Efficiency

GCE A-LEVEL & IB ECONOMICS

Lesson Structure

- Efficiency
  - Productive Efficiency Definition & Concept
  - Allocative Efficiency Definition & Concept
  - Efficiency in Perfect Competition
  - Efficiency in Monopoly
  - Efficiency in Monopolistic Competition
  - Summary & Evaluation

What is Productive Efficiency?

Productive efficiency occurs when the level of production reaches the lowest possible average total cost (i.e. lowest total cost).

Productive efficiency refers more specifically to the input combinations to optimise production at the lowest possible cost; whereas technical efficiency refers to being able to maximise output with a given set of inputs (e.g. max. output from a machine).

Formal definition: point of production where no additional (or maximum) output can be produced from the factor inputs available at the lowest possible average or unit cost. Thus, average costs are minimised.

- Average (total) cost = total cost/output

What is Productive Efficiency?

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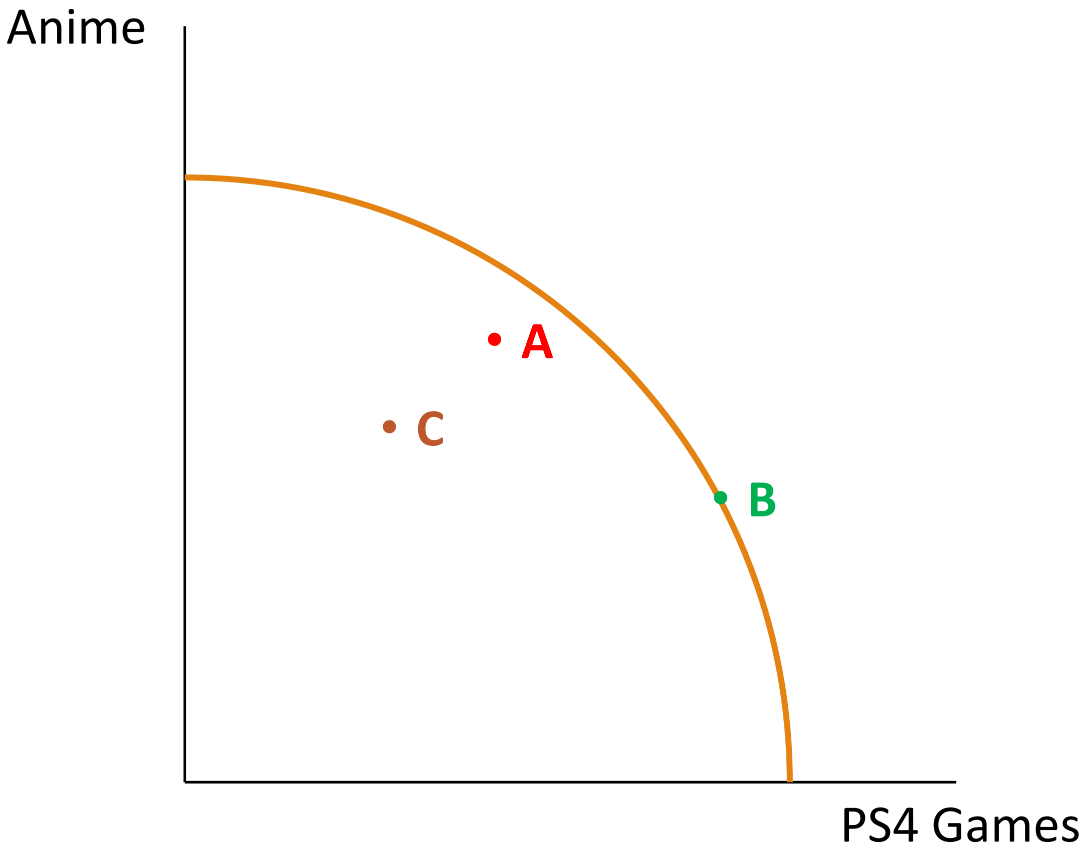
Any point on the PPC is said to be **productively efficient**. On the curve we are producing at maximum production i.e. we cannot produce any more.

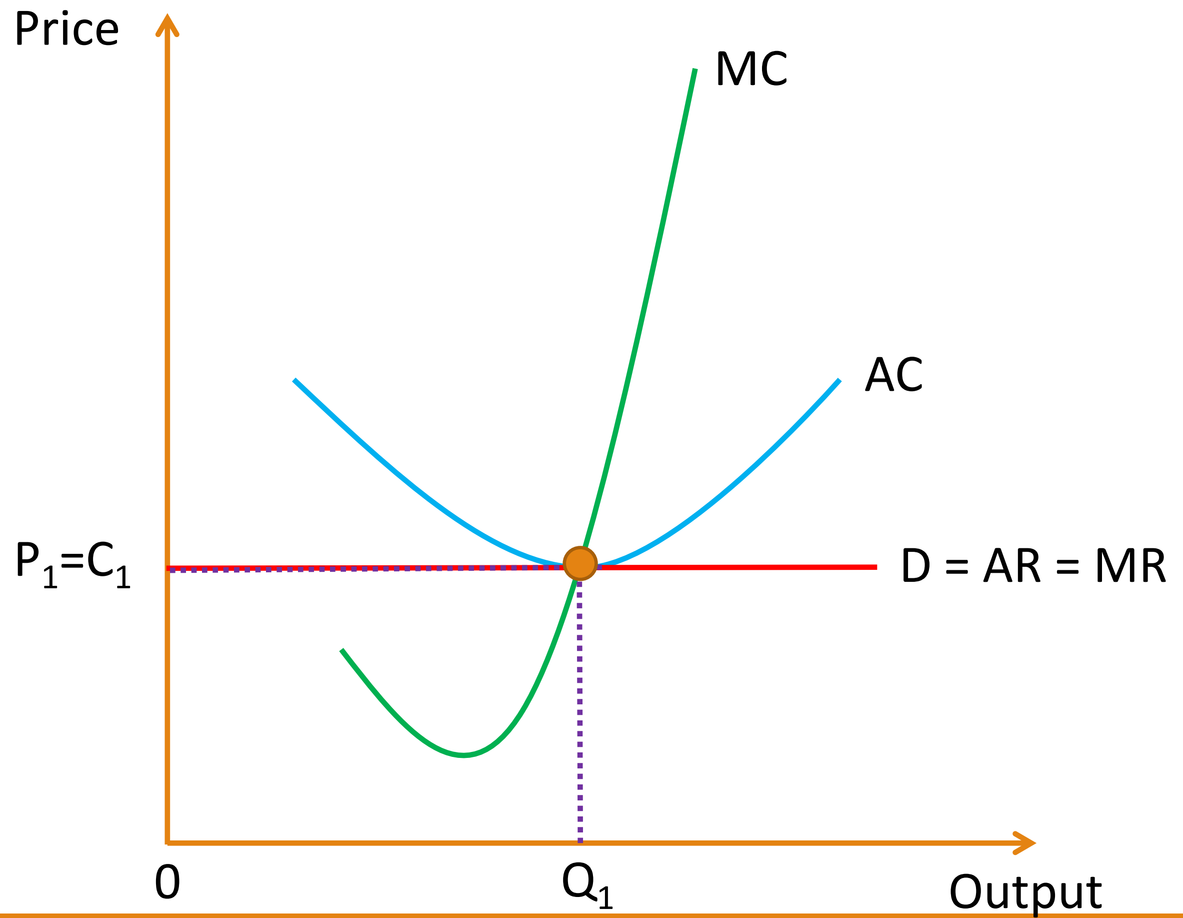
If we go from point **C** to point **A**, the economy is becoming more productively efficient, as we are able to produce more at a lower cost, assuming we are using the same amount of resources.



What is Productive Efficiency?

In the context of the diagram of a firm, productive efficiency is achieved when the firm is operating at the lowest point (minimum) of its average cost curve.

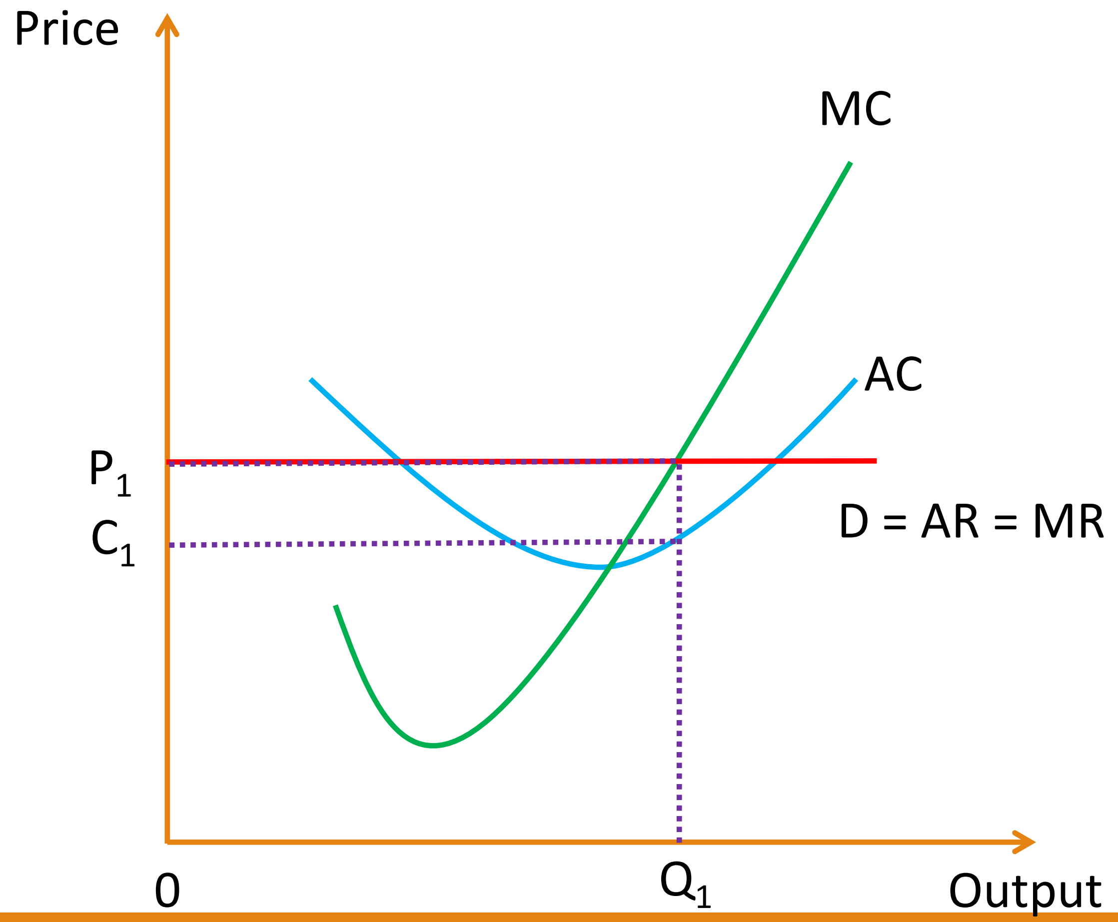
Note that the firm is not required to charge at that price, but the quantity and cost must be of a certain level to achieve productive efficiency.



What is Productive Efficiency?

Do you think the firm is productively efficient from the diagram on the right?

Why? When may this happen?



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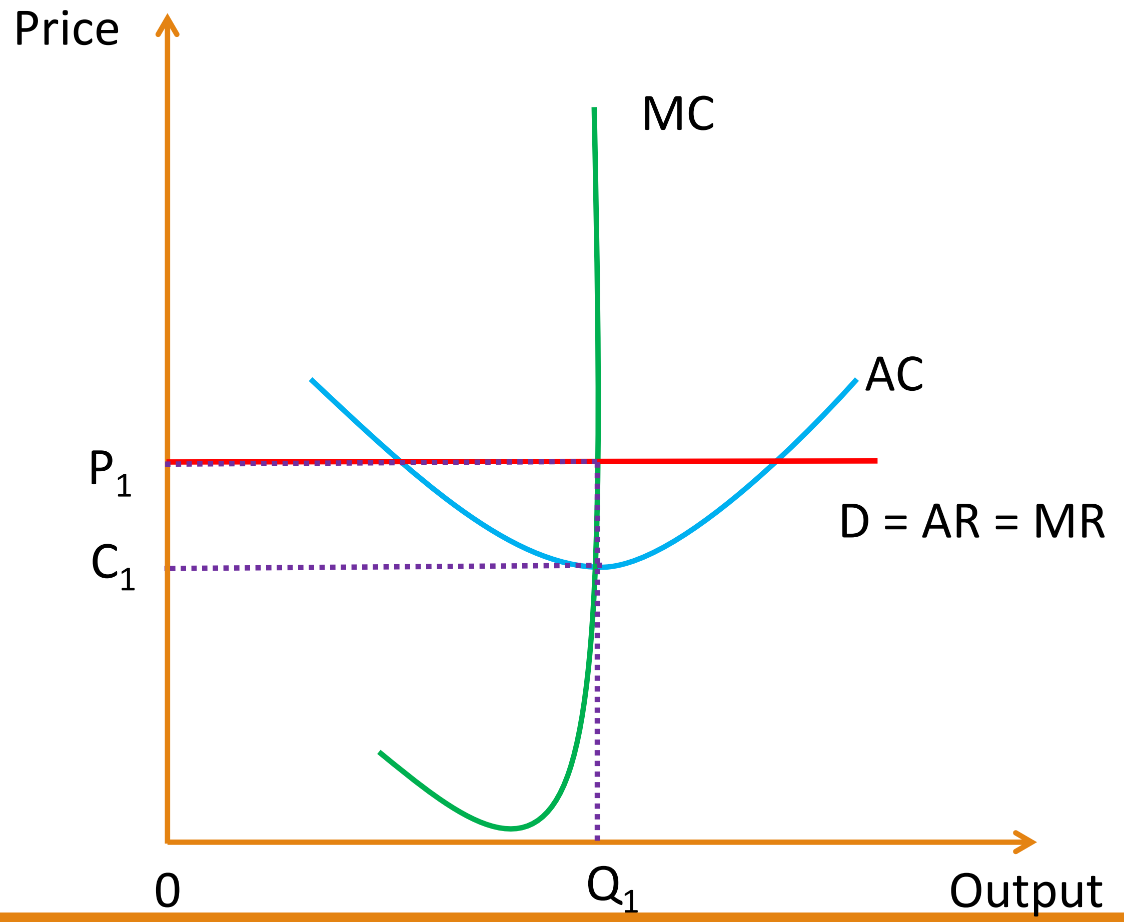


What is Allocative Efficiency?

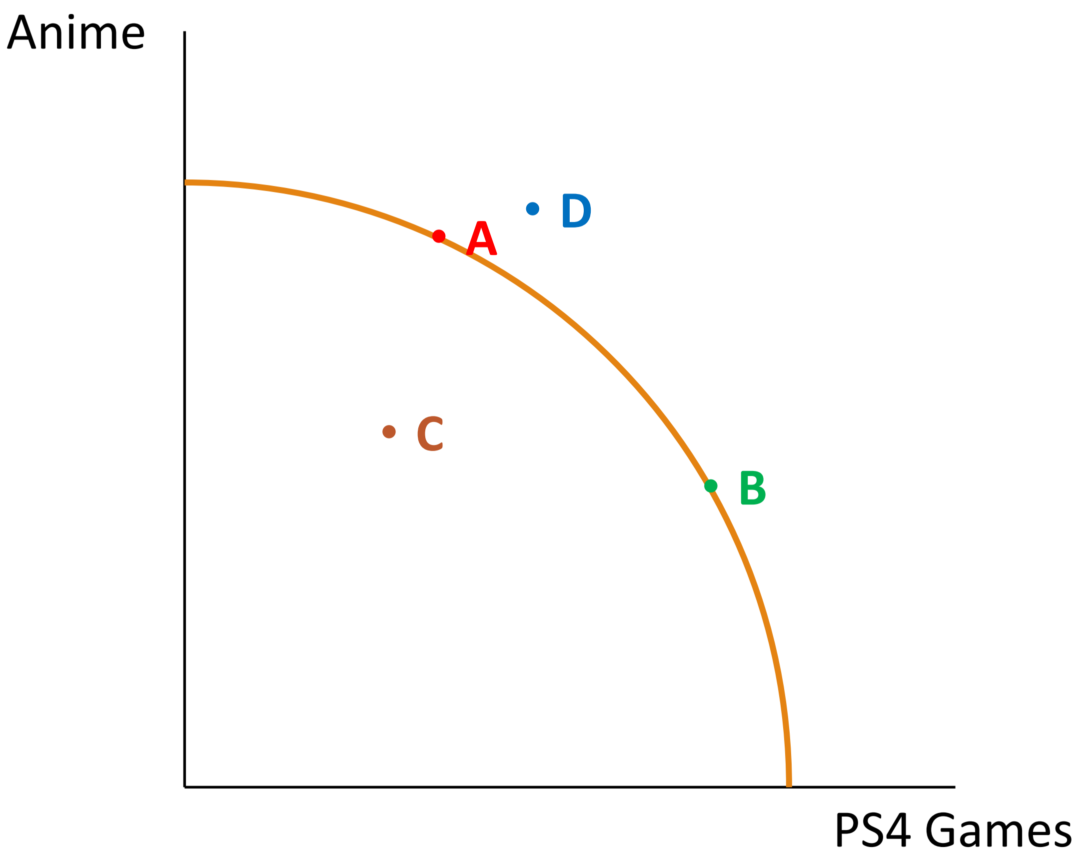
Allocative efficiency occurs where consumer satisfaction is maximised in the production of goods and services.

At this point quantity supplied will equal quantity demanded, and price equals marginal cost (P=MC)

What is Allocative Efficiency?

Allocative efficiency takes into account the desires of consumers.

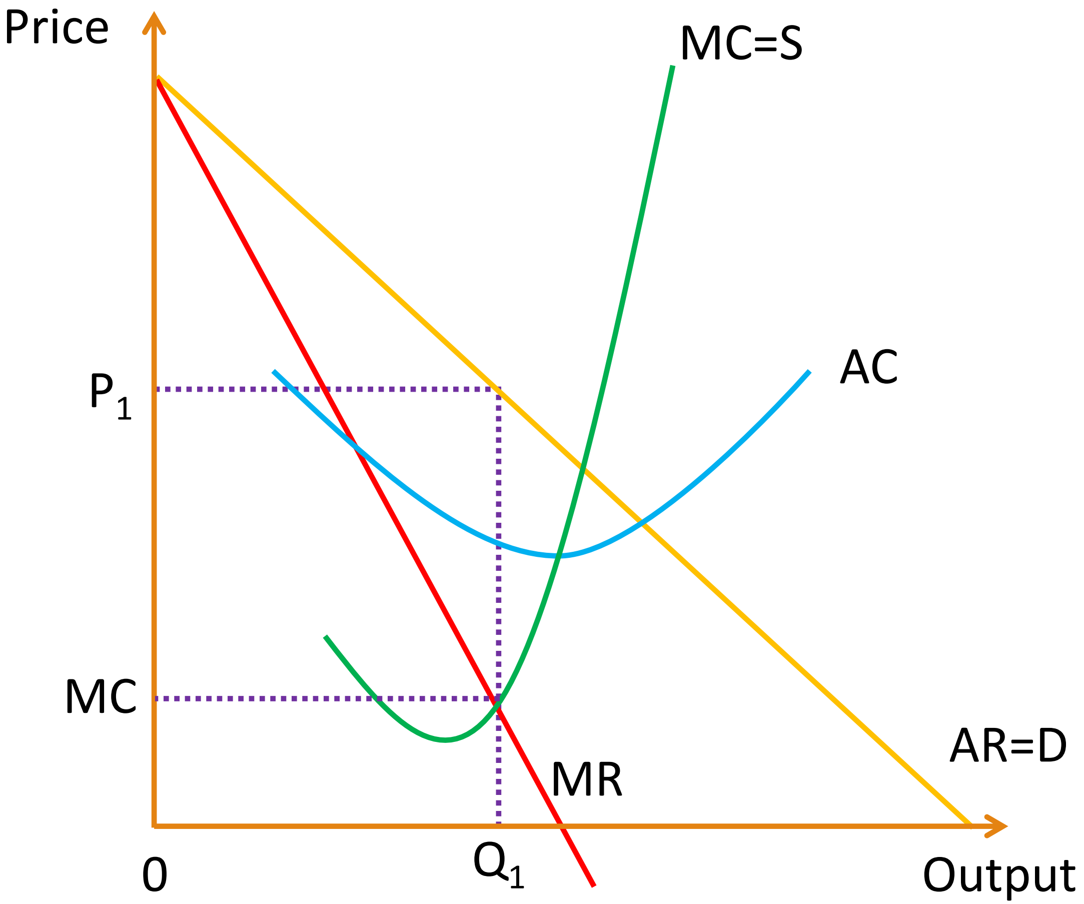
In this PPF, if Anime is in greater demand than PS4 Games, then production at point **A** will be more allocatively efficient than that of point **B**. Therefore, which point allocative efficiency is will depend on consumer preference.



What is Allocative Efficiency?

In the diagram of a firm, allocative efficiency happens when the firm is charging a price equal to the marginal cost (P=MC).

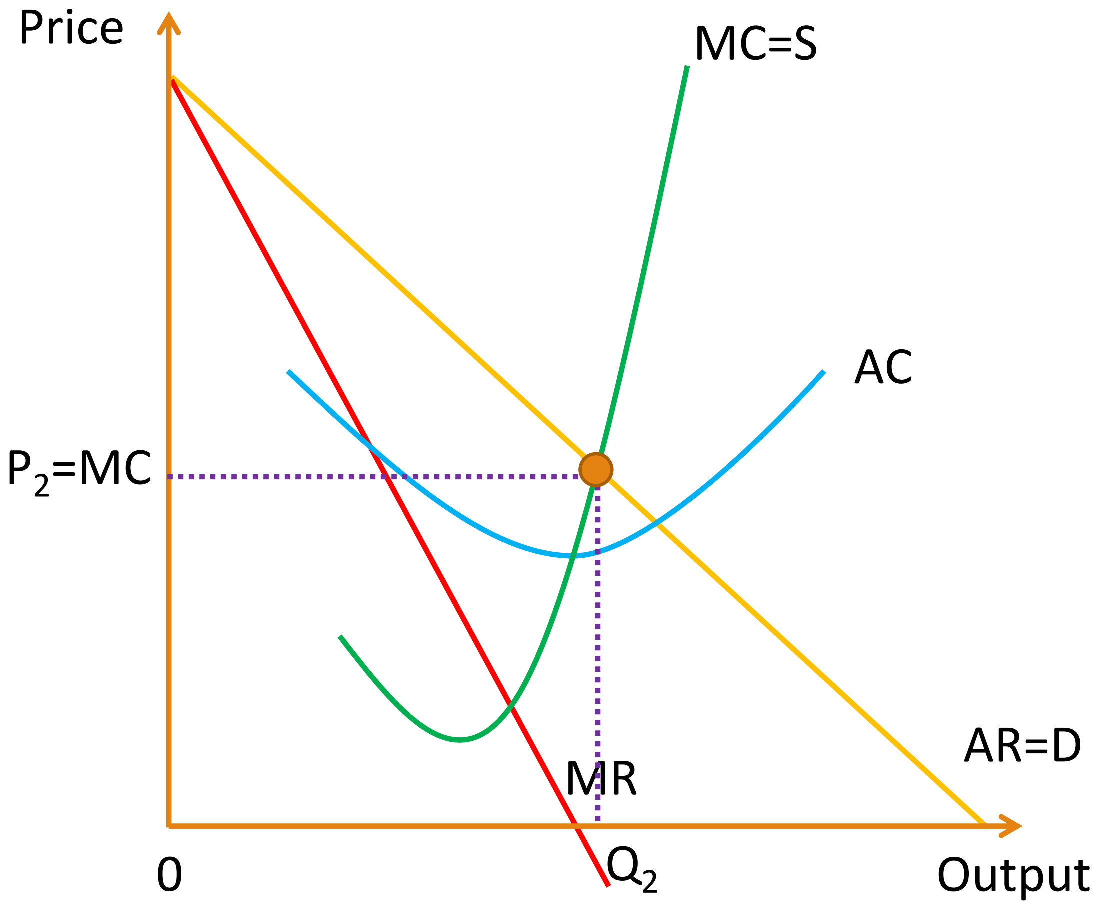
In the diagram, the firm is not allocatively efficient when they are maximizing profits by producing at $Q_{1,}$ as P_1 is not equal to MC. (i.e. the vertical line touches the MC curve at a different price level than the price charged)



What is Allocative Efficiency?

However, the firm is allocatively efficient when producing at Q_2 and charging price P_2. In this situation, price is equal to marginal cost.

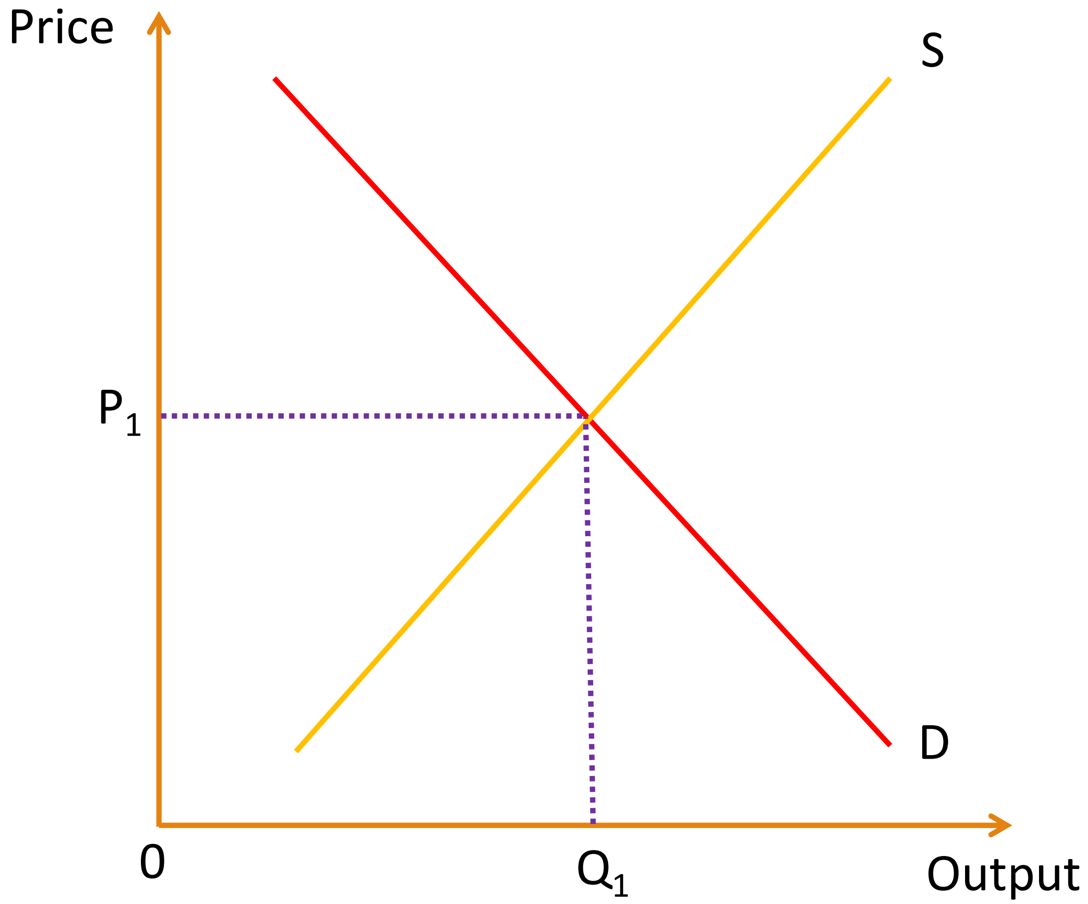
Note that if a monopoly produces at the allocatively efficient point (unlikely), market demand (AR=D) must equal market supply (MC=S)



What is Allocative Efficiency?

As allocative efficiency means producing in a way where consumer satisfaction is maximised, a market is only allocatively efficient when it is operating at its equilibrium where demand = supply. i.e. at P_1 and Q_1. (and Qd=Qs)

When do you think a market may not be allocatively efficient?

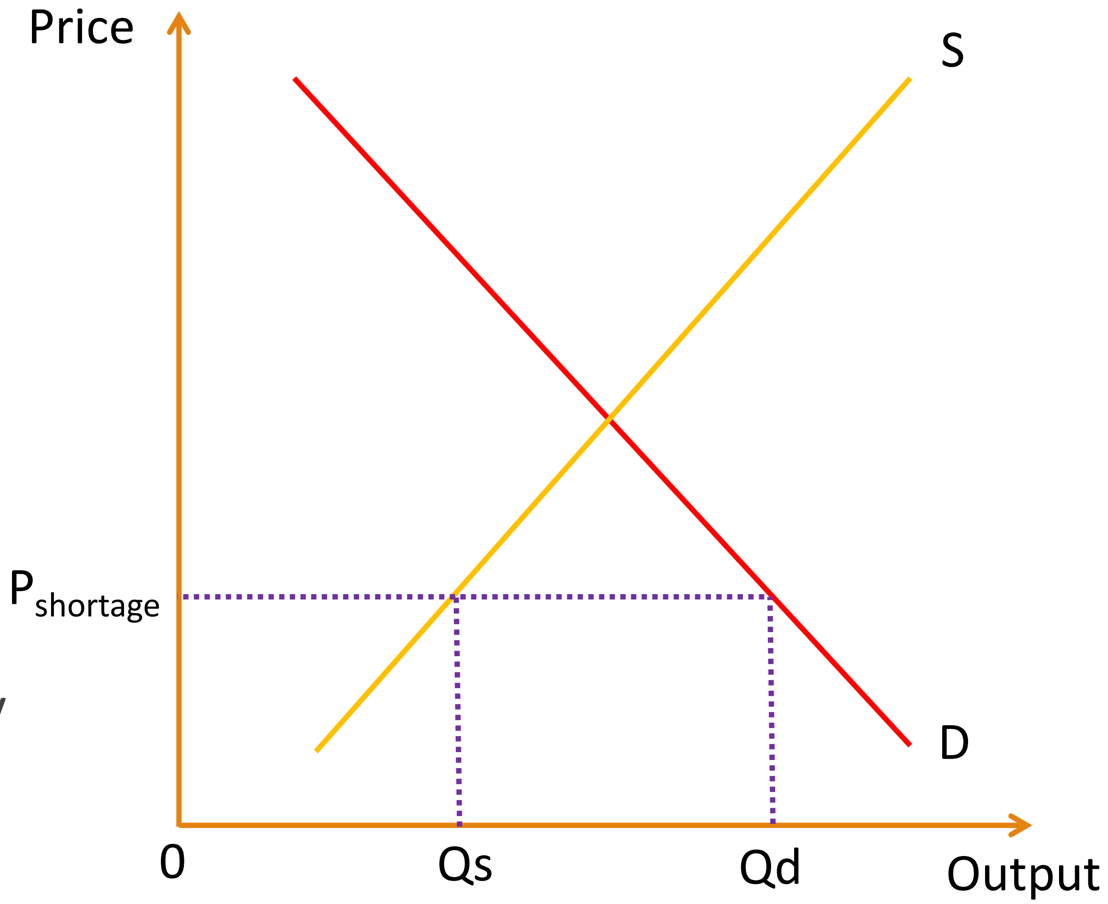


What is Allocative Efficiency?

If the market is having a shortage or a surplus of goods, then firms are not producing in accordance to consumer preferences.

In a shortage, consumers want more to be produced. There is a large demand at Qd but only Qs is produced and sold to consumers.

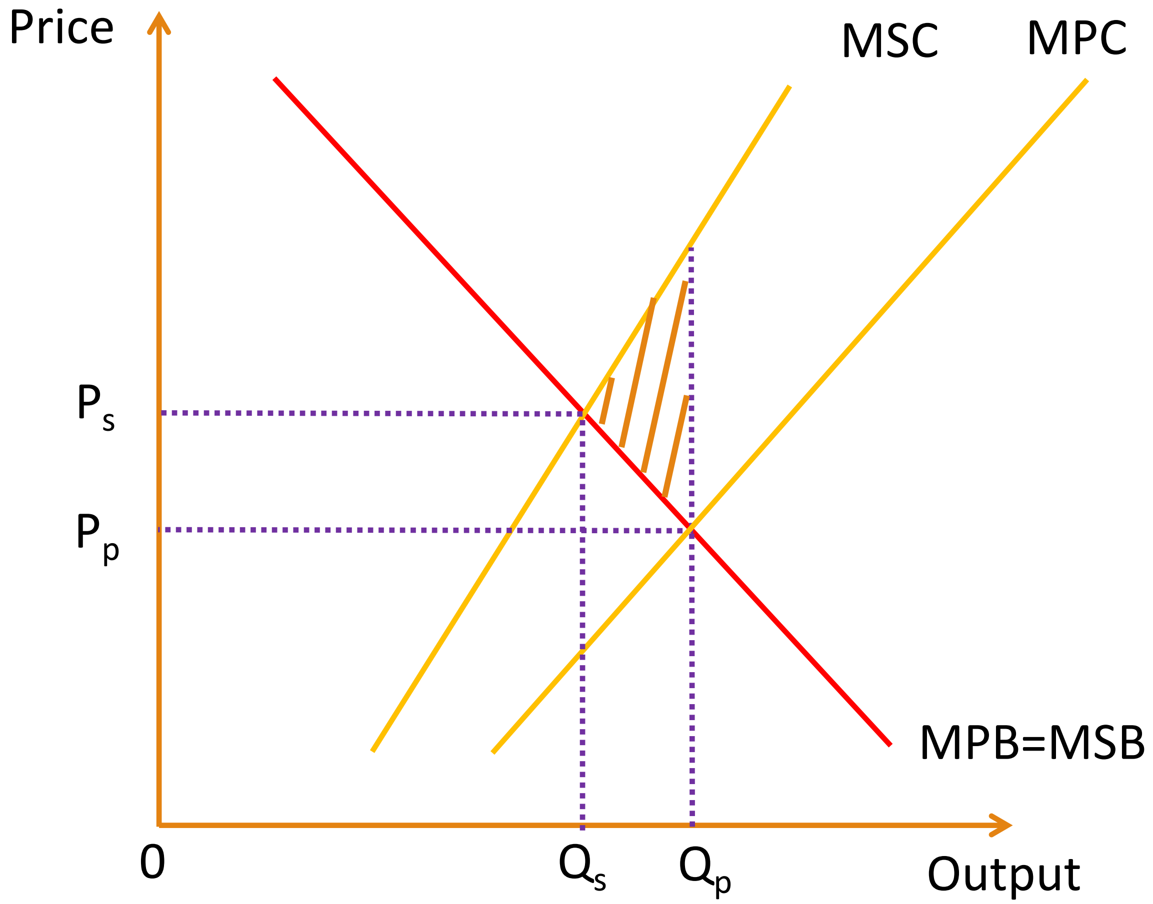
Vice versa, firms are producing too much in a surplus, more than the actual quantity demanded by the consumer.



What is Allocative Efficiency?

Another possible reason that markets do not function with allocative efficiency (i.e. at market equilibrium) is due to market failure, most likely due to externalities. This can range from over or under production/consumption, monopolies to min/max prices from government intervention.

The diagram shows a typical example of a negative externality with overproduction, where the market is producing at Qp, but the allocatively efficient production level (social optimum) is at Qs. This causes a welfare loss of the shaded area.



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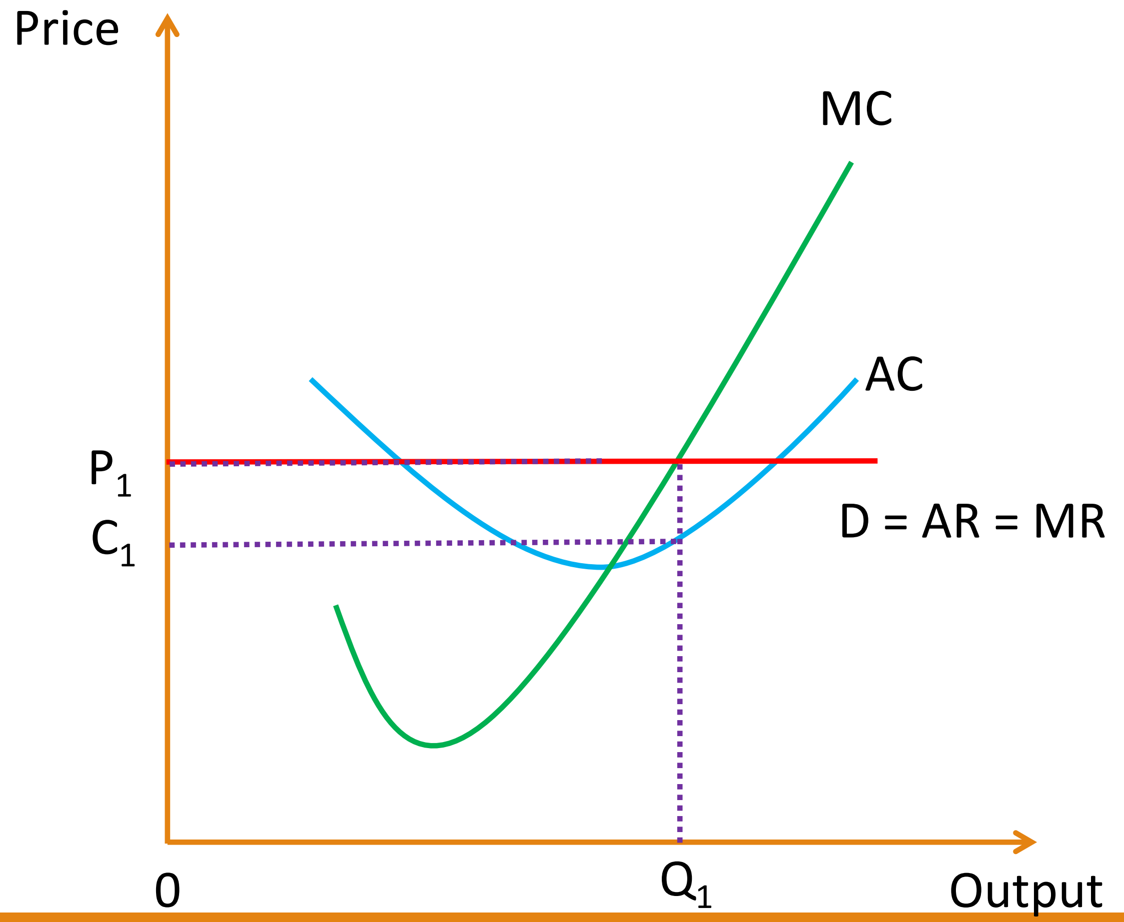
Efficiency Under Different Market Structures

Perfect Competition in the Short Run

Do you think the firm is productively efficient?

What about allocatively efficient?

Any ideas why?



Perfect Competition in the Short Run

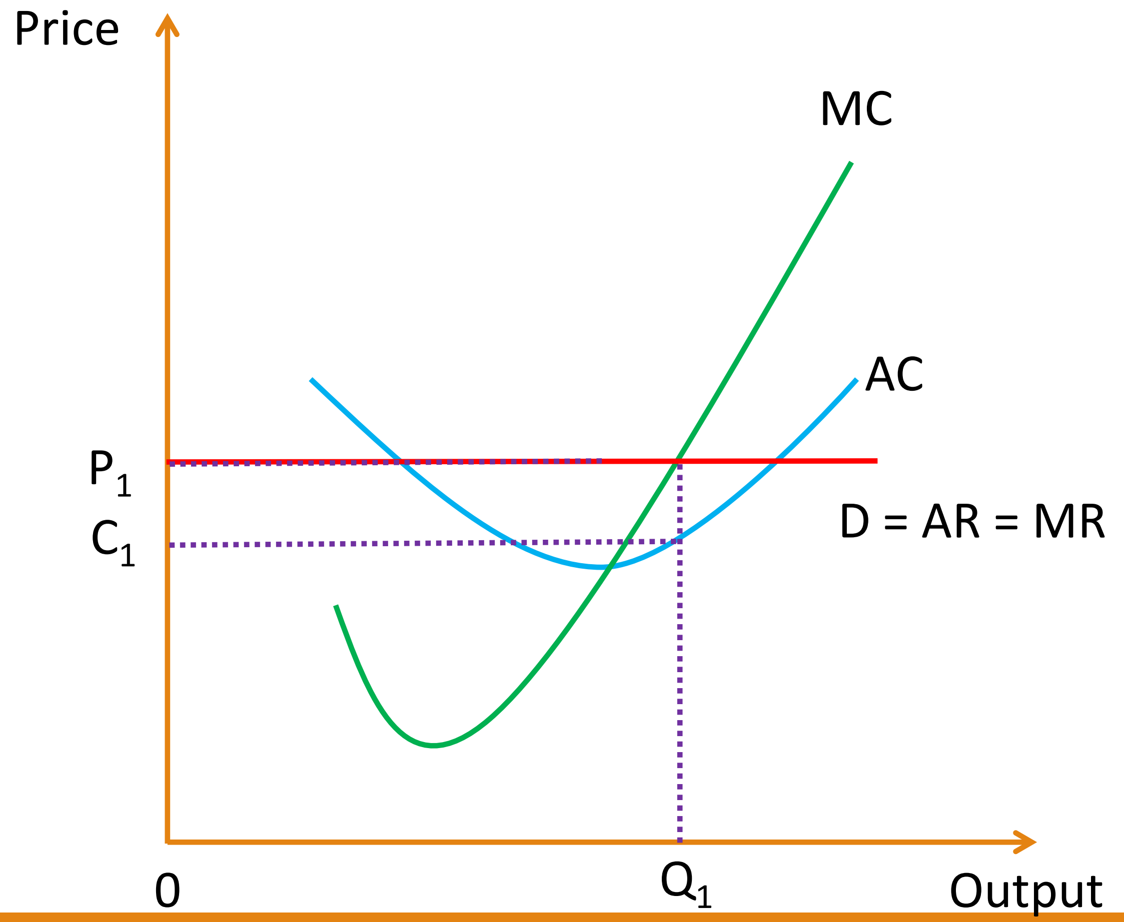
Perfect Competition in SR **may not be productively efficient.** The cost incurred by the firm is not at the lowest of the AC curve.

However it is **allocatively efficient.** Price is always equal to MC in perfect competition (since MR is horizontal). Also, if MC=S, the firm is producing at the point where D=S.

Reasons why:

- P=MC even when firms are making supernormal profits in SR

- Not enough competition to force them to produce at the lowest point of AC as in LR

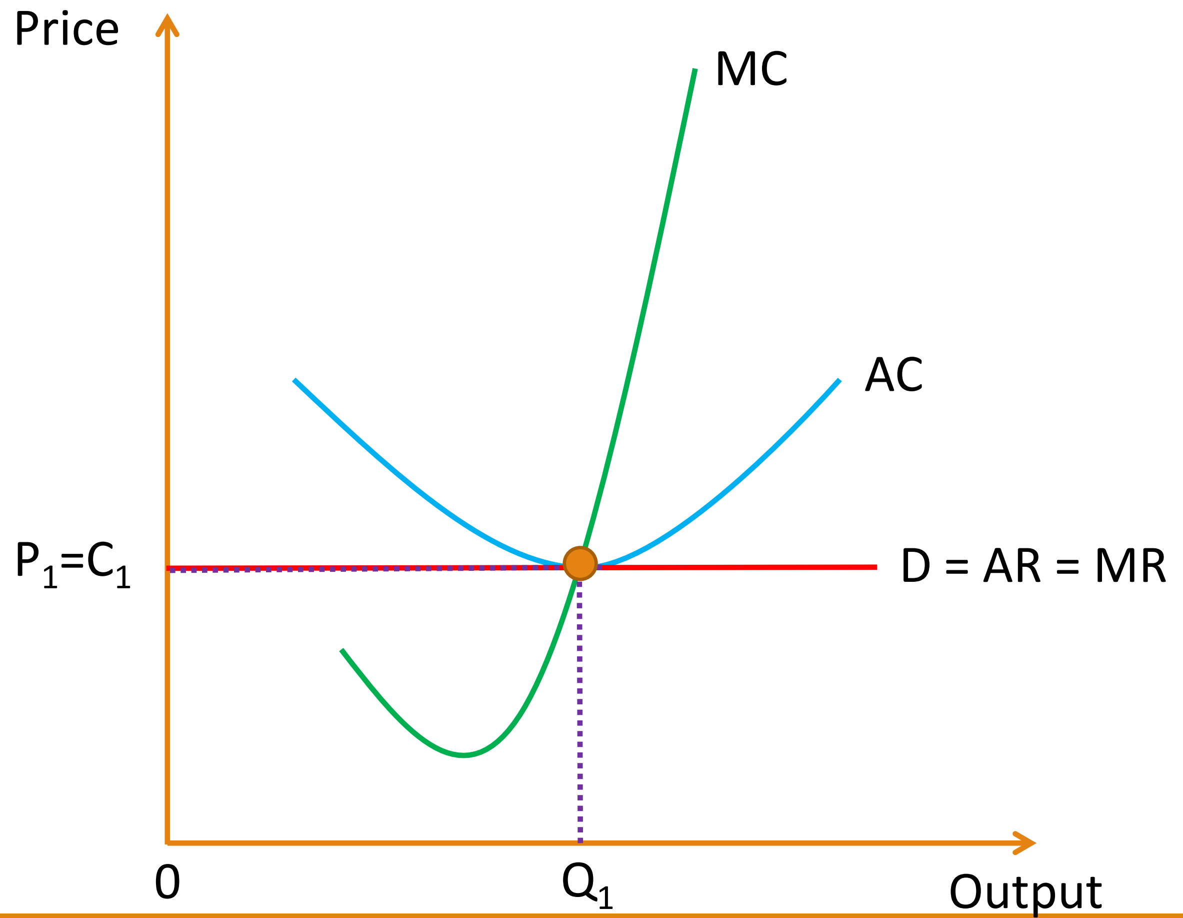


Perfect Competition in the Long Run

Do you think the firm is productively efficient?

What about allocatively efficient?

Any ideas why?

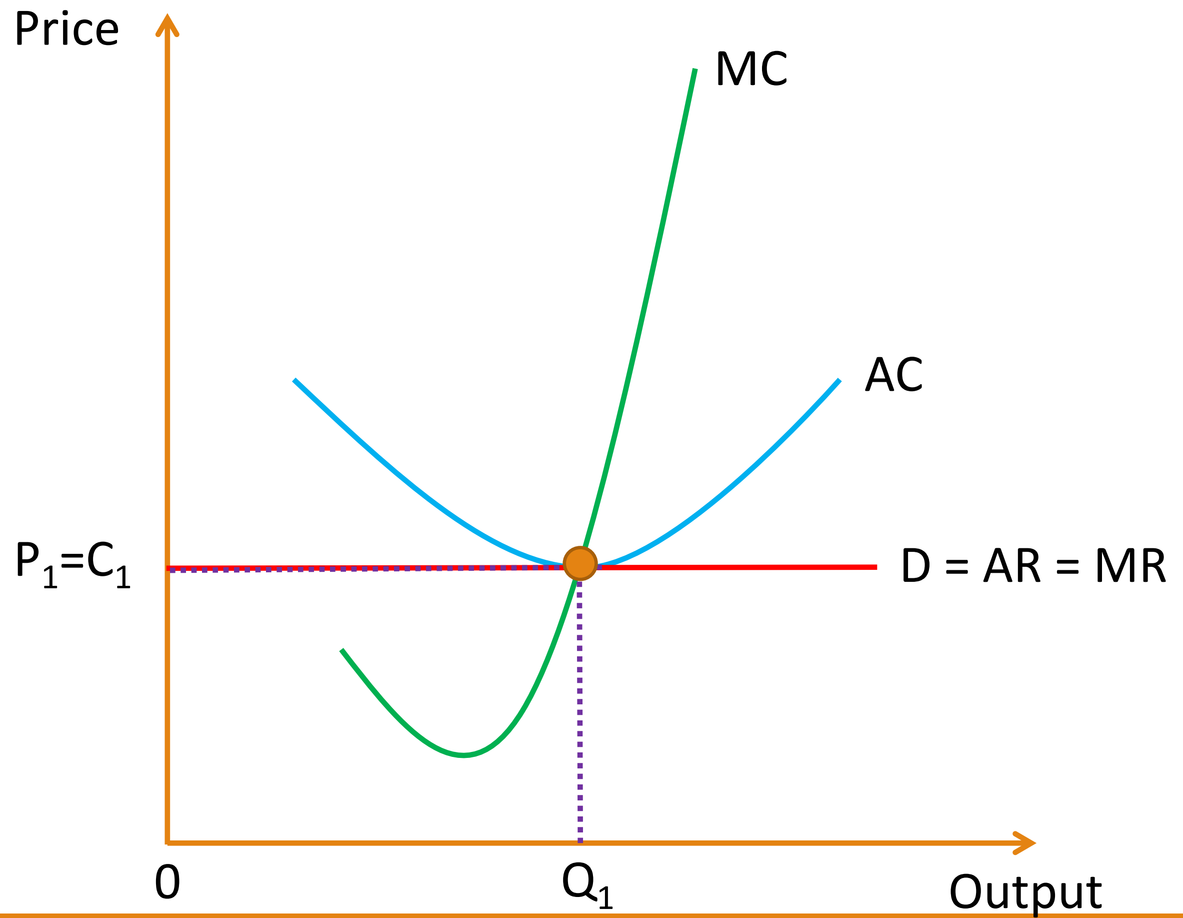


Perfect Competition in the Long Run

Perfect Competition in LR is **productively and allocatively efficient.** Not only the cost incurred by the firm is at the lowest point of the AC curve, it is also producing at a point where P=MC.

Reason why:

- The firm needs to produce at the lowest price possible (be as efficient as possible) to remain in the market due to intense competition

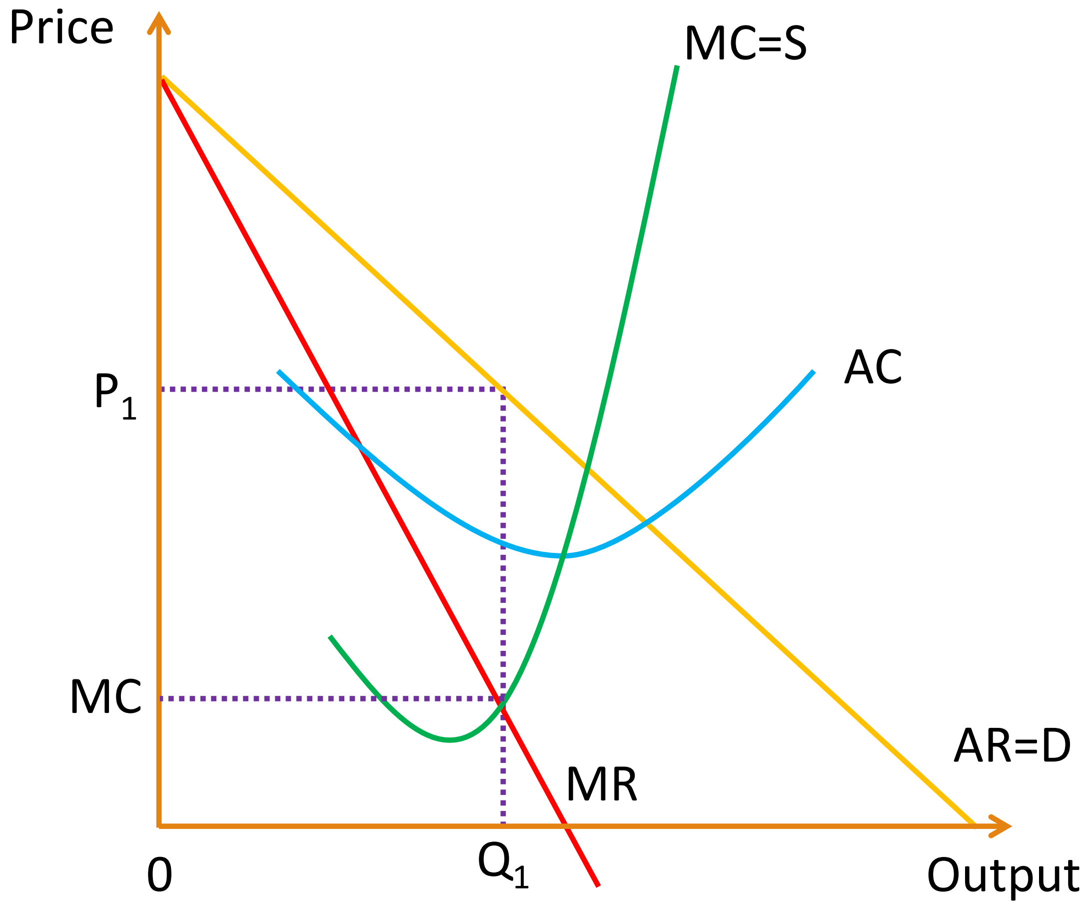


Monopoly & Monopolistic Competition (Short-Run)

Do you think the firm is productively efficient?

What about allocatively efficient?

Any ideas why?



Monopoly & Monopolistic Competition (Short-Run)

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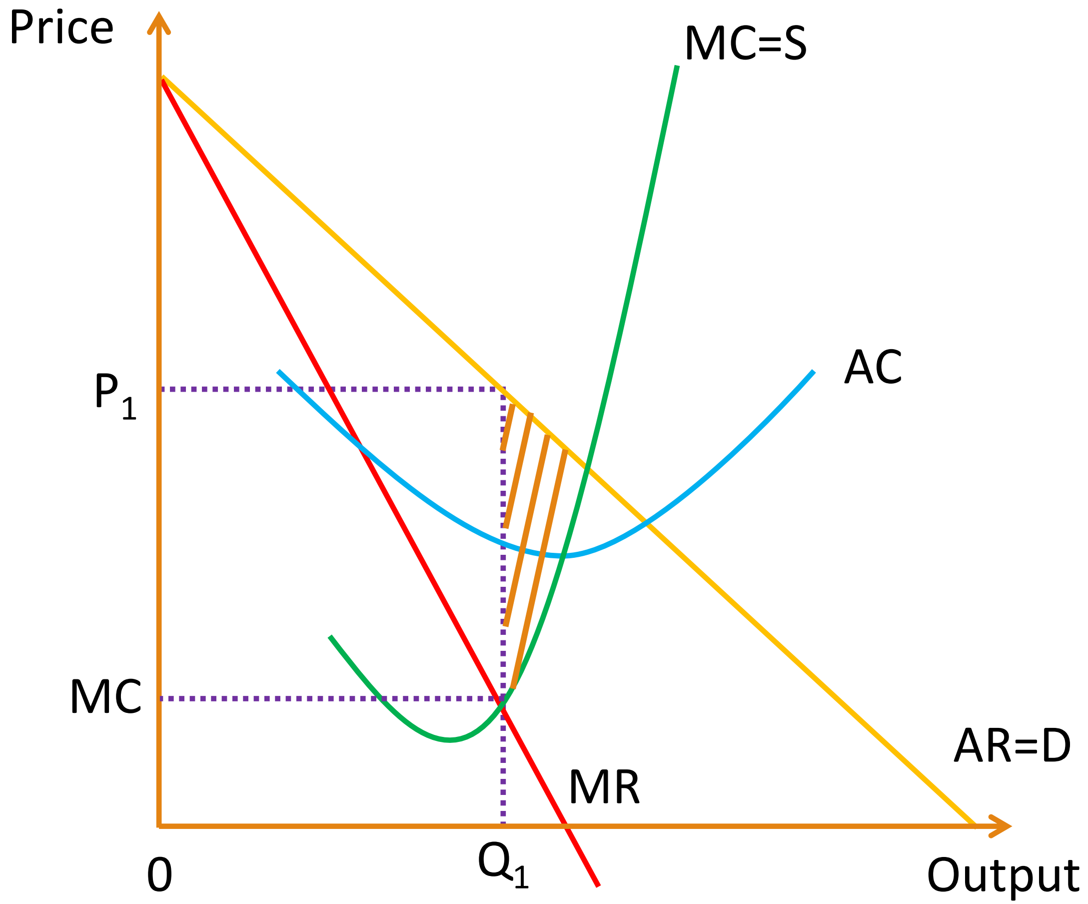
Firms with monopolistic power are **not productively efficient nor allocatively efficient.** They generally do not produce at the lowest of the AC curve. Price (P_1) is also not equal to MC when the monopoly maximizes profits by producing at MC=MR.

This is the same for monopolistic competition in the short-run. There is a welfare loss of the shaded area due to allocative inefficiency and market failure.

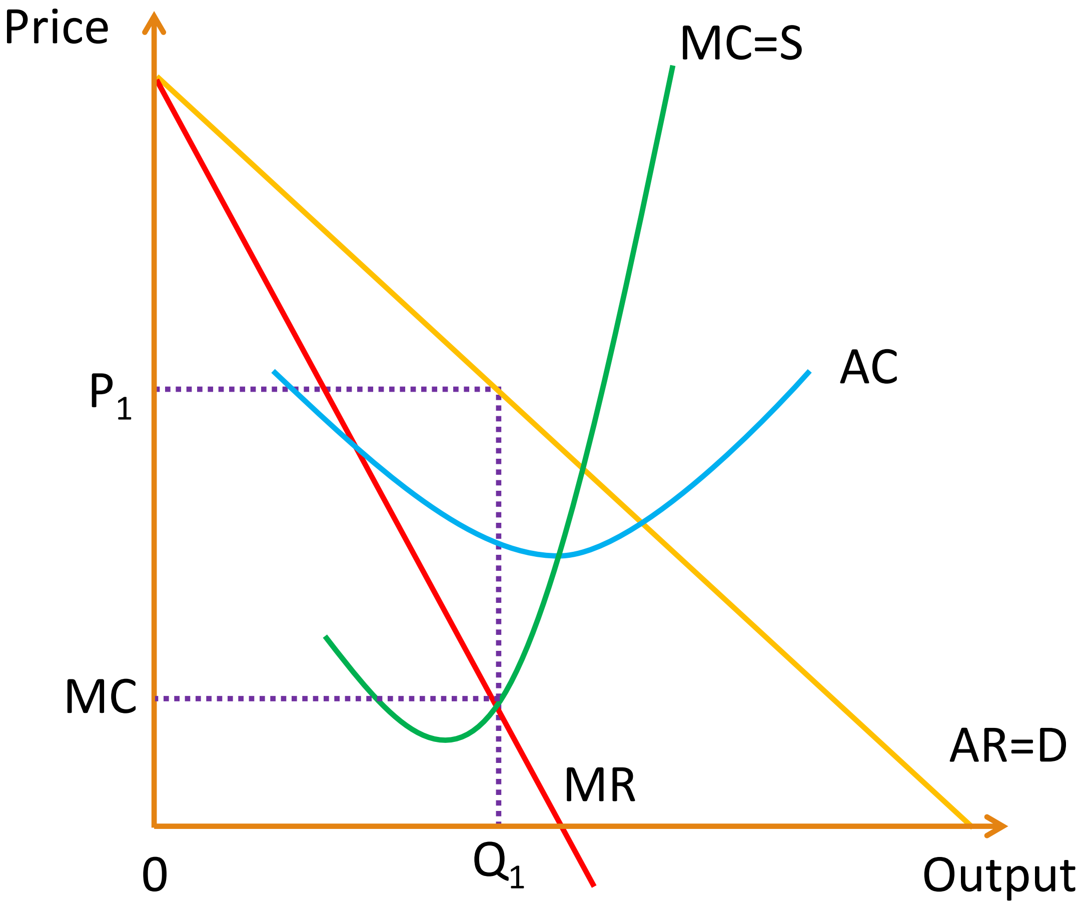


Monopoly & Monopolistic Competition (Short-Run)

Reasons why:

- Profit maximization by monopoly causes them to restrict output and charge high prices, leading to allocative and productive inefficiency.

- Because of the output restriction, this is also likely to incur higher average costs than the possible minimum that can be reached, unless the monopoly produces enough to achieve significant economies of scale

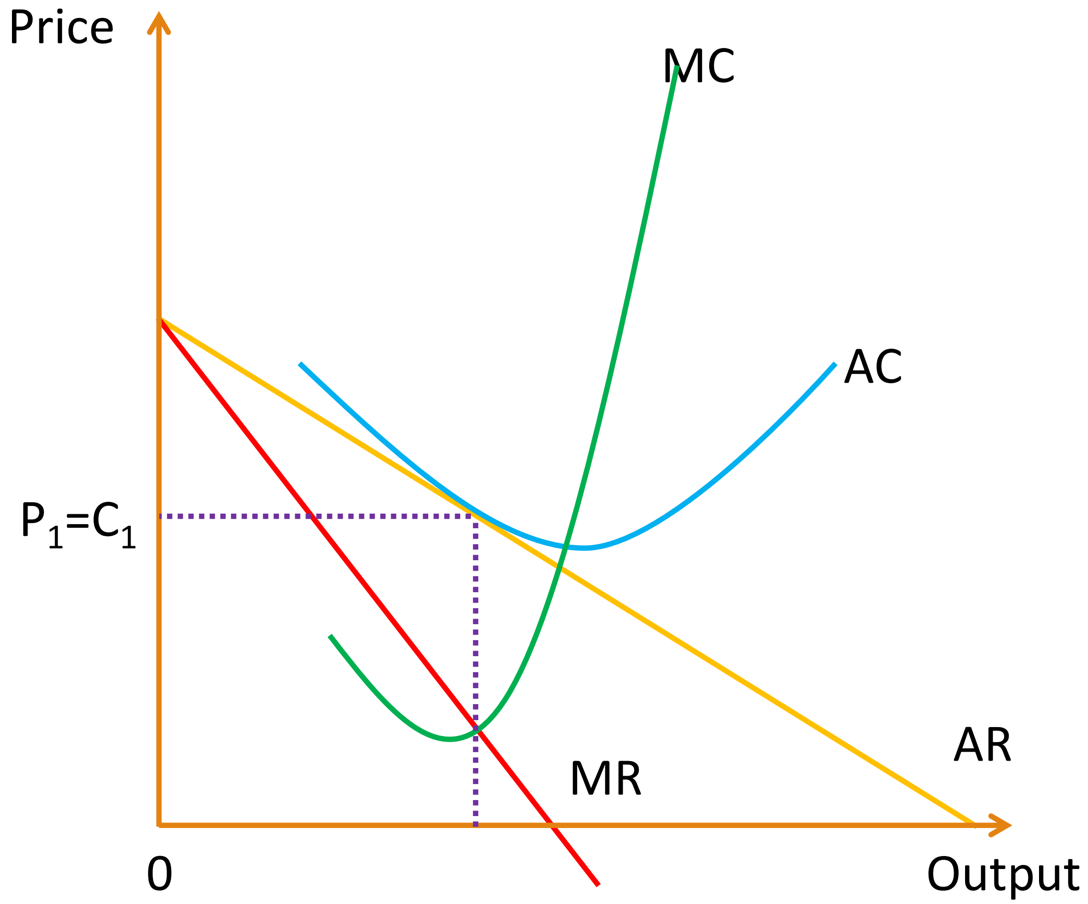


Monopolistic Competition (Long-Run)

Do you think the firm is productively efficient?

What about allocatively efficient?

Any ideas why?

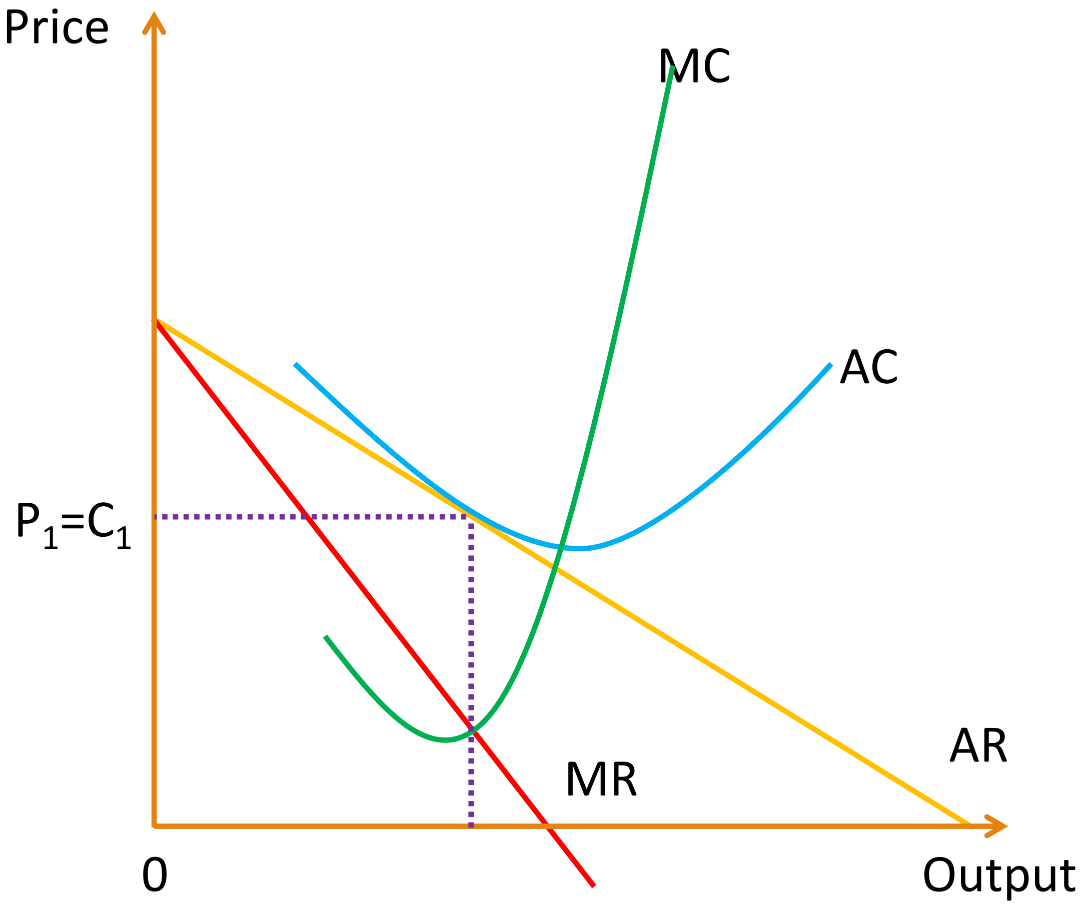


Monopolistic Competition (Long-Run)

Monopolistic Competition in LR is also **not productively efficient nor allocatively efficient.**

The cost incurred by the firm is not at the lowest of the AC curve. Instead production always occurs at the point where the AC curve is always tangent to AR such that the firm is making normal profits.

Similarly, P is not equal to MC as the firm produces at a profit maximization point where MC=MR.



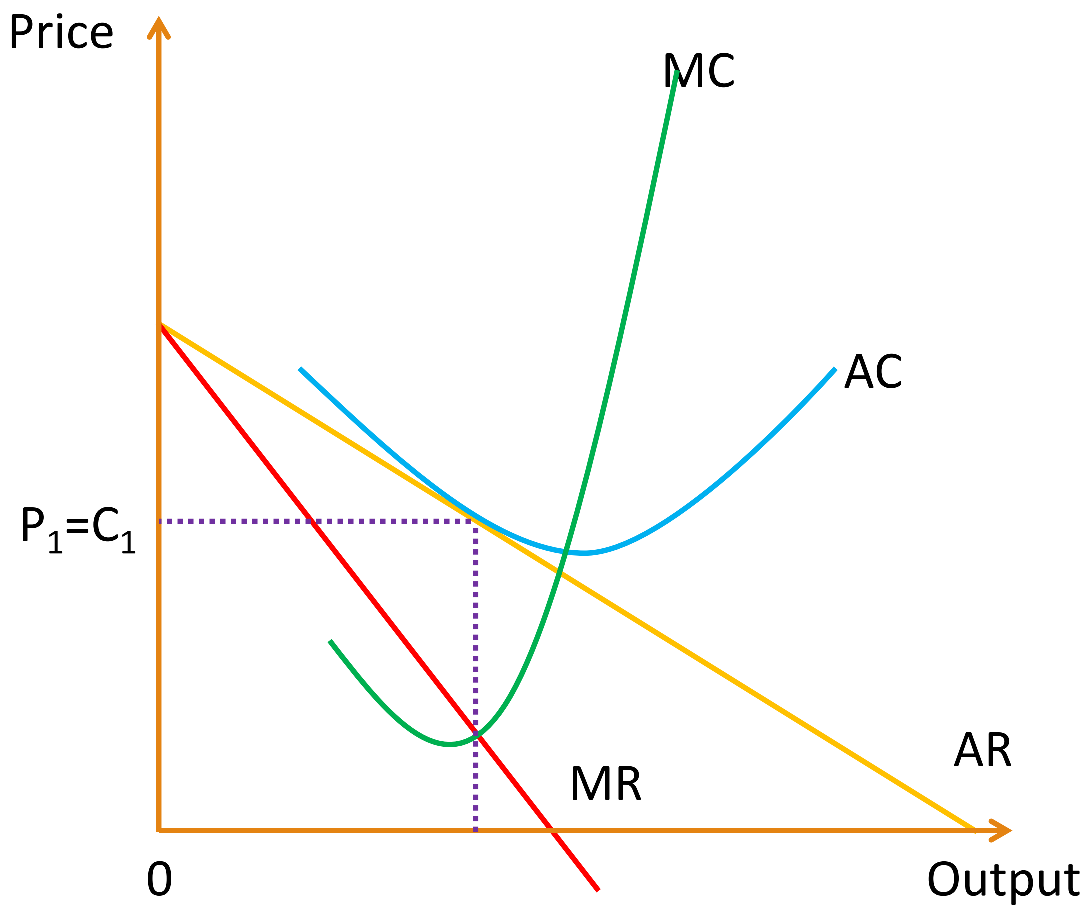
Monopolistic Competition (Long-Run)

In the LR, the demand (AR) curve of the monopolistic competition firm becomes more elastic due to new substitutes entering the market.

Assuming MC and AC stays the same, it will cause the firm to be:

- Less productively efficient since the firm has even lower market share and produces even less, increasing AC

- Less allocatively efficient as the distance between the price and MC is likely to be greater if AR is flatter



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Summary

Market Structure & Efficiency	Perfect Competition (Short-Run)	Perfect Competition (Long-Run)	Monopolistic Competition (Short-Run)	Monopolistic Competition (Long-Run)	Monopoly
Productively Efficient?	Not necessarily	Yes	No	No (even less)	No (unless EOS)
Allocatively Efficient?	Yes	Yes	No	No	No (market failure)

Note that efficiency is a very important way to evaluate different market structures and compare their pros and cons. Usually you can consider firms with more market power as more inefficient. Achieving efficiency is almost always considered 'good'. Most of the time it is illustrated via diagrammatic analysis with a simple explanation.

It is a useful concept when answering exam questions, and can be asked upon directly.