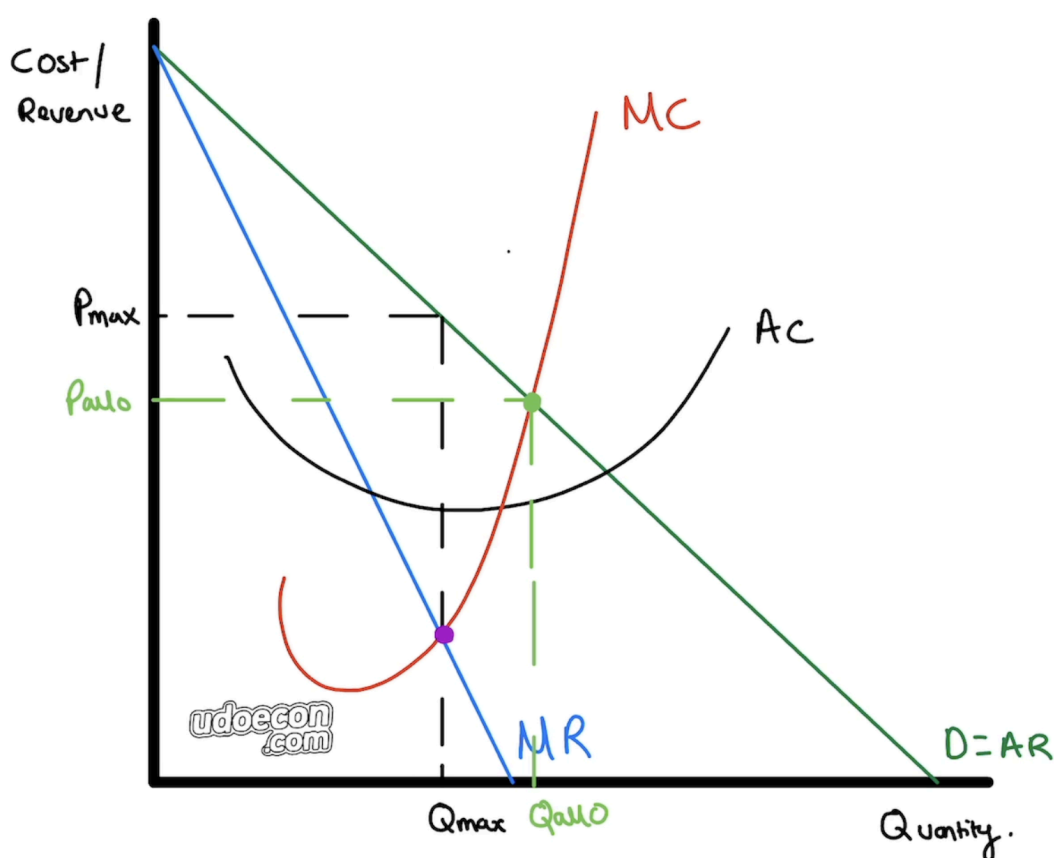


Economic Efficiency

Economic efficiency occurs when scarce resources are used in a way that maximises the benefits to consumers and producers while minimising waste.

There are four main types of efficiency: allocative efficiency, productive efficiency, dynamic efficiency and X-inefficiency.

Allocative Efficiency



Allocative efficiency occurs when resources are allocated according to consumer preferences, maximising overall economic welfare.

Allocative efficiency occurs where:

$$MC=AR$$

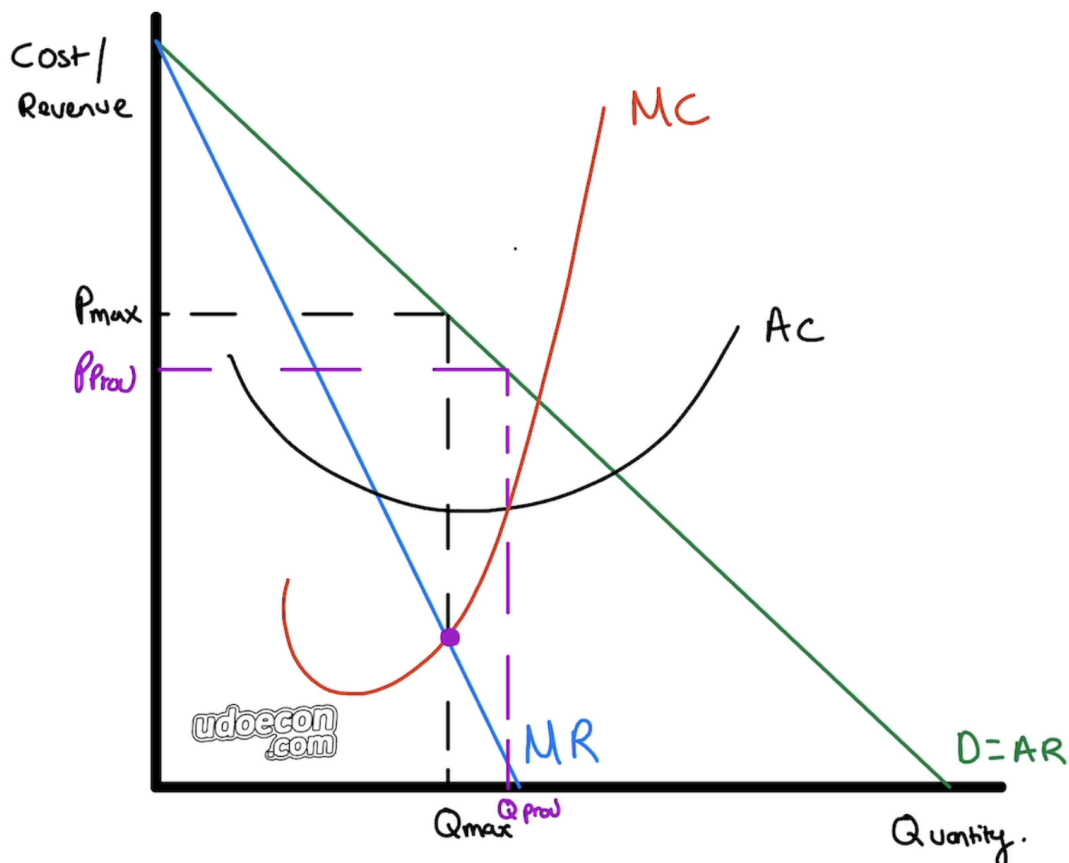
AR represents the price consumers are willing to pay (remember $AR=D=P$), while MC (Marginal cost) represents the cost of producing an additional unit. Therefore, $AR = MC$ means the benefit consumers receive from the last unit produced is equal to the cost of producing it.

At this point:

- Consumer and producer welfare is maximised.
- There is no overproduction or underproduction.
- There is no excess demand or excess supply.

Allocative efficiency → $AR = MC$ → resources allocated according to consumer preferences → total welfare maximised

Productive Efficiency



Productive efficiency occurs when a firm produces its output at the lowest possible average cost.

It occurs at the minimum point of the AC curve, where:

$$MC = AC$$

At this point, there is no unnecessary wastage of scarce resources and productivity is high.

Productive efficiency → $MC = AC$ → AC minimised → output produced at lowest possible cost → scarce resources are not wasted

If a firm produces where AC is above its minimum, it is productively inefficient because the same output could potentially be produced at a lower average cost.

Written by udoecon.com

For example Tesla achieves productive efficiency in automated Gigafactories driving costs per vehicle down from around **£62,000** in 2017 to under **£26,000**.

Dynamic Efficiency

Dynamic efficiency refers to improvements in efficiency that occur over time as a result of investment and innovation.

Firms may reinvest profits into Research and development (R&D) thus improving product quality / choice **and** through lower production costs over time.

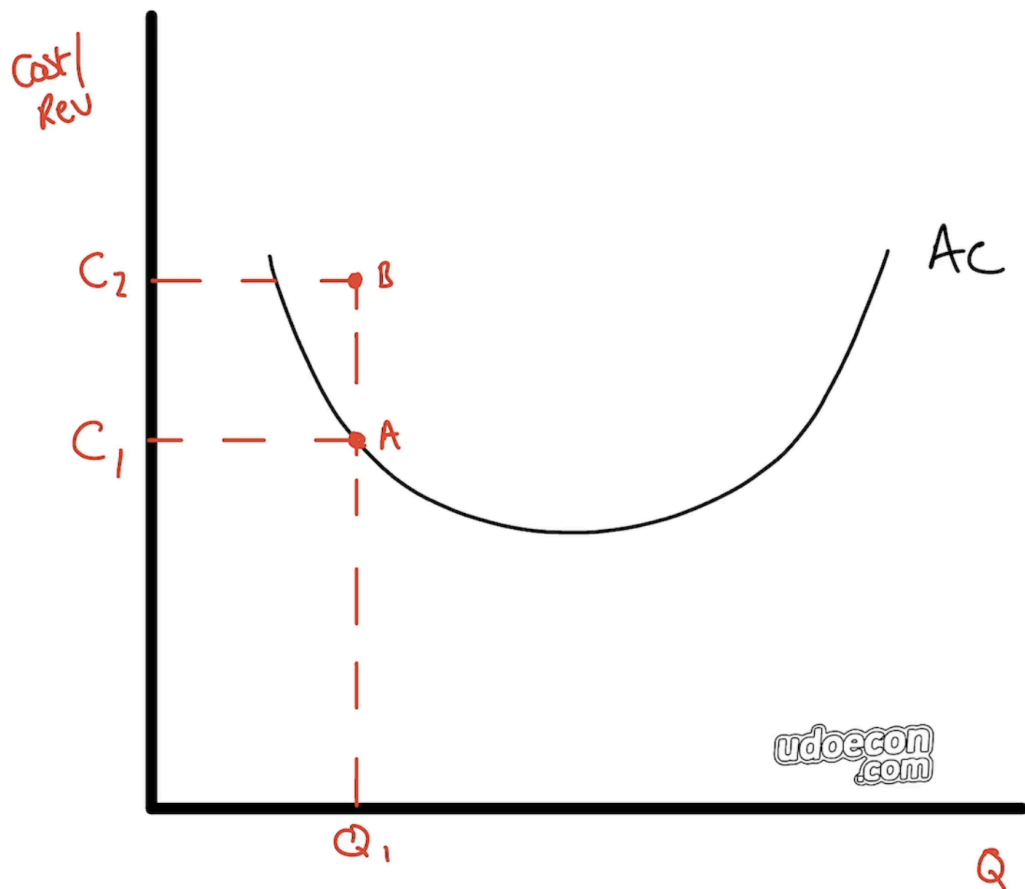
There are 2 main criteria for a firm to be dynamically efficient :

1. Firm must have supernormal profit
2. Firm must choose to reinvest that supernormal profit into research and development

(This serves as a great evaluation point e.g However in evaluation this depends how a firms allocates their profits , as despite making large SNP they may not be dynamically efficient as all SNP is allocated to shareholders dividends meaning no investment into R&D thus no dynamic efficiency)

For example **Apple** Reinvests supernormal profits into over **£24 billion annually in R&D** to continuously introduce new technologies (e.g., Face ID , Touch ID etc)

X-Inefficiency



X-inefficiency occurs when a firm produces at higher costs than necessary because it lacks competitive pressure .

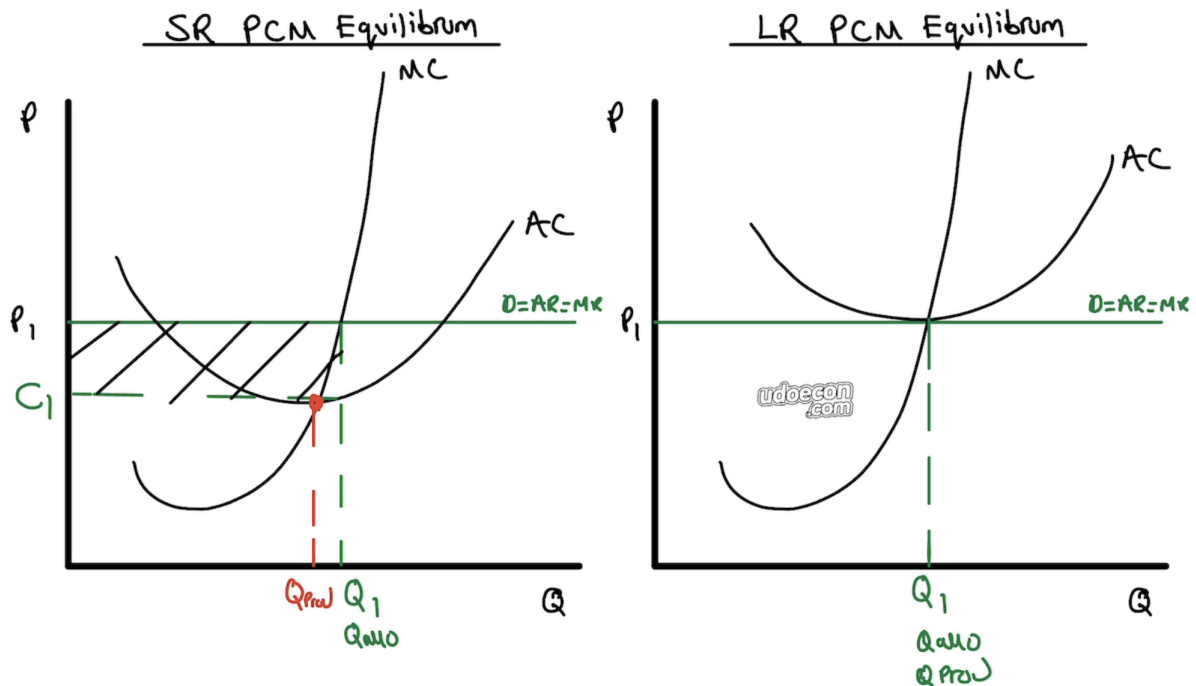
Competition ↓ → **pressure to minimise costs** ↓ → **managerial/worker slack** ↑ → **productivity** ↓ → **production costs** ↑ → **AC higher than necessary**

Possible causes include:

- Poor management
- Low worker motivation
- Excessive staffing or bureaucracy
- Lack of competitive pressure

So on the diagram this business is not large enough to achieve productive efficiency (not producing enough output to be at the lowest point of its average cost curve) so is producing at quantity Q_1 . This firm is X-inefficient as production takes place a point B , a point above the average cost curve (above point A) . The difference between C_1 and C_2 is the degree of X-inefficiency.

Efficiency in Perfect Competition



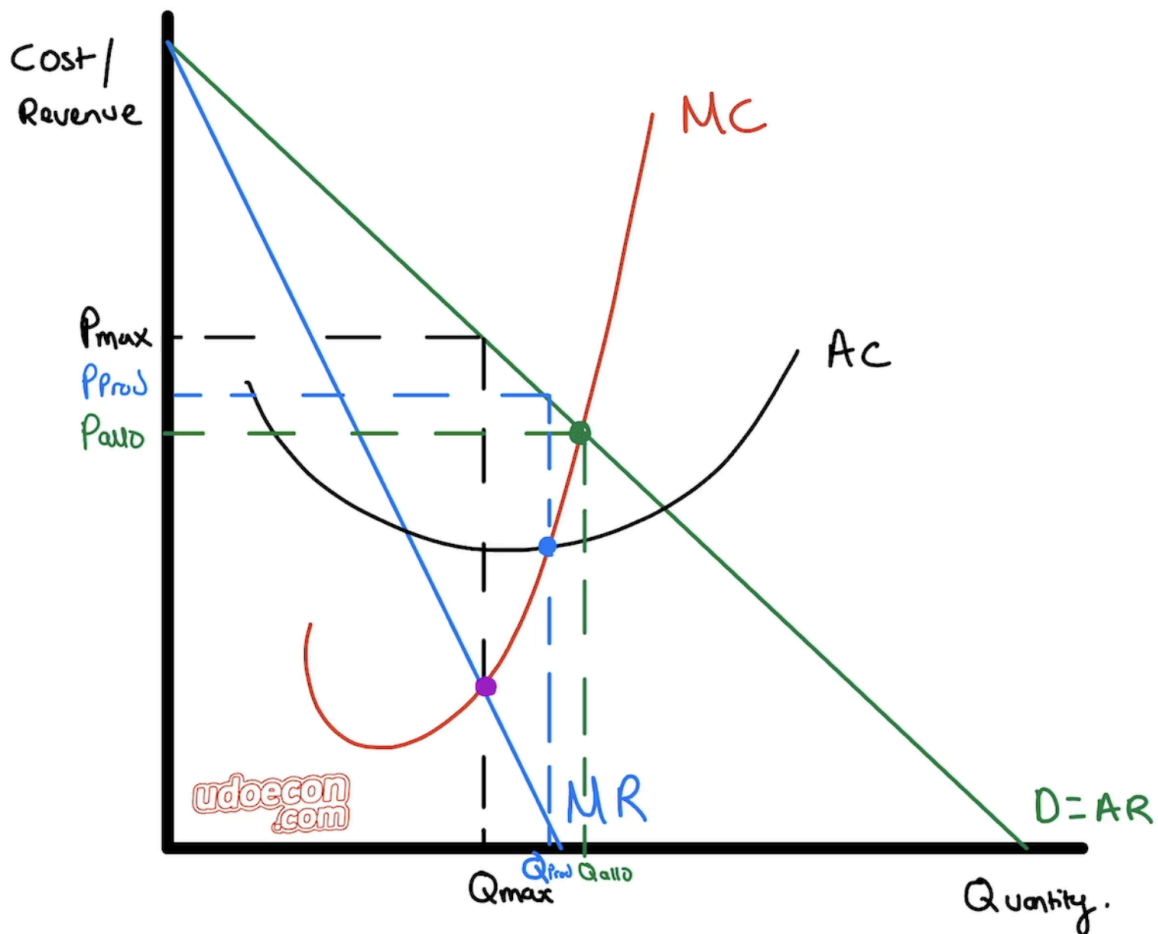
Short Run

- * Allocative efficiency: Yes → As $MC=MR$ is the same as $MC=AR$
- * Productive efficiency: No → $MC=AC$ gives quantity Q_{Prod} which is lower than Q_1
- * Dynamic efficiency: Possible → firms can earn supernormal profit, which can be reinvested into R&D and innovation

Long Run

- * Allocative efficiency: Yes → As $MC=MR$ is the same as $MC=AR$
- * Productive efficiency: Yes → As $MC=MR$ is the same as $MC=AC$
- * Dynamic efficiency: No → firms earn normal profit only, so there are no supernormal profits to reinvest into R&D and innovation.

Efficiency in Monopolies



Monopolies profit maximise where $MC=MR$ which leads to price P_{max} and Quantity Q_{max} . This means monopolies are neither productive nor allocatively efficient as they produce at a lower quantity and higher price than both allocatively and productively efficient outcomes.