Syndicate Group 2

Date: 29/10/2015

Objective

- Incentives - Classical economics writes $MR \times MP_L = w$. As per this statement, giving incentives to the employees is an embedded technique in determining the wages. Justify.

The Production Function

• Production is the process of transforming inputs into output.

• The production function indicates the maximum level of output the firm can produce for any combination of inputs

• For simplicity, assume that all inputs or factors of production can be grouped into two broad categories, labour (L) and capital (K). The general equation :
$$Q = f(K, L)$$

Total, Average and Marginal Product

In the Short-Run Production (using Single Variable Input)

- **Total product of labour** is the maximum rate of output forthcoming from combining varying rates of labour input with a fixed capital input.

- Denoting the fixed capital input as K, the total product of labour function is $TP_L = f(K,L)$.

- **Average product** is the total product per unit of the variable input and is found by dividing the rate of output by the rate of the variable input. The average product of labour function is $AP_L = TP_L/L$

- **Marginal product** of any input is the increase in output arising from an additional unit of that input, holding all other inputs constant. Marginal product of labor $MP_L = \Delta Q / \Delta L$. **The marginal product is the slope of the total product curve**.

An Example

Example:

- ➢ A farmer grows wheat.
- ➢ He has 5 acres of land.
- ➢ He can hire as many workers as he wants.
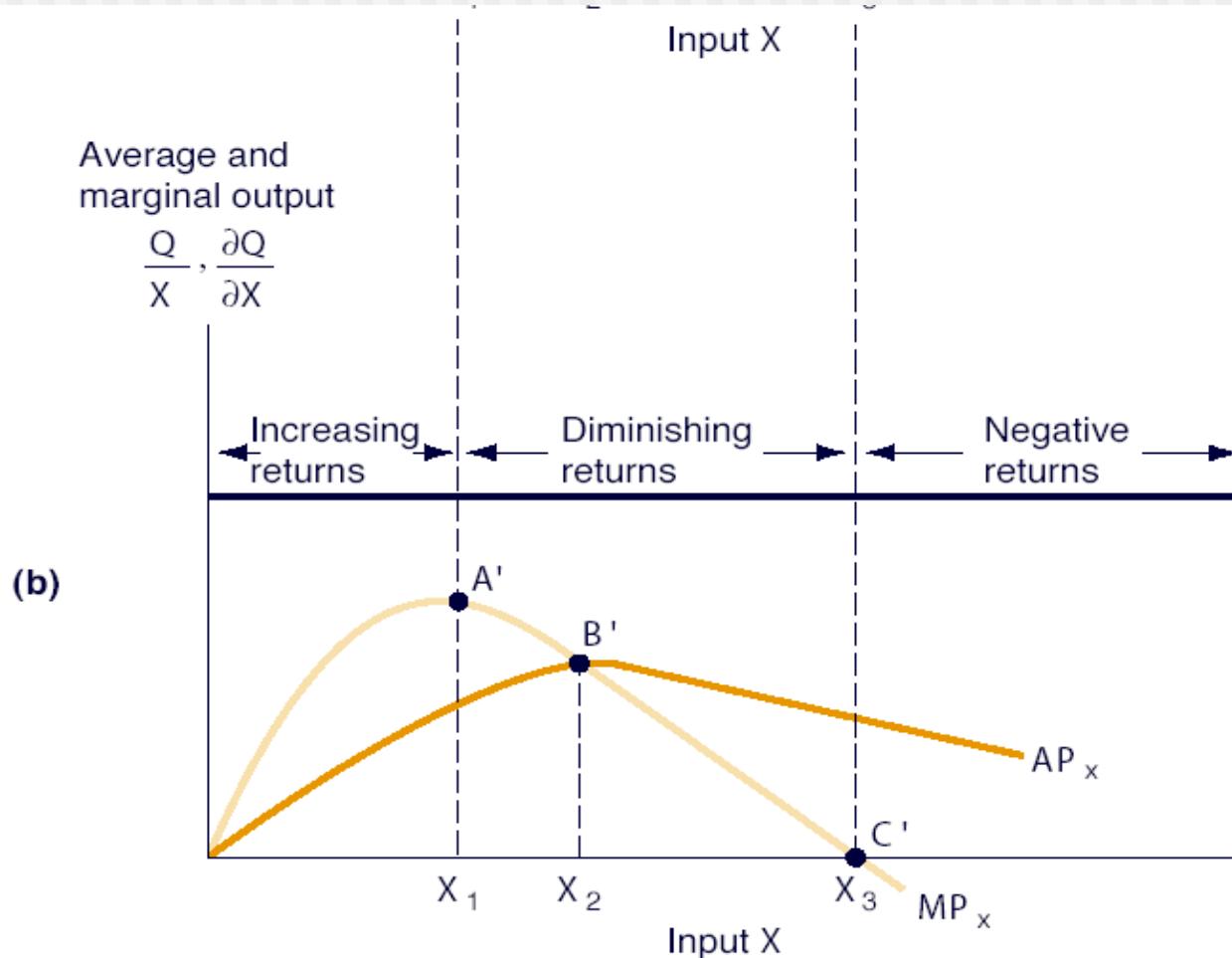
Total, Average and Marginal Product

Labour Input (L)	TP_L	AP_L	MP_L
0	0	-	-
1	20	20	20
2	50	25	30
3	90	30	40
4	120	30	30
5	140	28	20
6	150	25	10
7	155	22	5
8	150	19	-5

Total, Average and Marginal Product

Observations:

- When output is zero, TP is also zero; so that any TP curve, if plotted, would starts from the origin and AP and MP curve have the same vertical intercept.

- TP increases at an increasing rate over the range of L=0-3, and then increases at a decreasing rate.

- Initially the *input proportions are inefficient* – there is too much of fixed factor, capital. As the labour input is increased from 0 to 3, output rises more than in proportion to the increase in labour input and as a result MP of labour rises.

- As labour input is increased beyond 3 units, diminishing marginal returns set in and marginal product declines; the additional units of labour still result in an increase in output, but each increment to output is smaller.

- When labour has increased to 7, TP reaches a maximum, and then, at 8 units, the amount of labour has become excessive and slows the production process, with the result that total product actually declines.

Illustration of the Law of Diminishing Returns to a Factor

Relationship Between AP_L and MP_L

- When the marginal product of labour is greater than the average product of labour, the average product is rising; when it is equal, the average product remains unchanged and when it is lower, the average product is falling.

- The intuition behind this relationship can be quickly captured if we think of exam grades. Suppose that till now, Mr. Ojha is getting an average grade of B on the papers he has taken. He sits for another exam, say in French. If he gets a grade above B in French, this marginal grade pulls up his average grade and makes it higher than B. If he gets B in French, his average grade remains unchanged at B. If he gets less than B in French, then his average grade falls below B.

Optimal Employment of a Factor of Production

- To maximize profit, a firm should hire labour as long as the additional revenue associated with hiring of another unit of labour exceeds the cost of employing that unit.

- Suppose that the marginal product of an additional worker is 2 units of output and each unit of output is worth Rs.2000. Thus the additional revenue to the firm will be Rs. 4000 if the worker is hired. If the additional cost of a worker (i.e., wage rate) is Rs.3000, the worker will be hired because Rs.1000, the difference between additional revenue and additional cost, will be added to profit.

- If however, the wage rate is Rs.4500, the worker should not be hired because profit would be reduced by Rs.500.

Optimal Employment of a Factor of Production

- Thus, additional units of the variable input should be hired until the marginal revenue product (MRP) of the last unit employed is equal to the cost of the input.

- The MRP is defined as marginal revenue times marginal product and represents the value of the extra unit of labour, i.e., MRP = MR x MP.

- Thus labour is hired until MRP_L equals wage rate (w), i.e., $MRP_L = w$, or, $MR \times MP_L = w$.

- For a price-taker firm, MR =P (given), so that we get $P \times MP_L = w$.

Incentives

- Higher Incentives → Higher MP_L
- Revisit $P \times MP_L = w$
- If MP_L rises, ceteris paribus, so does w
- Hence, incentives to the employees is an embedded technique in determining the wages

Objective

- How the economic activity can be boosted by the government, by declaring incentives to various stakeholders of the economy?

Economic Activities mainly classified into Three sectors

- Primary sector

- Secondary sector

- Tertiary sector

Primary sector

Rural:

- Swarnjayanti Gram Swarozgar Yojana(SGSY)

- Sampoorna Grameen Rozgar Yojana(SGRY)

- MGNREGS

- Urban:

- Swarna Jayanti Shahari Rozgar Yojana(SJSRY)

Secondary sector

- Make in India Campaign
- Special Economic Zone(SEZ's)
- FDI
- Public private partnership(PPP)

Tertiary sector

- 74% FDI Telecommunication
- Comprehensive Tax reform
- Nationalized of banking institutions
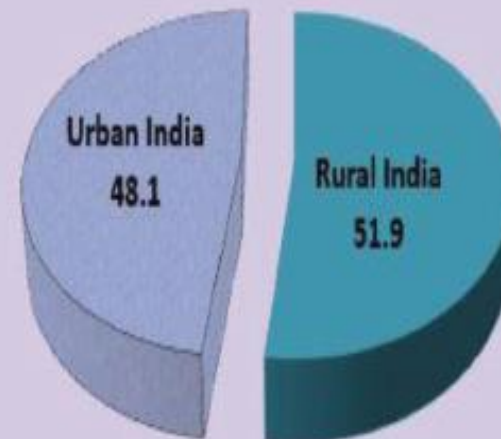- Foreign Economic Relationship
- Foreign –Exchange system.

Employment

Total Employment

Top 5 States	
Maharashtra	14,374,619 (11.26%)
Uttar Pradesh	13,750,866 (10.77%)
West Bengal	11,544,664 (9.04%)
Tamil Nadu	10,809,878 (8.46%)
Gujarat	9,063,569 (7.10%)

Percentage Share of Rural India and Urban India Areas in Total Employment

Urban India 48.1

Rural India 51.9

Top 10 States/UTs in Terms of their Percentage Shares in Total Number of Handicraft/Handloom Establishments in the Country

Total Number of Handicraft/Handloom Establishments=21,92,571

Growth Rate Over Fifth Economic Census

Growth rate (%) over Fifth Economic Census

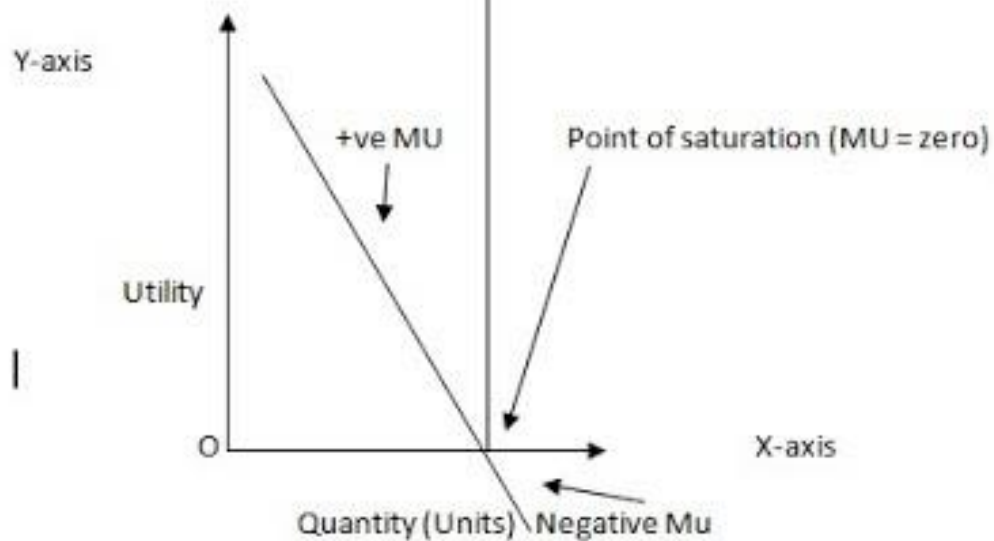|	Total Establishments	Total Employment
Rural India	39.28	31.59
Urban India	45.57	37.46
India	41.73	34.35
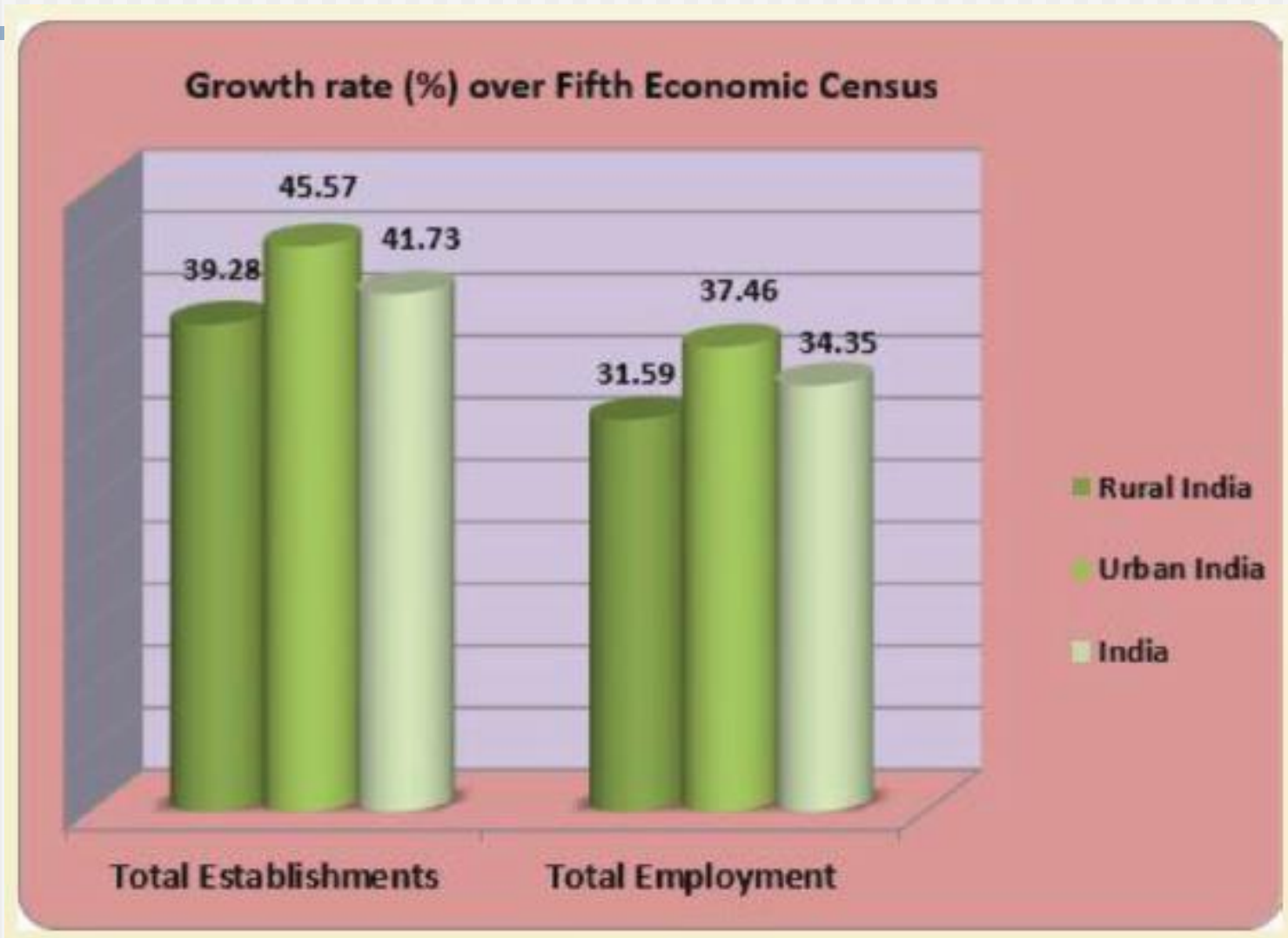
Objective

- Trade-offs – How does the consumer and producer uses the concept of trade-off in consumer and producer equilibrium

Consumer Equilibrium

- Consumer Equilibrium is a situation wherein person gets maximum satisfaction i.e. total utility is maximised.

- Total Utility is the total satisfaction achieved when a given number of goods are consumed.

- Marginal utility is the additional satisfaction achieved with a additional unit of the good

Y-axis
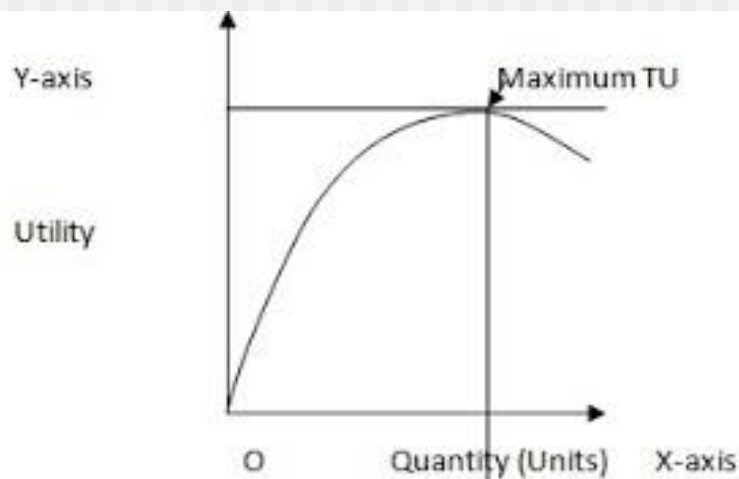
Maximum TU

Utility

TU Increases so long MU is +ve

TU is maximum when MU is zero

TU starts declining when MU is negative.

O   Quantity (Units)   X-axis

Y-axis

+ve MU   Point of saturation (MU = zero)

Utility
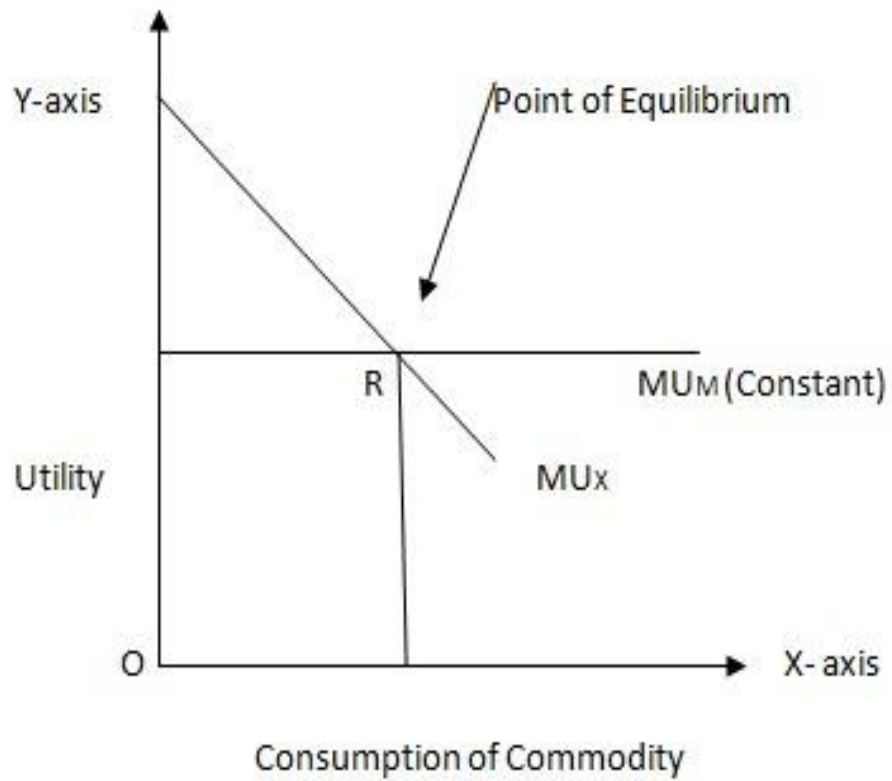
O   X-axis

Quantity (Units) Negative Mu

Consumer Equilibrium in case of single good

Condition:- MUX = PX

Assumptions :-
a) Utility can be measured in terms of units.
b) Consumer is rational and wants maximum satisfaction.
c) Independent utility
d) MU of money is constant. MU of money is known as worth of a rupee.
e) Law of Diminishing Marginal Utility is applied here

Consumer Equilibrium in case of Single or one commodity

Consumer Equilibrium in case of double commodity

Condition:-

$$\underline{MUx} \quad = \quad \underline{MUy} \quad = \quad MUm$$
$$\quad\quad Px \quad\quad\quad\quad Py$$

Assumption:

a) Consumer is rational

b) Utility can be measured in term of money

c) MUm is constant

e) Only standard unit of commodity are consumed by consumer

f) Law of Diminishing Marginal Utility applied here

Demand, Marginal Benefit, and Consumer Surplus

- *The demand curve reflects your* **willingness to pay** - the **maximum price** *that a person is willing to pay for a* good

- *A demand curve is a* **marginal benefit** *curve – the area under the D curve represents the* **total benefits** *from consumption*

Demand & Consumer Surplus

P	Qd
10	1
9	2
8	3
7	4
6	5
5	6
4	7

Demand reflects the maximum price consumers are willing to pay
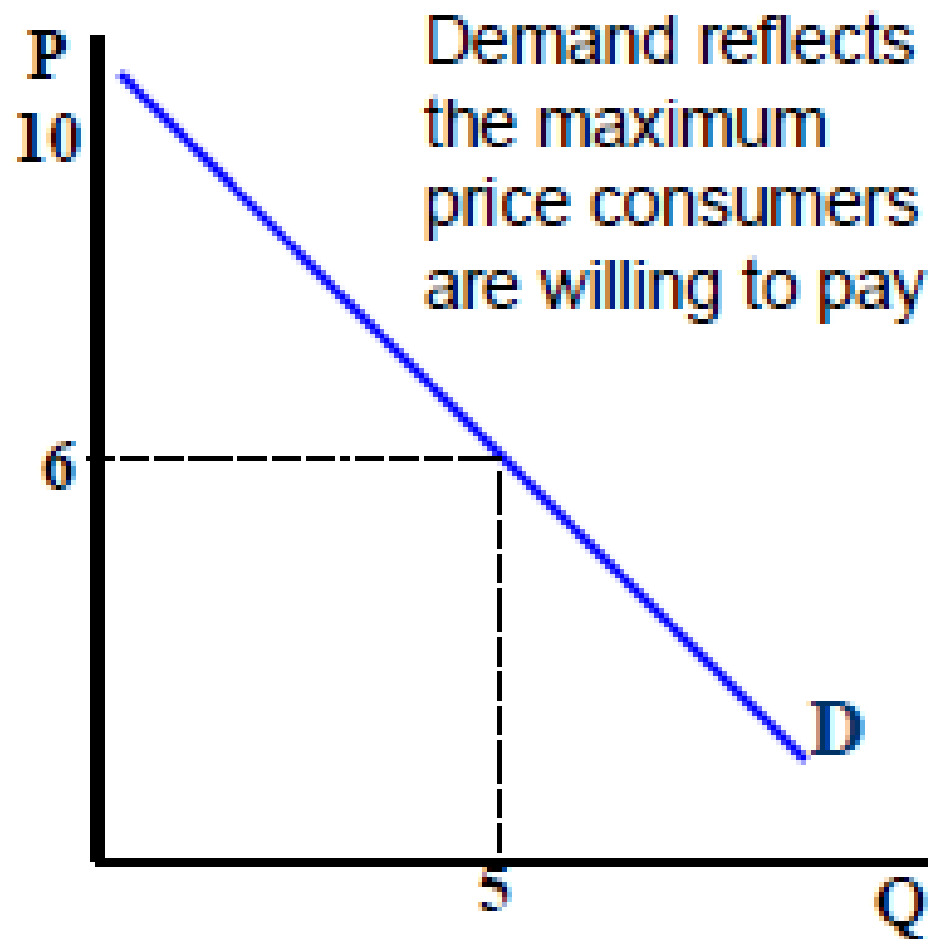
CONSUMER SURPLUS

Consumer surplus-
Net benefit from the
consumption.
It is equal to the
difference between
total willingness to
pay and the total
amount paid

Consumer surplus is the area below the demand curve and above the market price ($10)

Amount paid ($30)
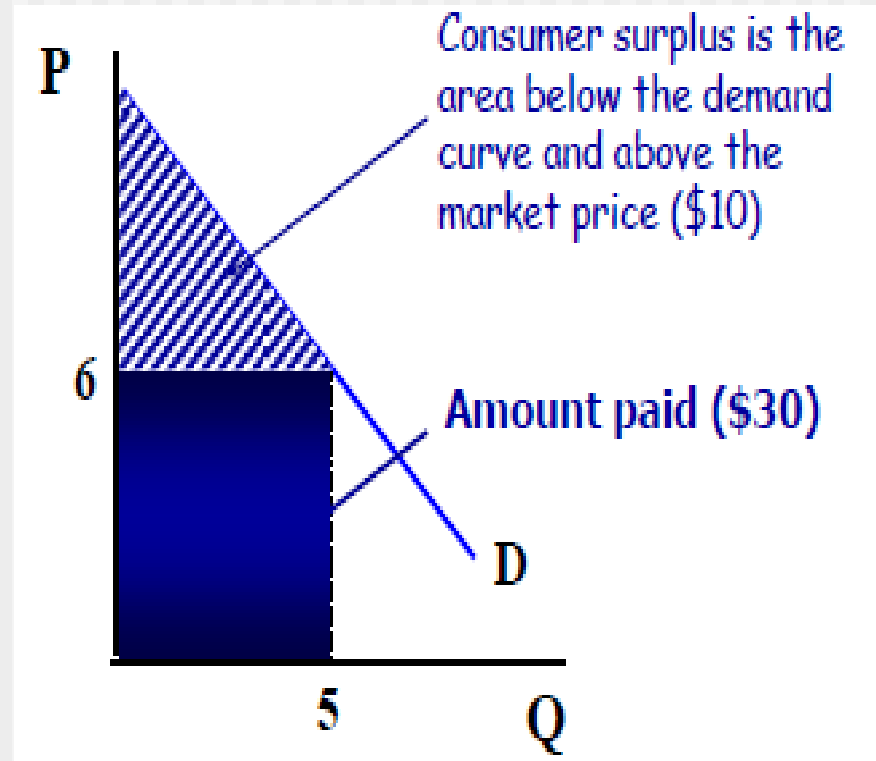
Producer Equilibrium

- Producer's equilibrium refers to the level of output of a commodity that gives the maximum profit to the producer of that commodity.

- Total Profit= Total Revenue – Total Cost
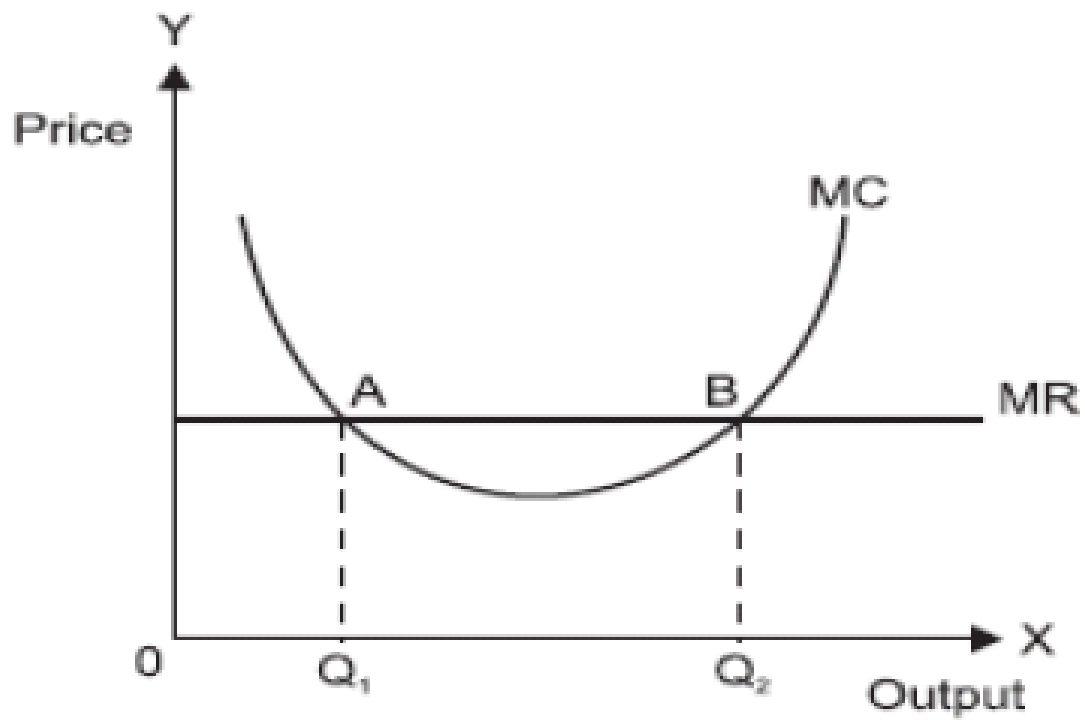
Conditions for Producer's Equilibrium

- MR=MC
- MC > MR after MR=MC

Illustration

Price (Rs. per unit)	output (units)	TR (Rs.)	TC (Rs.)	MR (Rs.)	MC (Rs.)	Profits
8	1	8	6	8	6	2
8	2	16	14	8	8	2
8	3	24	20	8	6	4
8	4	32	28	8	8	4
8	5	40	38	8	10	2

Supply and Producer Surplus

- Similar concept as Consumer Surplus
- The cost of the one more unit of good is the marginal cost involved in its production, which reflects the minimum price a firm needs.
- Supply curve is the marginal cost curve.
- Producer Surplus is the net benefit from producing the good.
- Its equal to the price of the good

Supply & Producer Surplus

P

Producer surplus
= $10

S

6

Cost of
production = $20

5

Q
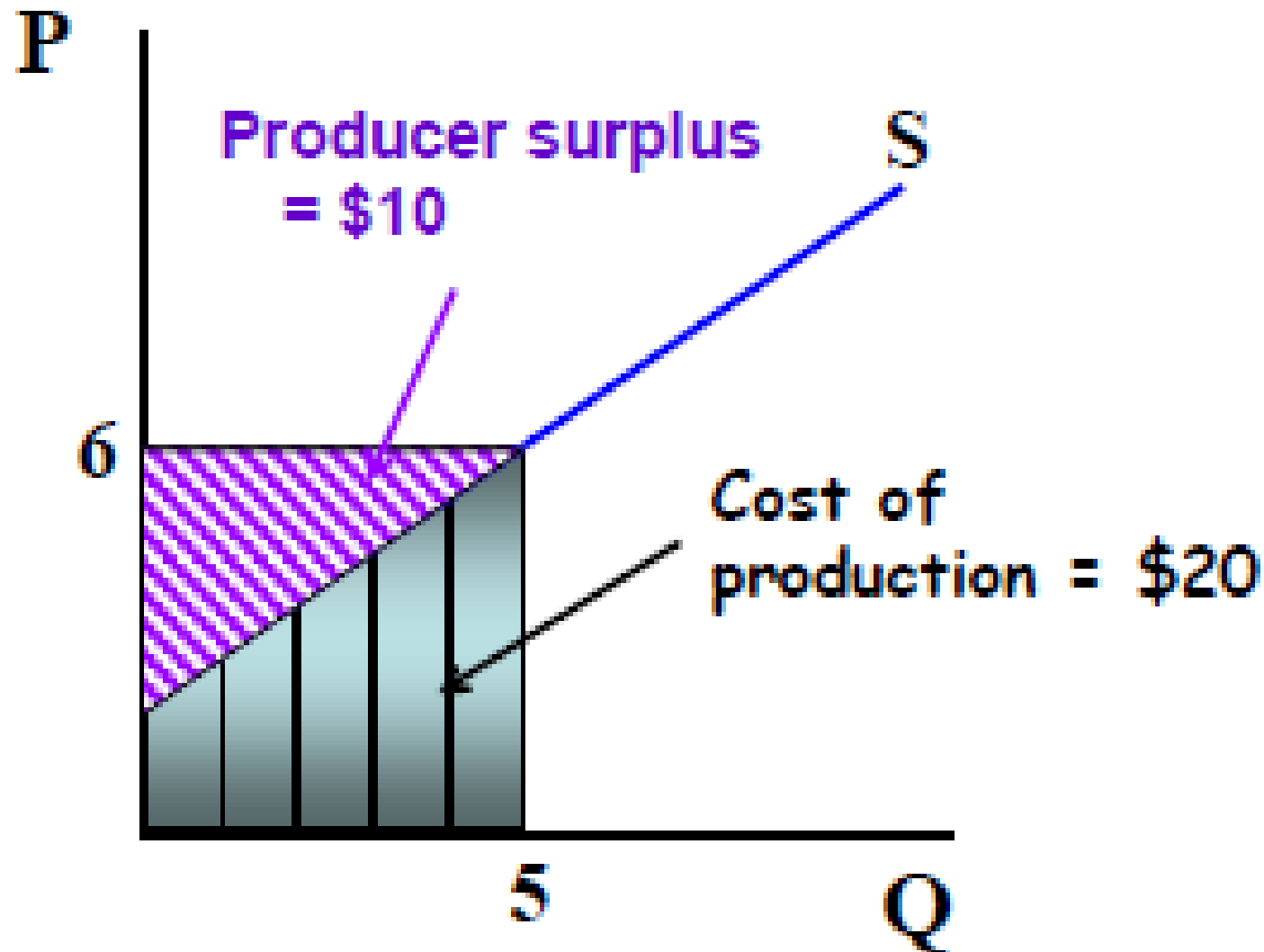
Market Efficiency

- Consumer and producer surplus are the basic tools to the welfare of the consumers and produecrs in market equilibrim
- Total Surplus = Consumer Surplus+ Producer Surplus
- Market Efficiency is attained when the Total Surplus is maximised
- Concept of the Deadweight loss (Decrease in total surplus due to the inefficient allocation of the resources).

Total Surplus
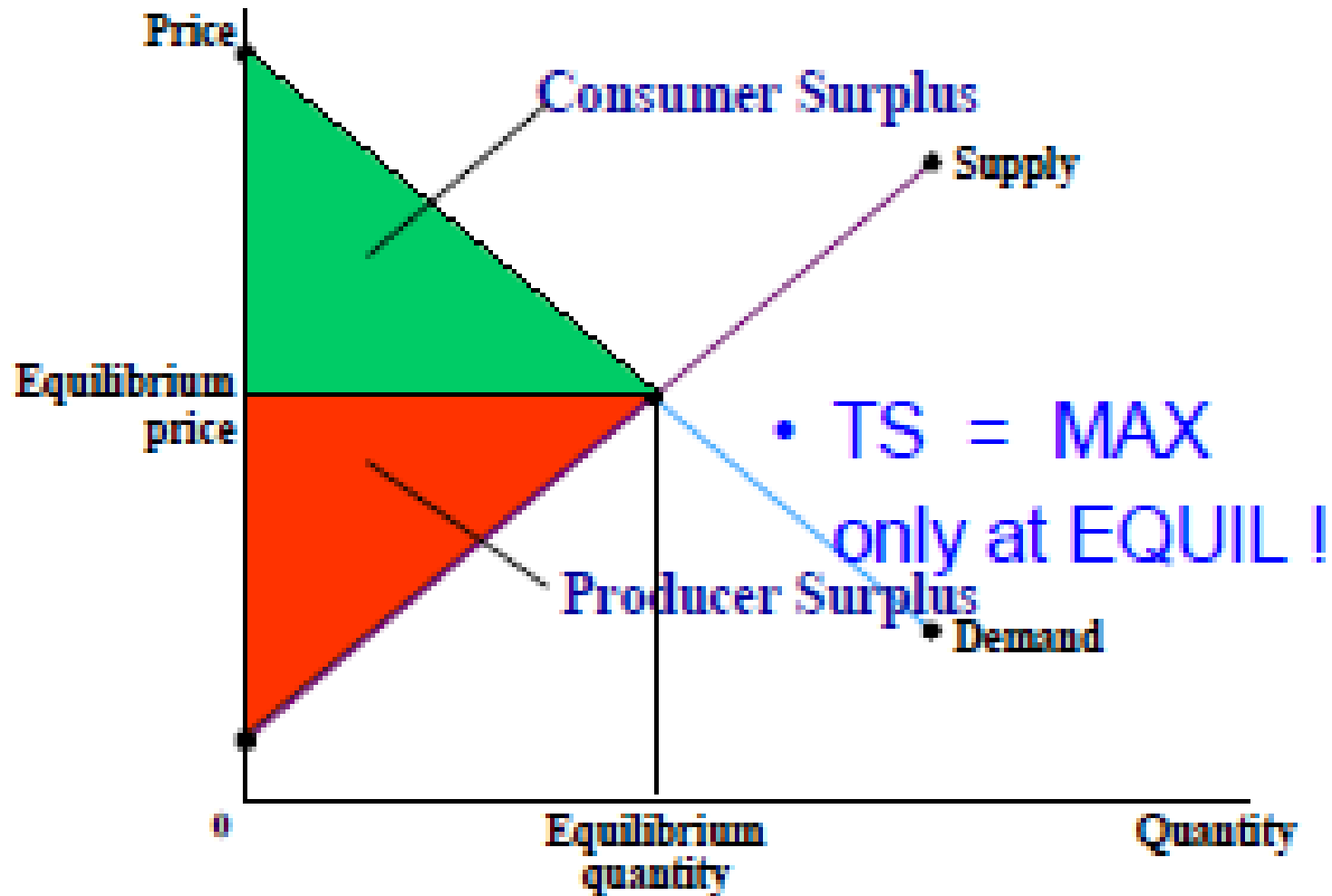
Dead Weight Loss
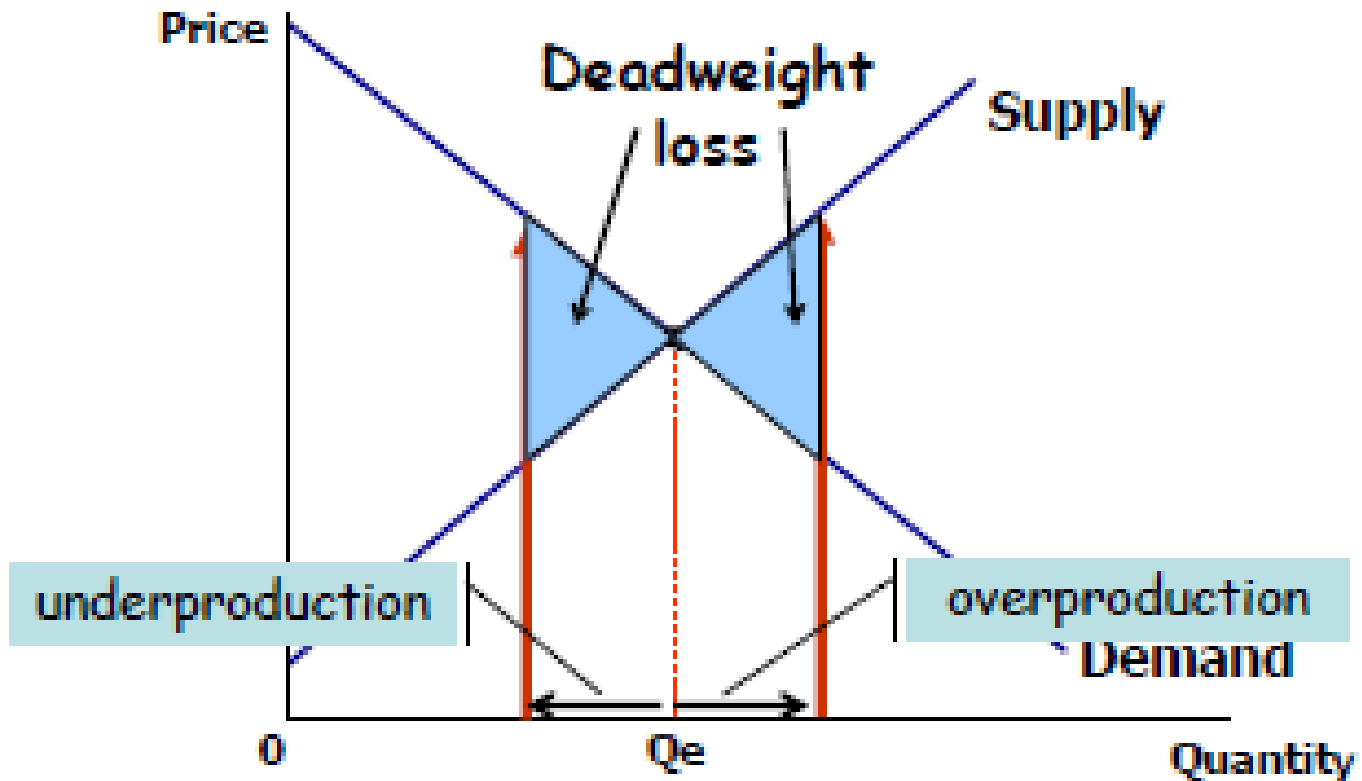
Various factors leading to Deadweight Loss

- Externalities- Producers and consumer Externality
- Moral Hazards
- Informational Gaps
- Monopolistic Powers

Efficiency/Equity Trade off

- Efficiency- relates to maximising the size of the pie. Maximisation of the Total Surplus
- Equity- relates to the fairness of the distribution of the well being among the members in the society
- No simple definition or well settled condition for equity
- It requires normative judgements and is usually resolved through the political systems

Thank You