Question :
How a perfectly competitive firm derives the supply function from its marginal cost?

Answer :
What is a perfect competition market?

- First assumption is that the sellers are small firms and sell products with minimal differences in capabilities, features, and pricing.
- Second, there are a large number of buyers and sellers in a market. For example, the firms are small relative to the size of the industry.
- Third, Information is equally and freely available to all market participants. This ensures that each firm can produce its goods or services at exactly the same rate and with the same production techniques as another one in the market.
- Fourth, firms can enter and leave the market without any restrictions. In other words, there is free entry and exit into and out of the market.

There are 2 cases to consider, which are in the short run and long run case

In the short run, the supply curve is lying on a marginal cost curve and starts from the bottom of AVC (average variable cost) and rises upwards because a firm will choose to continue to produce because it will benefit them. Starting from point A or when P (price) = AVC (average variable cost), which is a shutdown point, a firm can choose to either shutdown or still produce until Price is less than AVC because if he chooses to continue, it will cost more money than shutdown, however, when P = AVC, we encourage him to continue because it will keep his product to still be visible in the market as well as a good relationship with his supplier even though the firm is facing losses. At point B is a breakeven point as total revenue equals to total cost, means that profit is zero. Between point A and B, the company is making losses, but a firm would continue since loss when continuing is less than loss when shutdown. Lastly, at point C, the company will gain profit, making them want to continue.

In the long run, A firm will produce where LRMC = MR at any quantity leve, for instance, from the graph a firm will choose to produce at q2in order to have positive profits, meaning that when existing firms keep producing positive profits, it will attract more firms to come in. As we can see from the graph, assuming that the market price is at P2, which is high enough to attract more firms to join into the market. As a result, supply curve will shift to the right from S to S', however, it will force down the market price from P2 to P1 and it will keep continuing like this, for example supply curve shifts from S' to S'' and market price decreases from P1 to P0 until every firm in the market gets normal economic profit or when the market price hit the bottom of LRAC, implying that the market reaches its equilibrium and no more firms want to enter or exit from the market. To sum up, the supply curve is lying on a long run marginal cost and starts from the point where LRMC (long run marginal cost) = LRAC (long run average cost) and rises upwards.

Video link :
https://drive.google.com/file/d/1SzammD9b_yQ-PnU0ttc-X_9oTJntZj7m/view?usp=drivesdk

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