Jharkhand Rai university

Laboratory Manual

Course:- Agricultural Marketing Trade & Prices (AMTP)

B.Sc.(Hons.) Agriculture IVth Semester

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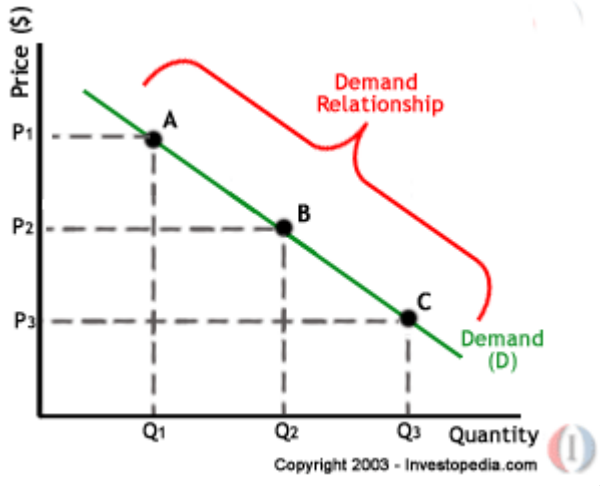
Contents

Experiment-1: Plotting and study of demand and supply curves and calculation of elasticities.

1. DEMAND AND SUPPLY CURVE:

A. LAW OF DEMAND

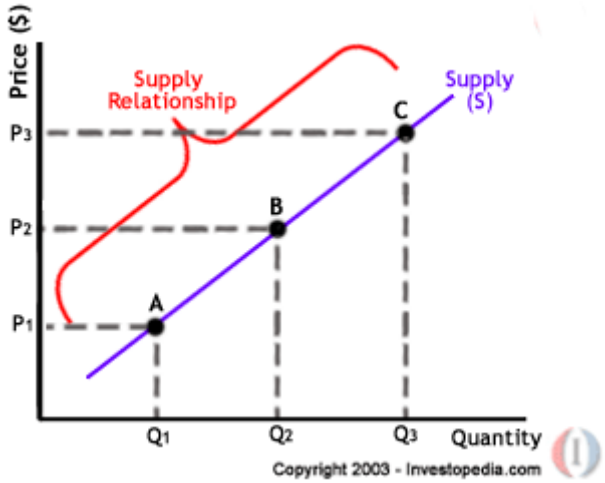
The law of demand states that, if all other factors remain equal, the higher the price of a good, the less people will demand that good. In other words, the higher the price, the lower the quantity demanded. The amount of a good that buyers purchase at a higher price is less because as the price of a good goes up, so does the opportunity cost of buying that good. As a result, people will naturally avoid buying a product that will force them to forgo the consumption of something else they value more. The chart below shows that the curve is a downward slope.



A, B and C are points on the demand curve. Each point on the curve reflects a direct correlation between quantity demanded (Q) and price (P). So, at point A, the quantity demanded will be Q1 and the price will be P1, and so on. The demand relationship curve illustrates the negative relationship between price and quantity demanded. The higher the price of a good the lower the quantity demanded (A), and the lower the price, the more the good will be in demand (C).

B. **The Law of Supply**
Like the law of demand, the law of supply demonstrates the quantities that will be

C. sold at a certain price. But unlike the law of demand, the supply relationship shows an upward slope. This means that the higher the price, the higher the quantity supplied. Producers supply more at a higher price because selling a higher quantity at a higher price increases revenue.



A, B and C are points on the supply curve. Each point on the curve reflects a direct correlation between quantity supplied (Q) and price (P). At point B, the quantity supplied will be Q2 and the price will be P2, and so on.

CALCULATION OF ELASTICITY:

Five cases of Elasticity of Demand:

1. Perfectly elastic demand

2. Perfectly inelastic demand

3. Relatively elastic demand

4. Relatively inelastic demand

5. Unitary elastic demand

1. Perfectly elastic demand:

The demand is said to be perfectly .elastic when a very insignificant change in price leads to an infinite change in quantity demanded. A very small fall in price causes demand to rise infinitely. Likewise a very insignificant rise in price reduces the demand to zero. This case is theoretical which is never found in real life.

2. Perfectly inelastic demand:

The demand is said to be perfectly inelastic when a change in price produces no change in the quantity demanded of a commodity. In such a case quantity demanded remains constant regardless of change in price. The amount demanded is totally unresponsive of change in price. The elasticity of demand is said to be zero.

3. Relatively more elastic demand:

The demand is relatively more elastic when a small change in price causes a greater change in quantity demanded. In such a case a proportionate change in price of a commodity causes more than proportionate change in quantity demanded. If price changes by 10% the quantity demanded of the commodity change by more than 10% i.e. 25%. The demand curve in such a situation is relatively flatter.

4. Relatively inelastic demand:

It is a situation where a greater change in price leads to smaller change in quantity demanded. The demand is said to be relatively inelastic when a proportionate change in price is greater than the proportionate change in quantity demanded. For example If price falls by 20% quantity demanded rises by less than 20% i.e 15%.

5. Unitary elastic demand:

The demand is said to be unit when a change in price produces exactly the same percentage change in the quantity demanded of a commodity. In such a situation the percentage change in both the price and quantity demanded is the same. For example if the price falls by 25% the quantity demanded rises by the same 25%. It takes the shape of a rectangular hyperbola. Numerically elasticity of demand is said to be equal to 1.(ed = 1).

Experiment-2: Study of relationship between market arrivals and prices of some selected commodities.

Introduction:

Commodity prices are generally low during season due to market arrivals, sometimes, resulting in distress sale by farmers. A study on season and off season average prices help the traders and growers to design strategies for storage of commodity for different spells and participate in 'Futures' trading. Certainly, the differences in season and off season prices provide information on the extent one can take contracts in 'Futures' markets and justification for margin payments to participate in it. A study of seasonality is likely to provide the basis for growers and traders the information on the price fluctuations during season and off season. Keeping in view of the above objective, the Indian commodities market has attracted the policy makers, researcher and academicians to analyze different issue relating to the functioning of Commodity Derivatives Markets.

PRICES AAND ARRIVAL OF SELECTED COMMODITY(2017):

COMMODITY	PRICE	ARRIVAL
TURMERIC	6,328.60	13,102.70
CHILLI	13,102.70	95,964.30
GRAM	3,376.30	243,909.40
JEERA	13,185.80	16,790.50

Experiment-3: Computation of marketable and marketed surplus of important commodities.

MARKETABLE SURPLUS:

Marketable Surplus is a theoretical ex ante concept which represents the surplus which the farmer/producer has available with himself for disposal once the genuine requirements of the farmer for family consumption, payment of wages in kind, feed, seed, wastage and purchases have been met.

COMPUTATION OF MARKETABLE SURPLUS:

It is computed by using following formula:

MS= TP-TR

Where:

MS= marketable surplus

TP= Total production

TR=Total requirement

MARKETED SURPLUS:

Marketed Surplus as compared to marketable surplus is a practical ex post concept and refers to that part of the marketable surplus which is marketed by the producer i.e. not only the part which is available for disposal but that part which is made available to the market or to the disposal of the non-farm rural and urban population.

COMPUTATION OF MARKETED SURPLUS:

Marketed surplus= Marketable surplus –loss incurred during transit.

CALCULATION OF MARKETABLE AND MARKETED SURPLUS:

PARTICULAR	(Farm size and total production) Marginal farmer (300.05qt.)	Medium farmer (271.79qt.)	Large farmer (290.91qt.)
(Utilization) 1.home consumption	5.25	3.79	4.82
2.gift and other	2.96	3.01	2.98
Marketable surplus	**291.84**	**264.99**	**283.11**
3.losses	8.28	7.21	8.21
Marketed surplus	**283.56**	**257.78**	**274.1**

Experiment-4: Study of price behaviour over time for some selected commodities.

PRICES OF SELECTED COMMODITIES:

COMMODITY	**PRICE(rs./kg)**
Potato	**12**
Onion	**16**
Rice	**30**
Wheat flour	**22**
Moong dal	**80**
Groundnut	**75**
Gram	**110**
Rajma	**50**
Sugar	**40**

Experiment-5: Construction of index numbers.

INDEX NUMBER:

An index number is a statistical used to measure changes in the value of money. It is a number which represents the average price of a group of commodities at a particular time in relation to the average price of the same group of commodities at another time.

Methods of Construction of Index Number:

In constructing an index number, the following steps should be noted:

1. Purpose of the Index Number:

Before constructing an index number, it should be decided the purpose for which it is needed. An index number constructed for one category or purpose cannot be used for others.

2. Selection of Commodities:

Commodities to be selected depend upon the purpose or objective of the index number to be constructed. But the number of commodities should neither be too large nor too small.

3.Selection of Prices:

The next step is to select the prices of these commodities. For this purpose, care should be taken to select prices from representative persons, or other sources. But they must be reliable. Prices may be quoted in money terms i.e. Rs. 100 per quintal or in quantity terms, i.e. 2 kg. per rupee. Care should be taken not to mix these prices. Then the problem is to select wholesale or retail prices.

4. Selection of an Average:

Since index numbers are averages, the problem is how to select an appropriate average. The two important averages are the arithmetic mean (To do this, add up all the values and divide the sum by the number of values. for example: a + b + c + d and so on. Then divide the sum by "n".) and geometric mean(The Geometric Mean is a special type of average where we multiply the

numbers together and then take a square root (for two numbers), cube root (for three numbers) etc. **Example 1**: What is the geometric mean of 2,3,and 6? First, multiply the numbers together and then take the cubed root (because there are three numbers) = $(2*3*6)^{1/3}$ = 0.3333.

5. Selection of Weights:

While constructing an index number due weightage or importance should be given to the various commodities. Commodities which are more important in the consumption of consumers should be given higher weightage than other commodities.

6. Selection of the Base Period:

The selection of the base period is the most important step in the construction of an index number. It is a period against which comparisons are made. The base period should be normal and free from any unusual events such as war, famine, earthquake, drought, e.t.c

SIMPLE PRICE INDEX:

Commodity	**Prices in 1970(P_0)**	**Base 1970=100**	**Prices in 1980(P_1)**	**Price Relatives(current /base price*100) (R)**
A	20 per kg	100	Rs. 25	125
B	5 per kg	100	10	200
C	15 per metre	100	30	200
D	25 per kg	100	30	120
E	200 per quintal	100	450	225
N = 5		500		∑R = 870

Using arithmetic mean, price index in 1980 = ∑R/N = 870/5 = 174

The above table shows that 1970 is the base period and 1980 is the current year and by using both period we constructed price relative. By using arithmetic mean index prices in 1980 comes to 174. This means that the price level rose by 74 per cent in 1980 over 1970.

Weighted Price Index:

Taking the example of above table already given, we assign high weights to commodities of greater importance to consumers and low weights to commodities of lesser importance.

Commodity	**Weight (W)**	**Prices in 1970 Rs**	**Base 1970 = 100**	**Prices in 1980 Rs**	**Price Relatives (R)**	**W x R**
A	6	20	100	25	125	750
B	4	5	100	10	200	800
C	2	15	100	30	200	400
D	4	25	100	30	120	480
E	10	200	100	450	225	2250
	∑24					∑WR = 4680

In above table using arithmetic mean, the weighted price index in 1980 = 4680/24 = 195.

The weighted price index is more accurate than the simple price index. In the example given above, the weighted price index shows an increase of 95 per cent in the price level in 1980 over 1970 as against the increase of 74 per cent according to the simple price index.

Experiment-6: Visit to a local market to study various marketing functions performed by different agencies(market functionaries).

MARKET FUNCTIONARIES:

In the marketing of agricultural commodities, the following market functionaries/marketing agencies are involved:

(i) PRODUCERS

Most farmers or producers, perform one or more marketing functions. They sell the surplus either in the village or in the market. Some farmers, especially the large ones, assemble the produce of small farmers, transport it to the nearby market, sell it there and make a profit. This activity helps these farmers to supplement their incomes. Frequent visits to markets and constant touch with market functionaries, bring home to them a fair knowledge of market practices. They have, thus, an access to market information, and are able to perform the functions of market middlemen.

(ii) MIDDLEMEN

Middlemen are those individuals or business concerns which specialize in performing the various marketing functions and rendering such services as are involved in the marketing of goods. They do this at different stages in the marketing process. The middlemen in foodgrain marketing may, therefore, be classified as follows: (a) Merchant Middlemen: Merchant middlemen are those individuals who take title to the goods they handle. They buy and sell on their own and gain or lose, depending on the difference in the sale and purchase

prices. They may, moreover, suffer loss with a fall in the price of the product. Merchant middlemen are of two types: Wholesalers: Wholesalers are those merchant middlemen who buy and sell foodgrains in large quantities. They may buy either directly from farmers or from other wholesalers. They sell foodgrains either in the same market or in other markets. They sell to retailers, other wholesalers and processors. They do not sell significant quantities to ultimate consumers. They own godowns for the storage of the produce. The wholesalers perform the following functions in marketing:

(a) They assemble the goods from various localities and areas to meet the demands of buyers.

(b) they sort out the goods in different lots according to their quality and prepare them for the market.

(c) They equalize the flow of goods by storing them in the peak arrival season and releasing them in the off-season.

(d) They regulate the flow of goods by trading with buyers and sellers in various markets.

(e) They finance the farmers so that the latter may meet their requirements of production inputs and

(f) They assess the demand of prospective buyers and processors from time to time, and plan the movement of the goods over space and time.

Retailers: Retailers buy goods from wholesalers and sell them to the consumers in small quantities. They are producers‟ personal representatives to consumers. Retailers are the closest to consumers in the marketing channel.

Itinerant Traders and Village Merchants: Itinerant traders are petty merchants who move from village to village, and directly purchase the produce from the cultivators. They transport it to the nearby primary or secondary

market and sell it there. Village merchants have their small establishments in villages. They purchase the produce of those farmers who have either taken finance from them or those who are not able to go to the market. Village merchants also supply essential consumption goods to the farmers. They act as financers of poor farmers. They often visit nearby markets and keep in touch with the prevailing prices. They either sell the collected produce in the nearby market or retain it for sale at a later date in the village itself.

(a) Agent Middlemen: Agent middlemen act as representatives of their clients. They do not take title to the produce and, therefore, do not own it. They merely negotiate the purchase and/or sale. They sell services to their principals and not the goods or commodities. They receive income in the form of commission or brokerage. They serve as buyers or sellers in effective bargaining. Agent middlemen are of two types Commission Agents or Arhatias: A commission agent is a person operating in the wholesale market who acts as the representative of either a seller or a buyer. He is usually granted broad powers by those who consign goods or who order the purchase. A commission agent takes over the physical handling of the produce, arranges for its sale, collects the price from the buyer, deducts his expenses and commission, and remits the balance to the seller. All these facilities are extended to buyer-firms as well, if asked for.

(b) **Speculative Middlemen** -Those middlemen who take title to the product with a view to making a profit on it are called speculative middlemen. They are not regular buyers or sellers of produce. They specialize in risk – taking. They buy at low prices when arrivals are substantial and sell in the off – season when prices are high. They do the minimum handling of goods. They make profit from short-run as well as long-run price fluctuations.

Processors carry on their business either on their own or on custom basis. Some processors employ agents to buy for them in the producing areas,

store the produce and process it throughout the year on continuous basis. They also engage in advertising activity to create a demand for their processed products.

(c)**Facilitative Middlemen**- Some middlemen do not buy and sell directly but assist in the marketing process. Marketing can take place even if they are not active. But the efficiency of the system increases when they engage in business. These middlemen receive their income in the form of fees or service charges from those who use their services. The important facilitative middlemen are:

Hamals or Labourers: They physically move the goods in marketplace. They do unloading from and the loading on to bullock carts or trucks. They assist in weighting the bags. They perform cleaning, sieving, and refilling jobs and stitch the bags. Hamals are the hub of the marketing wheel. Without their active co-operation, the marketing system would not function smoothly.

Weighmen: They facilitate the correct weighment of the produce. They use a pan balance when the quantity is small. Generally, the scalebeam balance is used. They get payment for their services through the commission agent. The weighbridge system of weighing also exists in big markets. Graders: These middlemen sort out the product into different grades, based on some defined characteristics, and arrange them for sale. They facilitate the process of prices settlement between the buyer and the seller.

Transport Agency: This agency assists in the movement of the produce from one market to another. The main transport means are the railways and trucks. Bullock carts or camel carts or tractor trolleys are also used in villages for the transportation of food grains.

Communication Agency: It helps in the communication of the information about the prices prevailing, and quantity available, in the market. Sometimes, the transactions take place on the telephone. The post and telegraph, telephone, newspapers, the radio, Television, Internet

and informal links are the main communication channels in agricultural marketing.

Advertising Agency: It enables prospective buyers to know the quality of the product and decide about the purchase of commodities. Newspapers, the radio, cinema slides, television and Internet are the main media for advertisements.

Auctioners: They help in exchange function by putting the produce for auction and bidding by the buyers.

Experiment-7 : Identification of marketing channels for selected commodity.

Meaning of marketing channel:

Marketing channels are routes through which agricultural products move from producers to consumers. The length of the channel varies from commodity to commodity, depending on the quantity to be moved, the form of consumer demand and degree of regional specialization in production. There are two main routes through which agricultural commodities reach the consumers:

(i) Direct Route: Sometimes, agricultural commodities directly pass from producers to consumers. There is a complete absence of middlemen or intermediaries. But it is only a very small proportion of the agricultural commodities which moves directly from producers to consumers.

(ii) Indirect Route: Agricultural commodities generally move from producers to consumers through intermediaries or middlemen. The number of intermediaries may vary from one to many.

1.Marketing Channels for Cereals:

The flow chart enables us to know the marketing channels for general food grains in India.

(i) Farmer- Consumers.

(ii) Farmer - retair - village trader- consumer.

(iii) Farmer - wholesaler - retailer - consumer

2.Marketing Channels for Oilseeds:

The most common marketing channels for oilseeds in India are:

(i) Producer -consumer (who either directly consumes the oilseeds or gets it processed on custom basis);

(ii) Producer - village trader - processor - oil retailer - consumer;

(iii) Producer -oilseed wholesaler -processor - oil wholesaler - oil retailer -oil consumer;

(iv) Producer - village trader - processor - oil consumer;

(v) Producer - government agency - processor - oil wholesaler - oil retailer -oil consumer.

3.Marketing Channels for Fruits and Vegetables:

(i) Producer-consumer.

(ii) Producer- primary wholesalers- retailers or hawkers – consumer.

(iii) Producers- primary wholesalers-Processors.

(iv) Producers- primary wholesalers- secondary wholesalers-retailers or hawkers- consumers.

4.Marketing Channels for cotton:

1. Producer–village merchant–wholesaler or ginning factory–wholesaler in lint–textile mill (consumer)
2. 2. Producer–Primary wholesaler–ginning factory–secondary wholesaler–consumer (Textile mill)
3. 3. Producer– Trader– ginning factory– wholesaler in lint–consumer (Textile mill)
4. 4. Producer–govt. agency–ginning factory–consumer (Textile mill).

Experiment-8: Collection of data regarding marketing cost and marketing margins of different commodities and presentation of report in the class.

Identifying marketing costs and margins:

Marketing costs are incurred when commodities move from the farm to the final market, whether they are moved by farmers, intermediaries, cooperatives, marketing boards, wholesalers, retailers or exporters. With increased urbanisation and industrialisation, marketing costs tend to increase relatively to the farmgate price received by the farmer, i.e. the product moves greater distances, through more intermediaries and is more sophisticated in its packaging. Marketing costs can also reflect the state of a country's development in that as standards of living increase, smaller proportions of income are expended on raw products of the farm and greater proportions are spent on additional and improved marketing services. Increasing the value added means, among other things, that more people in developed countries are involved in marketing agricultural products than in producing them.

Marketing costs include labour, transport, packaging, containers, rent, utilities (water and energy), advertising, selling expenses, depreciation allowances and interest charges. Marketing costs vary from commodity to commodity and product to product. There are several factors that individually or collectively account for these differences. These include:

- the more waste the greater the proportion of customers' expenditure which goes on marketing costs
- the more perishable the product the greater the marketing costs
- the more processing of the commodity the greater the marketing costs

- the greater the amount of produce handling and transportation the greater the marketing costs.

- TABLE SHOWING MARKETING COST AND MARGIN OF DIFFERENT COMMODITIES:

COMMODITY	MARKETING COST(rs/kg)	MARKETING MARGIN(rs/kg)
POTATO	15	2-3
ONION	18	2-3
GRAPES	60	4-5
ORANGE	60	5
CAULIFLOWER	30	2-4
SUGAR	50	5-7
GRAM	80	6-8

Experiment-9 : Visit to market institutions – NAFED, SWC, CWC, cooperative marketing society, etc. to study their organization and functioning.

1.NAFED:

National Agricultural Cooperative Marketing Federation of India Ltd (**NAFED**) is an apex organization of marketing cooperatives for agricultural produce in India, under Ministry of Agriculture, Government of India It was founded in October 1958 to promote the trade of agricultural produce and forest resources across the nation. NAFED is now one of the largest procurement as well as marketing agencies for agricultural products in India. With its headquarters in New Delhi, NAFED has four regional offices at Delhi, Mumbai, Chennai and Kolkata, apart from 28 zonal offices in capitals of states and important cities.

Functions of NAFED:

1. To facilitate, coordinate and promote the marketing and trading activities of the cooperative institutions in agricultural and other commodities, articles and goods. 2. To undertake or promote on its own or on behalf of its member Institutions or the Government or Government Organisations, Inter-State and international trade and commerce and undertake, wherever necessary, sale, purchase, import, export and distribution of agricultural commodities, horticultural and forest produce.

3. To undertake purchase, sale and supply of agricultural products, marketing and processing requisites, such as manure, seeds, fertiliser, agricultural implements and machinery, packing machinery, construction requisites, processing machinery for agricultural commodities, forest produce, dairy, wool and other animal products.

4. To act as warehouseman under the Warehousing Act and own and construct its own godowns and cold storages.

5. To act as agent of any Government agency or cooperative institution, for the purchase, sale, storage and distribution of agricultural, horticultural, forest and animal husbandry produce, wool, agricultural requisites and other consumer goods.

6. To act as insurance agent and to undertake all such work which is incidental to the same.

7. To organise consultancy work in various fields for the benefit of the cooperative institutions in general and for its members in particular.

8. To undertake manufacture of agricultural machinery and implements, processing, packing, etc. and other production requisites and consumer articles. 9. To set up storage units for storing various commodities and goods, by itself or in collaboration with any other agency in India or abroad.

10. To maintain transport units of its own or in collaboration with any other organisation in India or abroad for movement of goods on land, sea, air etc.

11. To collaborate with any international agency or a foreign body for development of cooperative marketing, processing and other activities for mutual advantage in India or abroad.

12. To undertake marketing research and dissemination of market intelligence. 13. To subscribe to the share capital of other cooperative institutions as well as other public, joint and private sector enterprises if and when considered necessary for fulfilling the objectives of NAFED.

14. To arrange for the training of employees of marketing/processing/supply cooperative societies.

15. To maintain common cadres/pools of managerial/technical personnel required by the marketing/processing/supply cooperative societies.

2.CWC (CENTRAL WAREHOUSING CORPORATION):

- This Corporation was established as a statutory body in New Delhi on 2nd March, 1957.
- Under the new Act, the Central Warehousing Corporation was formally reestablished on March 18, 1963.
- This Corporation which made a modest start with seven warehouses, with 7,000 tonnes capacity, in December 1957, had set up 458 warehouses in different places in the country, with a total storage capacity of 78.87 lakh tones at the end of March 2001.
- Of this, the present utilization is nearly 85 per cent of the total available capacity. CWC is operating 487 Warehouses across the country with a storage capacity of 10.6 million tonnes providing warehousing services for a wide range of products ranging from agricultural produce to sophisticated industrial products.

The functions of the Central Warehousing Corporation are:

(i) To acquire and build godowns and warehouses at suitable places in India;

(ii) To run warehouses for the storage of agricultural produce, seeds, fertilizers and notified commodities for individuals, co-operatives and other institutions;

(iii) To act as an agent of the government for the purchase, sale, storage and distribution of the above commodities;

(iv) To arrange facilities for the transport of above commodities;

(v) To carry out such other functions as may be prescribed under the Act.

3.SWC (The State Warehousing Warehousing Corporation):

i) Every State in India can establish its own Warehousing Corporation by getting the approval of the Central Warehousing Corporation. The respective State Government will contribute 50% of the capital and the CWC will contribute 50%.

ii) The State Warehousing Corporation will provide warehouses in places other than those reserved for the Central Warehousing Corporation. It can also act as the agent of the Central or the State Government or the CWC.

Experiment No.10: **Application of principles of comparative advantage of international trade.**

There are following applications of principle of comparative advantage of international trade:

1.The law or principle of comparative advantage holds that under free trade, an agent will produce more of and consume less of a good for which they have a comparative advantage.

2.Comparative advantage is the economic reality describing the work gains from trade for individuals, firms, or nations, which arise from differences in their factor endowments or technological progress.

3.In an economic model, agents have a comparative advantage over others in producing a particular good if they can produce that good at a lower relative opportunity cost or autarky price, i.e. at a lower relative marginal cost prior to trade.

4. One does not compare the monetary costs of production or even the resource costs (labor needed per unit of output) of production. Instead, one must compare the opportunity costs of producing goods across countries.

5.David Ricardo developed the classical theory of comparative advantage in 1817 to explain why countries engage in international trade even when one country's workers are more efficient at producing every single good than workers in other countries. He demonstrated that if two countries capable of producing two commodities engage in the free market, then each country will increase its overall consumption by exporting the good for which it has a comparative advantage while importing the other good, provided that there exist differences in labor productivity between both countries.

6.Widely regarded as one of the most powerful yet counter-intuitive insights in economics, Ricardo's theory implies that comparative advantage rather than absolute advantage is responsible for much of international trade.