Theory of Consumer Behaviour

Micro economic theory is primarily concerned with the determination of prices of commodities and factors of production. Price of a commodity determined by the forces of demand and supply. So it is necessary to explain the theories of dd. and supply. The traditional theory of dd. starts with consumer behaviour because market dd. is the summation of individual demand.

There are two important approaches to the consumer behaviour - Cardinal approach and Ordinal approach. According to the cardinal approach utility can be measurable. Cardinal economists explain consumer behaviour on the basis of this assumption. However according to the ordinalists since utility is a psychological feeling, it cannot be measurable. Though utility is not measurable, utility levels derived from different comm. bundles can be compared by the consumer. On the basis of such comparison of the utility levels, it is possible for the consumer to rank the alternative comm. bundles interms of the scale of preference.

Cardinal Approach

This approach is based on the following assumption

1. Rationality of the consumer - Consumer aims at maximising utility subject to his budget constraint

2. Cardinalability - Utility of any comm. can be measured. It is a cardinal concept. ~~(The amt. of money that the)~~

(**) good, intensity of his want for the good goes on falling and a point is reached when marginal utility of that good becomes zero.

Utility is measured by the amt. of money that the consumer is willing to pay for the comm.

3. Constant marginal utility of money - Since money can be used as a measure of utility it is assumed in the cardinal approach that marginal utility of money remain constant.

4. Diminishing marginal utility - Marginal utility is the utility derived from the last unit of the comm. consumed. Marginal utility of a commodity say x (MU_x) is defined as the addition to the total utility by increase in the amount of comm. by one (i) unit. ~~According to~~ Law of Diminishing marginal utility states that as an individual consumes more and more units of a (**)

5. Additivity of utility - This assumption states that the utility derived from any comm. depends on the amt. consumed of it and not on the amounts of other goods consumed. So, total utility derived from N goods is the summation of the utility derived from N individual goods.

$$U = f_1(x_1) + f_2(x_2) + f_3(x_3) + \cdots + f_n(x_n).$$

Consumer's Equ^m.

Let us now see how consumer's equ^m. is derived in the cardinal approach. Suppose, ~~(to start with)~~ consumer purchases only one comm. x and he has sufficient income to purchase the comm. as much as he likes. To decide how much of the comm. he should purchase he will have to consider the utility derived from the comm. and expenditure to be incurred for its purchase. The expenditure for the comm. is given by the equ^m. $E_x = P_x . X$, where as

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the utility func. is $U_x = f(x)$. The rational consumer must aim at maximising the net gain from the purchase of the commodity. The net gain is
$U_x - e_x \Rightarrow f(x) - P_x . x$.

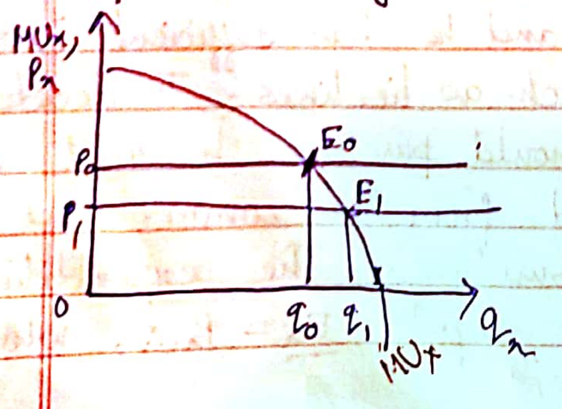
The maximisation of func. requires the fulfillment of following two condns. – the first order derivative must be zero and the second order derivative is negative. ~~Thus~~ Maximisation of net gain of the consumer requires that

$$f'(x) - P_x = 0$$
$$\Rightarrow f'(x) = P_x$$
$$\Rightarrow MU_x = P_x \quad \text{--(1)} \quad \text{[Necessary condition]}$$

and $f''(x) < 0$ ...(2) [Sufficient condn]

Sufficient condn will always be satisfied at any level of consumption because the assumption of diminishing marginal utility.

In the following fig., this will occure only where consumer purchases q_0 units of x, when $P_x = P_0$ ~~(so long as $P_x = DP_0$)~~ But if P_x falls to the level P_1 then quantity purchase will increase to the level q_1. Similarly the diff. level of x that the consumer will purchase at diff. price will be obtained from the MU_x curve. So, this curve is the dd. curve for the comm. Since MU_x curve



is negatively sloped because of the assumption of diminishing MU, the dd. curve is also negatively sloped, reflecting the inverse relationship between price and quantity demanded as law of dd. states.

Let us now extend this analysis to the n comm. case. In this case consumer's utility func. can be written as

$$u = f(x_1, x_2, x_3, \ldots, x_n)$$

The consumer's objective is to maximise utility s. to the budget constraint. The budget eqn. of the consumer can be written as

$$M = (P_1x_1 + P_2x_2 + \cdots + P_nx_n) = \sum_{i=1}^{n} P_ix_i$$

To solve the problem of maximising a function s. to a constraint, the procedure i.e. adopted is the Lagrang multiplier. In this procedure the first step is to form a composite func.

$$S = u + \lambda\left(M - \sum_{i=1}^{n} P_ix_i\right)$$ [where λ is the Lagrang multiplier]

$$S = u + \lambda\left[M - (P_1x_1 + P_2x_2 + P_3x_3 + \cdots + P_nx_n)\right]$$

Now we have to set the 1st order partial derivatives of the func. equal to zero. $S = U - \lambda P_1 x_1$.

$$\frac{\delta S}{\delta x_1} = \frac{\delta u}{\delta x_1} - \lambda P_1 = 0$$

$$\Rightarrow \frac{\delta u}{\delta x_1} = \lambda P_1$$

$$\Rightarrow \frac{MU_1}{P_1} = \lambda \quad \ldots (1)$$ A)

$$\frac{\delta S}{\delta x_2} = \frac{\delta u}{\delta x_2} - \lambda P_2 = 0$$

$$\Rightarrow \frac{\delta u}{\delta x_2} = \lambda P_2 \Rightarrow \frac{MU_2}{P_2} = \lambda \quad \ldots (2)$$ (A)

$\vdots$

$$\frac{\delta S}{\delta x_n} = \frac{\delta u}{\delta x_n} - \lambda P_n = 0$$

$$\Rightarrow \frac{MU_n}{P_n} = \lambda \quad \ldots (3)$$ (A)

and finally $\frac{\delta S}{\delta \lambda} = M - (P_1 x_1 + P_2 x_2 + \cdots + P_N x_n) = 0$

or, $M = P_1 x_1 + P_2 x_2 + \cdots + P_n x_n$.

This is the budget constraint equ^n.

From (A) we get:

($\lambda = \frac{MU_1}{P_1} = \frac{MU_2}{P_2} = \cdots = \frac{MU_n}{P_n}$

This represents the principle of equimarginal utility which states that MU of money spent on each comm. will be same in equ^m. λ can now be interpreted as marginal utility of money.)

Limitations of Cardinal Utility theory

1/ The Marshallian assumption that utility is cardinally measurable is not realistic. Utility is subjective and cannot be measured exactly in terms of any unit.

2/ The assumption that the MU of money remains constant is also unrealistic. The constancy of MU of money implies zero income effect of a fall in price. This ~~mean~~ means that even if price falls the consumer will not feel his real income to be higher.

3/ We assume that diff. utility func. are independent. Utility obtained from any comm. depends on the amt. of that comm. only ie. $U_1 = U_1(q_1)$ and $U_2 = U_2(q_2)$

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and $U = U_1 + U_2$: This assumption is also unrealistic. Diff. utility levels are, in fact, interdependent.

4/ Because of the assumption of constant MU of money the income effect of a fall in price is zero in Cardinal approach. It can never be negative or positive. As a result, the Giffen's paradox cannot be explained with the help of this theory. Giffen's paradox takes place when the income effect is negative and stronger than the substitution effect.