Consumer expenditure and equi-marginal utility essay sample

Economics, Consumer

Consumer behaviour theory tries to explain the relationship between price changes and consumer demand. Utility is a concept used to denote the subjective satisfaction or usefulness attained from consuming goods and services. This concept helps to explain how consumers divide their limited income / resources among different choices of goods and services that help attain them satisfaction (utility) The issue however is how we are supposed to measure utility and how the value of utility derived from various choices can be quantified. Because of these issues, the consumer behaviour theory has been reformulated and utility is viewed as a way to describe preferences. It was recognised that all that mattered about utility is whether one combination of choice had a higher utility than another; by how much higher or lower didn't really matter Preferences of consumers is the fundamental description important for analyzing choice while utility is just a simple way of describing preferences Total utility

The total satisfaction or fulfilment received by a consumer through the consumption of a goods or services or a combination of both is defined as Total utility. For instance if a person consumes five units of a commodity and derives U1, U2, U3, U4, U5 utility from the successive units of a good, his total utility will be, TU = U1+ U2 +U3+ U4+ U5|

Total utility increases with an increase in consumption, but as consumption rises, total utility grows at a diminishing rate. Every unit of a good or service has a marginal utility and the total utility is a simple addition of all the marginal utilities of the units of goods or services All consumers want to achieve the maximum possible total utility for their spending and thus they

look to combine different bundles of goods and services. With their limited resources, consumers make various choices in order to increase their total utility with each additional unit of consumption.

Marginal utility

As discussed above all consumers attempt to maximize their total utility from the goods and services they consume. This process of optimisation leads the consumers to consider the marginal utility of acquiring additional units of the product or service and of acquiring one product or service as opposed to another. Product characteristics and individual tastes and preferences apart from available resources (money) determine direct demand. Utility is maximised when products are bought at levels such that relative prices equal the relative marginal utility derived from consumption.

The marginal utility of a good is the increase in total utility gained by consuming one additional unit of that good, for a given level of consumption of other goods| Law of diminishing marginal utility

We have discussed earlier that with an increase in consumption total utility increases but at a slower and slower rate. Law of diminishing marginal utility explains this concept. The law of diminishing marginal utility says that as consumption rises the marginal utility of consuming the next unit is less than the previous one. Accordingly the marginal utility of good decreases as more and more units of that good are consumed as shown in the table and figure below: Quantity of Good| Total Utility (TU)| Marginal Utility (MU)| 1| 10| 10|

2| 19| 9|

3| 27| 8|

4| 34| 7|

5| 40| 6|

Equimarginal Utility

The dollar value of a consumer’s marginal utility from consuming additional unit of a product is called the marginal benefit. It is the maximum price that a consumer will pay for an additional unit and will fall as consumption increases. When different products are available a consumer will ensure that the last dollar spent on each product gives an equal marginal utility (MU) per dollar spent. For two products A and B this can be expressed as:

MUA = marginal utility of product A;

MUB = marginal utility of product B

PA = price of product A;

PB = price of product B

To illustrate, let us take a case of a boy who wants to buy fruits and has $6 to spend. He finds that apples and oranges are available. While apples cost $2 per kilogram, oranges are available for $1 per kilogram. The marginal utilities of the first three kilograms of apples are $3, $2. 50 and $2 respectively and the marginal utilities of the first 3 kilograms of oranges are $2. 00, $1. 25 and $1 respectively. The boy would achieve maximum utility by buying 2 kilograms of apples and 2 kilograms of oranges as the marginal utility of the last kilogram of each per dollar price is 1. 25. In simpler words,

if Apples cost costs twice as much as Oranges, then buy Apples only when the marginal utility derived from it is at least twice as great as Oranges' marginal utility. Indifference Curve Analysis

As we know that the consumer is able to rank bundles of goods and services based on the utility he derives from them. This makes possible joining together of all these bundles that give the consumer equal utility / satisfaction. The curve drawn on these bundles or combinations of goods and services is known as indifference curve. At all points across the indifference curve the consumer derives same level of utility. And thus the consumers are indifferent because they do not care which of the bundles on the indifference curve they have.

Compare the consumption bundles shown on the figure above. The indifference curve I1 tells us that Bundles A, B and C give the consumer equal satisfaction. Bundle E contains fewer bananas and fewer apples than Bundle B, and therefore Bundle B (and A and C) must be preferred to Bundle E. Similarly Bundle D contains more bananas and more apples than Bundle B, and therefore Bundle D must be preferred to Bundle B (and A and C). While bundle D should be on a higher indifference curves as it gives more utility to the consumer, E should be on a lower curves as it gives lesser utility. The indifference curves are convex to the origin as because to keep the consumers' utility constant he must be compensated with increasingly larger amounts of good X for each additional unit of good Y he is giving up. This concept stems from the fact of diminishing marginal utility and is

explained below in Marginal rate of substitution Slope of an Indifference curve is given by:

Marginal Rate of Substitution = |

where MUA and MUB are marginal utility derived from the last unit consumed of good A and B respectively

All of the points along an indifference curve represent combinations of goods / services that are equally satisfying to the consumer |

Marginal Rate of Substitution

The amount of one unit of good that a consumer is prepared to forego for one extra unit of another good is known as the marginal rate of substitution. The marginal rate of substitution of good A for good B is the number of good A the consumer is willing to give up to gain another unit of good B without affecting total satisfaction. A diminishing marginal rate of substitution of good B for good A implies that the consumer is willing to give up diminishing quantities of good A to gain each additional good B. This means that if it takes, say, n extra units of good A to convince a consumer to give up one unit of good B, it will take more than another n extra good A to persuade her to give up yet another unit of good B. Suppose the following combinations of fruits give the consumer equal satisfaction: Apples | Oranges |

20| 1|

15| 2|

11| 3|

8| 4|

The marginal rate of substitution of oranges for apples falls from 5 to 4 to 3, showing that the consumer is more willing to give up apples for an additional orange when the consumer has a lot of them. Budget Constraint

The bundle of goods and services that the consumer can afford depends on two factors namely; * Price of the goods; and

* Income of the consumer

Further to ascertain the bundles affordable by the consumer we assume that both the above factors are fixed which implies that the two factors are independent of the choice of consumption bundle The budget line thus is a line drawn on all points that is affordable to the consumer, assuming that all income is spend

As shown in figure above, with a given income and prices of goods, if a consumer spends all his income on apples, he or she can afford to buy A apples. Alternatively, the consumer could buy B bananas, or an intermediate bundle such as E. Consumer Equilibrium

Individuals (consumers in this case) make their choices about the quantity of goods and services to be consumed with the objective to maximize their total utility. But in maximizing total utility they face several constraints, the foremost being the individual’s income level and the prices of the goods and services that he desires to consume. These constraints as discussed above forms the budget line of the consumer. The consumer’s effort to maximize total utility, subject to the budget line, includes decisions about how much he would consume of the goods and services and the combination of goods

and services at which the consumer maximises its total utility is called consumer equilibrium. A consumer facing the budget line (fixed income and given market prices of goods) can come to a point (or equilibrium) of maximum satisfaction or utility only by acting in the following manner. Each product is demanded up to the point where the marginal utility for every unit of money spent on it is exactly the same as the marginal utility of the spent on any other good. This fundamental condition of consumer equilibrium can be written in terms of Marginal Utilities (MU) and Prices (P) of the different goods in the following compact way. = = = Common MU per unit of income.

To maximise utility the consumers spread out their expenditures in such a way that the marginal rate of substitution is equal to the relative price of the good X as in the figure above. To represent it numerically: =

Thus combining the budget line with indifference curves, we can ascertain the consumption bundle which a consumer will choose.