

## 05.Demand –individual demand – market demand – demand schedule – demand curve – Law of demand and factors affecting it.

The demand for a commodity is defined as a schedule of the quantities that buyers would be willing and able to purchase at various possible prices per unit of time. Unit of time refers to year, month, week and so on. It should also be understood that demand is not the same thing as desire or need. A ‘desire’ becomes ‘demand’ only when it is backed up by the ability and willingness to satisfy it.

### A.i) Demand Schedule

An individual’s demand schedule is a list of various quantities of a commodity, which an individual consumer purchases at different (alternative) prices in the market at a given time. The demand schedule, thus, states the relationship between the quantity demanded of a commodity and its price. In a market, there are a number of consumers each with his own demand schedule, showing the different quantities of the commodity that he will purchase at different prices. The market demand schedule can be obtained in two ways. First, by adding up the demand schedules of all the consumers in the market. Second, by taking the demand schedule of the representative consumer and multiplying it by the total number of consumers in the market.

*Table 3.1 Demand Schedule for Rice in Tiruchirappalli Market*

Price of rice (Rs/qt1)	Quantity of Rice Demanded (tonnes per month)
950	5000
900	5100
850	5200
800	5300
750	5400
700	5500

**ii) Determinants of Demand:** The demand is influenced by the following factors:

**a) Tastes and Preferences of the Consumer:** The changes in demand for various goods occur due to changes in fashion, and massive advertisement by the sellers.

**b) Income of the People:** The greater the incomes of the people, the greater will be their demand for goods and vice versa. Thus, there is a positive relationship between income and demand when all other factors are kept constant.

**c) Price of the Commodity:** Greater the price of the commodity, the lesser will be its demand and vice-versa. Thus, there is a negative relationship between the price and quantity demanded of a commodity, if all other factors remain constant.

**d) Changes in the Prices of the Related Goods:** When the price of a substitute for a good X falls, the demand for that good X will decline and when the price of the substitute rises, the demand for that good will increase. Tea and coffee are very close substitutes. Therefore, when the price of tea falls, the consumers substitute tea for coffee and as a result, the demand for coffee declines. For goods that are complementary with each other, the change in the price of any of them would affect the demand of the other. For instance, if the price of milk falls, its demand would rise. Along with the demand for milk, the demand for sugar would also rise, as milk and sugar are complementary goods. Likewise, when the price of car falls, the demand for them would increase which in turn will increase the demand for petrol.

**e) Population:** As population increases, the number of consumers would also increase and as a result, more of goods will be purchased.

**f) Income Distribution:** In a country with equitable distribution of income, there will be lesser demand for certain luxury goods, while in a country where the income is unequally divided among the very rich and very poor people, the demand for such luxury goods-will be more.

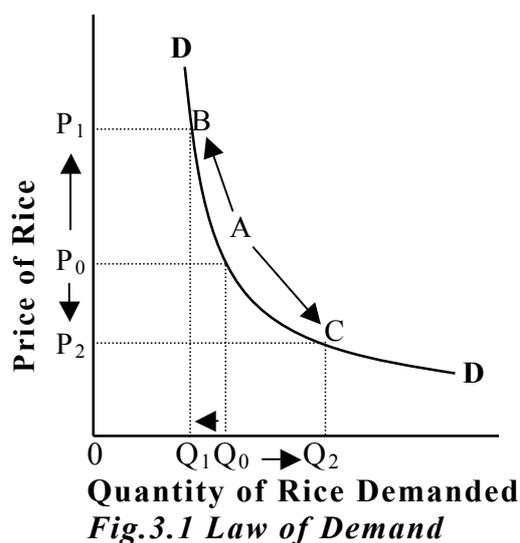
**g) Expectations about Future Prices:** If consumers expect that the price of a good to rise sharply in near future, they may buy more of that good now itself so as to avoid paying higher prices later.

### **iii) Law of Demand**

The law of demand expresses the functional relationship between price and quantity of a commodity demanded. The law of demand may be stated as follows: other things being equal, if the price of a commodity falls, the quantity

demand of it will rise and if price of the commodity rises, its quantity demanded will decline. Thus, according to the law of demand, there is an inverse relationship between price and quantity demanded, other things remaining the same. These other things which are assumed to be constant are a) tastes and preferences of the consumer, b) income of the consumer and c) prices of related goods (substitute and complementary goods). If these other factors, which determine demand, also undergo a change, then the inverse price-demand relationship may not be valid.

The law of demand can be illustrated through a demand curve (Fig.3.1). Suppose, the consumer purchases  $OQ_0$  quantity of rice for  $OP_0$ . If price of rice rises from  $OP_0$  to  $OP_1$  the quantity demanded decreases from  $OQ_0$  to  $OQ_1$ . Similarly, if the price falls from  $OP_0$  to  $OP_2$ , the quantity demanded rises from  $OQ_0$  to  $OQ_2$ . Thus, there is a negative relationship between the price and



quantity demanded. In other words, the demand curve slopes downward from left to right. The law of demand can be expressed in the functional form as follows:

$$Q_d = f(P, I, PR/T)$$

Where,

$Q_d$  = Quantity demanded of a commodity

$P$  = Price of the commodity

$I$  = Income of the consumer

$PR$  = Prices of the related goods

$T$  = Tastes and preferences of the consumer

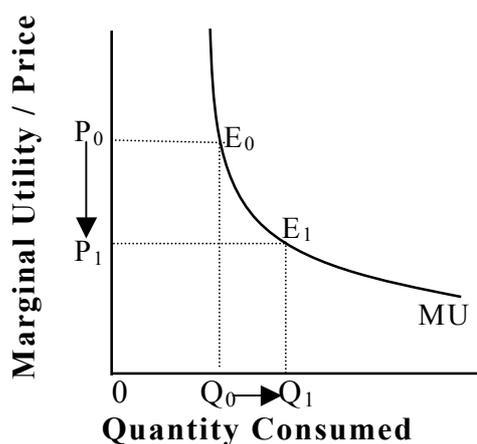
### a) Why does the Law of Demand operate?

Now, an important question is: why the demand curve slopes downward, or in other words, how the law of demand describing inverse price-demand relationship is valid? There are three reasons for the operation of the law. Firstly, the law of demand is operated because the law of diminishing marginal utility comes into force when a consumer buys additional quantities of a particular commodity.

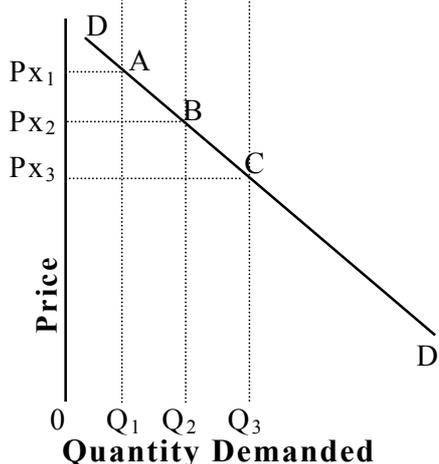
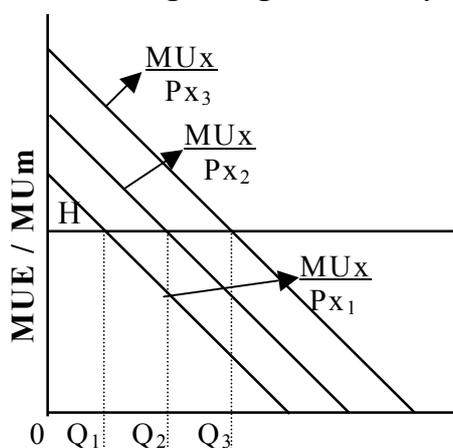
### 1. Derivation of Law of Demand from Law of Diminishing Marginal Utility and Law of Equi-Marginal Utility

The law of demand or the demand curve can be derived in two ways: firstly, with the aid of law of diminishing marginal utility, and secondly, with the help

of law of equi-marginal utility. The law of diminishing marginal utility states that as the quantity of a good with a consumer increases, marginal utility of the good to him expressed in terms of money falls. In other words, the marginal utility curve of a good is downward sloping. Now, a consumer will go on purchasing a good until the marginal utility of the good equals the market price. His satisfaction will be maximum only when marginal utility equals price. It, therefore, follows that the diminishing marginal utility curve implies the



**Fig.3.2 Derivation of Law of Demand from Law of Diminishing Marginal Utility**



**Fig.3.3 Derivation of Demand Curve from Law of Equi-Marginal Utility**

downward sloping demand curve, that is, as the price of the good falls, more of it will be purchased. In the figure 3.2, the diminishing marginal utility of the good is measured in terms of money. Suppose, the price of the good is  $OP_0$  and a consumer will be in equilibrium if he purchased  $OQ_0$ , then the marginal utility is equal to the given price  $OP_0$ . Now, if the price falls to  $OP_1$ , the consumer would buy  $OQ_1$  quantity of good and the equilibrium would be shifted from  $E_0$  to  $E_1$ . In order to equate the marginal utility with the lower price  $OP_1$ , the consumer must buy more of the good. Thus, there is an inverse relationship between quantity demanded and price of the good.

Now, we proceed to derive the law of demand from the law of equi-marginal utility. According to the law of equi-marginal utility, the consumer is in equilibrium in regard to his purchase of various goods when marginal utilities of the goods are proportional to their prices. Thus, the consumer is in equilibrium when he is buying the quantities of two goods in such a way that it satisfies the following proportionality rule:

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = MUm$$

In the figure 3.3, the marginal utility of money is  $OH$ . When the price of the good is  $P_{x1}$ , the consumer buys  $OQ_1$  since at this quantity, the marginal utility of

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money is equal to the ratio of the marginal utility divided by price, i.e.,  $\frac{MU_x}{P_{x_1}}$  .

Now, suppose, the price of the good falls from  $P_{x_1}$  to  $P_{x_2}$ , then, the demand will increase, i.e., the demand curve is shifted upwards. The quantity of demand must increase to  $OQ_2$  because, only then the marginal utility of the money (OH) will be equal to the ratio of the marginal utility of the good and the price, i.e.,  $\frac{Mux}{Px_2}$  .

Thus, we find that when price of a good falls, the demand curve ( $MU_x / P_{x_2}$ ) shifts upwards and more of the good will be demanded. This is precisely the law of demand and therefore, it has been derived from the law of equi-marginal utility as explained above.

## **2) Income Effect**

A fall in price of a commodity results in a rise in the consumer's real income. He can, therefore, purchase more of it. On the contrary, a rise in price of a commodity amounts to a fall in his real income. He is, therefore, forced to purchase less of it. Let us suppose that the price of sugar falls down. After having purchased his usual quantity, the consumer is still left with some money, a part of which he is likely to spend on buying additional quantity of sugar.

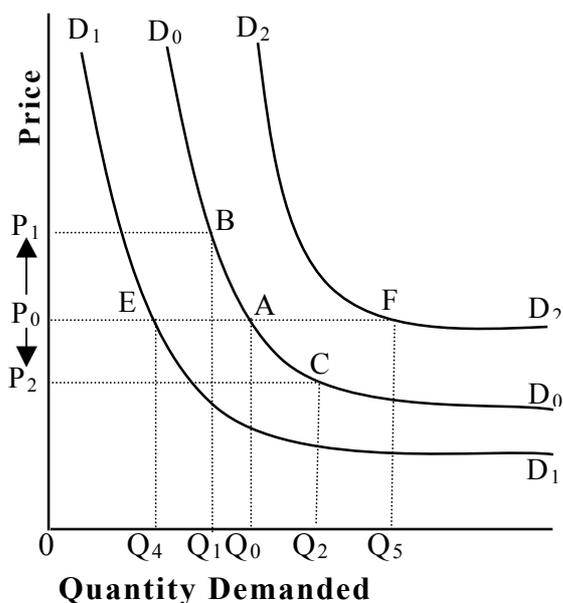
## **3) Substitution Effect**

A fall in price of a commodity, while the prices of its substitutes remain constant, will make it cheaper and attractive to the consumers. Conversely, a rise in the price of the commodity, while the prices of its substitutes remain constant, will make it unattractive to the consumers who will demand less of it. Now, the consumers will buy more of the substitute than that of the commodity. Suppose, the prices of apple and orange are Re 1.00 and Re 0.50 respectively. Orange is taken as a substitute for apple. Now, the price of apple is twice costlier than that of an orange. If the price of orange (substitute) alone falls to Re 0.25, then apple is four times as costly as orange. A consumer will always buy low-priced commodity than high-price commodity. Hence, the consumer, in this case, will buy more of the substitute (orange) in the place of apple. This is due to substitution effect.

Normally, the income effect is weaker than the substitution effect. As stated above, a consumer ordinarily spends a very small part of his income on one

particular commodity. A fall in the price of the commodity will not, therefore, increase his real income in any substantial measure. The substitution effect, on the contrary, is stronger than the income effect, because the consumer will always substitute the inexpensive for the expensive commodity. Further more, the income effect is positive only in case of a superior commodity. A superior commodity is one, which is consumed, in increased quantities when income of the consumer rises. For example, rice is a superior commodity because people consume more of it when their incomes rise. This is due to the fact that the consumer's real income would increase, if price of such a commodity falls. On the other hand, the income effect is negative in case of an inferior commodity. An inferior commodity is one, which is consumed, in smaller quantities when the income of the consumer rises. Its consumption is a symbol of low status and therefore, if the price of such a commodity falls, the consumer's real income increases, but he buys less of inferior commodity. For example, jaggery is an inferior commodity because people consume less of it when their incomes rise.

**b) Extension and Contraction of Demand:** When the quantity demanded of a good rises due to the fall in price, it is called **extension of demand**. When the price falls from  $OP_0$  to  $OP_2$ , the quantity demanded increases from  $OQ_0$  to  $OQ_2$ . When the quantity demanded of a good decrease due to rise in the price, it is called **contraction of demand**. When the price rises from  $OP_0$  to  $OP_1$ , the quantity demanded of the good decreases from  $OQ_0$  to  $OQ_1$ . The extension and



**Fig.3.4 Law of Demand**  
 $OQ_0 - OQ_1$ -Contraction of demand  
 $OQ_0 - OQ_2$ -Extension of demand

contraction of demand take place as a result of changes in the price alone when other determinants of demand such as tastes, income and prices of the related goods remain constant.

**c) Increase and Decrease in Demand:** Now, if the other things, that is, determinants of demand other than price such as consumer's tastes and preferences, income and prices of the related goods change, the whole demand curve will shift upward or downward. Increase in demand means that the consumer buys more of the good at various prices than before. For example, if the income of a consumer increases, or if the fashion

**OQ<sub>0</sub> - OQ<sub>4</sub> - Decrease in demand**

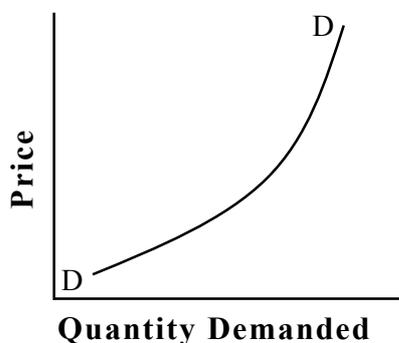
**OQ<sub>0</sub> - OQ<sub>5</sub> - Increase in demand**

improves, the consumer will buy greater quantities of the good than before at various given prices. The consumer will buy OQ<sub>5</sub> rather than OQ<sub>0</sub> due to upward shift or increase in demand (see Fig.3.4). Similarly, the consumer will buy OQ<sub>4</sub> instead of OQ<sub>0</sub> due to downward shift or decrease in demand. This increase and decrease in demand happen due to the changes in factors other than price of the commodity.

#### **d) Exceptions to the Law of Demand**

1. According to Thorstein Veblen, some consumers measure the utility of a commodity entirely based on its price i.e., for them, the greater the price of a commodity, the greater is its utility for them. For example, diamonds are considered as prestigious good in the society. However, the consumer will buy less of the diamonds, even if its price is low, because with the fall in price its prestige value will go down. Similarly, at higher price, quantity demanded of diamonds by a consumer will rise.

2) Another exception to the law of demand was pointed out by Sir Robert Giffen who observed that when the prices of bread/potatoes increased, the low-paid British workers, in the early 19th century, purchased more of bread/potatoes and not less of them. This is contrary to the law of demand. The reason for this is that these British workers consumed a diet of mainly bread/potatoes and when their prices went up they were compelled to spend more on given quantities of bread/potatoes. Therefore, they could not afford to purchase as much meat as before. Hence, after the name of Robert Giffen, such goods (bread/potatoes) are called Giffen goods.



**Fig.3.5 Exceptional Demand Curve**

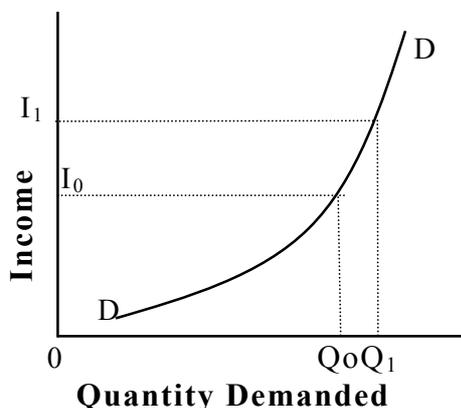
3) Some times, people expect that the prices of certain goods would still rise in the future and hence, they demand greater quantities of such goods, even if their prices are higher at present.

**iv) Types of Demand:** There are three different types of demand which are discussed below:

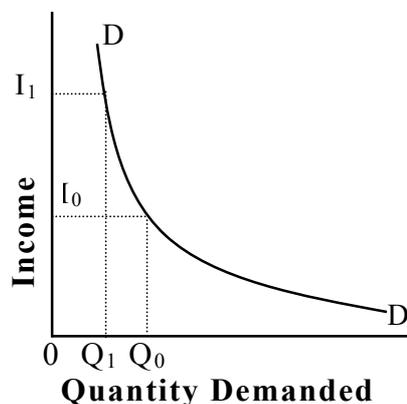
**a) Price demand:** Price demand refers to various quantities of a commodity that consumers demand per unit of time at different prices, assuming that

their incomes, tastes and preferences and prices of related goods remain constant. The law of demand explains to price demand.

**b) Income demand:** Income demand refers to the different quantities of a commodity which consumers will buy at different levels of income, other things remaining the same. Other things, here, refer to price of the commodity, prices of related goods and tastes and preferences of the consumer. As income of the consumer increases, his demand for a normal or superior commodity also rises. Thus, there is a positive relationship between income and quantity demanded.



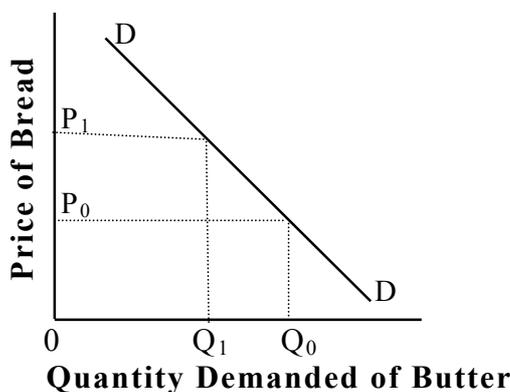
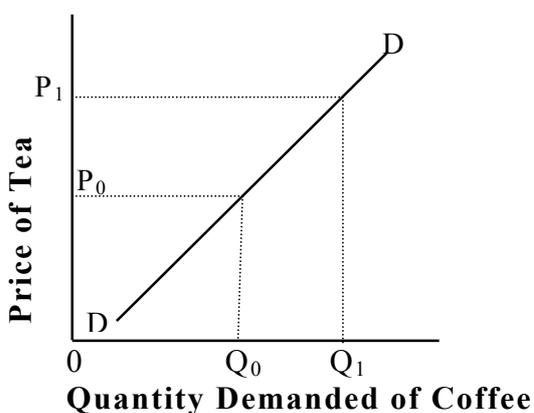
**Fig. 3.6(a) Income Demand for a Normal or Superior Good**



**Fig. 3.6(a) Income Demand for an Inferior Good**

The income demand curve slopes upward from left to right. For inferior goods, the quantity demanded will be more, if income of the consumer declines, while other determinants of demand remain constant and vice versa. Thus, the income demand curve slopes downward and it indicates that there is an inverse or negative relationship between income and quantity demanded.

**c) Cross demand:** It refers to the different quantities of a commodity that consumers purchase per unit of time at different prices of a related commodity, other things remaining the same. The other things, here, include consumer's income, his tastes and preferences and the price of the commodity itself. The related commodity may be either substitute or complementary good. For example, tea and coffee are substitutes.



**Fig.3.7 (a) Demand for Substitute Good. Fig.3.7 (b) Demand for Complementary Good**

Substitutes satisfy the same want. If the price of tea rises, the consumer buys less of it. Instead, they may buy more of coffee. Thus, a rise in the price of tea increases the demand for coffee. The cross demand curve of coffee in relation to the price of tea will have a positive slope (or, slopes upward to the right). On the contrary, if both the commodities are jointly demanded to satisfy the same want they are called complementary goods. For example, bread and butter are complementary goods. A fall in the price of bread will increase the demand for butter and vice-versa. The cross demand curve of butter in relation to the price of bread will have a negative slope (or slopes downward to the right).

Complementary demand is also known as **Joint demand**. Joint demand takes place when two or more goods are jointly demanded for the satisfaction of a particular want. E.g. bread and butter, shoes and shoe-laces, cup and saucer, tea, milk and sugar, etc.

**d) Derived demand** is another types of demand. The demand for a factor of production that results from the demand for the final form of the commodity which it helps to produce. For example, a consumer buys bread. To bake the bread, bakers have to buy flour. Their derived demand for flour is met by flour mills. The flour mills in turn, buy wheat; their derived demand goes back to the farmers who grow the wheat. The farmers, in turn, have a derived demand for seeds, fertilizers, tractors etc. to cultivate wheat.