

Law of Equi-marginal Utility

The Law of equi-marginal Utility is another fundamental principle of Economics.

This law is also known as the Law of substitution or the Law of Maximum Satisfaction.

We know that human wants are unlimited whereas the means to satisfy these wants are strictly limited. It, therefore, becomes necessary to pick up the most urgent wants that can be satisfied with the money that a consumer has. Of the things that he decides to buy he must buy just the right quantity. Every prudent consumer will try to make the best use of the money at his disposal and derive the maximum satisfaction.

Assumptions of Law of Equi-Marginal Utility

- Units of goods are homogenous.
- No time gap between the consumption of the different units.
- Tastes, fashion, preferences, and priorities remain unchanged.
- Consumer aims at maximum satisfaction.
- Consumer's income is fixed and limited.

Explanation of the Law:

In order to get maximum satisfaction out of the funds we have, we carefully weigh the satisfaction obtained from each rupee 'had we spend. If we find that a rupee spent in one direction has greater utility than in another, we shall go on spending money on the former commodity, till the satisfaction derived from the last rupee spent in the two cases is equal.

In other words, we substitute some units of the commodity of greater utility for some units of the commodity of less utility. The result of this substitution will be that the marginal utility of the former will fall and that of the latter will rise, till the two marginal utilities are equalized. That is why the law is also called the Law of Substitution or the Law of equimarginal Utility.

Suppose apples and oranges are the two commodities to be purchased. Suppose further that we have got seven rupees to spend. Let us spend three rupees on oranges and four rupees on apples. What is the result? The utility of the 3rd unit of oranges is 6 and that of the 4th unit of apples is 2.

As the marginal utility of oranges is higher, we should buy more of oranges and less of apples. Let us substitute one orange for one apple so that we buy four oranges and three apples.

Now the marginal utility of both oranges and apples is the same, i.e., 4. This arrangement yields maximum satisfaction. The total utility of 4 oranges would be $10 + 8 + 6 + 4 = 28$ and of three apples $8 + 6 + 4 = 18$ which gives us a total utility of 46. The satisfaction given by 4 oranges and 3 apples at one rupee each is greater than could be obtained by any other combination of apples and oranges. In no other case does this utility amount to 46. We may take some other combinations and see.

TABLE

<i>Units</i>	<i>Marginal utility of oranges</i>	<i>Marginal utility of apples</i>
1	10	8
2	8	6
3	6	4
4	4	2
5	2	0
6	0	-2
7	-2	-4
8	-4	-6

We thus come to the conclusion that we obtain maximum satisfaction when we equalize marginal utilities by substituting some units of the more useful for the less useful commodity. We can illustrate this principle with the help of a diagram.

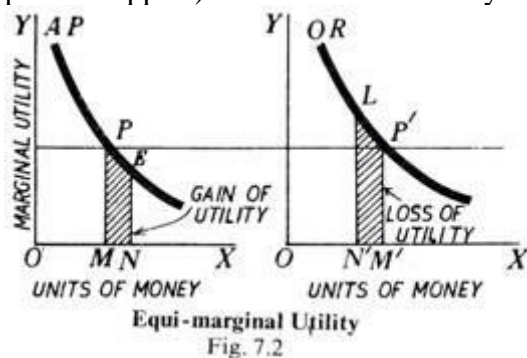
Diagrammatic Representation:

In the two figures given below, OX and OY are the two axes. On X-axis OX are represented the units of money and on the Y-axis marginal utilities. Suppose a person has 7 rupees to spend on apples and oranges whose diminishing marginal utilities are shown by the two curves AP and OR respectively.

The consumer will gain maximum satisfaction if he spends OM money (3 rupees) on apples and OM' money (4 rupees) on oranges because in this situation the marginal utilities of the two are equal ($PM = P'M'$). Any other combination will give less total satisfaction.

Let the purchase spend MN money (one rupee) more on apples and the same amount of money, N'M' (= MN) less on oranges. The diagram shows a loss of utility represented by the shaded area LN'M'P' and a gain of PMNE utility. As $MN = N'M'$ and $PM = P'M'$, it is proved that the area LN'M'P' (loss of utility from reduced consumption of oranges) is bigger than PMNE (gain of

utility from increased consumption of apples). Hence the total utility of this new combination is



less.

We then, conclude that no other combination of apples and oranges gives as great a satisfaction to the consumer as when $PM = P'M'$, i.e., where the marginal utilities of apples and oranges purchased are equal, with given amount, of money at our disposal.

Limitations of the Law of Equimarginal Utility:

Like other economic laws, the law of equimarginal utility too has certain limitations or exceptions. The following are the main exception.

(i) Ignorance:

If the consumer is ignorant or blindly follows custom or fashion, he will make a wrong use of money. On account of his ignorance he may not know where the utility is greater and where less. Thus, ignorance may prevent him from making a rational use of money. Hence, his satisfaction may not be the maximum, because the marginal utilities from his expenditure cannot be equalised due to ignorance.

(ii) Inefficient Organisation:

In the same manner, an incompetent organiser of business will fail to achieve the best results from the units of land, labour and capital that he employs. This is so because he may not be able to divert expenditure to more profitable channels from the less profitable ones.

(iii) Unlimited Resources:

The law has obviously no place where this resources are unlimited, as for example, is the case with the free gifts of nature. In such cases, there is no need of diverting expenditure from one direction to another.

(iv) Hold of Custom and Fashion:

A consumer may be in the strong clutches of custom, or is inclined to be a slave of fashion. In that case, he will not be able to derive maximum satisfaction out of his expenditure, because he cannot give up the consumption of such commodities. This is specially true of the conventional necessities like dress or when a man is addicted to some intoxicant.

(v) Frequent Changes in Prices:

Frequent changes in prices of different goods render the observance of the law very difficult. The consumer may not be able to make the necessary adjustments in his expenditure in a constantly changing price situation.

Practical Importance of the Law of Substitution:

The law of substitution is of great practical importance. Everybody has got limited income. Naturally he must try to make the best use of it.

This can be done by the application of this law in the various aspects of economic life as under:

(i) Consumption:

A wise consumer consciously acts on this law while arranging his expenditure. His expenditure is so distributed that the same price measures equal utilities at the margin of different purchases. Every person must try to spend his income in a manner which yields him the greatest satisfaction. This he will be able to do only if he spends his money in such a manner as to obtain equal satisfaction from the marginal units of money spent on the various commodities he purchases.

(ii) Production:

The law is also of great importance in production. The producer has to use several factors of production. He wants maximum net profit. For this purpose, he must substitute one factor for another so as to have the most economical combination, for example, he will substitute labour for machinery and vice versa, So that the marginal utility or marginal productivity of the two is equalised in this manner, he will get most economical combination of the 'actors of production at his disposal to make maximum profit.

(iii) Exchange:

The law also applies in exchange because exchange is nothing else but substitution of one thing for another. When we sell a commodity, say, sugar, we get money. With this money, we buy another commodity, say, wheat. We have, therefore, really substituted sugar for wheat.

(iv) Distribution:

It is on the principle of marginal productivity that the share of each factor of production (viz., land, labour, capital, organisation) is determined. The use of each factor is pushed up to a point where its marginal product is equal to the marginal product of every other factor, of course after allowing for the differences in their respective remunerations. This necessitates substituting one factor for another.

(v) Public Finance:

The Government, too, is guided by this law in public expenditure. The public revenues are so spent as to secure maximum welfare for the community. The Government must cut down all wasteful expenditure while the return is not proportionate and instead concentrate its resources on more productive or more beneficial expenditure.

(vi) Influences Prices:

The law of substitution influences prices. When a commodity becomes scarce and its price soars high, we substitute for it things which are less scarce. Its price, therefore, comes down.