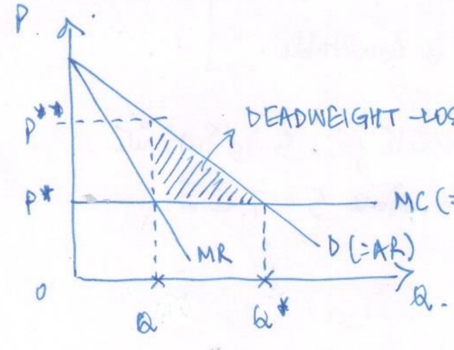
Monopoly & Resourse Allocation

(i) Const. Average and Marginal Costs.

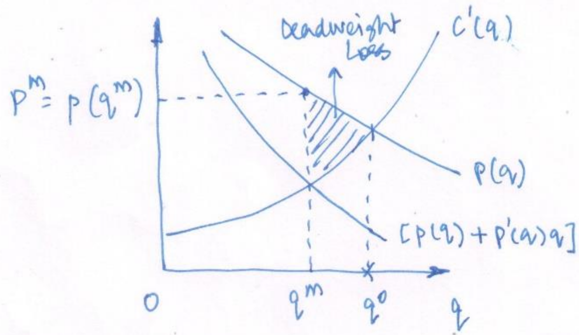


Q^* – Optimal output in perfectly competitive industry

P^* – Optimal price in perfectly competitive industry

P^{**}, Q^{**} – Price – output combination under monopoly.

(ii) Variable Average & Marginal Costs



q^o – socially optimal (competitive) output

q^m – monopoly output.

P^m – " price.

The welfare loss or the DEADWEIGHT LOSS from quantity distortion can be measured as follows:

$$\int_{q^m}^{q^o} [p(s) - c'(s)]\,ds > 0$$

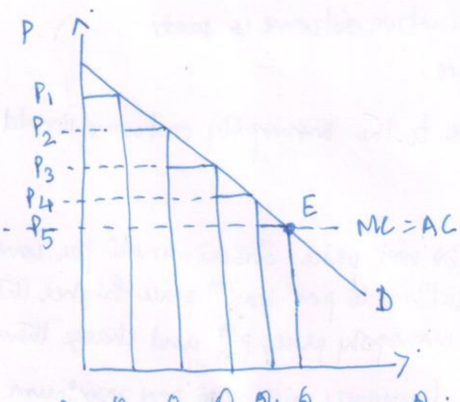
The cause of this quantity distortion is the monopolist's recognition that the reduction in the quantity it sells allows it to increase the price charged on its remaining sales.

The gap between price and marginal cost is an indication of the efficiency-improving trades that are foregone through monopolization.
∴, the monopoly equilibrium is not pareto optimal – an alternative allocation of resources would make all parties better off.

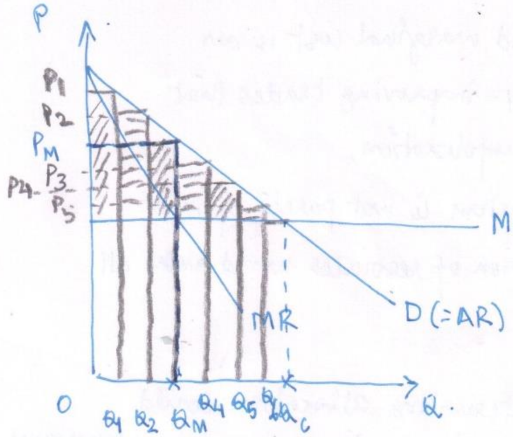
To see what such an alternative allocation could look like, we first discuss FIRST-DEGREE PRICE DISCRIMINATION by the monopolist.

First-Degree / Perfect Price Discrimination.

PRICE DISCRIMINATION is the possibility of selling identical goods at different prices.
Here, if each buyer can be separately identified by the monopolist, then it may be possible to charge each the maximum price he/she would willingly pay for the good.
Consider the constant average and marginal cost assumption.



Suppose consumer 1 is willing to pay a max^m of P_1 for quantity Q_1.
.. Consumer 2 is willing to pay a max^m of P_2 for quantity $Q_2 - Q_1$.
.. Consumer 3 is willing to pay a max^m of P_3 for quantity $Q_3 - Q_2$
.. and so on.

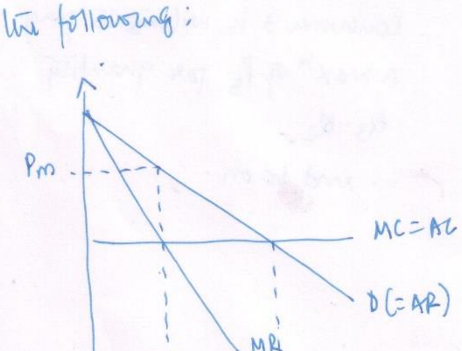


If the monopolist can charge each consumer the max^{m} amount they are willing to pay, then

1) Each consumer's surplus will be extracted by the monopolist.
2) The monopolist will charge each consumer the price (max^{m}) he is willingness to pay up to the point at which the marginal buyer is no longer willing to pay the good's marginal cost. Hence total quantity produced will be the quantity Q_C – where supply meets demand in a PC industry. Note that the deadweight loss is eliminated this way.

Hence, the perfect-price discrimination outcome is superior to the monopoly outcome.

Another pareto superior alternative to the monopoly outcome would be the following:



Do not price-discriminate for consumers willing to pay max^{m} price higher than the monopoly price, P_m and charge them P_m. Consumers willing to pay maximum prices below P_m should be charged those prices and all deadweight loss will go into monopoly profits & socially optimal quantity Q_c would be produced.