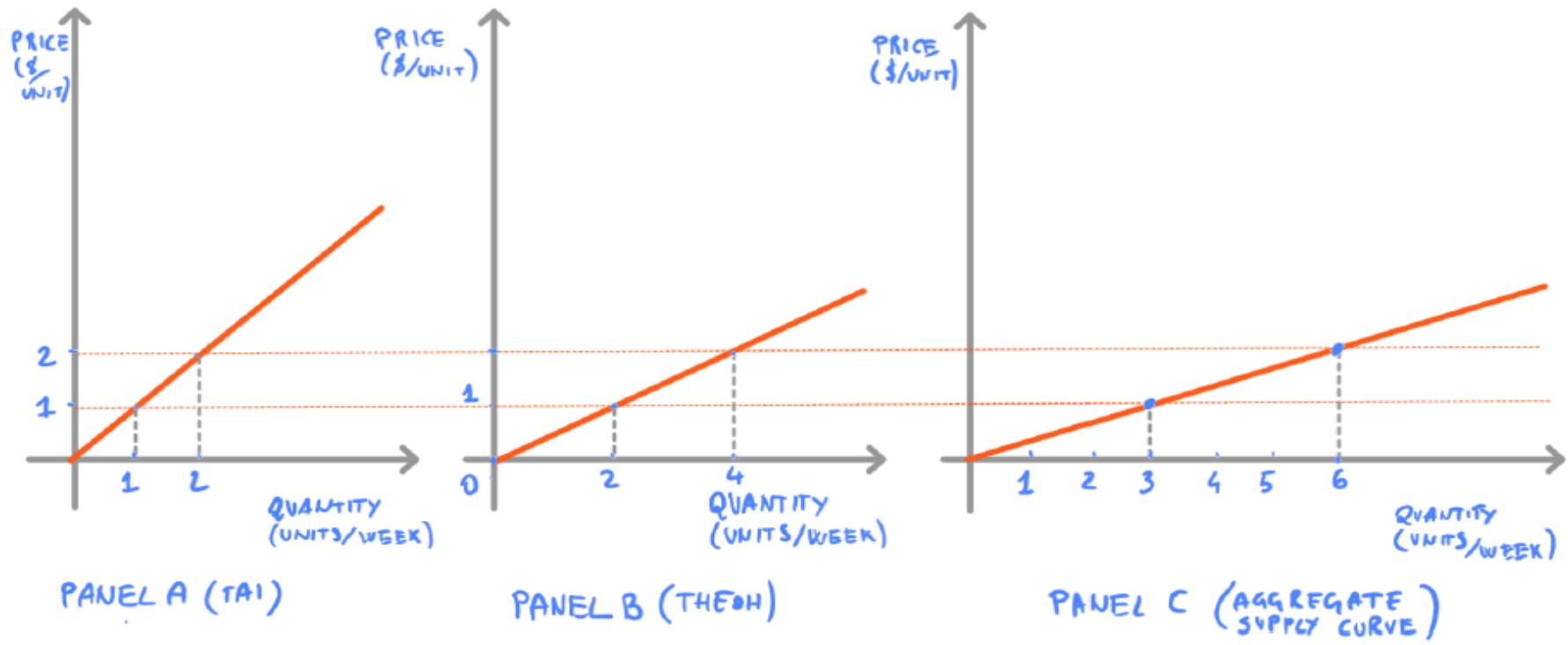


Chapter 4: Demand & Supply

An Equilibrium Analysis

Demand and Supply Aggregation

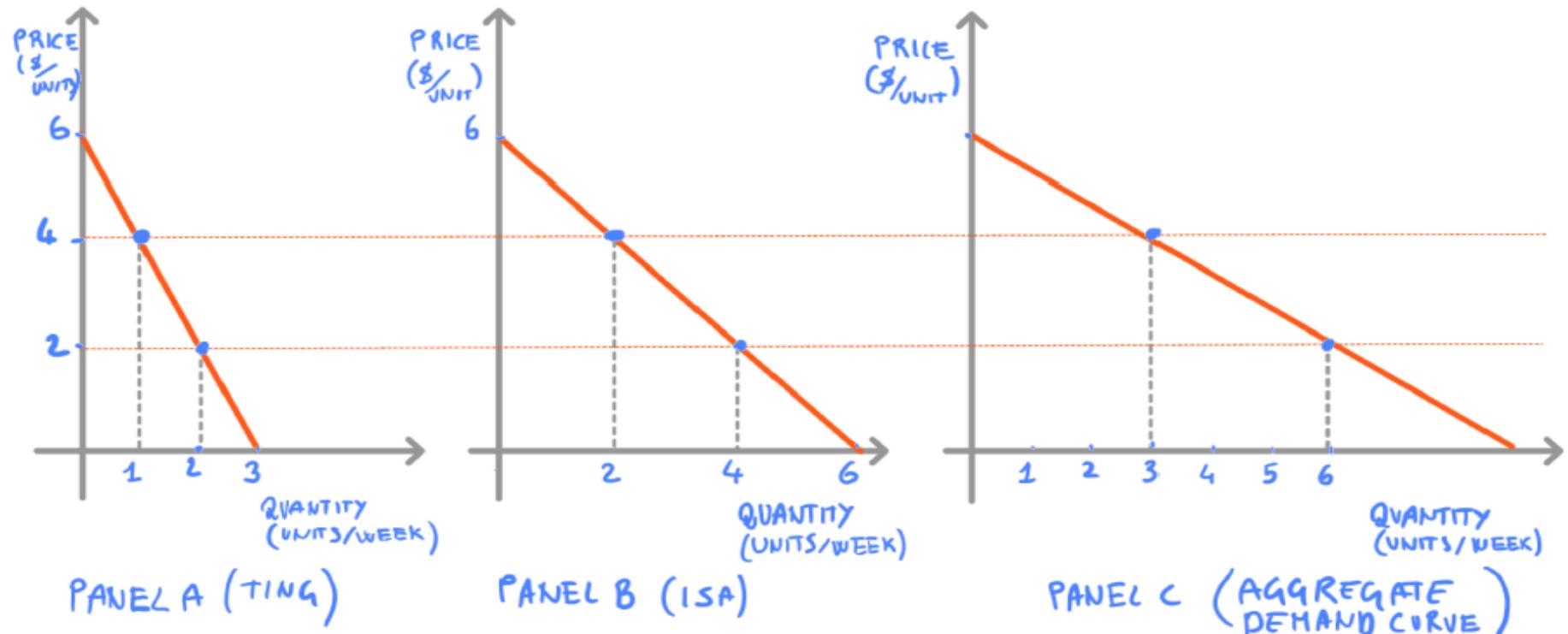
Sum the Supply curves HORIZONTALLY!



Meet Theoh, Tai (producers)

Demand and Supply Aggregation

Sum the Demand curves HORIZONTALLY!



Meet Isa, Ting (consumers)

Demand and Supply Aggregation

Definitions:

The **Aggregate Demand (or Supply)** represents the *horizontal sum* of the individual Demand (or Supply) curves.

Market Equilibrium

How much gets traded in the market & at what price?

1. In one graph, plot both
Aggregate Demand & Aggregate Supply
2. Find the point (Q^*, P^*) where
Quantity Demand = Quantity Supplied

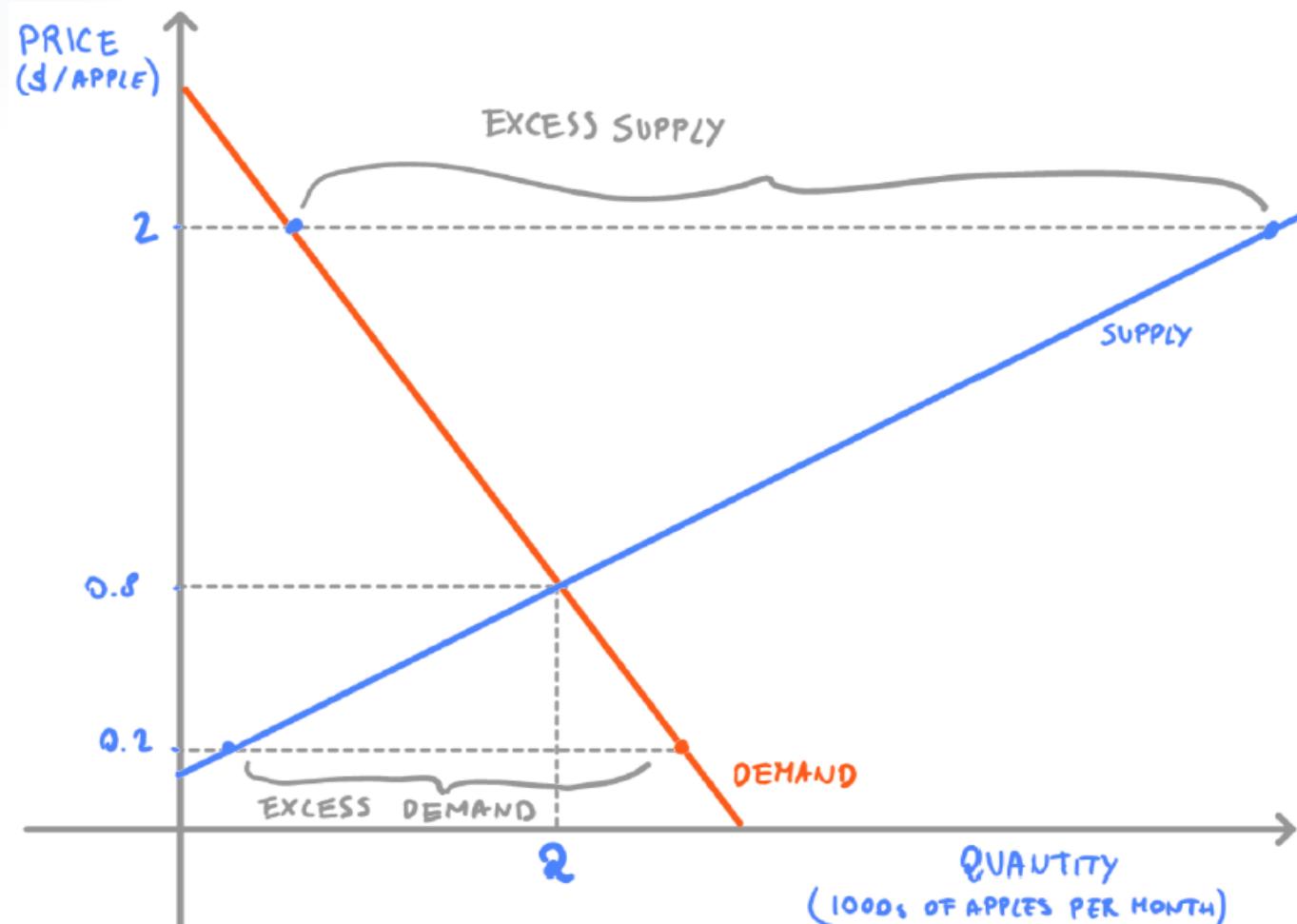
Market Equilibrium

Definitions:

Excess Supply depicts a situation where the *quantity supplied is larger than the quantity demanded.*

Excess Demand depicts a situation where the *quantity demanded is larger than the quantity supplied.*

Market Equilibrium



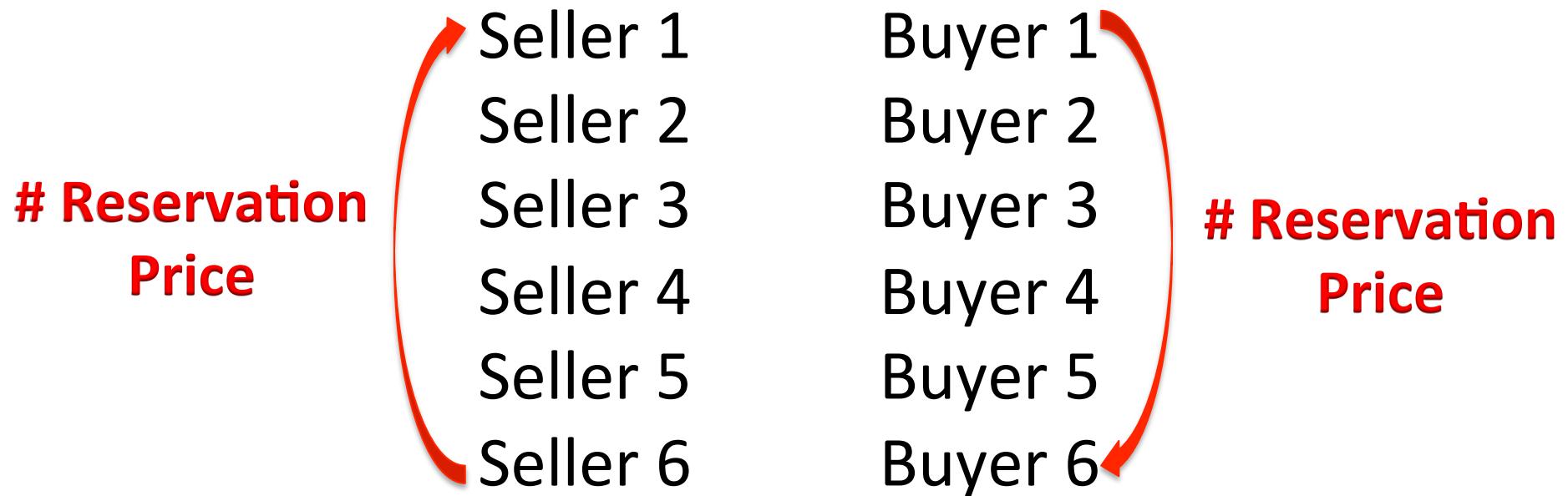
Market Equilibrium

Definition:

The **Equilibrium Price (Quantity)** represents the price (quantity) such that the **quantity supplied equals the quantity demanded**.

Market Equilibrium

Perfectly competitive market →
Buyers & Sellers are *Price Accepters* (Takers)



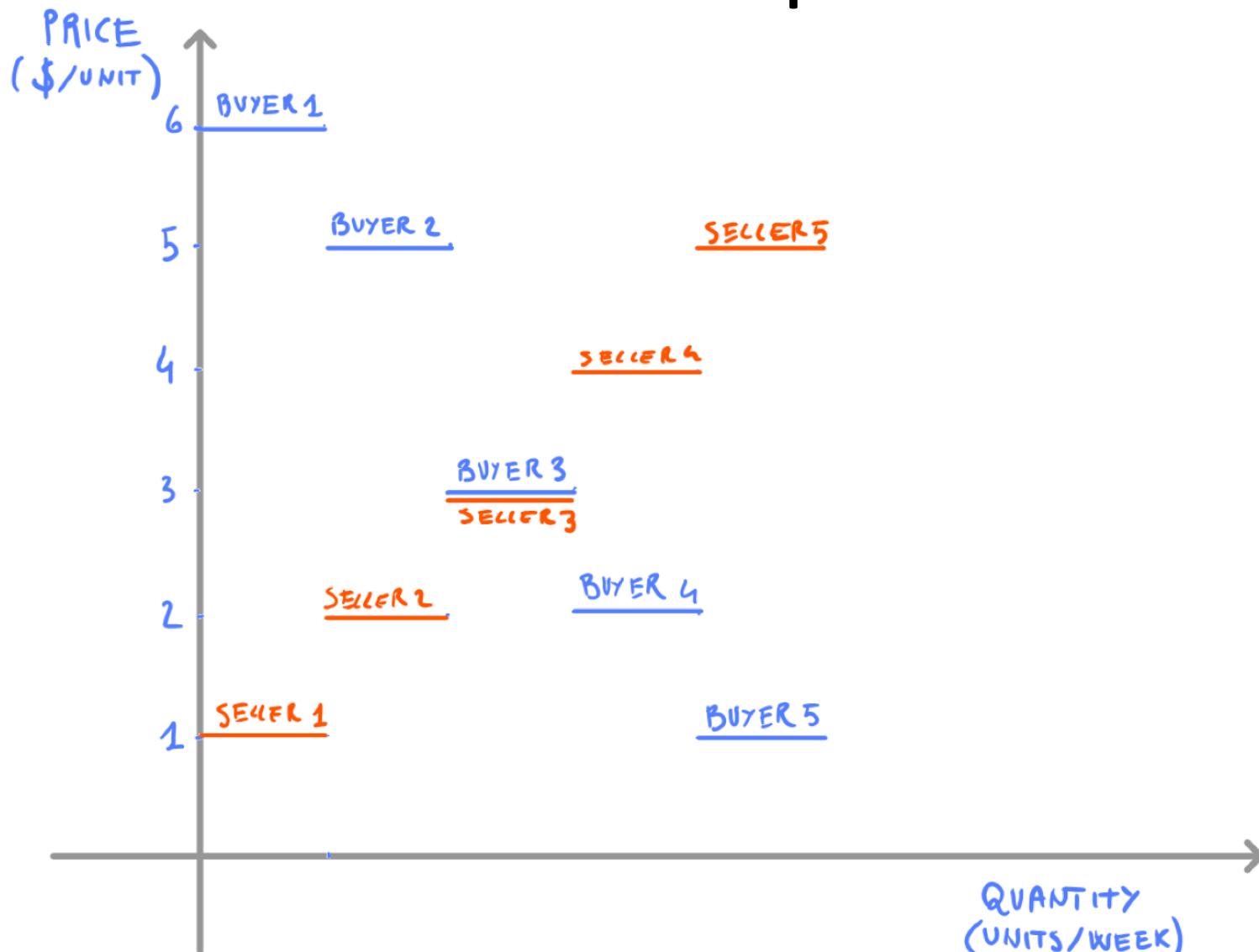
Market Equilibrium

Definitions:

The **Reservation Price of a Buyer** is the highest price a buyer is willing to pay for a given good.

The **Reservation Price of a Seller** is the lowest price a seller is willing to accept for a given good.

Market Equilibrium

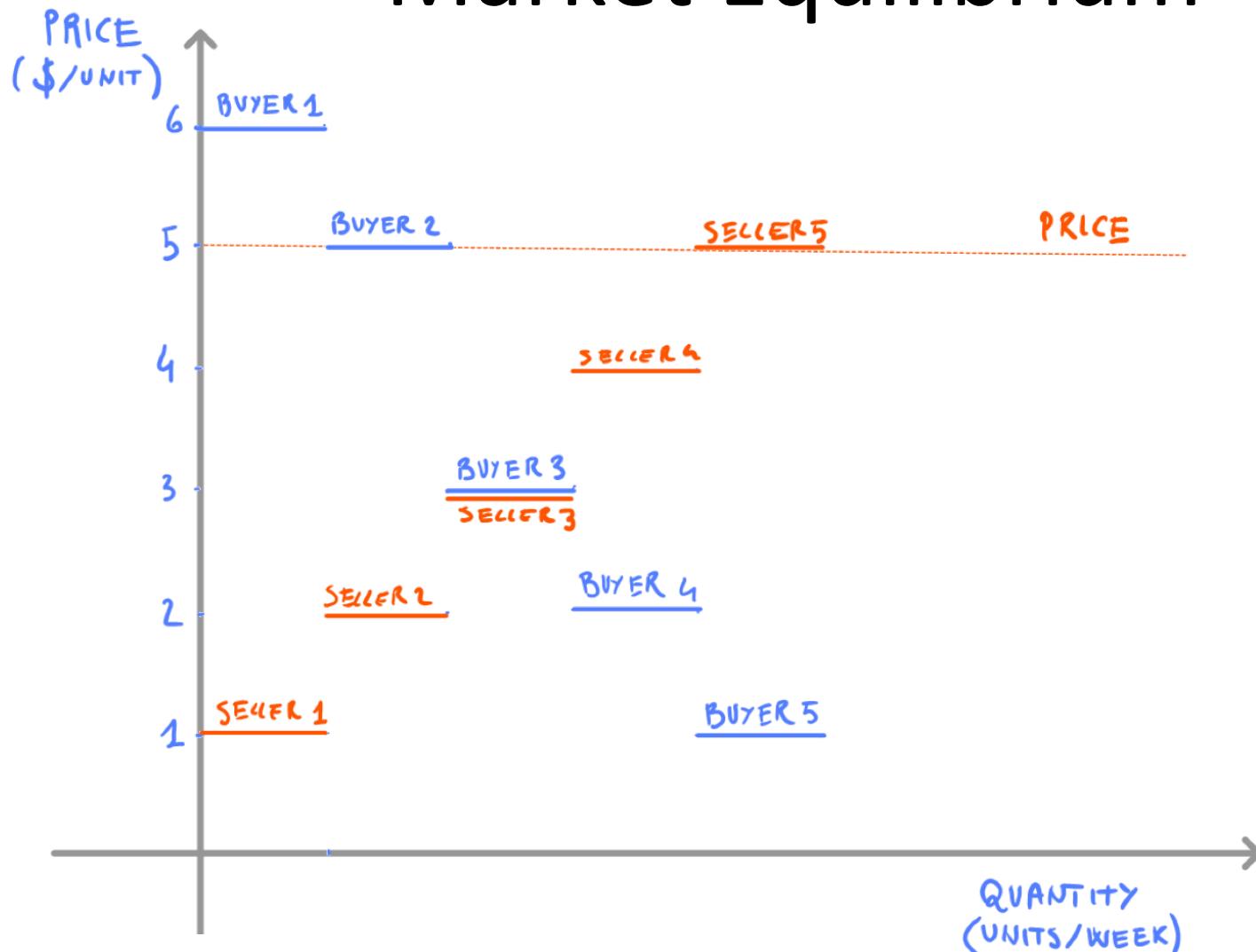


Market Equilibrium

Rationing Rule:

The **Rationing Rule** states that *buyers who value the good more will be the first to buy it.*

Market Equilibrium



Consumer Surplus (B1) = $\$6 - \$5 = \$1$

Producer Surplus (S1) = $\$5 - \$1 = \$4$



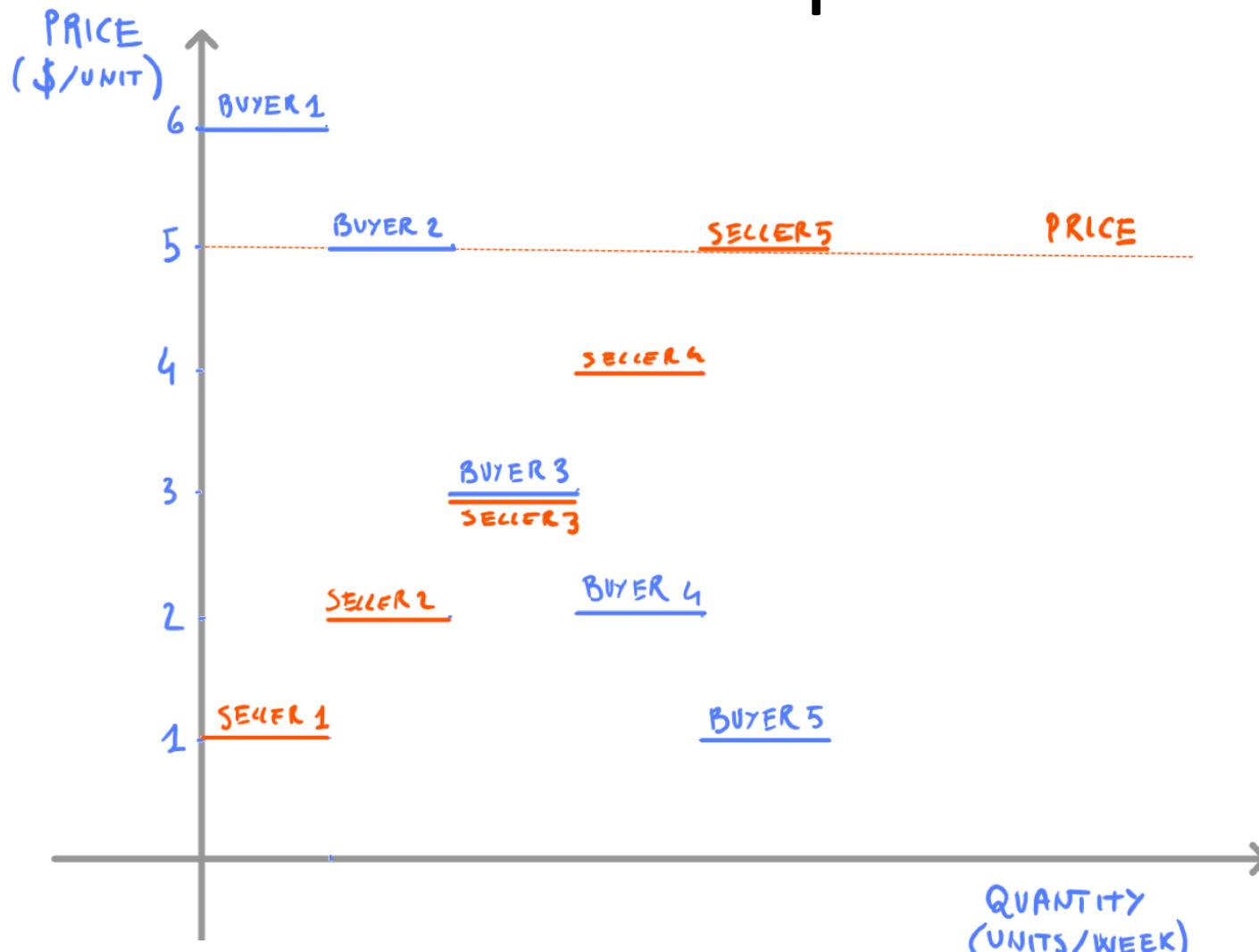
Market Equilibrium

Definitions:

The **Consumer Surplus** represents the difference between what a *consumer pays* for a good or service and *what she is willing to pay* for that good or service (her reservation price).

The **Producer Surplus** represents the difference between the *price a seller receives* for a good or service and *what he is willing to receive* for that good or service (her reservation price).

Market Equilibrium

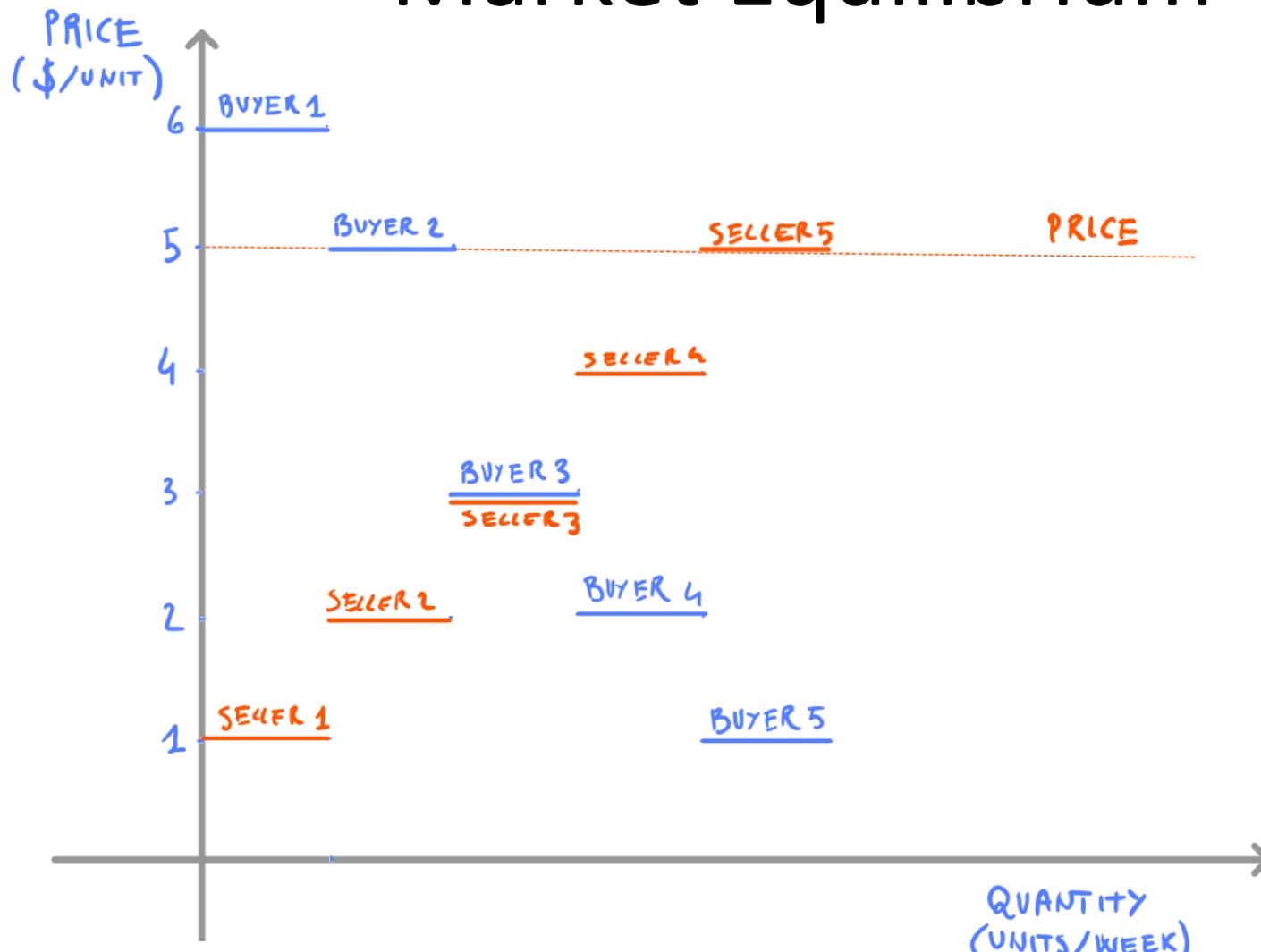


Consumer Surplus (B2) = \$5 - \$5 = \$0

Producer Surplus (S2) = \$5 - \$2 = \$3



Market Equilibrium



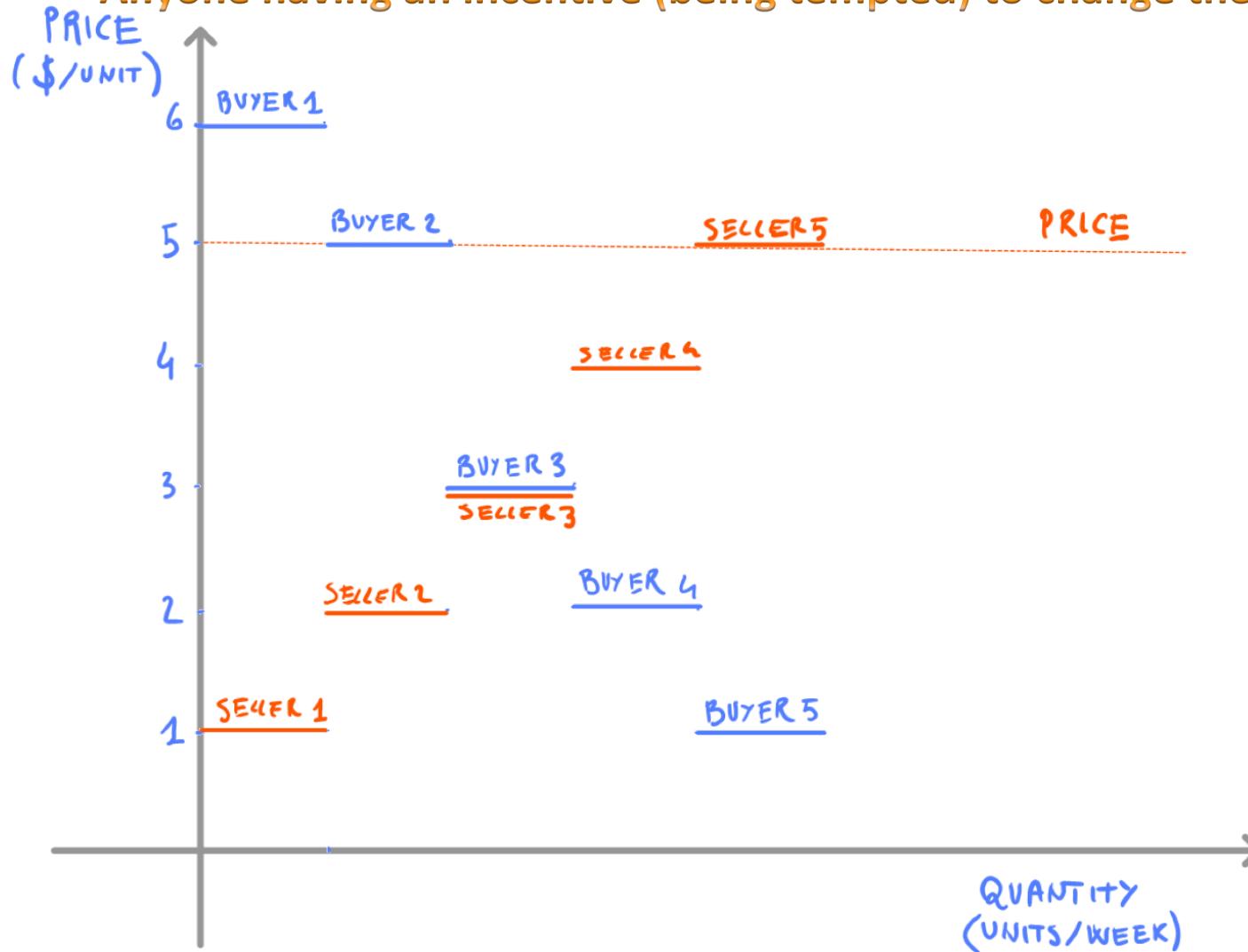
Consumer Surplus (B3) = \$3 - \$5 = -\$2

Producer Surplus (S3) = \$5 - \$3 = \$2



Market Equilibrium

Anyone having an incentive (being tempted) to change their behavior?



Market Equilibrium

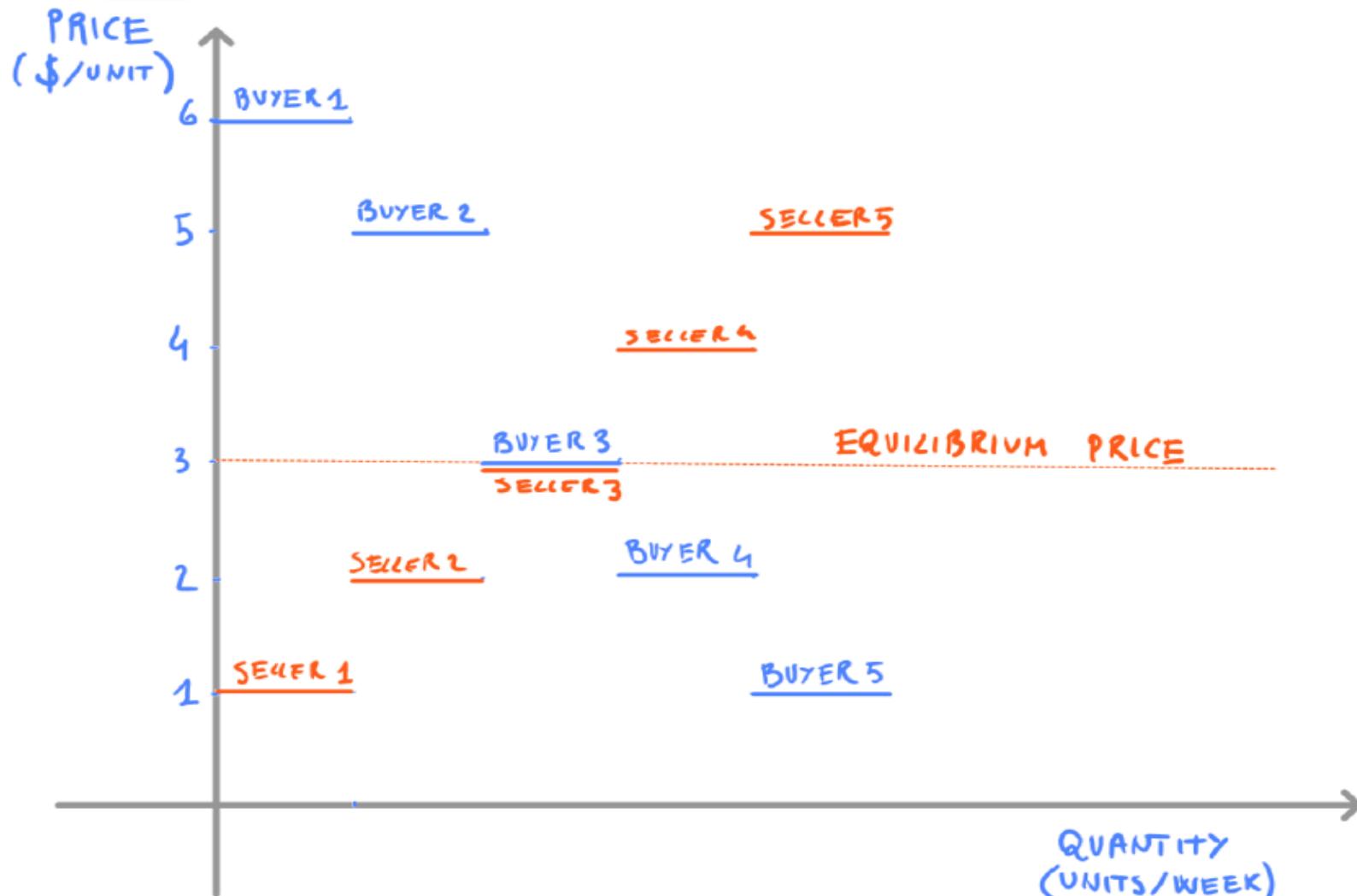
Take $P = \$3$

Anyone tempted to change behavior?

NOPE!! Perfectly competitive market:

If agents try to change price away
from P^* , they wouldn't be able to buy
(sell) anything
→ (equilibrium) price-takers!

Market Equilibrium



Consumer and Producer Surplus

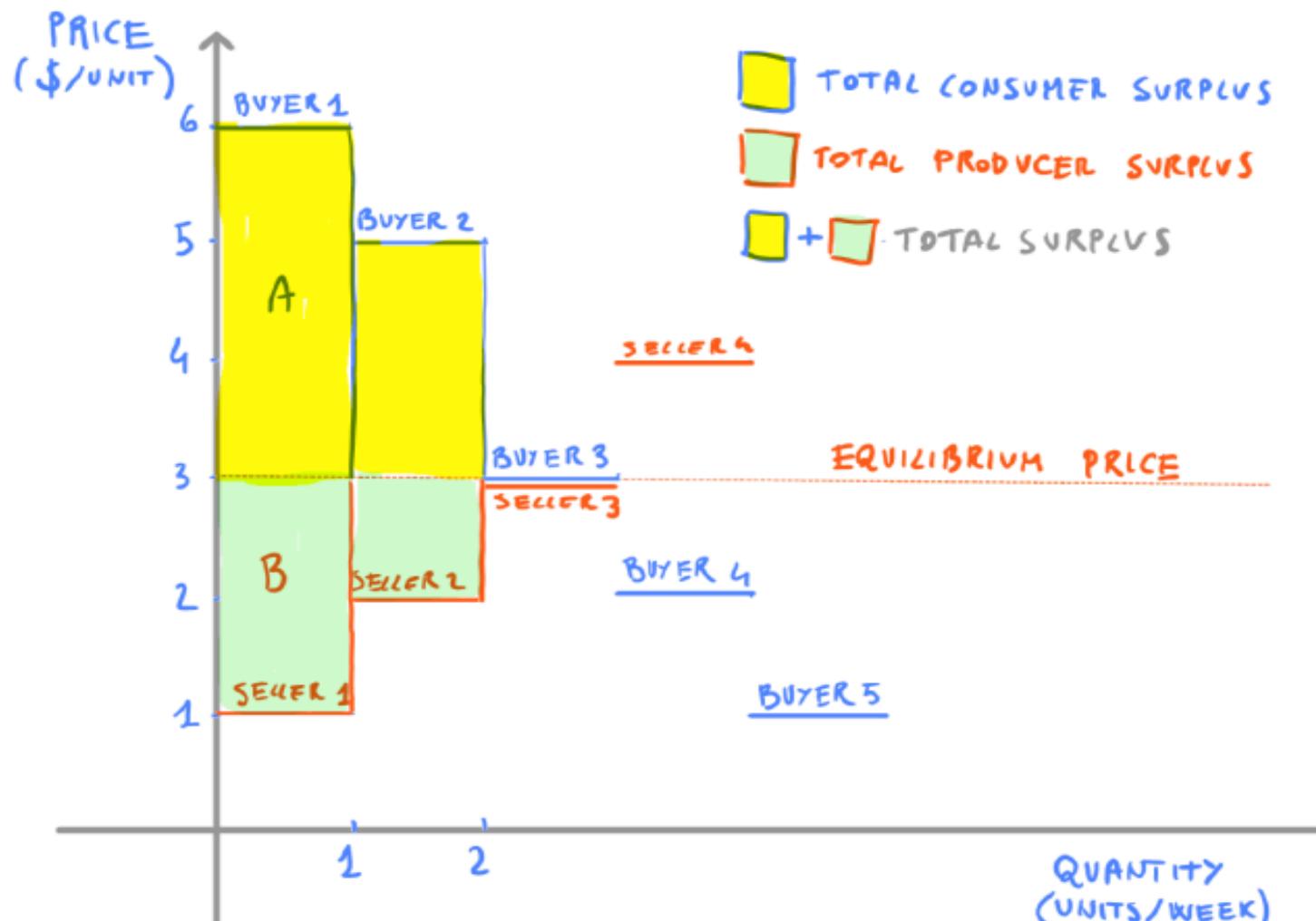
Definitions:

The **Total Consumer Surplus** represents the sum of the economic surplus of all *consumers*.

The **Total Producer Surplus** represents the sum of the economic surplus of all *producers*.

The **Total Surplus** is the *sum of the total consumer surplus and total producer surplus*.

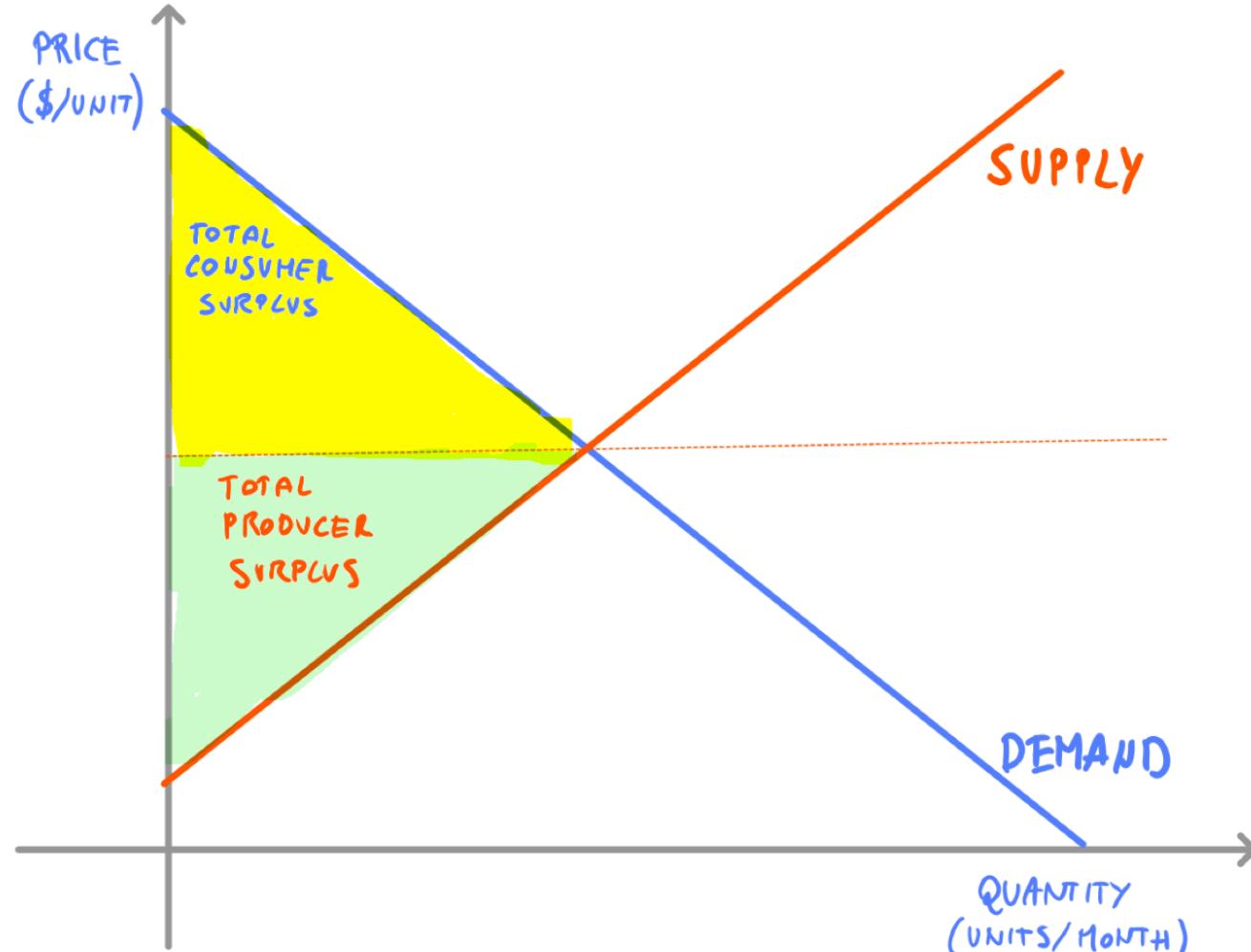
Consumer and Producer Surplus



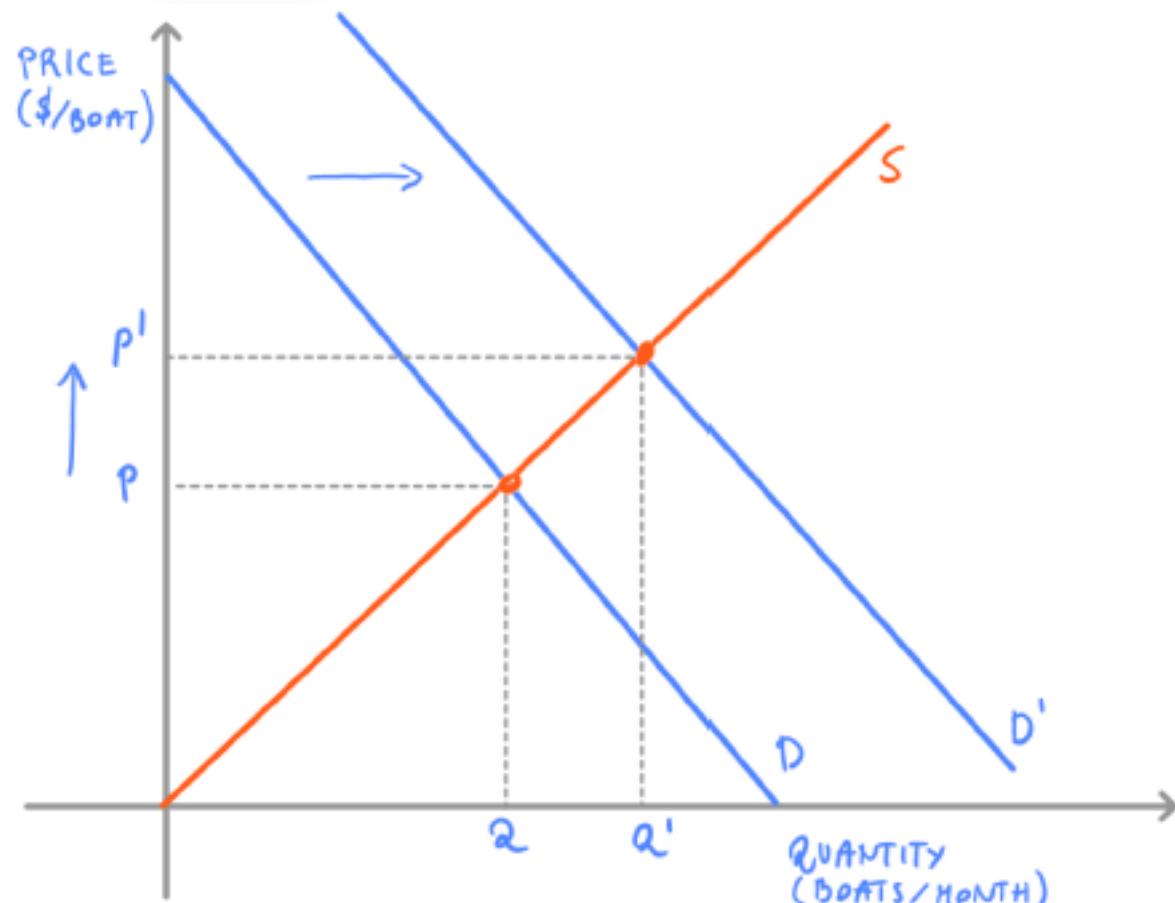
Consumer and Producer Surplus

**In a perfectly competitive market,
Total Surplus is maximized exactly at the
equilibrium price P^* !!**

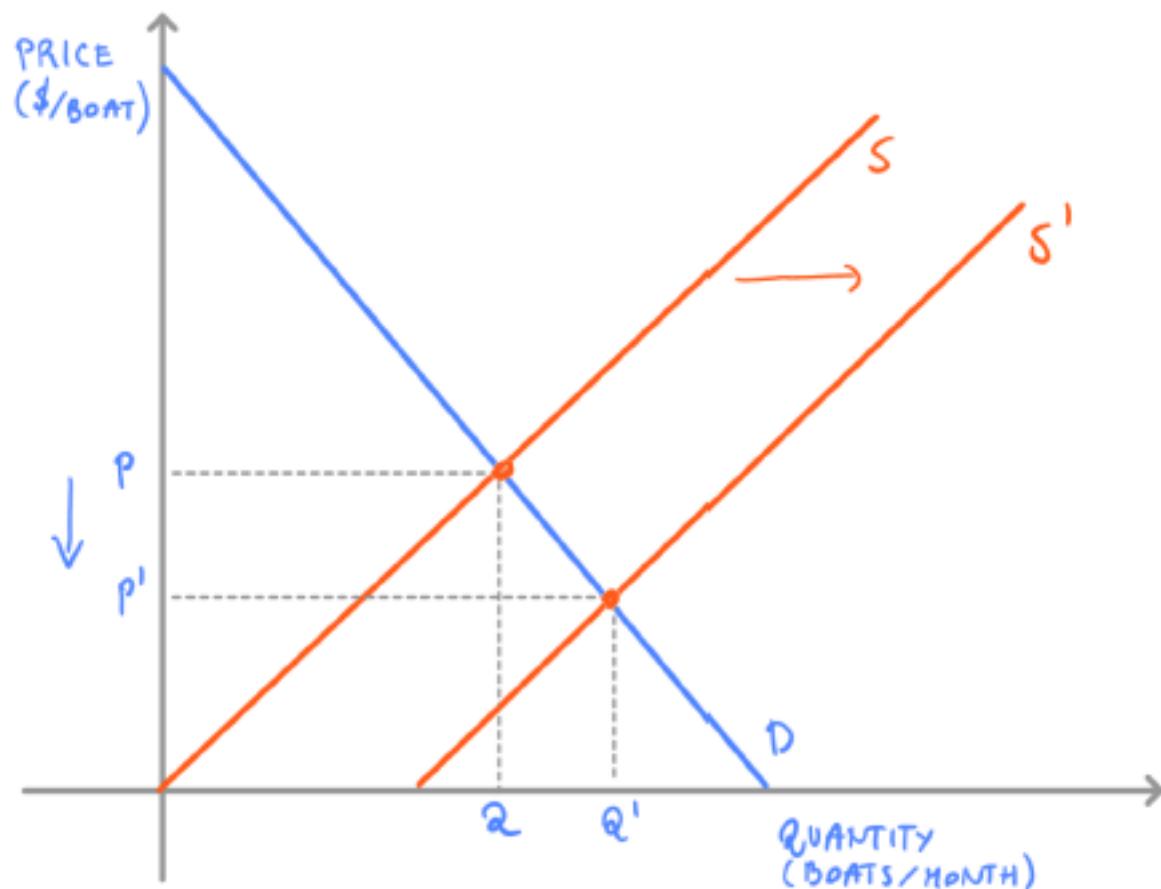
Consumer and Producer Surplus



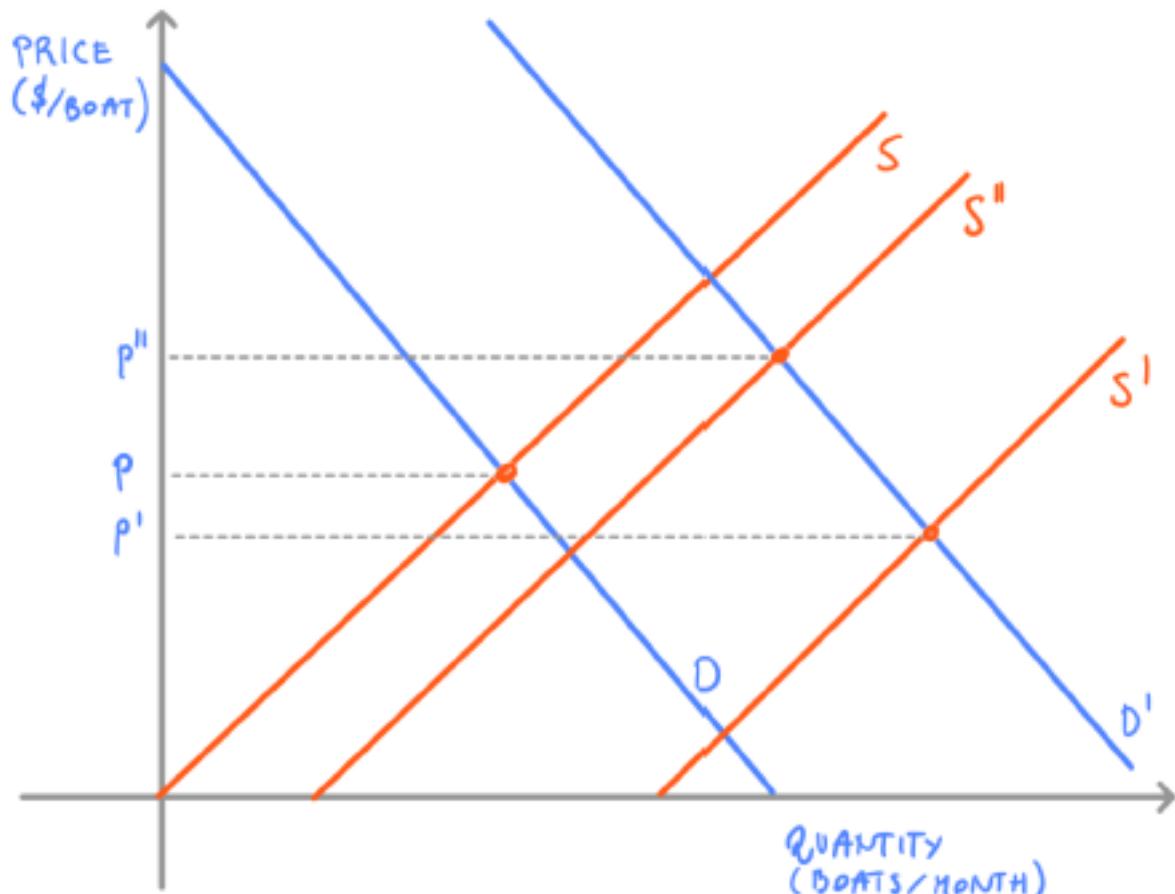
A (Clever) Toy Model



A (Clever) Toy Model



A (Clever) Toy Model



👍 Competitive Markets: Pareto Efficiency (Short Run)

Pareto Efficiency:

Pareto Efficiency is a situation in which it is impossible to make any individual better off without making at least one other individual worse off.

👍 Competitive Markets: Pareto Efficiency (Short Run)

**A perfectly competitive market's Equilibrium
is Pareto Efficient!**

- Total Surplus is maximized
- There is no Pareto Improving Transaction = no possible transaction that would make someone better off without harming someone else.

👉 Competitive Markets: Pareto Efficiency (Short Run)

Definition:

A **Pareto Improving Transaction** is a transaction where all parties involved are better off.

👉 Competitive Markets: Pareto Efficiency (Short Run)

How about Equity & Society Wellbeing?

(1) Efficiency

(2) Equality of Resources & Opportunities

👉 Competitive Markets: The Invisible Hand (Long Run)

The Invisible Hand Principle:

The **Invisible Hand Principle** states that individuals' independent efforts to maximize their gains (profits for sellers; utility for buyers) will generally be beneficial for society and result in the socially optimal allocation of resources.

👍 Competitive Markets: The Invisible Hand (Long Run)

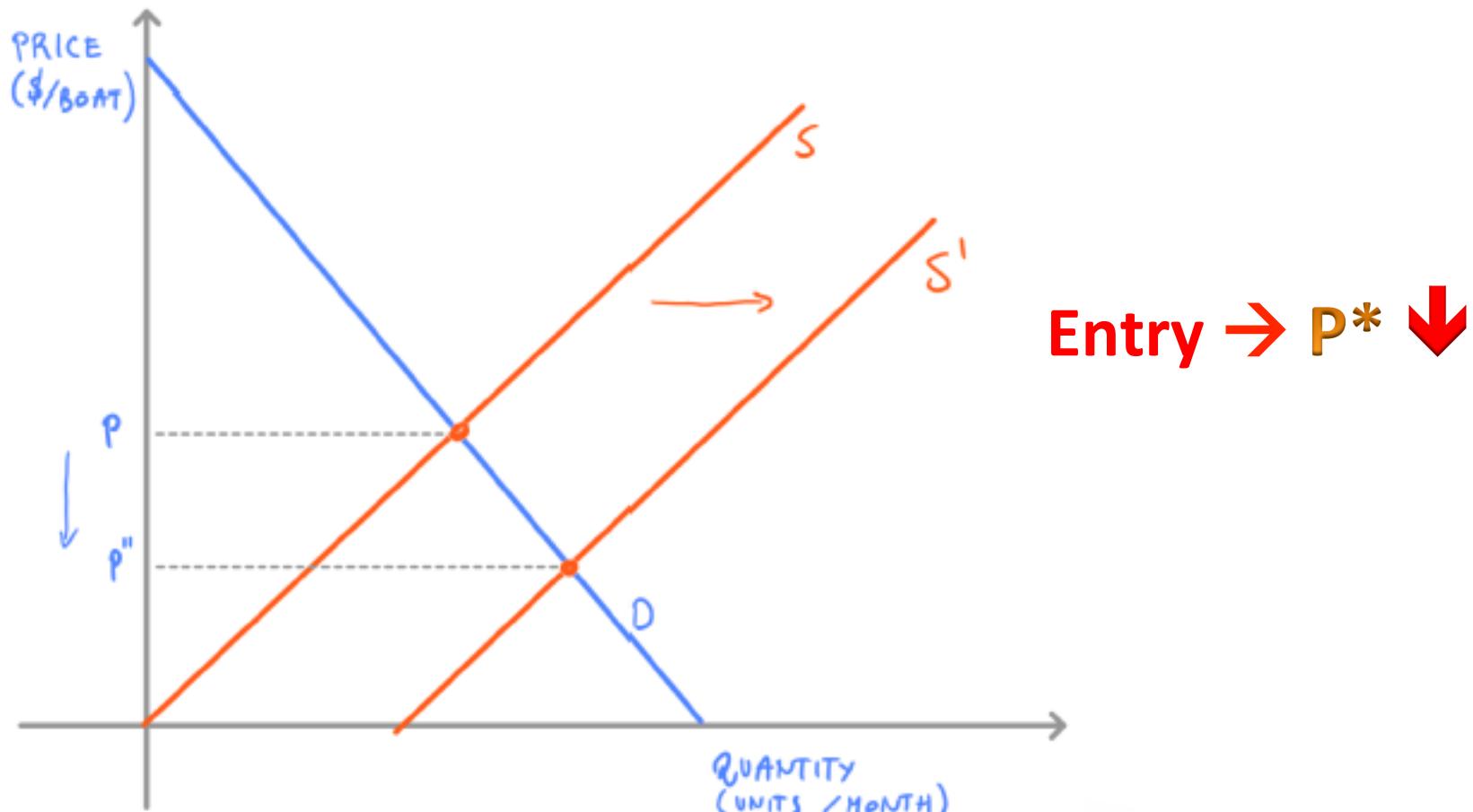
In the long run, firms produce at lowest possible ATC!

- existing firms can adjust all their factors of production (and perhaps exit) → it's the long run!
- new firms can enter the market (as long as $\Pi_{\text{production}} > 0$)
 - S curve shifts to right → P^* ↓
 - $\Pi_{\text{production}}$ ↓ until $\Pi_{\text{production}} = 0$
 - firms produce Q^* such that ATC is minimized

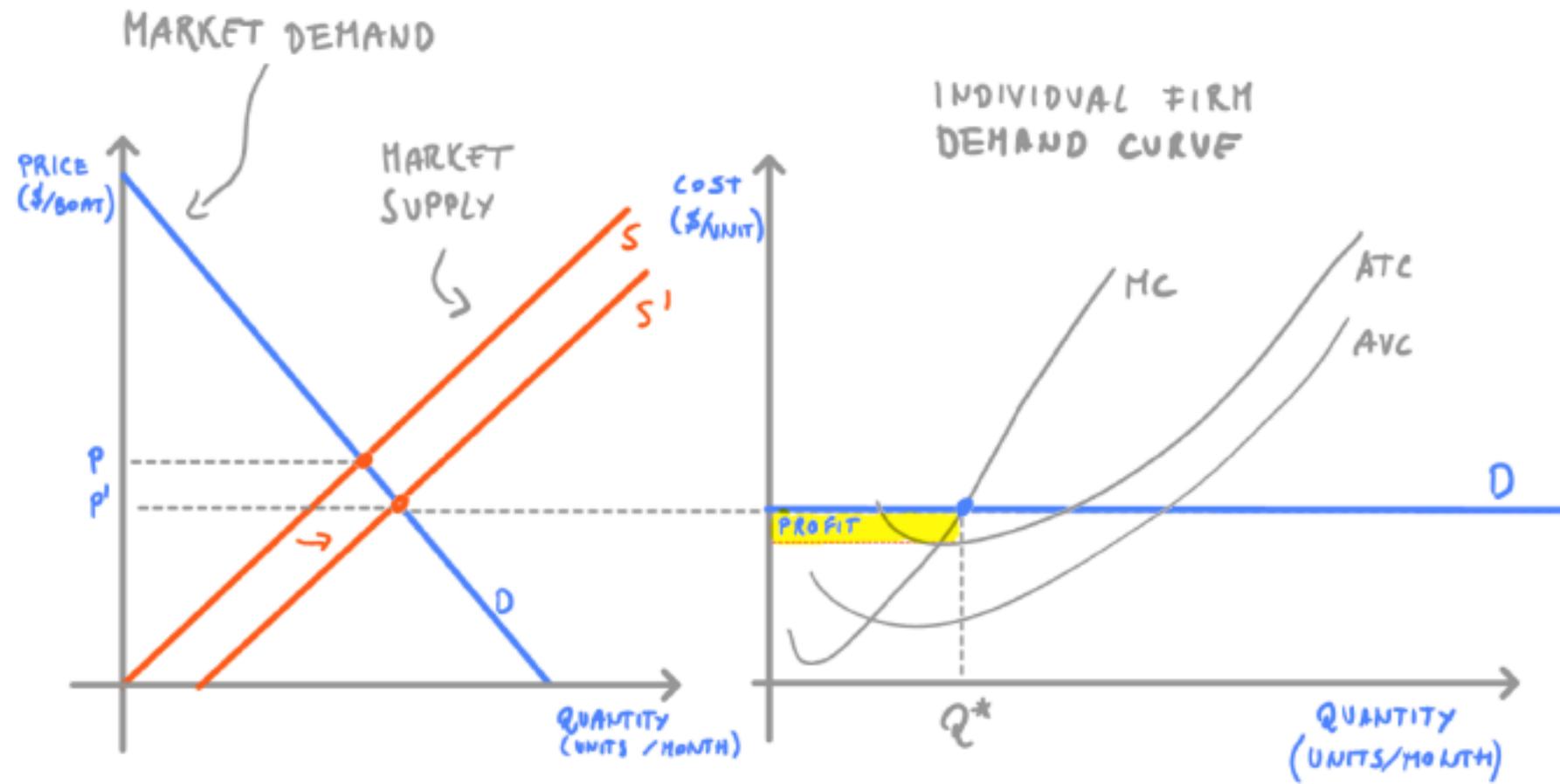
$$P^*_{LR} = \min(\text{ATC}) !!!$$

→ what if initially $\Pi_{\text{production}} < 0$?

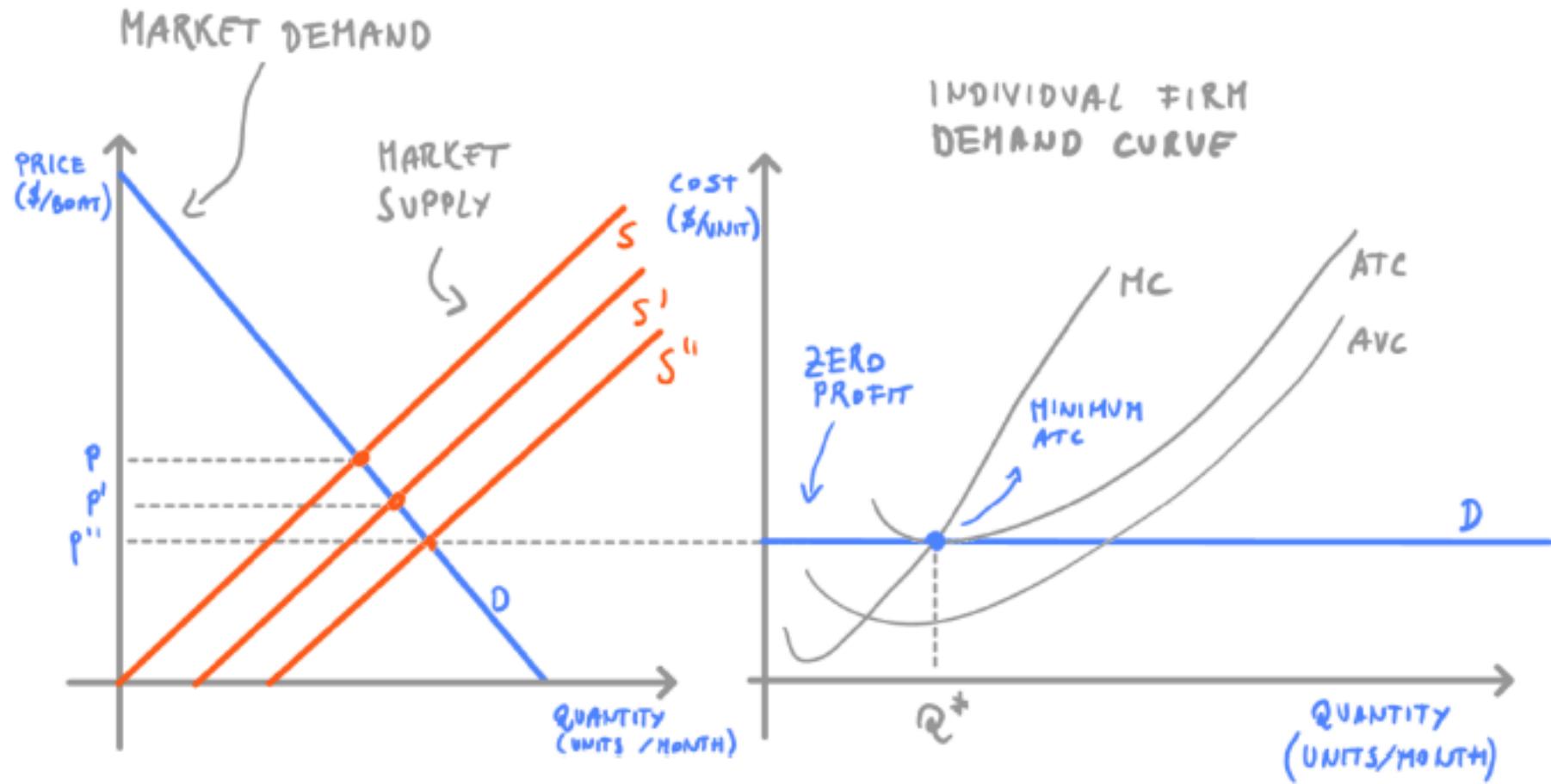
👍 Competitive Markets: The Invisible Hand (Long Run)



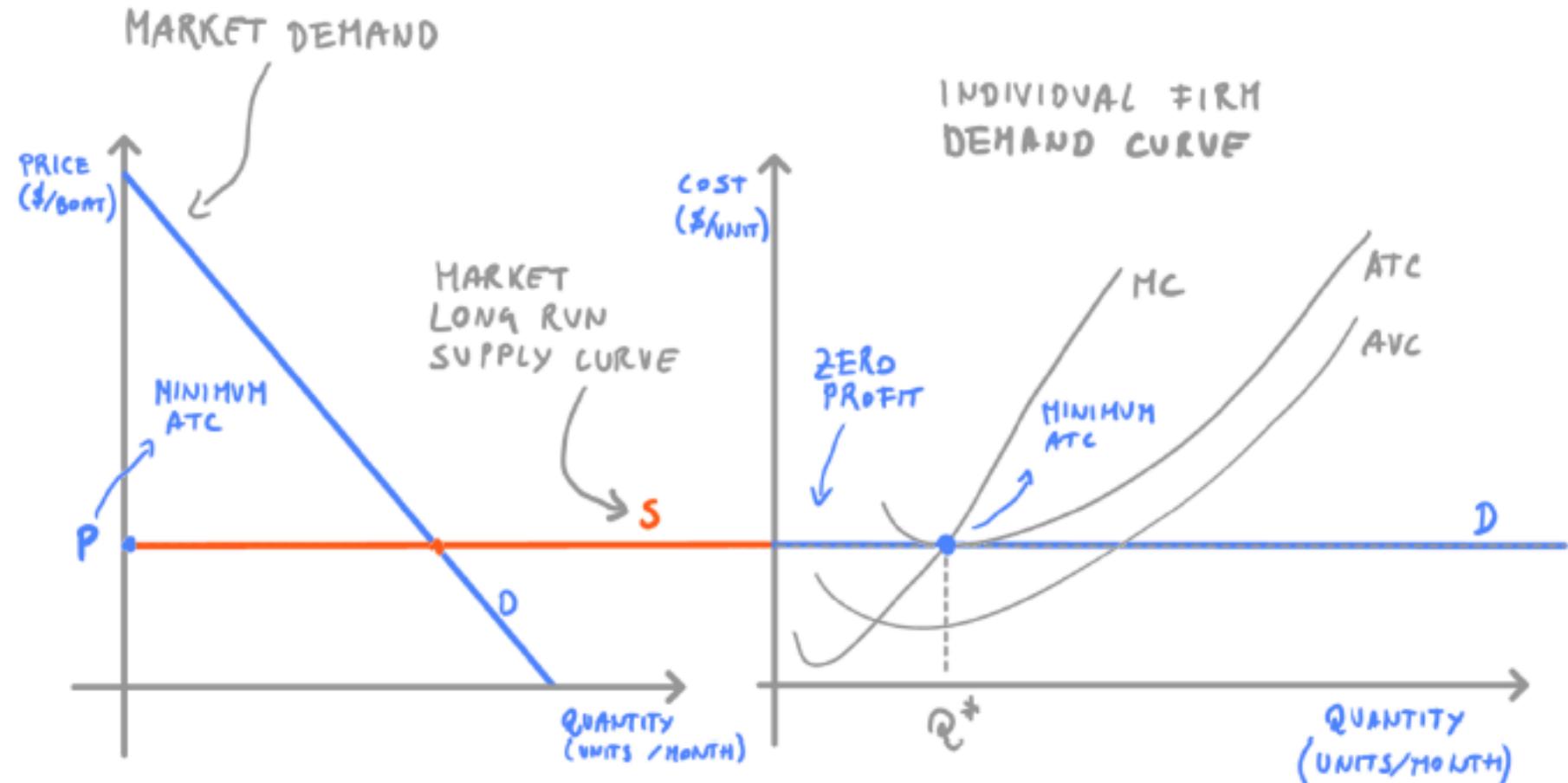
👍 Competitive Markets: The Invisible Hand (Long Run)



👍 Competitive Markets: The Invisible Hand (Long Run)



The Long Run Supply Curve



All firms

- produce with the same technology (\rightarrow same cost curves)
- sell at $P^* = \min(\text{ATC})$



The Long Run Supply Curve

