Price Ceiling: Rent Control

Model:

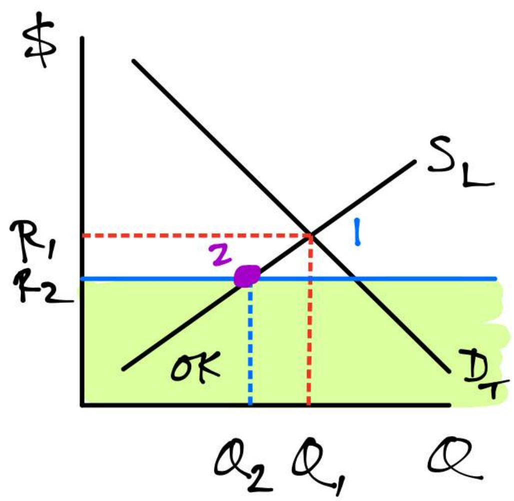
Suppliers: Landlords (L)

Demanders: Tenants (T)

Price: Rent (R)

Policy:

Sets maximum rent to $R_2 < R_1$



New apartments: Q_2

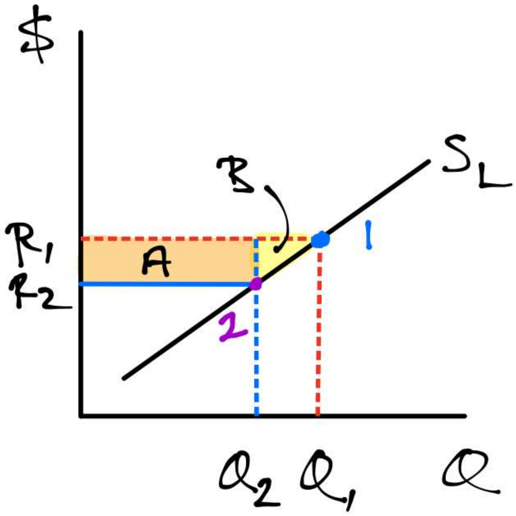
Two groups of tenants:

Stayers: Q_2

Leavers: $Q_1 - Q_2$

Impact on welfare:

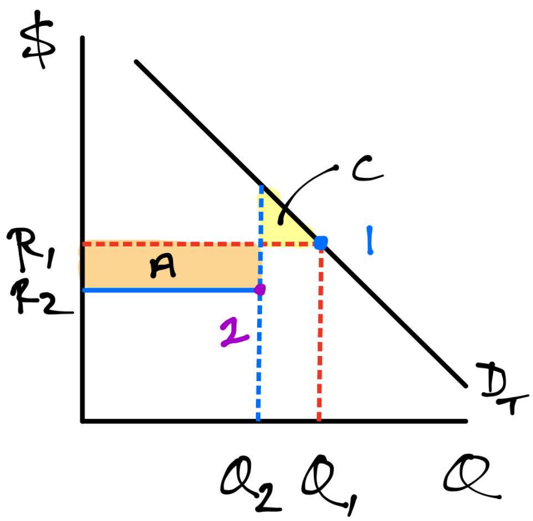
Landlords:



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

A: Transfer to stayers
B: Lost gains on leavers

Tenants:



$\Delta \text{CS} = +\text{A} - \text{C}$

A: Transfer from landlords
C: Lost gains to leavers

Total ΔSS:

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

Numerical example:

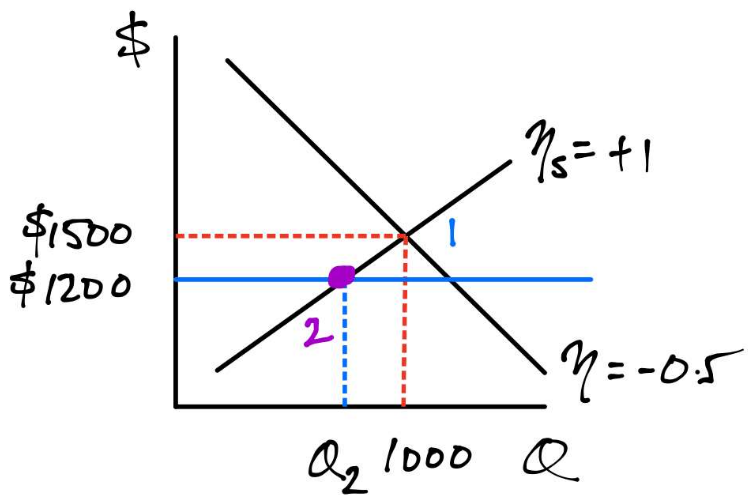
Case 1: BAU with no rent control

$$R_1 = \$1500$$
$$Q_1 = 1000$$
$$\eta = -0.5$$
$$\eta_S = +1$$

Case 2: Rent control

$$R_2 = \$1200$$

Impact on Q:

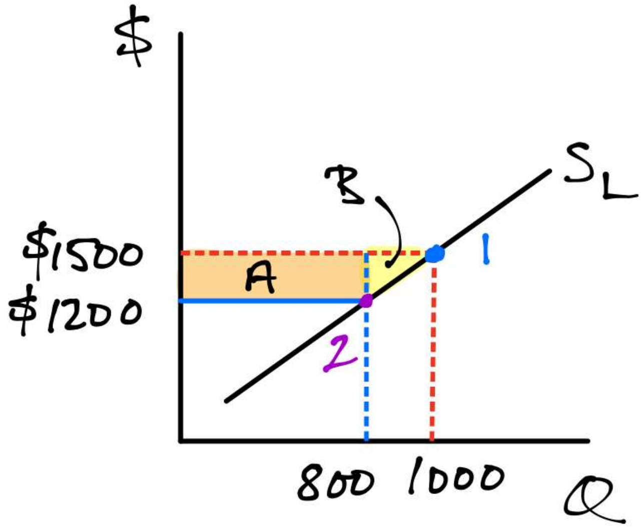


$$\%\Delta P = \frac{-300}{1500} = -20\%$$

$$\%\Delta Q = \eta_S * \%\Delta P$$
$$\%\Delta Q = (+1)(-20\%)$$
$$\%\Delta Q = -20\%$$
$$\Delta Q = -200$$

$$Q_2 = 800$$

Landlords:

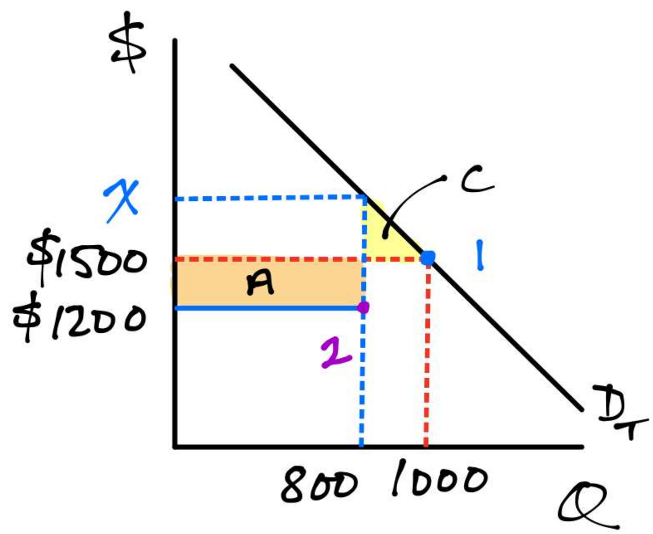


$$\Delta PS = -(A + B)$$

A = 300*800 = 240,000
B = 0.5*300*200 = 30,000

$$\Delta PS = -270,000$$

Tenants:



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

A = $240,000
C = 0.5*(X-1500)*200

Need X

Interpretation of X:

Rent control lowers **supply** to 800
X = rent that would drive **demand** down to 800
Roughly: the unofficial or underground market price

Calculating X:

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

$$\frac{-20\%}{\%\Delta P} = -0.5$$

$$\%\Delta P = \frac{-20\%}{-0.5} = +40\%$$

$$\Delta P = 0.4 * 1500 = 600$$

$$X = 1500 + 600 = 2100$$

Area C:

C = 0.5*600*200 = 60,000

$$\Delta CS = +\$240{,}000 - \$60{,}000 = \$180{,}000$$

Total ΔSS:

$$\Delta SS = \Delta CS + \Delta PS$$
$$\Delta SS = +\$180{,}000 - \$270{,}000$$
$$\Delta SS = -\$90{,}000$$

Check:

B = $30,000

C = $60,000

B+C = $90,000 ✔

Analysis with algebraic equations is similar

Daily exercise