

B.A. Part I (Economics Honours)
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Total Utility and Marginal Utility

Total Utility (TU):

"Total utility is the total satisfaction obtained from all units of a particular commodity consumed over a period of time".

For example, a person consumes eggs and gains 50 utils of total utility. This total utility is the sum of utilities from the successive units (30 utils from the first egg, 15 utils from the second and 5 utils from the third egg).

Summing up total utility is the amount of satisfaction (utility) obtained from consuming a particular quantity of a good or service within a given time period. It is the sum of marginal utilities of each successive unit of consumption.

Formula:

$$TU_x = \sum MU_x$$

Marginal Utility (MU):

"Marginal utility means an additional or incremental utility. Marginal utility is the change in the total utility that results from unit one unit change in consumption of the commodity within a given period of time".

For example, when a person increases the consumption of eggs from one egg to two eggs, the total utility increases from 30 utils to 45 utils. The marginal utility here would be the 15 utils of the 2nd egg consumed.

Marginal utility, thus, can also be described as difference between total utility derived from one level of consumption and total utility derived from another level of consumption.

Formula:

$$MU = \frac{\Delta TU}{\Delta Q}$$

It may here be noted that as a person consumes more and more units of a commodity, the marginal utility of the additional units begins to diminish but the total utility goes on increasing at a diminishing rate.

When the marginal utility comes to zero or we say the point of satiety is reached, the total utility is the maximum. If consumption is increased further from this point of satiety, the marginal utility becomes negative and total utility begins to diminish.

The *relationship between total utility and marginal utility* is now explained with the help of following schedule and a graph.

Schedule:

Units of Apples	Total Utility in Utils	Marginal Utility in Utils
1	7	7
2	11	4
3	13	2

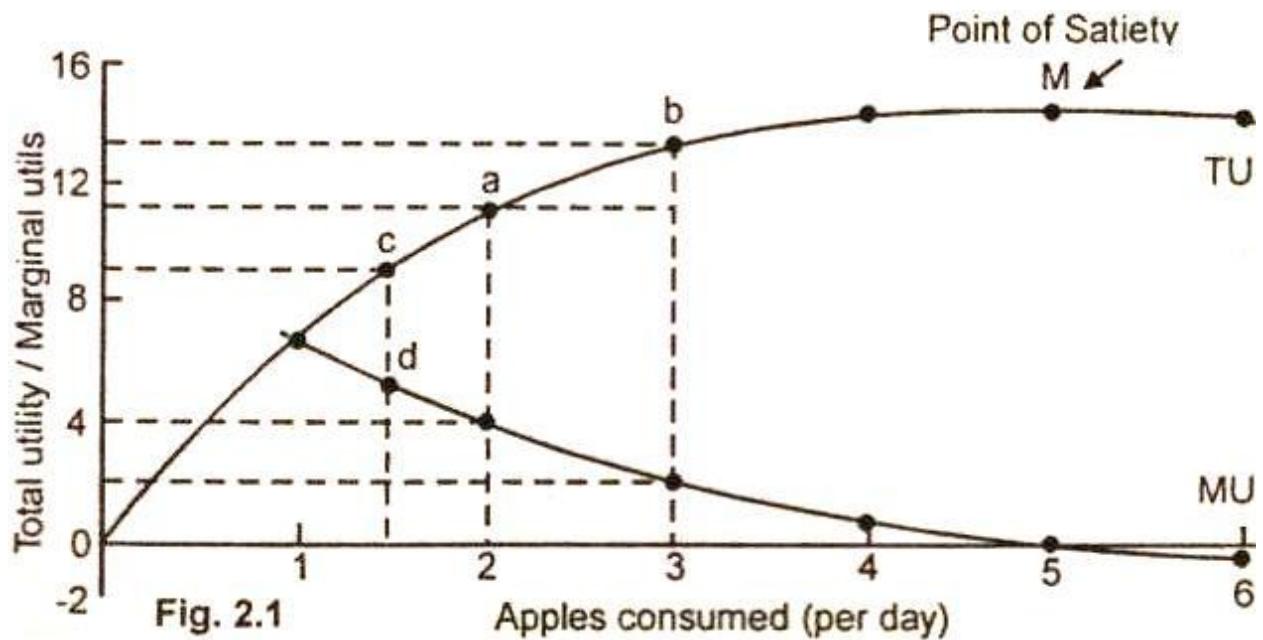
4	14	1
5	14	0
6	13	-1

The above table shows that when a person consumes no apples, he gets no satisfaction. His total utility is zero. In case he consumes one apple a day, he gains seven units of satisfaction. His total utility is 7 and his marginal utility is also 7.

In case he consumes second apple, he gains extra 4 utils (MU). Thus given him a total utility of 11 utils from two apples. His marginal utility has gone down from 7 utils to 4 utils because he has a less craving for the second apple.

Same is the case with the consumption of third apple. The marginal utility has now fallen to 2 utils while the total utility of three apples has increased to 13 utils (7 + 4 + 2). In case the consumer takes fifth apple, his marginal utility falls to zero utils and if he consumes sixth apple also, the total showing total utility and marginal utility is plotted in figure below:

Here $MU = 2$.



(i) The total utility curves starts at the origin as zero consumption of apples yield zero utility.

(ii) The TU curve reaches at its maximum or a peak of M when MU is zero.

(iii) The MU curve falls through the graph. A special point occurs when the consumer consumes fifth apple. He gains no marginal utility from it. After this point, marginal utility becomes negative.

(iv) The MU curve can be derived from the total utility curve. It is the slope of the line joining two adjacent quantities on the curve. For example, the marginal utility of the third apple is the slope of line joining points a and b.

The slope of such given by the formula:

$$MU = \frac{\Delta TU}{\Delta Q}$$