PERFECT COMPETITION

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Introduction

- We previously learnt that markets are formed when the buyers of a good and its sellers engage in economic transactions.
- We are about to learn about *different kinds of markets*.
- They differ in their features and how they work in general.
- The first market structure we will study is *the perfectly competitive market structure*.
- Let’s go!

Features of perfect competition

- Many buyers and sellers

In a perfectly competitive market, there are so many buyers and sellers than no one can individually affect the market price and output.

- Similar products

In this type of market, all products are similar. They cannot be differentiated. E.g. Water bought at Walmart is exactly the same as water bought at Kroger.

Features of perfect competition (2)

- No barriers to entry or exit

Entrepreneurs are free to enter or leave the market (i.e. open or shut down their business) if they decide to do so. There is no law prohibiting them (no licensing or regulatory obstacles).

- Firms are price takers

The price is determined by the market (i.e. demand and supply) and all the firms sell their products at that price. Firms have no control over the price of the goods.

Perfect competition in real life

- Real-life examples of competitive markets usually fall short of perfection.
- The four features of a perfectly competitive market are not always flawlessly met.
- Some examples of very competitive markets are:

- The stock market
- Farmers' markets
- Online ticket auctions
- Currency trading

Profit-making

- All firms, whether in a perfectly competitive market or not, want to maximize profit.
- Remember that Total Profit/Loss = Total Revenue – Total Cost
- We previously talked about the firm's *short-run and long-run costs*.
- We will now analyze the firm's revenue so we can also analyze the firm's profit.
- Firms seek to maximize their profit and to minimize their loss.
- Following is a table with hypothetical values for a perfectly competitive firm in the short run.

Total Product	Price ($)	Total Revenue ($)	Total Cost ($)	Total Profit ($)	Marginal Revenue ($)	Marginal Cost ($)	Change in Profit ($)
Q	P	TR	TC	π	MR	MC	Δπ
0	10	0	25	-25	-	-	-
1	10	10	34	-24	10	9	1
2	10	20	41	-21	10	7	3
3	10	30	46	-16	10	5	5
4	10	40	49	-9	10	3	7
5	10	50	51	-1	10	2	8
6	10	60	54	6	10	3	7
7	10	70	60	10	10	6	4
8	10	80	70	10	10	10	0
9	10	90	95	-5	10	25	-15
10	10	100	145	-45	10	50	-40

The profit-maximizing condition

- The firm's profit is maximized when 8 units of output are sold.
- At this point, *the additional revenue obtained by the company by selling one additional good (i.e. the marginal revenue)* is exactly equal to *the additional cost incurred by producing that extra good (i.e. the marginal cost)*.
- In other words, producing one more unit of output and selling it will not yield any profit to the firm.
- This is the point where the firm has no more profit potential.
- A firm maximizes profit where Marginal Revenue = Marginal Cost

The demand curve in a perfectly competitive market

- Demand is the set of quantities of a good/service that the consumers in a market are willing and able to buy at different price levels during a time period.
- When we studied it, we represented it as a downward sloping curve.
- The curve slopes downward because the consumers want more of the good/service when the price is lower.
- However, things are different in a perfectly competitive market.

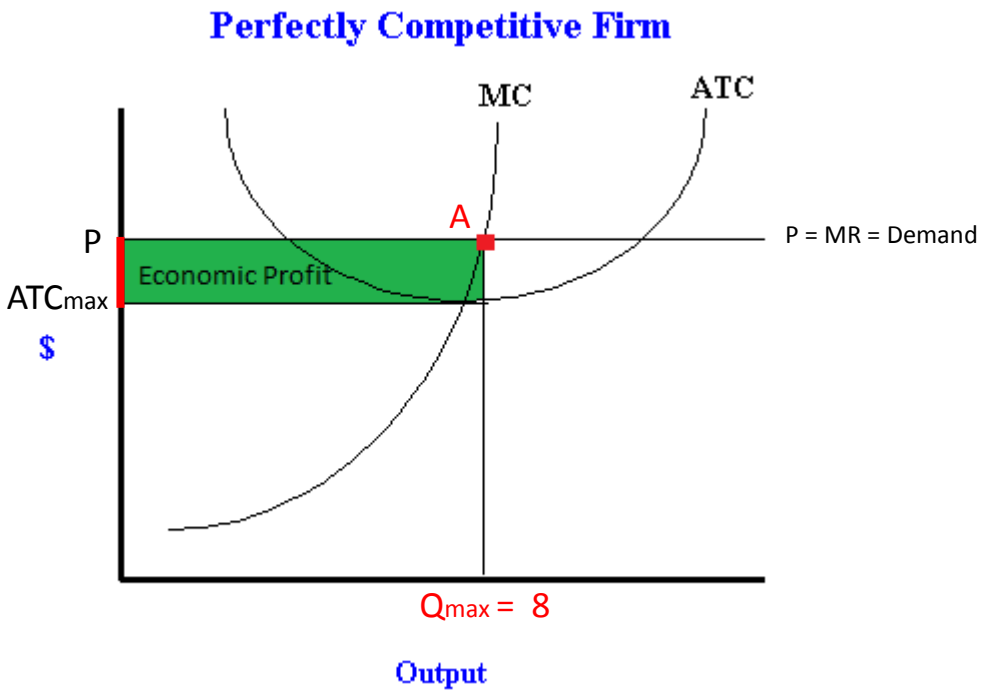
The demand curve in a perfectly competitive market (2)

- The price is set by the market and all the firms accept it since they are price takers.
- There is only one fixed price.
- And consumers purchase different quantities of the good at that same price.
- Graphically, this is represented by a horizontal demand curve.

Understanding Average Total Cost, Price and Average Profit/Loss

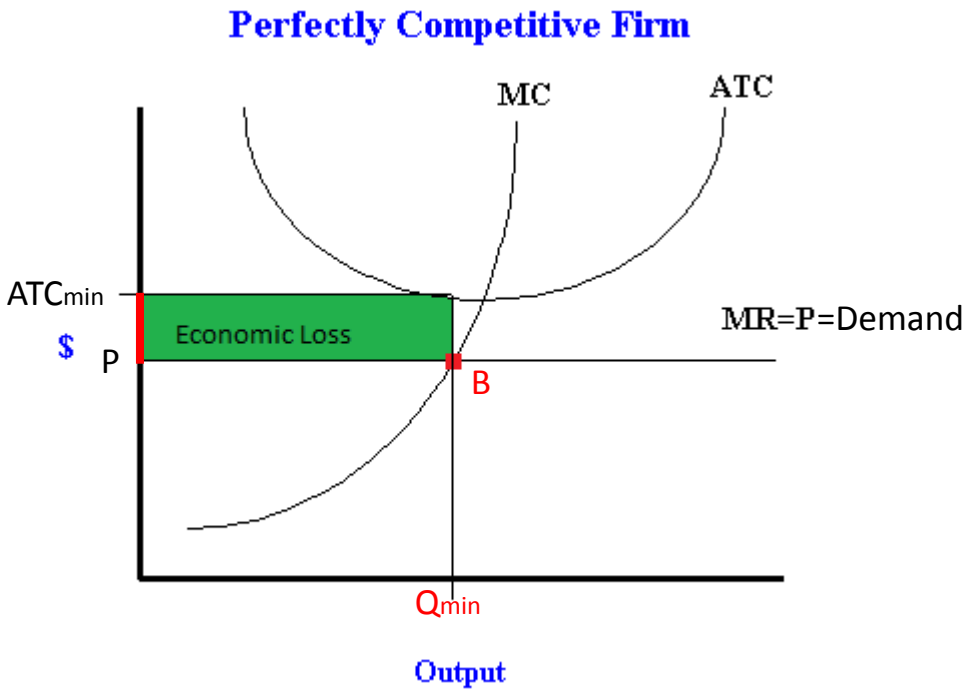
- Remember that ATC = TC/Q
- Average Total Cost is the cost per unit of output produced.
- In other words, it is the amount of money the producer spends on average to produce one unit of output.
- The price of a good (P) is the money the producer receives for selling one unit of output.
- Therefore, P – ATC = Average Profit/Loss
- This is the profit/loss made by selling one unit of output.
- Total Profit/Loss can then be calculated by multiplying the Average Profit/Loss by the number of goods sold.
- Total Profit/Loss = (P – ATC) * Q

Competitive firm in the short run: Economic profit



- Point A satisfies the profit-maximizing condition:
- MR = MC
- The corresponding output that maximizes profit is Q_{max}
- Given the output Q_{max} the corresponding Average Total Cost is ATC_{max}
- The distance (in red) between the price (P) and the Average Total Cost (ATC_{max}) is the profit per unit of output sold (i.e. the Average Profit).
- The total economic profit earned by the firm is the area of the rectangle in green.
- The area of the rectangle is calculated by:
- $(P - ATC_{max}) * Q_{max}$
- Note that the area in green represents an economic profit because $P > ATC_{max}$

Competitive firm in the short run: Economic Loss (Case 2)



- Point B satisfies the profit-maximizing condition:
- MR = MC
- The corresponding output that minimizes loss is Q_{min}
- Given the output Q_{min} the corresponding Average Total Cost is ATC_{min}
- The distance (in red) between the Average Total Cost (ATC_{min}) and the price (P) is the loss per unit of output sold (i.e. the average loss).
- The total economic loss made by the firm is the area of the rectangle in green.
- The area of the rectangle is calculated by:
- $(ATC_{min} - P) * Q_{min}$
- Note that the area in green represents an economic loss because $ATC_{min} > P$

What happens when there's an economic loss in the short run?

- Again, entrepreneurs open businesses because they want to make profit.
- If they make a loss, it is likely that they will shut down the business.
- However, not all firms shut down when there is an economic loss in the short run.
- Many of them still remain in business.
- What is the criterion for pursuing business activities or shutting down in the face of an economic loss?

What happens when there's an economic loss in the short run? (2)

- Remember, there is an economic loss when the price is lower than the firm's Average Total Cost (P < ATC)
- However, the decision to shut down is made by comparing the market price and the firm's Average Variable Cost (AVC).
- A firm's Average Variable Cost (AVC = TVC/Q) is the cost incurred on average for the production of each unit of output sold excluding fixed costs.

What happens when there's an economic loss in the short run? (3)

(i) If the price (P) is higher than the firm's average variable cost (AVC)

- P > AVC
- This means that the money obtained by the firm for selling one unit of output is enough to cover the money spent on the production of that one output.
- The rest of the money (P – AVC) goes towards recouping the investment in fixed costs.
- Therefore, despite a situation of economic loss (i.e. P < ATC), the firm can still continue to operate in the short run.

What happens when there's an economic loss in the short run? (4)

(ii) If the price (P) is lower than the firm's average variable cost (AVC)

- P < AVC
- In this case, the money obtained by the firm by selling one unit of output is not high enough to cover the cost incurred for producing that one unit of output.
- Consequently, the firm runs at a total loss.
- It is better for the firm to shut down in the short run.

What happens in the long run?

- Remember that the two cases just discussed (i.e. economic profit and economic loss) are in the short run.
- What happens then in the long run?
- Let’s talk about it in the following slides.

What happens in the long run? (2)

(i) When there is an economic profit in the short-run…

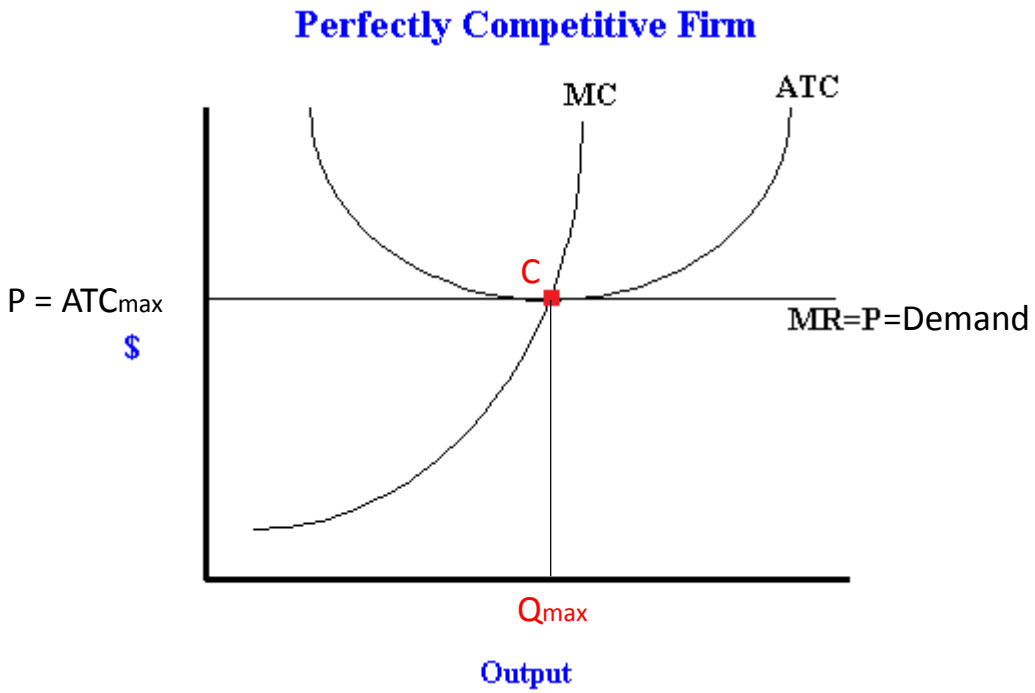
- The industry is attractive for entrepreneurs/investors.
- Since there is no barrier to entry in the market, new firms are created.
- As more firms enter the market, the market share for each firm shrinks and so does the economic profit made by each firm.
- Graphically, the average total cost (ATC) curve will shift up.
- Firms will continue to enter the market as long as the economic profit still exists even if it shrinks.
- At a certain point, the economic profit does not exist anymore, consequently no new firm will be created since the industry is not attractive anymore.

What happens in the long run? (3)

(ii) When there is an economic loss in the short-run…

- The industry hurts existing firms.
- Since there is no barrier to exit from the market, some firms will leave the industry *(i.e. firms whose AVC is lower than the market price)*.
- As more firms shut down, the market share for each firm increases and the economic loss made by each firm shrinks.
- Graphically, the average total cost (ATC) curve will shift down.
- Firms will continue to leave the market as long as the economic loss still exists even if it shrinks.
- At a certain point, the economic loss does not exist anymore, consequently the existing firms will stop shutting down.

Competitive firms in the long run: Zero economic profit/Normal profit



- Point C satisfies the profit-maximizing condition:
- MR = MC
- The corresponding output that maximizes profit is Q_{max}
- Given the output Q_{max} the corresponding average total cost is ATC_{max}
- In this case, the price of the good (P) is exactly equal the average total cost (ATC_{max}).
- The money earned by selling one good is exactly equal to the average cost incurred by producing one unit of output.
- The firm makes zero economic profit also known as normal profit.

You should now be able to…

- Identify and explain the features of a perfectly competitive market.
- Understand and calculate TR, TC, Total Profit/Loss, MR, MC and $\Delta\pi$.
- Understand and calculate ATC and Average Profit/Loss given price.
- State and explain the profit-maximizing rule.
- Show an economic profit/loss in the short run graphically.
- Explain what happens to perfectly competitive firms in the short run when there's an economic loss.

You should now be able to… (2)

- Explain what happens to perfectly competitive firms in the long run (when the market starts with an economic profit and when the market starts with an economic loss).
- Show the long-run state of a perfectly competitive firm graphically.

- *Understand every single point in the 'You should now be able to…' section ☺*