$$

X = 12 - 6 = 6

Area C:

C = 0.5*(12-6)*2500 = 7,500

$$\Delta PS = +\$22{,}500 - \$7{,}500 = \$15{,}000$$

Total ΔSS:

$$\Delta SS = \Delta CS + \Delta PS$$
$$\Delta SS = -\$26{,}250 + \$15{,}000 = -\$11{,}250$$

Check:

B = $3,750

C = $7,500

B+C = $11,250 ✔

Overall, two effects:

1. Transfer from firms to job keepers
2. Reduced employment

Daily exercise 1 on Google Classroom