Part III
Imperfectly Competitive Markets

Imperfect vs. Perfect

Im-perfect = Perfect except that one or more of the following assumptions apply:

- Consumers/suppliers are **NOT** price-takers, or
- Goods are **NOT** homogeneous, or
- There **ARE** externalities, or
- Goods are **NOT** excludable and rival, or
- **Imperfect** (not full) information, or
- **NO** free entry and exit.

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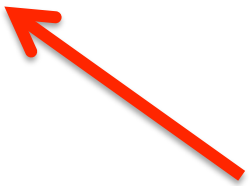
So what happens?

Chapter 10: Public Goods

Public Goods

Some **examples**:

- *Education*
- *Health system*
- *National defense*
- *Judiciary system*



Non-rivalry &

Non-excludability

Non-rivalry & Non-excludability

Definition:

Non-Rivalry: One individual's consumption of the good does not impede another individual from consuming it as well: the MC of providing the public good to an additional individual is zero.

Non-rivalry & Non-excludability

Definition:

Non-Excludability: No one can be excluded from consuming the good.

Non-rivalry & Non-excludability

Definitions:

Pure Public Goods represent goods that are *perfectly* non-rivalrous & non-excludable.

Impure Public Goods represent goods that are non-rivalrous & non-excludable only up to a point.

Pure vs. Impure Public Goods

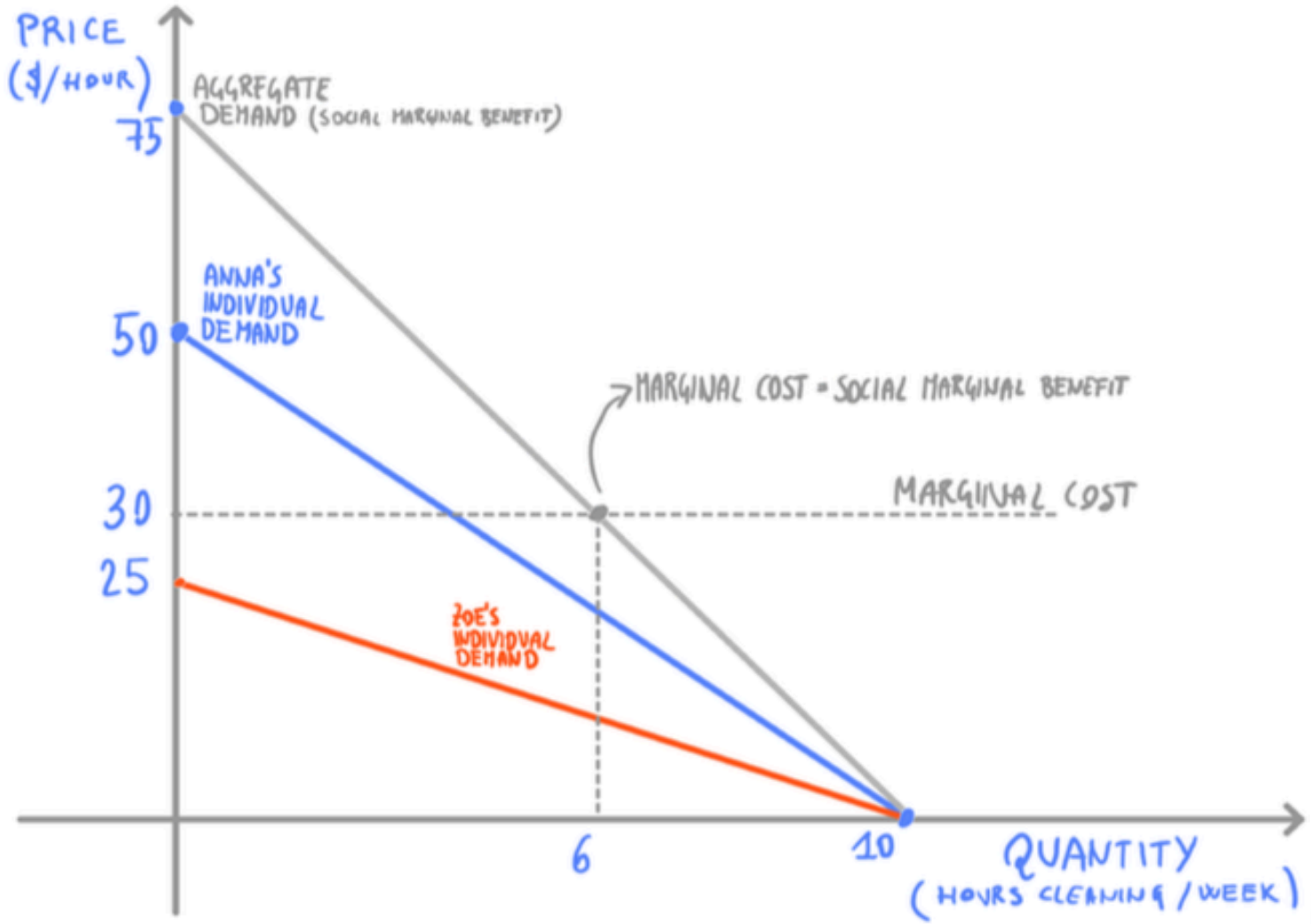
- Excludable, but non-rivalrous
  - Pay TV (needs subscription, but your enjoyment is not affected by someone else watching TV)
  - Busses, airplanes, etc
    - **for access: you must pay a P although MC = 0**
- Non-excludable, but rivalrous
  - Congested motorway (no toll, but takes longer time)
  - Hospitals, schools, public transport, this Micro 1 course
    - **before full capacity is reached: MC = 0 → PURE**
    - **after full capacity is reached: MC > 0 → IMPURE**

Aggregate Demand: Marginal Social Benefit (MSB) & Efficiency

Meet Ana and Zoe (flatmates) ☺

- Want to hire a cleaner
- How many hours of cleaning per week should they contract for?

Aggregate Demand: MSB & Efficiency

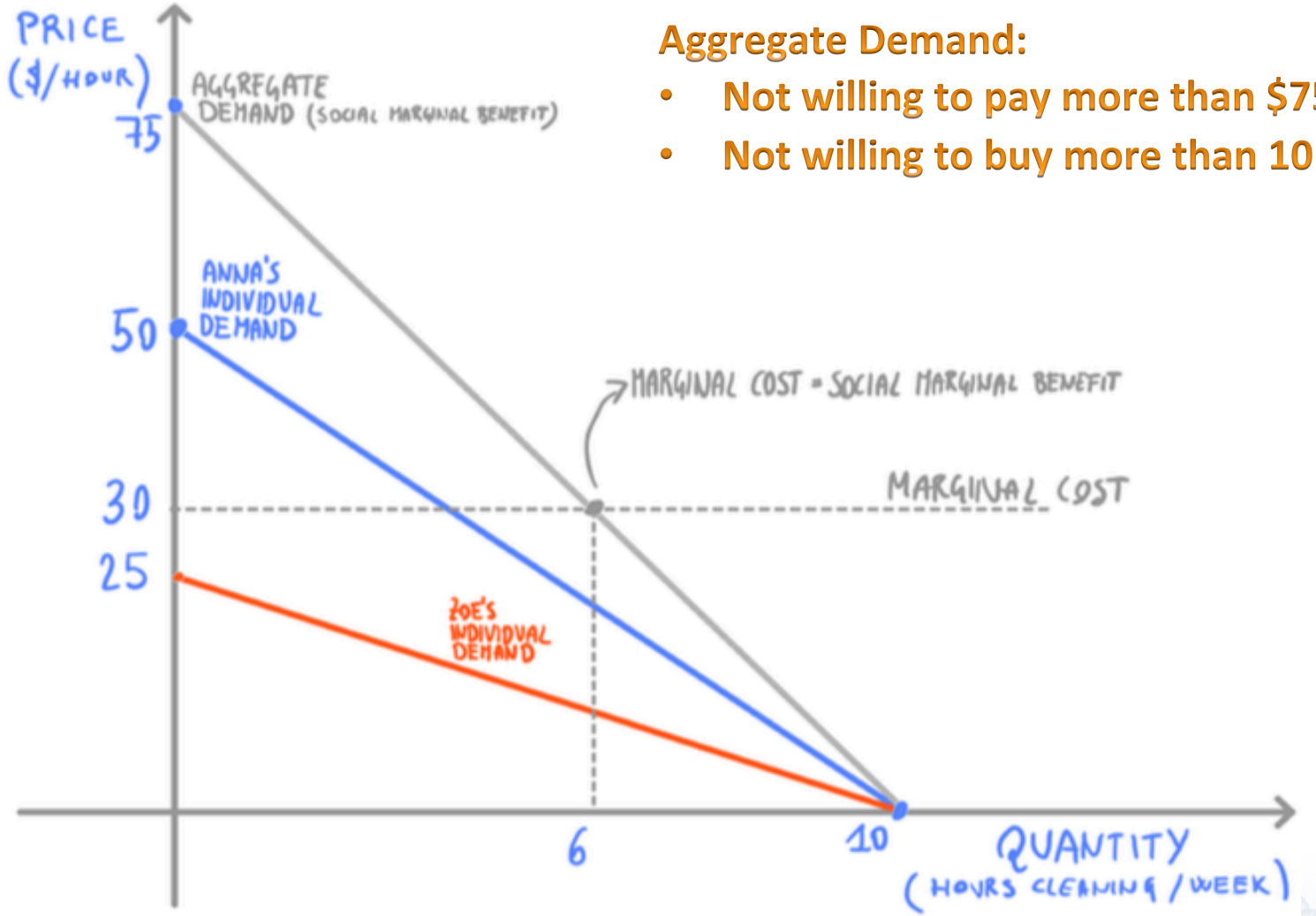


Marginal Social Benefit (MSB)

Definition:

The **Marginal Social Benefit** is the vertical sum of the individual marginal benefits.

Aggregate Demand: MSB & Efficiency



Aggregate Demand:

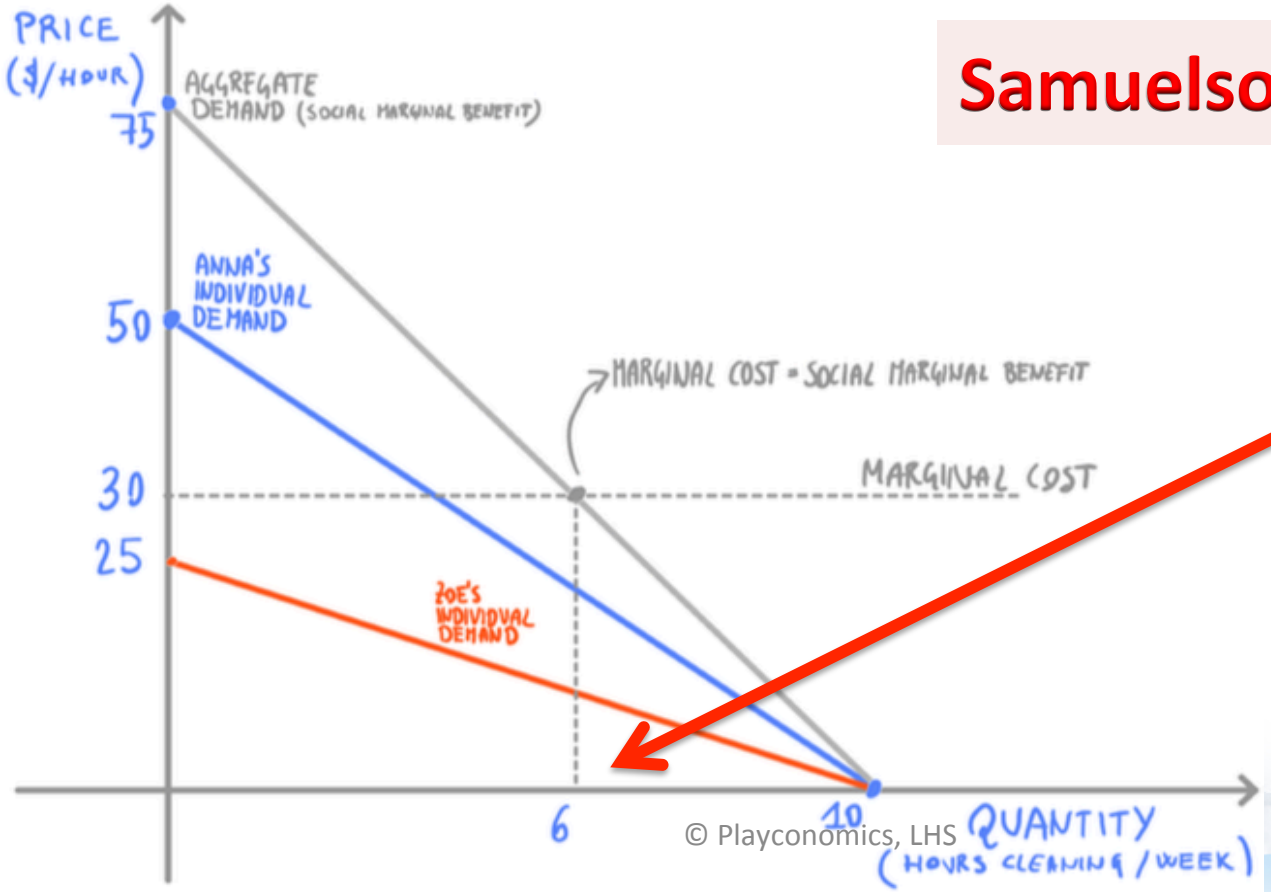
- **Not willing to pay more than $75 per hour.**
- **Not willing to buy more than 10 hours**

Efficiency

Say **Price = $30/h** → **What is the *efficient number of hours* Anna & Zoe should hire the cleaner for?**

Σ Marginal Ind. Benefits = Marginal Social Benefit = **MC = Price**

Samuelson Condition



6 hours

Efficiency

Definition:

The **Samuelson Condition** states that the efficient quantity of a public good is found by setting the sum of the individual marginal benefits equal to the marginal cost.

Market Provision and Free-Riding

Do markets provide goods efficiently?

- **YES!** → for **private** goods
- **NO!** → for **public** goods → **WHY?**

<u>Left to their own devices</u>, will Anna and Zoe hire the cleaner for the efficient number of hours?

Market Provision and Free-Riding

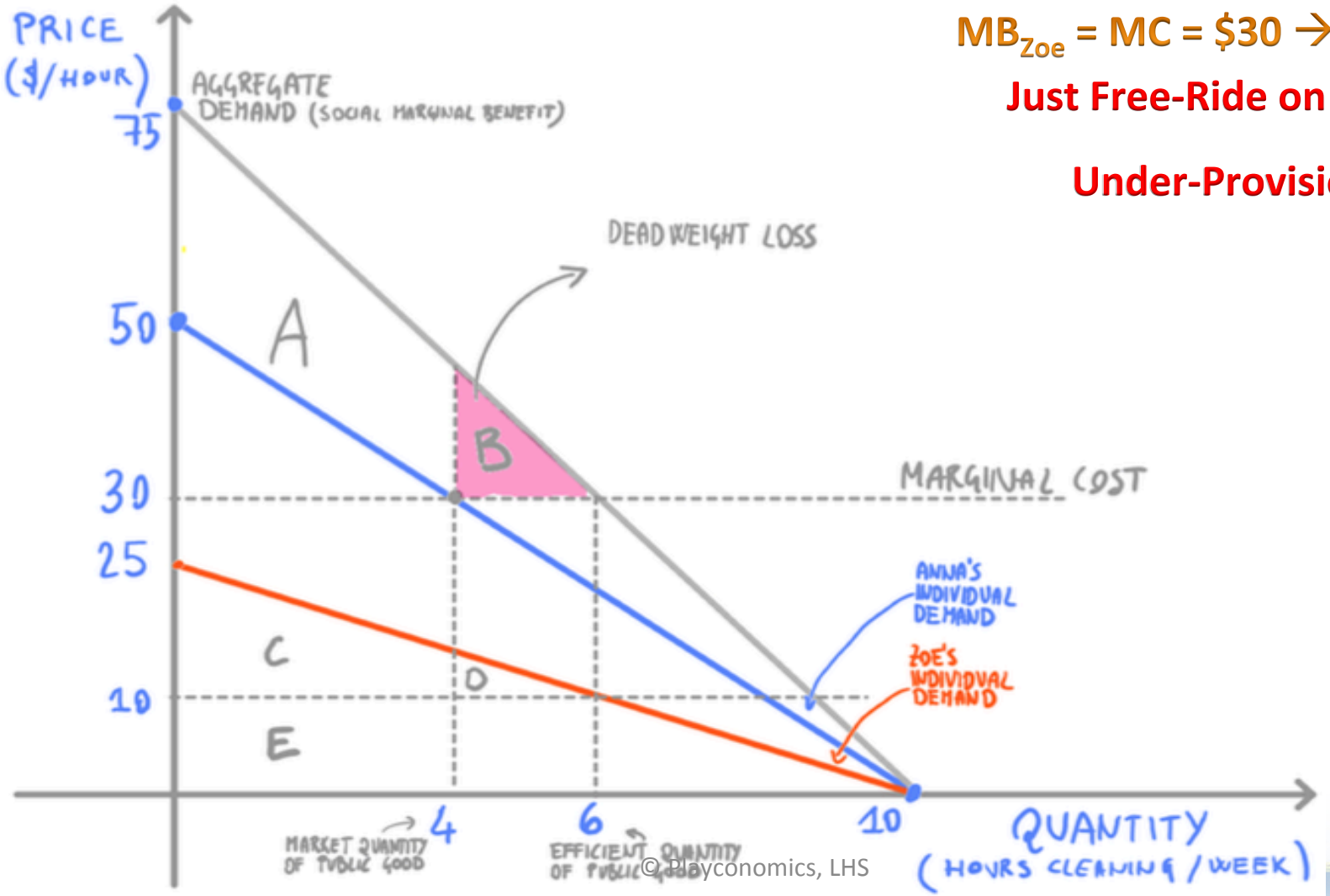
Say **Price = $30**

MB_{Anna} = MC = $30 → **4 hours**

MB_{Zoe} = MC = $30 → **0 hours**

Just Free-Ride on Anna

Under-Provision!!!



Market Provision and Free-Riding

Definition:

Free-Riding denotes the action of enjoying a good without paying for it → is caused by the non-excludable nature of public goods and it results in their *under-provision*.

Market Provision and Free-Riding

Why shouldn't Anna and Zoe *AGREE* on 6 hours per week at $30 per hour (the efficient # of hours)?

Anna and Zoe could ***SHARE*** the MC:

- Anna could pay her marginal benefit → $20 per hour
- Zoe could pay her marginal benefit → $10 per hour

$30 per hour

Lindahl prices

Won't Work! ☹

Market Provision and Free-Riding

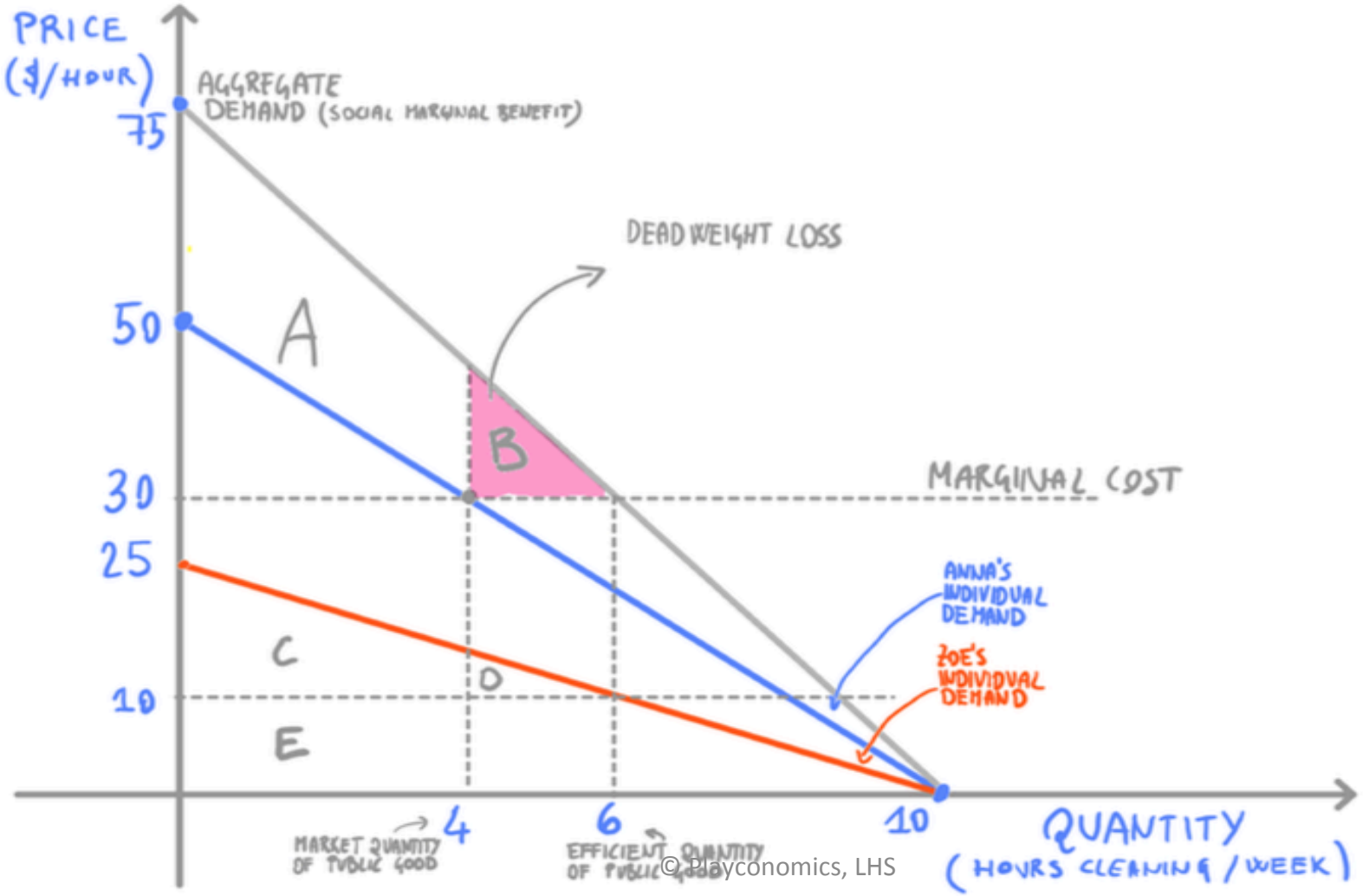
Definition:

Lindahl Prices imply that each individual pays for the provision of a public good according to their marginal benefit.

Market Provision and Free-Riding

Does Zoe prefer to pay the Lindahl Price (6 hours) or to free-ride (4 hours)?

Say **Price = $30**



Public Goods and Externalities

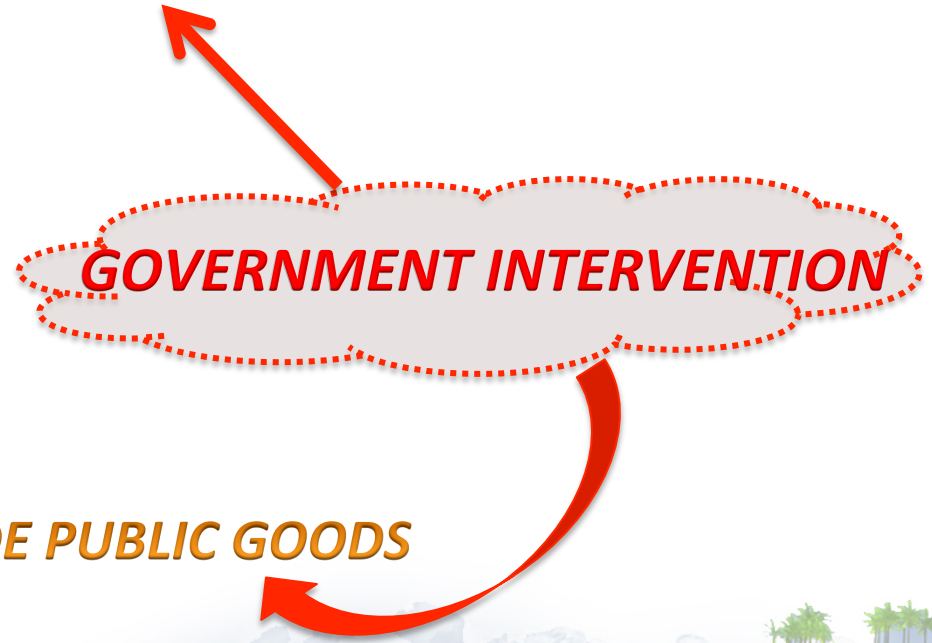
A public good is an extreme case of positive externality!

- Like positive externalities (remember perfume!) → **non-excludable** (everyone can enjoy Maia's perfume) AND **under-provided** by the market

- Extreme case because unlike standard externalities → *the benefit accrued to those who enjoy the public good does not depend on who is providing it (could be either Zoe or Anna)* → another way of defining **non-rivalry**

Market, Government & Taxation

- **Non-rivalry** → each individual can benefit from someone else's public good provision
- **Non-excludability** → an individual cannot be stopped from enjoying it.



Market, Government & Taxation

Solution: ***TAX TO PROVIDE PUBLIC GOODS***

How? Government hires the cleaner for 6 hours and tax Anna & Zoe $20 and $10 per hour (their Lindahl prices).

BUT NOT PERFECT!

MB_{Anna} & MB_{Zoe} are NOT common knowledge! → THEY have an incentive to understate their true valuations, hoping to free-ride on the other's provision.

Market, Government & Taxation

As individual demands are private info, the Government must follow **2 fairness principles**:

→ tax according to **ability to pay**

→ tax according to **pay-as-you-go** principle