Pareto Efficiency

Definition of efficiency:

An outcome is **Pareto efficient** when it is **not** possible to make anyone better off without making someone else worse off.

Definition of **IN**efficiency:

Like usual sense of inefficient: haven't done the best we can

An outcome is **inefficient** when someone **can** be made better off **without** making anyone worse off.

Possible to rearrange the outcome to:
help someone without hurting anyone.

"Money left on the ground"

Policy implication:

Want to **detect** and **fix** *inefficient* outcomes

Known as "*Pareto improvements*":
Actions that make at least one person better off without hurting anyone

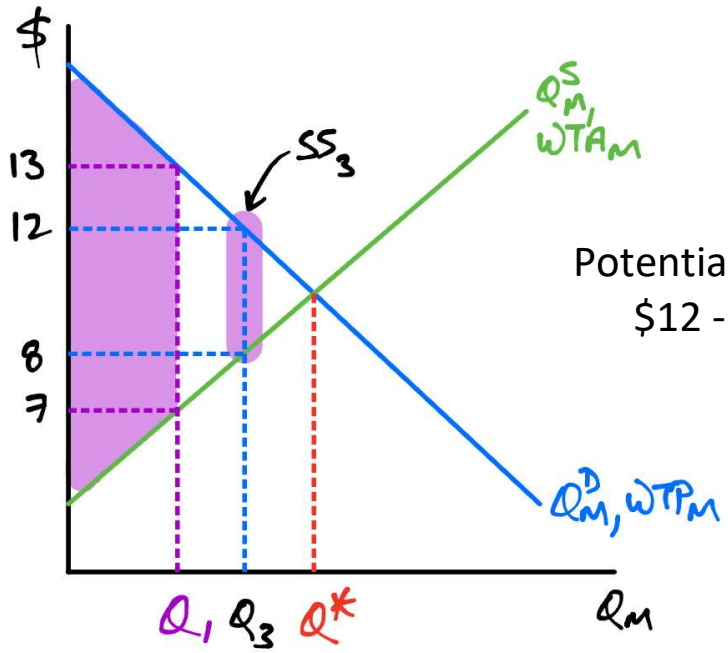
Market Q^* is efficient; other Qs are inefficient

Case 1:

If $Q_1 < Q^*$ a Pareto improvement is possible by increasing Q

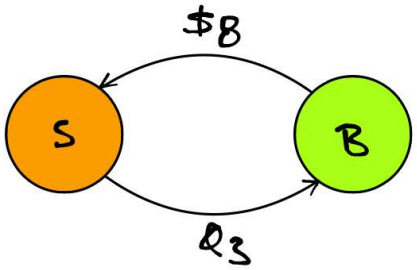
Example:

Suppose WTP and WTA have the values below



Potential gain in SS:
$12 - $8 = $4

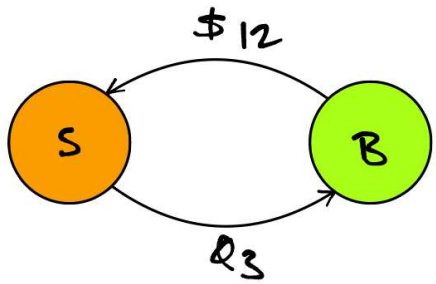
Possible Pareto improvement 1:



P = $8	WTP = $12
WTA = $8	P = $8
PS = $0	CS = $4

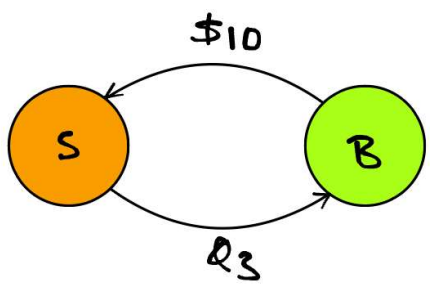
Possible Pareto improvement 2:

$12



P = $12	WTP = $12
WTA = $8	P = $12
PS = $4	CS = $0

Possible Pareto improvement 3:



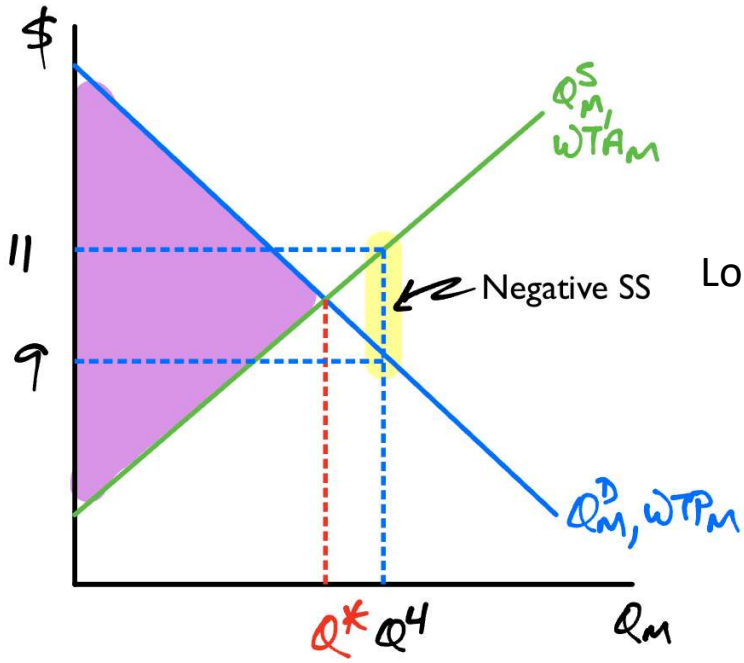
P = $10	WTP = $12
WTA = $8	P = $10
PS = $2	CS = $2

Many possible improvements:

- All produce a gain of $4
- Stopping at Q_1 is not efficient.

Case 2:

If $Q_2 > Q^*$ a Pareto improvement is possible by decreasing Q



Loss of SS:
$9 - $11 = -$2

Possible Pareto improvement:

1. Cancel Q_4
2. Seller gives buyer $9 instead

Seller gain: $11 - $9 = $2
Buyer gain: $9 - $9 = $0

Inefficiency and deadweight loss:

- If there is **DWL,** the outcome is **inefficient**
- Could make someone better off