likes to consume more of X and less of Y, then he would give some Y in order to get more of X to reach a better combination.

Preference relations

reflexivity, completeness and transitivity

The preference relation captures theoretically the consumer's tastes and preferences across different goods and services. It is generally assumed that the consumer seeks to identify and select an available alternative that is most preferred in the light of his/her tastes and preferences. Therefore, we need to assume that they satisfy certain standard properties that ensure the individual is rational and his/her preferences are consistent. The standard properties are:

To understand more about these properties, we define some preference relations. Given a relation,

- The symbol \geq between 2 goods describes "weak preference relation" which means " consumer prefers one bundle at least as much as the other bundle.
- The symbol > between 2 goods describes "strict preference relation" which means one bundle is preferred over the other but not vice versa.
- The symbol ~ describes "indifference" of the consumer between any two-bundles. ٠

Given an ordering \geq describing "weak preference," we can define "strict mean terms by A≻B to mean negation of $B \ge A$. This means A is strictly preferred to B. Graidarry, we define a notion of indifference by A~B if and only if $A \ge B$ and $B \ge A + C = S$

Now Defining the standard property

5 of 13 Reflexive preference consumption setC, $A \ge A$ For any con u The is a trivial assumption which says that every consumption bundle is as good as itself.

Complete preference relation

For any given pair of consumption bundles $A(x_1 y_1)$ and $B(x_2y_2)$, consumers must be able to rank the bundles according to the level of satisfaction they would enjoy from consuming the bundles. The consumption bundle A would be ranked higher or preferred to another bundle B if bundle A yields more satisfaction than B. Or, if A and B yield exactly the same level of satisfaction, the consumer would be indifferent between the two bundles and both would get same ranking. When a consumer can rank all conceivable bundles of x and y, the consumer's preferences are said to be complete. Hence a consumer must be able to make one of the following three possible responses:

- 1. Consumer prefers bundle A to bundle B ($A \ge B$)
- 2. Consumer prefers bundle B to bundle A ($B \ge A$)
- 3. Consumer is indifferent between bundle A and bundle B $(A \sim B)$

In other words, for all A and B in X, either $A \ge B$ or $B \ge A$ or $A \sim B$. The consumer's preferences are complete and the consumer can do this for every pair of consumption bundles.

Transitive preference relation

Besides completeness, consumer preferences must also be transitive. If there are 3 bundles A B C,

c. If the price of complements decreases, an increase in the price of the good itself might fail to decrease the quantity demanded. If you only use sugar in your coffee, and the price of coffee falls from (say) a Rs70 per 100 grams to Rs10 per 100 grams, you might use more sugar even if the price of sugar went up.

d. If consumer tastes change, an increase in the price of the good itself might fail to decrease the quantity demanded. If it is reported that dark chocolate helps prevent cancer, the amount of dark chocolate purchased will increase even if the price of dark chocolate increases.

There are some exceptions to the law of demand²:

- Giffen Goods: a Giffen good is a good that people consume more of, as its price rises
- Goods used as a status symbol
- Inflationary expectations about future price of a good

Mathematical representation of the Law:

The 'law' asserts that if the demand function is given by F(p), then relationship between price and quantity demanded is strictly monotone, i.e.



At the end, we can conclusively explain the concepts of Law of Demand and Change in Demand through the following table:

Table1: Law of Demand and Change in Demand

²See "know more" section for links on this topic