Agricultural economics is the **application of economic theory in agriculture so as to obtain maximum profit from production plants and animals.**

Importance of agricultural economics

- Helps the farmer to make choices due to scarcity of resources.
- Enables farmers to allocate resources wisely
- It enable farmers to make rational decisions

Economic principles

(a) **Scarcity:** states that goods and services are in short supply in relation to their demand. Scarcity therefore exists when human wants and needs exceed what they have.

Causes of scarcity in agricultural production

- Natural factors such as drought, floods that cause scarcity of food and pasture
- High costs of production that limit profits
- Poor methods of production leading to low yield
- Inadequate stock of factors e.g. land, capital, labour etc.
- Poor planning in the production processes
- Long gestation periods for potential crops and animals.
- Price fluctuations that discourage farming

(b) **Choice:** this is the selection of the best alternative to satisfy the most pressing needs

(c) **Opportunity cost:** it the value of the next best alternative foregone when choice is made. For example if an individual has 100,000/= and she wants to buy two commodities X and Y whereby the price for X is 100,000/= and the price Y is 150,000/=. If he buys commodity X using all his money, she foregoes the value of commodity Y which is worth 150,000/=

Some uses (importance/applications) of the concept of opportunity cost

- It helps the producer in allocation of resources. That is, determining what to produce, when produce, how to produce, where to produce and for whom to produce
- It helps consumers in making consumption choices. That is, consumers choose to buy a commodity that maximizes utility.

- It is used in pricing factors of production. That is, the price of a factor of production must be placed at a higher level than its opportunity cost.
- It is applied in international trade under the principle of comparative advantage in which a country specializes in the production of a commodity where it has the least opportunity cost.
- It is used in planning and budgeting for public and private expenditures in presence of scarce resources.
- It helps workers to make employment **decision, based on the opportunity cost of leisure**

Limitations of the concept of opportunity cost

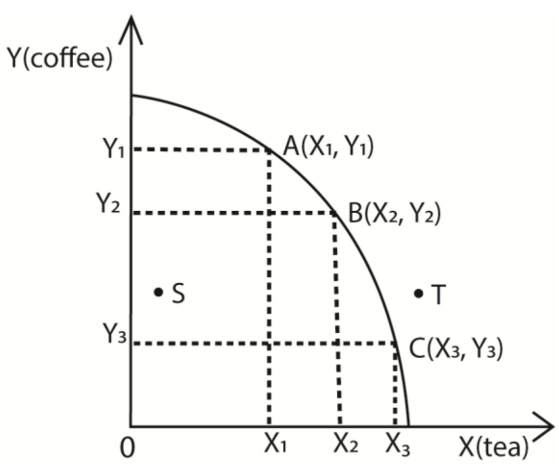
1. Some factors of production are specific in that they cannot be put to alternative uses.
2. It is not applicable where costs and benefits cannot be measured in monetary terms.
3. The concept assumes perfect market which is not applicable in the real world.
4. It is not applicable in situations where factor immobility *exists.*

The Production Possibility Frontier (PPF) / (Opportunity Cost curve)

The *production possibility frontier (PPF)* is a locus of points showing all possible combinations of two commodities that can be maximally produced when all resources are fully and efficiently utilized at a given level of technology,

The PPF assumes the following,

1. Production of only two commodities.
2. Constant technology
3. Full employment of resources.
4. Constant prices of commodities
5. Perfect mobility of factors of production



The PPF above shows that all resources are used to produce two commodities X (tea) and Y (coffee). Along the PPF curve, there are various combinations like A, B and C each representing two commodities produced in different quantities or units.

- At point A, more units of Y (coffee) are produced than X (tea). And at point C more units of X (tea) are produced than Y (coffee).
- The PPF curve can be used to explain the concepts of scarcity choice an opportunity cost as follows.

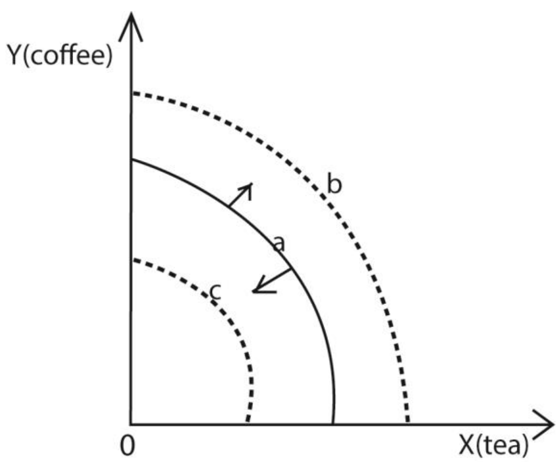
Scarcity: since resources are scarce man is forced to produce along the PPF, that is, man cannot produce beyond the PPF using the available resources and at constant technology,

Choice: since there are so many alternative combinations to be produced along the PPF, man has to choose the appropriate combination from the given alternatives. He may decide to choose either combination at point A, B, C or at any other along PPF

Opportunity cost: Along the PPF, if a man chooses to produce at point A and leaves out point B, then the value of the combination at point B becomes the opportunity cost.

Efficient production; this is represented by all points along the PPF that is; the points along the PPF show the efficient utilization of the available resources. Points inside the curve like point S imply inefficiency in production in form of underutilization of resources. Points outside the curve like T cannot be attained using the available resources and technology.

Shift in production frontier.



(a) **Outward shift/economic growth (a to b)** is the persistent increase in the volume of goods and services produced in a country in a given time.

Causes of outward shift of PPF

- Improvement in technology through innovations and inventions.

Innovation refers to the improvement on the existing techniques and methods of production while **Invention** refers to the total discovery of new techniques and methods of production.

- Increase in Labor force.
- Improvement in the existing infrastructure.

- Political stability.
- Discovery of new resources in in the economy,
- Increase in capital stock.
- Improvement in entrepreneurial skills.
- Increase in the efficiency of workers

(b) Inward shift of the PPF /economic decline

Causes of economic declines

- Decline in technology
- Decline in labour skills
- Exhaustion of mineral
- Environmental degradation
- Political instability
- Decline in entrepreneur skills

Production

It's the creation of goods and services in order to satisfy man's needs.

Factors of production

This is an aggregate of free gifts of nature, human capacity and all sorts of manmade aides that help in production. The factors of production include land, labor, capital, entrepreneurship.

Land

Land refers to all natural resources used in the production process. It includes soil, minerals, forests, water bodies, air etc. The reward for land is rent. Land can lead to development in several ways:-

1. Its where buildings are constructed.
2. It provides soil used in agriculture for crop growing.
3. It can provide fuel in form of fire wood.
4. It is a source of all raw materials used in production such as minerals.
5. It can be taxed to provide revenue for the government
6. It can be mortgaged for loans.

Characteristics of land

1. 1. Its supply is fixed.

2. Land is a gift of nature.
3. It is geographically immobile that is, it cannot be transferred from one place to another.
4. It is occupationally mobile that is, it can be used for various purposes.
5. Land is not homogenous for example some land is fertile and another is infertile.

Importance of land in agriculture

1. It is used for agricultural activities for example hunting, farming and fishing.
2. Land acts as a ground for waste disposal for example sewage disposal
3. Land is used for construction of industries, roads, building, etc.
4. It is a source of raw materials for example fish, water, minerals, timber etc.
5. It is a source of fuel for example coal and oil from the ground, charcoal form forests etc.
6. It is a source of government revenue since it can be taxed.
7. Land also provides beautiful scenery for tourism which is a source of foreign exchange.

Land tenure

These are rules and conditions governing the ownership of land in a specific area.

Forms of land tenure

1. Private ownership / free hold/ land lordship/ individual ownership.
2. State ownership
3. Communal ownership
4. Lease hold
5. Co-operative land tenure.

Private land ownership

This is where an individual puts action on a piece of land as his personal property by getting a title deed after registering it with government.

Advantages of private land ownership

1. Landowners can mortgage the land for a loan since he has a title deed.
2. The owner can use the land the way he likes for developed.
3. Land consolidation and planning becomes easy since what is owned by the farmer is known including the value.
4. It avoids land disputes since the land is well demarcated.
5. It acts as an incentive to farmers to improve the land.
6. The landowners can sell the land or part of it easily in case of financial constraints.
7. It safeguards against the position of the local community if land is in short supply.

Disadvantages of private land ownership

1. Leads to inequalities in wealth and resources within a society.
2. Selfish use of land can lead to environmental degradation

3. Private landowners might prioritize short-term benefits over long-term sustainability, potentially harming the environment or future generations.

State ownership of land

This is where land belongs to the state and no individual has control over it.

Advantages of land owned by government:

1. It allows fast decision making in the use of land by the state.
2. It encourages large investments on land by government like plantations, factories etc.
3. Government can run out land to raise revenue for development

Disadvantages of land owned by government:

1. People have no security over the land occupied since they can be evacuated any time.
2. Government can fail to utilize the land efficiently by awarding it to political allies.
3. It can be a source of political on-rest when people are sent away from government land.

Communal land ownership

This is where land is owned by the community as opposed to individuals.

Characteristics of communal land ownership

1. Its common in the pastoral communities of East Africa
2. Land is neither bought nor sold.
3. Every member of the community has a right to use land
4. Land is allocated to individuals by clan leaders or village elders.

Advantages of communal land ownership

1. Every member of the community has access to land irrespective of his social and economic background.
2. There is efficient use of land since abandoned land can be given to members of the community.
3. Each person can cultivate or graze on the communal land with no restriction.
4. There are no cases of landlessness.

Disadvantages of communal land ownership

1. It doesn’t give any incentives for improvement of land by the farmer.
2. There is a tendency of over stocking and over grazing leading to erosion.
3. it’s difficult for a farmer to use the land to get a loan since he has no title deed.
4. Increasing population leads to land fragmentation since children have to share their fathers’ land at death.
5. Continuous cropping may lead to destruction of soil structure.
6. it’s difficult to improve livestock since controlled breeding is hard to practice on such land.

7. Pest and disease control is very difficult since farmers are difficult to mobilize under such a system.

Lease hold on land

Here land is given to the tenant by the state or the landlord for a specific period of time usually 49 years and 99 years.

Advantages of lease hold land ownership

1. The tenant has security of tenure
2. The tenant can use the title secured to acquire a loan for development.
3. The tenant can rent out the land to get extra income.
4. It minimizes land disputes because of proper land demarcation
5. It encourages the growing of perennial crops.
6. The tenant is encouraged to carryout land conservation measures.

Disadvantages of lease hold land ownership

They are the same as private ownership.

Co-operative land tenure

This is where land is owned by individuals who organize themselves into a co-operative.

Advantages of Co-operative land ownership

1. The land is used efficiently for productive purposes.
2. The co-operative organization can use the land as security to acquire a loan
3. Group ownership of land is a source of security.
4. There is collective work on the land which leads to high production.
5. Members can share profits and losses that are made.

Disadvantages of Co-operative land ownership

1. Individuals cannot easily get loans for production
2. Decision making is difficult as far as usage of land is concerned.

Land reforms in Uganda

This is an organized action designed to improve the structure of land tenure and land use.

Examples of land reform

1. Land consolidation
2. Land registration
3. Land re-distribution

4. Settlement and resettlement schemes.

Objectives of land reforms in Uganda

1. Achieving high levels of output through security, incentives and investments.
2. Achieving flexibility of farming patterns to meet changing natural market demand.
3. Increasing productivity of both land and labor.
4. Achieving effective utilization of national land resources which can include settlement of people on unused land and introduction of irrigation.
5. Encouraging production from the market as opposed to subsistence
6. Encouraging conservation and improvement of land.

Settlement and resettlement skills

Reasons for settlement and resettlement schemes

1. To ease population pressure by removing people from highly populated places to those with sparse population.
2. To prevent pest and disease attack e.g. removing people from places infested with tsetse flies.
3. Increase land for agricultural production by removing less productive people from the land.
4. To facilitate mechanization of availing more land to the people.
5. To settle the landless people who may become a problem within the population.
6. To resettle displaced people who might have been displaced by natural calamities and political insures.
7. To encourage self-employment to people after being given land.
8. To resettle unemployed people so as to reduce rural-urban migration.
9. To carryout research in agriculture activities in resettlement schemes.
10. Train youth in improved methods of farming so as to improve their welfare.

Factors to be considered when planning a settlement scheme

- Location of resettlement/settlement area
- Size of the area whether it can accommodate the people to be resettled
- Environmental impact i.e. risk of endangering to natural resources and environmental disasters
- Accessibility/road network
- Access to basic needs (Sanitary facilities, Health facilities, Education facilities, Counseling services etc.)
- Providing enabling environment for livelihoods and economic inclusion
- Addressing housing, land and property issues
- Social issues

Ways in which settlement and resettlement increase agricultural production

- Provides agricultural land to the settlers
- Presence of labor
- Organized agricultural extension service

- Presence of market for agricultural produce
- Organized agricultural training protocol

Organized transport network to deliver inputs to the farms and outputs to the market.

Land registration

This is where a farmer comes to an agreement with government over the ownership and use of land through the acquisition of land title deed.

Features of a land title deed

- District and county where the land is located
- Block and plot number of the land
- Size of land in hectares
- Registrar of land tittle signature
- Sketch of shape of land
- Occupants Name and address
- The title instrument number
- Date of issuance of the title deed
- Stamp seal mark of the land office
- Chronology of transfer from the first owner to the current occupant

Importance of land registration

1. The land owner has security of tenure hence can develop the land.
2. He can use the land title to obtain loans.
3. Land owner can easily rent out land to get extra income.
4. It minimizes land disputes because of proper land demarcation
5. It encourages land development through establishment of perennial crops
6. Land owner is encouraged to carryout soil conservation measures in order to protect his land.
7. It is easy to sale or transfer the ownership of land.

Land Adjudication

This is the process of the final and authoritative determination of the existing right and claims of people to land and subsequent issuance of the legal ownership documents or title deed by the land registrar

Benefits of land Adjudication

- It settles land disputes since it's the final and authoritative way of determining the existing claims of people to land
- It aids surveying and takes measurements, description and recording of land details used in land registration
- It facilitates registration, transfer of interest and allocation of land in areas where land is not owned by any authority or person

- It helps in compilation and maintenance of a list of rates of compensation payable in respect of crops, buildings of a non-permanent nature and any other thing that may be prescribed.

Land consolidation in Uganda

This is the pooling of small pieces of land to form a large and more productive land when put together.

Steps in land consolidation

1. Establish land ownership
2. Measurement of the plot to be consolidated in order to establish their size.
3. Describing the nature of the fragment
4. Valuing the fragments to be consolidated
5. Recording each fragment of land for further consideration
6. Issuing of the title for the consolidated land or fragments.

Advantages of land consolidation

1. Saves time that could have been wasted moving from plot to plot during farm operations.
2. Makes supervision of farm operations easy and less costly since they are in one place.
3. It encourages mechanization on a farm since the land is big enough which makes the practice economical.
4. Agricultural production is increased due to the size of the land.
5. It's easier to provide extension services on the consolidated land.
6. Theft of farm produce is reduced due to improved supervision.
7. Transport costs of the produce from the garden are reduced since all products are in one place.
8. It's easier to control pests and diseases on the farm.
9. It's easier to carry out soil and water conservation measures.

Disadvantages of land consolidation

1. It may make people landless.
2. It may cause political unrest among the population
3. It's a very costly exercise since each fragment is of a different value.

Land fragmentation

This is where agricultural farm land is split into small plots of different places belonging to one farmer.

Causes of land fragmentation in Uganda

1. An increasing population in the country making land to be scarce.
2. Traditional system of land inheritance where sons share the fathers' land upon his death.
3. Limited income among the farmers which forces them to buy small affordable plots.
4. Farming systems like shifting cultivation which allows farmers to move from place to place.

Effects/challenges of land fragmentation

1. It's difficult to supervise all plots effectively.
2. Large scale/commercial farming is not possible
3. Farmers fail to secure land title deeds.
4. Farmers fail to access social services such as road, water for irrigation etc.
5. Farm planning is difficult due to the small size of the fragments.
6. It encourages low agriculture production.
7. Theft of farm produce is common due to reduced supervision.
8. Agricultural mechanization is expensive due to the small size of the plots which are scattered.
9. It's difficult to offer agricultural extension services on such scattered plots.
10. It's difficult to carry out soil conservation measures due to the distance involved.
11. Pest and disease control on the fragments is difficult.
12. It's difficult to control grazing since farmers have small plots that are prone to overstocking and overgrazing.

Capital

It's a stock of assets which are meant for the production of other assets.

Types of capital

1. **Fixed capital / Real capital: t**his includes land, building, fences, and machines, tools, livestock and crops in the garden.
2. **Working capital: t**his is money or materials used in day to day running of the farm business e.g. fertilizers, fuel, seed etc.
3. **Private capital: t**hese are assets owned by individuals
4. **Social capital: t**hese are assets that are owned by the state on behalf of the citizens e.g. roads, schools, hospitals, gov't farms etc.

Source of capital for agriculture

- Personal savings or undistributed profits of the owners
- Borrowing from relatives and friends
- Borrowing from banks, financial intermediaries, or by selling bonds
- Borrowing from non-bank financial intermediaries like the housing finance companies, insurance companies
- Selling equity shares to investors, such as friends, family, angel investors, venture capitalists, or corporations
- Retained earnings, which are the profits that are reinvested in the business instead of distributed to the owners
- Using debentures by companies in order to raise capital from the public.
- Loans from international financial lending institutions for example I.M.F and World Bank.
- Through gambling and national lotteries.
- Through donations and grants.
- Through the sale of government securities to the public for example treasury bills and bonds in case of public enterprises.

Loans

A **loan** is a sum of money that is expected to be paid back with interest.

Interest is money paid regularly at a particular rate for the use of money lent, or for delaying the repayment of a debt.

Reasons for high interest on short-term loans

- They yield less interest for lenders.
- They carry a higher risk of loan default.
- The interest repayments are spread out over a shorter period, so lenders charge higher rates to make a profit.

Agricultural credit/loan

It is financial assistance given to farmers either in cash or kind that to be repaid at an agreed interest and time/loan to farmers to aid in agricultural production.

Types of agricultural credits

- **Short term credit:** usually less than a year used to purchase farm supplies, payment of salaries etc.
- **Intermediate /medium credit for a period of 1 to 5 years:** usually for purchase of machine, and improvement of farm houses and fence.
- **Long term credit beyond 5 years:** for purchase of say land.

Importance of agriculture credit

- For buying of planting materials
- Provision of farm building and other farm structure
- Finance treatment of farm animals
- Improve farm implements
- For paying salaries
- For expansion activities
- Sponsoring education and training

Sources of agriculture credit in Uganda

1. Commercial banks like Stanbic, DFCU
2. Co-operative organizations
3. Individual money lenders
4. farmers organizations i.e. Uganda National Farmers Organization (UNAFA)
5. International bodies like International Fund for Agriculture Development, Food and Agriculture Development, International Monitory fund.
6. Development banks like UDB, EDB.
7. Marketing board, Uganda Tea Board, Central Bank of Uganda.

Criteria/conditions do financial institutions take into account before offering credit to farmers

- Demonstration of ability to pay back the loan including from other sources in case of poor harvest
- Possession of security
- Type of farm enterprise proposed e.g. poultry, piggery
- Good credit history
- Farming experience
- Sound project proposal

Problems encountered by Ugandan farmer in the use and repayment of credit

- High interest rates charged.
- Short grace period which doesn't allow the farmer to realize the borrowed money.
- Poor loan supervision among the loan providers giving room for defection.
- Crop failure and animal death due to calamities.
- Theft by farm employees
- Price fluctuation of agricultural product.
- High taxes.
- Natural hazards such as floods, pests and disease outbreak.
- Inflation which increases the costs of inputs.
- Fall in demand of the products.
- Unplanned loans.
- Lack of proper enforcement.
- Uncertainties such as sickness and death of a farmer.
- Improper record keeping.
- Poor farm management skills.
- Political interference where a farmer may take the loan advanced to be a political payment or reward.

Steps taken by credit institutions to overcome credit problems

- Educating farmers to promote their knowledge of the use of credit.
- Proper supervision of farmers
- Ensuring flexibility in loan repayment collection
- Reduction of interest rates
- Encourage frequent borrowing for farmers to learn financial literacy
- Send remainders of debt collections

Reasons why agricultural credit scheme has not been very successful in Uganda

- High interest rate
- High financial illiteracy level of farmers.
- Unstable weather
- Insecurity in some area
- Price fluctuation
- Poor market
- Dishonesty among borrowers

- Lack of security/collateral
- Corruption of officials
- Political interference
- Misallocation of funds

Measures that ensure effectiveness of agriculture credit

1. Provision of extension services / education to farmers on how to use loans.
2. Improvement of loan supervision to ensure prompt payment.
3. Improving loan recovery program by encouraging part repayment over a period of time.
4. Improving staff training for effective co-ordination with farmers.
5. Provide farmers with inputs at fair prices for easy repayment.
6. Provide farmers with loans in kinds like fertilizers, pesticides, improved seeds etc.
7. Organize marketing of farmers produce at fair prices.
8. Give loans to farmers in time or at the correct time to reduce risks.
9. Give adequate grace period to allow loan payment to take place easily.
10. Charge fair interest rates that can be met by the farmers.
11. Help farmers to identify viable projects for investment.
12. Lengthen repayment periods.

Advantages of channeling credit through farmers' organizations/ cooperative

- Credit easily accessed by farmers.
- Guaranteed funds to the farmers.
- Farmers' organizations are in close touch with members and therefore aware of their ability and integrity.
- The organization can easily follow up the funds.
- Financial training from farmers' organizations is easily acceptable.

Disadvantages of channeling credit through farmers' organizations/ cooperative

- Lack of skill
- Political interference
- Corruption
- Farmers' organization often provide short term and not long term loans.
- Do not select project for members

Reasons why a farmer fails to access credit

- Lack of collateral/security
- Bureaucracy of lending institution
- Illiteracy of farmers
- Corruption from lending institution that may require a bribe first.
- Fear to undertake the risk
- Remoteness of the farm, since most Credit institutions are located in urban areas.
- High interest rates scare away farmers.
- High lending costs scare away farmers

Strategies to improve agricultural lending in Uganda

- Lowering interest rates
- Lowering lending cost and loan processing period
- Improve client – lenders relationships
- Liberalization of financial sector
- Implementing agricultural insurance policies to reduce lending risks.
- Enforce laws to protect borrowers' from financial institution greed
- Financial training to the farmers.
- Flexible repayment schedule
- Group lending to reduce risks and supervision costs.

Advantage/benefits of cooperative societies

- Better marketing facilities for the farmer's products
- Inputs at low cost
- High profits
- Credits at low interest rate
- Ease to get extension services
- Members easily organize group education
- Members develop leadership skill

Reasons why agricultural co-operatives in Uganda have not been successful

- Lack funds to finance their objective and goals
- Trade liberalization creating unfavorable marketing competition.
- Lack of managerial skills
- Poor financial management
- Political interference
- Illiteracy of members
- Poor record keeping
- Political insecurity
- Price fluctuations of agricultural products
- Poor storage facilities
- Lack of market for produce
- Lack of preservation facilities for agricultural products
- Poor transport network
- High interest rates on credit
- Lack bank security
- Corruption and embezzlement

Agricultural subsidy

This is an incentive given to the farmers usually in form of reduced prices by the government.

Importance of subsidy scheme in agricultural production

- Stabilize price of agricultural products
- Supplement farmers' income
- Ensure that the domestic food supply is secure.
- Protect farmers from excessive loss in case of calamities

Labor

This is human effort both manual and intellectual directed towards the process of production.

Importance of labor

- Labor is essential for transforming raw materials into finished products and providing various services.
- Labor provides individuals with wages/income, which they use to purchase goods and services.
- Training of labor is a source of income to education institution
- Skilled workers is a source of innovation to new technologies
- Employments leads to low crime and high social cohesion
- Labor manage resources

Classification of labor

1. **Skilled labor: t**his is where people perform jobs in which they have training i.e. teacher teaching, doctor treating
2. **Semiskilled:** this is where a person performs a particular job where he has no training but has some knowledge about it or experience.
3. **Unskilled labor:** this is labor provided by people who are not trained at all in such a field.
4. **Family labor:** this is labor provided by family members like children wives, in agriculture work.

Productivity and efficiency of labor

Productivity of labor: refers to output produced per unit of Labor employed in a given time.

Efficiency of labor: refers to the measure of quality and quantity of output a unit of Labor can produce in a given time.

How to improve efficiency and productivity of agricultural labor

Efficiency of labor is the measure of output per person per hour / time

Labor efficiency can be improved by

1. on job training
2. effective supervision/management
3. encouraging specialization
4. providing incentives such as attractive salary
5. improving technology
6. timely payment of wages
7. provision of job security
8. division labor among employees
9. favorable climate/temperature
10. maintaining good health of workers

Labor force

This refers to economically active people between 15-65yrs of age excluding students, house wives and disabled.

Labor supply

This is the number of hours worked / period of time.

Factors affecting labor supply in agriculture

1. Health conditions of the workers: healthy workers are able to work long hours compared to sickly worker
2. Motivation in terms of salaries and allowances.
3. Good working conditions such as housing, transport and health allowances attract many laborers.
4. Population size: a high population leads to provision of labor e.g. china
5. Retirement age: high retirement age guarantees a high labor supply.
6. Immigration and emigration (increases or decrease labor)
7. Labor mobility: high labor mobility leads to high labor.
8. Working time: as number of working time increases supply of labor also increases.
9. Strength of trade unions: these can reduce the number of people employed by fixing a minimum wage.
10. Nature of work: heavy and risky work attracts fewer laborers.
11. Level of education and skills: highly skilled jobs have fewer workers
12. Political stability: a stable country has more people willing to work than unstable country.
13. Government policies such as minimum age of a laborer and minimum wage may reduce the number people employed
14. Attitude toward agriculture
15. Level of advertisement of agricultural work
16. Rural-urban migration reduce supply of labor on the farms

Labor mobility

This is the ease with which labor can move from one place to another (geographical mobility) or from one job to another (occupation mobility)

Factors affecting labor mobility in agriculture

1. **Limitations in skills** e.g. it's hard for a sweeper to do doctor's work.
2. **Time required for training:** along training period reduces the rate at which such people can join that occupation.
3. **Racial differences:** in some countries certain jobs are reserved for a particular race.
4. **Trade unions:** workers can use collective effort to bargain for higher wages and reduce entry of others in employment.
5. **Transport:** poor transport hinder movement of people from place to place.
6. **Security:** poor security can affect the acquisition of jobs in particular areas.

Wages

A wage is a monetary reward to Labor for the services it renders in the production process in a given time.

- **Nominal (Money) Wage**. This refers to the wage paid to the worker in monetary terms in a given time for example 50000/= paid to the worker per week.
- **Real Wage.** This refers to the basket of goods and services that a nominal wage can purchase in a given time.

  Real wage $= \frac{Norminal\ wage}{price\ index}$

- **Reserve wage.** *This refers to* the minimum wage below which the individual cannot accept a given job offer.

Methods of wage determination in Uganda

1. **Collective bargaining.** This refers to round table negotiations between the representatives of the trade union and the aimed at improving wages and other working conditions of the workers. The stronger the higher the wage and the weaker the trade union, the lower the wage
2. **Government wage determination**. This is where the government sets the wage which is to be paid to the employees by the employers. This can either be a minimum wage or maximum wage.

   (a) **Minimum wage legislation (wage floor). This** is where the government sets a wage above the equilibrium wage below which the employer is not allowed to pay the workers. This is done to protect the workers from being exploited by the employers.

   (b) **Maximum wage legislation (Wage ceiling). This** is where the government sets a wage below the equilibrium wage above which the employer is not allowed to pay the workers. This is done to protect the employers from being exploited by the workers, especially through their trade unions.

3. **Piece rate**. This is where wages are paid according to the amount of work done by the employee for example 10,000/= for 2000 bricks made. This is common with unskilled Labor.

4. **Time rate**. This is where wages are paid to employees according to the number of hours worked for example 1000/= per hour, 1O, 000/= per day or 500,000/- per month. This is common with skilled Labor.
5. **Signing contracts between employers and employees**. In this case, contracts are signed which specify the wage to be paid to the employee for a given time.
6. **Wage leadership**. This is where small firms set their wages following the wages paid by large firms to their workers. Therefore large firms determine the wage which is to be paid to the workers by small firms.
7. **Market forces of demand and supply of Labor.** This is where the wage paid to the employees is determined by the market forces of demand and supply in the Labor market.
8. **Individual bargaining.** This is where individual workers bargain with employers the wage they are supposed to be given in a given time.

Note

(a) **Wage freeze**. This is where the government directly and deliberately keeps down the wages paid to the workers for some time to check on the aggregate demand and control inflation in the economy.

(b) **Wage restraint**. This is where the government indirectly influences private employers and trade unions to keep down the wages paid to the workers to check on aggregate demand and control inflation in the economy.

Methods of wage payment

(a) **Sliding scale method (Wage index system).** This is where wage payment is related to the cost of living. Workers are paid more if the cost of living is high and are paid less if it is low.

(b) **Bonus system (Wage drift).** This is where workers are paid extra pay for the work done in addition to their normal pay rate for the minimum work they are supposed to do.

(c) **Payment in kind.** This is where a worker is paid in terms of goods for the work done for example giving bunches of bananas to those working in a banana plantation.

(d) **Time rate system.** This is where a fixed wage is paid to a worker after working for a given time for example a month, a week etc. OR .This is where a worker is paid a fixed wage according to the number of hours the worker allocates to the job.

Causes of wage differences among agricultural workers

1. **Differences in the levels of education**.
   The higher the level of education, the higher the wage paid to the worker and the lower the level of education, the lower the wage. This i s true especially in public service where workers are paid basing on the salary scale.

2. **Differences in skills and experience.** Highly skilled and experienced workers receive higher wages than their counterparts doing the same job for example a senior teacher or engineer earns more than a newly qualified teacher or engineer.
3. **Differences in the bargaining power between employers and employee's (Trade unions) trade unions**. Workers in trade unions with strong bargaining power are paid more than those in trade unions with weak bargaining power.
4. **Differences in the cost of living.** In areas where the cost of living is high, the workers are likely to be paid higher wages than where the cost of living is low. For example urban worker are paid higher salaries compared to those in rural areas.
5. **Differences in the nature of the job (that is temporary or permanent).** Workers employed for temporary jobs or contracts are paid higher wages than those employed in permanent jobs.
6. **Differences in working conditions.** Worker in risky jobs such as mining are paid higher wages as compared to those employed safe jobs.
7. **Differences in job status and responsibilities**. Workers in high positions with more responsibilities are paid higher wages than those in lower positions with fewer responsibilities e.g. a manager is paid more than the cleaner working in the same organization.
8. **Differences in elasticity of supply of Labor.** Labor that has inelastic supply is paid a higher wage as compared to Labor with elastic supply. For example skilled Labor is paid higher wages than unskilled Labor.
9. **Differences in demand for products.** Labor involved in the production of the product with high demand is paid a higher wage as compared to Labor involved in the production the product with low demand.
10. **Differences in the health conditions**. A worker who is strong and healthy has the ability to do more work hence earning more money than a weak and sickly worker especially under piece rate system.
11. **Government policy.** The government can deliberately fix higher wages for employees in certain sectors and low wages for employees in other sectors. This creates wage differences among workers.
12. **Differences in mobility of Labor**. Labor which is highly mobile is likely to earn more than Labor which is immobile.
13. 13**. Differences in sex** .Generally, male workers earn more wages than their female counterparts.
14. **Differences in talents.** Workers with special talents earn more wages than workers who are not talented. For example musicians, footballers etc. are paid more for their talents.
15. Nepotism. Some workers are favored with higher wages compared to their counterparts

Management / entrepreneurship

An entrepreneur is a person who undertakes the task and risk of organizing other factors of production so as to earn profits. The reward for the entrepreneur is profit or loss depending on performance of the business.

Roles of an entrepreneur in a farm production

- provide required capital on the farm

- he bears all risks and losses
- Planning for the farm i.e. making decisions for running of a farm
- Manages the farm
- Purchase of inputs and machinery
- Marketing of produce
- Keeps farm records
- Identifies viable business opportunities

The decision that should be made in agricultural production

- What to produce
- When to produce
- How to produce
- How much to produce
- Number of enterprises
- How much to invest
- Source of finance

Methods of increasing profits in Agriculture

1. Choosing correct business with less risks and uncertainties.
2. Selling produce when prices are high i.e. having good storage facilities
3. Timely planting of crops so as to benefit from the high prices that are offered at the beginning of the harvesting season.
4. Use of better techniques of production i.e. improved seeds, good breeds.
5. Processing agriculture products so as to add value hence more profits.
6. Advertising your produce so that buyers are aware
7. Grading the produce to allow fair prices for each product.
8. Parking of the produce so as to reduce transport costs and increase the profit margin.
9. Proper control of pests and diseases i.e. increase quality.
10. Proper allocation of resources to avoid over spending and under spending.

Production function

This is the relationship between physical inputs (land, labour, capital etc.) and physical outputs (quantity produced).

Costs of production

1. **Fixed costs / overhead costs / unavoidable costs.**

   These are expenses that a farmer has to meet whether in production or not. They include interest on loans, rent, depreciation, salaries for permanent workers.

2. **Variable costs / prime costs.**

These are expenses that depend on the level of output or vary with output e.g. costs for inputs (pesticides, seeds) wages for casual workers increase in output increases the variable costs.

3. **Implicit cost.**

   These are expenses that are indirect or costs of owned resources e.g. own labor, family labor etc. They are valued using their opportunity cost. NB. They are not included in the calculations of profits of the farm of accounting.

4. **Explicit costs**

   These are direct costs paid for resources / bought or hired.

5. **Opportunity cost**

   This is a cost for the best alternative foregone in making a decision e.g. if a farmer foregoes poultry farming and takes on dairy then the opportunity cost is that one for poultry.

6. **Total valuable cost (TVC)**

   This is the total of the cost of all valuable resources used in production (price x quantity)

7. **Total fixed cost (TFC)**

   This is the value of all the indirect cost of fixed resources used in production. Its constant at all levels of output.

8. **Total costs**

   It's the sum of all the fixed and variable costs at each level of output i.e. total cost will = total variable cost + total fixed cost.

9. **Average variable cost (AVC)**

   It's the amount spent on variable inputs per unit of output, i.e.

   $AVC = \frac{TVC}{Y(output)}$

10. **Average fixed cost**.

    It's the cost of the fixed resources per unit of output.

    $AFC = \frac{TFC}{Y(output)}$

11. **Average total cost**

It’s the total cost of all resources (Fixed and variable) per unit of output.

$$ATC = \frac{AVC + TFC}{Y(output)}$$

12. **Marginal cost**

    This is the change in total cost resulting from a change in one unit of output i.e. it’s the cost of producing an additional unit of output.

13. **Marginal product.**

    This is output created by using one additional unit of a factor of production.

Cost output relationships/Production function

This is a mathematical relationship between input and output

1. **Total product, TP**

   This refers to the total output resulting from all the factors of production (both fixed and variable)

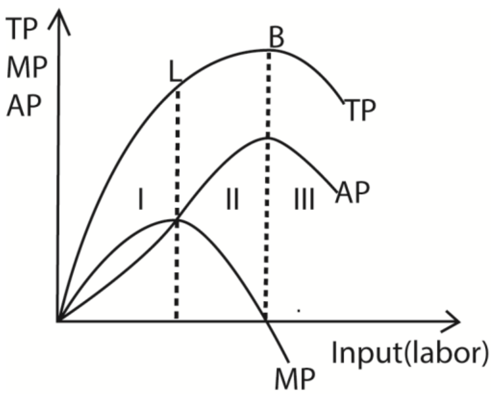
2. **Average product AP**

   This is the output per unit of variable factors.

An example of relationship between output and inputs

Fixed factors (land)	Quantity of fertilizers used (input)x	Total maize TP output (Kg) Y	Marginal product (MP)	Average product (AP)
1	1	8	0	8
	2	18	10	9
	3	30	12	10
1	4	38	8	9.5
1	5	44	6	8.8
1	6	48	4	8
1	7	48	0	6.9
1	8	46	-2	5.7
1	9	42	-4	5.5

Graphical illustration of the relationship between Average product, Marginal product and Total product



From the graph the following is observed.

- T.P begins by increasing, reaches maximum point B and then falls
- Marginal product begins by increasing reaches a maximum and then decreases up to the negatives.
- Average product begins by increasing, reaches a maximum and then falls.
- When total product (TP) is increasing at an increasing rate (up to point L), Marginal product (M.P) is also increasing. When TP is at maximum M.P is zero, when T.P is falling M.P is negative. Therefore M.P is the measure of the rate of change of total product.
- When average product (A.P) is increasing; M.P is higher than AP and when average product (A.P) is falling M.P is lower than A.P and when A.P is at maximum when MP = A.P.
- **L is called a point of inflexion.** It refers to the point below which MP is increasing and beyond which M.P is declining. OR. It is a point below which total product is increasing at an increasing rate and beyond which total product is increasing at a declining rate or **where law of diminishing return set in.**

From the graph the short run input-output relationship can be explained in three stages of production:

Stage I: The stage of increasing returns.

- In this stage the fixed product is underutilized.
- Production is not yet maximum.
- TP is increasing at increasing rate.
- Increase in variable input increases output.
- Marginal product increases more than average product.
- Marginal product is maximum when it equals average product

Stage II: The stage of diminishing returns.

- This is the optimal or economic region of production.
- In this region, MP and AP are declining but MP is still positive.

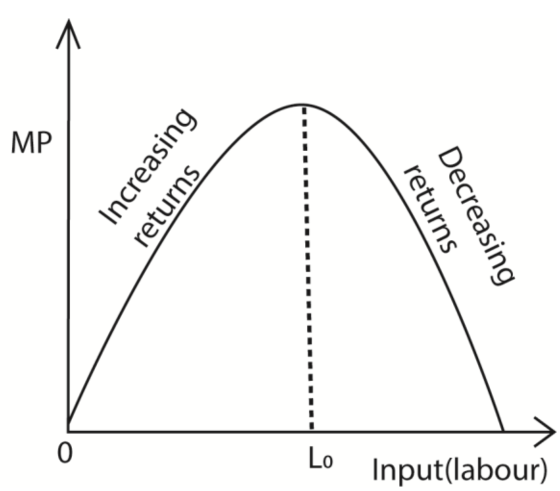
Stage III: The Stage of negative returns.

- It is also called the intensive stage. In this stage, TP, AP and MP are declining and MP is negative.
- It implies that employment of an extra unit of a variable factor would instead lead to a decline in the total output. This is due to over utilization of the fixed factor by the variable factor. It is irrational to operate in this stage since the employment of an extra unit of variable factor leads to less output generated.

The law of diminishing returns (The law of variable factor proportions)

The law of diminishing returns states that as more and more units of variable factor (labour) are added to a fixed factor (land), marginal product first increases and reaches a maximum beyond which it diminishes.

Illustration



From the graph marginal product increases up to the maximum point beyond which it begins to diminish.

The law of diminishing returns necessitates the producers to determine the optimum level of a variable factor which can be combined with fixed factor to yield maximum output.

Illustration of law of diminishing returns in agriculture

- Increasing plant population in a fixed area will give increased yield but marginal returns will decrease as competition among the plant growth factors arise.
- Increasing the level of feeding in farm animal will increase yields but later marginal yield will decrease.
- Increasing the amount of fertilizers added to a crop in an area increase yield at first but later yield decreases and amount of fertilizer applied increase because of toxicity.

Application of the law of diminishing return in agriculture

- To maximize labour and other factors of production to optimum level
- To increase production efficiency by minimizing cost
- To determine the most economical dose of any variable resource to be applied

Economies and diseconomies of scale

Economies of scale (E.O.S) are cost advantages gained by farm/companies when production becomes efficient. Companies can achieve economies of scale by increasing production and lowering costs.

Diseconomies of scale

These are disadvantages accruing to the firm of in form of increased average costs resulting from over expansion of the scale of production of the firm or industry.

Risks and uncertainties

A **risk** is an avoidable and unforeseeable circumstance hazard that affects the outcome of an investment and can be measured in an empirical and quantitative manner. Since the risks are measurable, they can be insured against.

Examples of risks

1. **Change in weather or bad weather which causes destruction to crop, building and animals.**
2. **Pest and diseases**. This can cause losses in both plants and animals.
3. **Fire outbreak.** This can destroy property and life. This can be of farm produce and machinery yet it's hard to predict when it will happen.
4. **Strikes of workers.** Some of the strikes are very destructive and lead to loss of property and life at the extreme cases.

5. **Ill health.** The farmer, members of his family, all the workers can fall sick which can greatly affect the production level of the farm.
6. **Low crop yields.** This may be caused by many factors like poor soils, natural hazards, pests and diseases, poor management etc.
7. Death of the farmer.

Guarding against risks

1. **Insurance.** This is the most common method of guarding against risks where the farmer insures his property with an insurance company against risks.
2. **Building owners equity.** This is where a farmer saves some money that can be used in case there is a risk (net worth)
3. **Input rationing.** Here a farmer uses less than optimum quantities of inputs to save on the amount spent on input.
4. **Improving storage facilities** i.e. one can lead produce and sale later
5. **Choosing and enterprise with less or limited risks** hence helping a farmer easily escape risks.
6. **Diversification.** This is where a farmer engages in more than one enterprise so that incase one fails the other may succeed and compensate the loss made.
7. **Production flexibility.** This is where a farmer invests inflexible enterprises that easily allow a change e.g. keeping duo purpose breeds of cattle and poultry.

Uncertainties

Uncertainty, this is unforeseeable and unavoidable circumstances or hazard that affects the outcome of an investment but <u>cannot</u> be measured in an empirical and quantitative manner hence cannot be insured against.

Examples of uncertainties

1. **Price fluctuations:** It's very difficult to know when the prices will fluctuate and the loss which will come out of this is extremely difficult to calculate.
2. **Change in demand:** The demand for agricultural products keep on changing yet the loss as a result of this is difficult to measure.
3. **Change in technology.** Because of rapid technological changes, machinery and farm techniques quickly become outdated.
4. **Change in government policies.** The government may reduce prices of commodities by covering taxes and vice versa.
5. **Bleach of contract:** This can happen anytime without notice and may cause immeasurable loss depending on the commodities.
6. **Unavailability of labor.** This may happen during planting and harvesting time yet the losses caused are immeasurable. This change in labor supply is due to a number of factors affecting it.
7. **Unavailability of agriculture inputs**. The supply of such inputs is affected by a number of factors therefore their scarcity once experienced can cause uncertainty.

How to control of uncertainties in agriculture

1. producing on contract
2. building owners equity
3. diversification
4. Input rationing i.e. price fluctuation.
5. flexibility i.e. easily change from type of production to another
6. Improving storage facilities.
7. Adding value of agriculture products through processing.

Specialization

This is where one engages in the production of one item where he can feature best.

Forms of specialization

1. **Specialization by craft.** This is where families specialize in different activities like farming, iron smith, witch craft etc.
2. **Specialization by process.** This is where every stage of production in a factory or an industry is carried out by a different person.
3. **Regional specialization**. This is where each region produces the best it can and the changes it with what it can't produce.
4. **International specialization.** This is where each country produces what it can do best and exchanges it with what is produced by other countries.

Advantages of specialization

1. **It's time saving.** There is no wastage of time in moving from job to job or training for different jobs.
2. **High efficiency** in production since the workers gains a lot of experience and skills in doing one type of work over time.
3. It **enables the farmers to exploit their natural talents** by concentrating on the work they can do best.
4. **It helps to improve on the quality of the product**. Workers become perfect in carrying out particular tasks.
5. It **helps to speed up the training process.** This is because a worker is trained to carry out a particular task in the production process.
6. **It enables workers to exploit their** *n***atural talents by concentrating on particular** tasks which they can do better:
7. It **encourages the use of machines** at various production levels.
8. **Regional and international specialization** enables countries to exploit their natural resources and get what they cannot produce.
9. It increases production which helps farmers to gain from the economy scale.
10. Specialization increases economic interdependence between countries. **This is because different countries can be able to get what** they do not have from other countries through the process of exchange.

11. **Specialization promotes technological development through innovations and inventions** as a result of continuous use of machines. This leads to efficiency in production.

Disadvantages of specialization

1. **It leads to boredom.** This is because performing the same task all the time becomes monotonous which results into loss of efficiency and work dissatisfaction.
2. **It is difficult to assess the individual contribution of the worker to the final product** under division of labor. This is because many workers contribute in the making of the total final product.
3. **It leads to loss of craftsmanship**. This is because when the job is divided into a series of tasks, one's skill in making a complete product is lost.
4. **Specialization leads to unemployment.** This is because when a worker is laid off from a certain firm, it becomes very difficult for the worker to get another job in another firm which requires different skills.
5. **It leads to unnecessary delays** in case of breakdown in one department of the firm during the production
6. **It leads to overproduction especially when markets are limited.** This leads to wastage of resources due to excess output which is not sold.
7. **International specialization promotes over dependence of one country on other countries**. This leads to shortage of certain commodities in case there are some misunderstandings among countries.
8. **It increases occupational labor immobility.** This is because workers concentrate on performing one task and with time may not be able to carry out other tasks.
9. **It leads to loss of responsibility among workers** which undermines team work. This is because each worker is concerned about his/her own tasks.

Diversification

In Agriculture, diversification is the raising of the variety of crops or animals as opposed to one enterprise.

Advantages of diversification

1. Resources are effectively utilized in the production process.
2. Increase supply of raw materials to agro-processing industries.
3. It promotes integration of economy when byproducts of one industry are useful to other industries.
4. Leads to self-reliance of the farmer and the country.
5. Allow production of a variety of food which reduces malnutrition.
6. It reduces risks that are associated in producing one type of crop or animal.
7. It increases a variety of products produced in a country.
8. Provides employment in different enterprises.
9. It encourages the participation of many people in the production process to produce the different goods.
10. It reduces over dependence on products from one place or country.
11. Increase farm productivity and income

Disadvantages of diversification

1. The practice is limited by inadequate capital to engage in different enterprises.
2. Limited market for a variety of products may affect diversification
3. Limited farm implements may discourage diversification
4. It's very difficult to carry out research on a variety of crops and animals to increase their production.
5. Climate may not favor the production of various products.
6. It encourages subsistence farming which is less profitable.

Cooperatives

This is a registered organization of people who decide to work together for mutual economic benefits.

Types of co-operatives

1. **Transport co-operatives:** These deal with the transport of produce either for the members or for profit from other organizations e.g. Uganda Co-operative transport union.
2. **Credit savings co-operatives.** These deal with savings of members money and provision of small loans e.g. Uganda Women Credit and trust fund.
3. **Consumer Co-operative.** These stock and sell commodities to members at subsidized prices and can also give financial assistance to members.
4. **Producer co-operatives.** These are concerned with the marketing of the farmer /members produce e.g. Busoga grower's co-operative union, Masaka co-operative union.
5. **Trade and craft co-operatives.** These are mainly concerned with building and construction work.

Principles of cooperatives

These are the basic guidelines to co-operatives

1. **Open and voluntary membership**. All people are free to join or leave the co-operative without hindrance or restriction of any kind.
2. Co-operatives are run on democratic principles when electing the leaders i.e. one man one vote basis.
3. **Interest and profit.** The rate of return on borrowed capital should be low since the organization is not a profit making one.
4. **Capital shares.** The financial capital for co-operatives is raised through the selling of shares to the members.
5. **Co-operation.** Co-operatives must work together with other co-operative organizations in order to learn from each other.
6. Co-operatives must be neutral in politics, religion or any other bias that can affect their operation.
7. **Promotion of members.** All promotions to places of high responsibility must be based on merit.
8. Co-operatives must promote education for their members in order to reduce the rate of illiteracy and also increase the skills needed in running of the co-operative.
9. **Continuous expansion.** A co-operative must have a continuous expansion in terms of members and physical facilities i.e. building machinery.

10. **Share of dividends.** Dividends are shared according to the number of share one has invested.
11. Co-operatives can mobilize prices for agricultural products by buying produce during supply and selling it at times o scarcity.
12. They can increase investments for the members by buying buildings, estates, factories on behalf of the co-operators.
13. They eliminate wasteful competition and exploitation of farmers by middle men hence increasing the farmer's profit margins.
14. They increase the bargaining power of members in the market and protect the weak ones.

Functions of agricultural cooperatives in Uganda

- Saving and credit cooperative provide savings and credit facilities in Uganda
- Produce cooperatives pool farmers for large scale farming
- They transport produce to the market and inputs to the farmers.
- The solicit for market for the farm produce
- Provide storage for farm produce
- Provide training for the members
- Pay dividends to members
- Lobby government for agricultural subsidies.
- Collective purchase lead to lower costs of inputs

Benefits of agricultural cooperatives in Uganda

1. Better marketing facilities for farmers' products
2. Easy acquisition of cheap inputs
3. Development of leadership skill
4. Easy access to cheaper credit
5. Easy access to agricultural information and training
6. Enhancing farmers' profits and improving quality of supplies and products.
7. Promote production because of availability of market

Problems facing cooperatives in Uganda

1. **Inadequate skills of management** amongst farmers which makes them incompetent in organizing co-operatives.
2. **Inadequate funds to finance** the work for co-operatives which limit the investments and expansion of the co-operatives.
3. **Embezzlement and corruption by managers** has reduced the growth of most co-operatives in Uganda.
4. **Inadequate transport.** Some co-operatives do not have trucks that can easily transport produce to places where there is enough market.
5. **Shortage of storage facilities**. Most co-operatives in rural areas do not have enough stores with facilities like freezers that can help in storing produce.
6. **Fluctuating prices for agriculture produce.** The fluctuation in prices more especially at the world market has affected the income for co-operatives hence their operators hindered.
7. **High risks and uncertainties in agriculture.** These reduce the profit margin fore co-operatives which greatly discourages the farmers.

8. **Political interference.** Some politicians in government have influenced the decision in co-operatives which greatly affects their performance.
9. **Political Instabilities.** In places where there is insurgency it's been very difficult for co-operatives to operate.
10. **Dishonesty of members** who refuse to pay back the loans or sale their produce to other co-operatives.
11. A **high competition from private sector** which has affected the amounts of profits that can be made.

Solutions to the problems facing cooperatives in Uganda

1. More centers for training managers should be set up to equip managers with skills.
2. Refresher courses should be organized for cooperative managers
3. Co-operative should be provided loans of low interest rates
4. Constant auditing should be done so that the managers are made to be more accountable hence reduce embezzlement.
5. Self-discipline of politicians should be encouraged to reduce political interference in cooperatives.
6. Government should support co-operatives by operating the price stabilization fund in cases of low prices.
7. Members borrowing money from co-operatives should present security in order to reduce defaulting.

Market concept

A market is a place where buyers and sellers can meet to facilitate the exchange or transaction of goods and services. Markets can be physical like a retail outlet, or virtual like an e-retailer

Price theory is the study of prices in the market.

Price is the sum or amount of money or its equivalent for which anything is bought, sold, or offered for sale at a given time.

OR.

Price is the amount of money which must be given up in order to obtain a commodity in a given, market at a given time.

Types* of *Markets

(a) Competitive (Perfect) market. This is a market where buyers and sellers have no ability to influence the price in the. Prices are determined by the market forces of demand and supply.

Characteristics/Features of competitive market

- Large numbers of buyers and sellers in the market.
- Identical/homogenous products sold by all firms,
- the freedom of entry into and exit out of the industry or perfect resource mobility
- Perfect knowledge of prices and technology.
- No price control.
- Perfect mobility of factors of production, the factors of production are completely mobile leading to factor-price equalization throughout the market.
- Cheap and Efficient Transport and Communication
- the consumer has plenty of choice when buying goods or services

(b) **Imperfect market.** This is a market where the buyers or sellers have ability to influence the price set in the market by either controlling supply or production

(c) **Goods market:** This is a market where goods are traded

(d) **Commodity market***:* This is a market where goods and services are traded

(e) **Factor market***.* This is a market where factors of production are For example land, Labor, capital, entrepreneurship are traded

Note. *Factor price is* the monetary reward to factors of production for their contribution in the production process. For example wages, interest, profit and rent.

(f) The **spot market** is where financial instruments, such as commodities, currencies, and securities, are traded for immediate delivery

(g) **Future (Forward) market***.* This is a market where commodities are traded for future

Methods of Price determination in the Market in agriculture

- **Haggling (Bargaining).** This is where the buyer negotiates with the seller for the suitable price of the During bargaining, the seller keeps on increasing the price and the buyer keeps on reducing until the agreed price is reached.
- **Auctioning (Bidding).** An auction is **a sale in which buyers compete for an asset by placing bids.** The highest bidder takes the commodity. This is method is common in fundraising especially in churches and other functions.
- **Fixing by treaties (Agreements).** This is where buyers and sellers come to an agreement to fix the price of the commodity. The price remains fixed for a given time but the agreement can be renewed and prices can be changed.
- **Government determination (legislation).** This is where the government fixes the price of the commodity. The government can either fix the maximum or minimum price.
- **Price leadership.** This is where a large and low cost firm in the industry fixes the price of a commodity which has to be followed by other small firms. This firm normally has a large share of the market.
- **Price fixing by cartels.** A cartel is an organization of firms producing and selling similar products. These firms come together and fix one price at which they have to sell the commodity to the consumers for example OPEC.

- **Interaction of the forces of demand and supply.** This is where the price in the market is determined by the forces of demand and supply at a point where quantity demanded equals to quantity supplied.
- **Resale price maintenance.** This is where the producer (manufacturer) fixes the price of a commodity at which the seller (retailers) has to sell to the final consumers. The price is usually written the commodity container. For example Newspapers, soft drinks. etc.

Advantages (merits) of resale price maintenance

- It is time saving since it does not involve bargaining.
- It reduces unnecessary competition among sellers.
- It helps to control consumer exploitation in form of increasing prices by sellers/retailers.
- It helps to maintain price stability.
- It helps to reduce on the duplication of the products by other producers.

Influence of price on agricultural production

- When the prices of farm products are high, farmers are encouraged to produce more and vice versa.
- When prices are high, farmers get a lot of profit leading to high production and growth.
- Farmer are forced to produce products that fetch high prices
- Farmers produce products that have low prices for inputs.

Monopoly Market structure

This is a market structure where there is a single producer or seller of a commodity which has no close substitutes or no substitutes at all, and entry of new firms in this market structure is blocked.

Basis (Origin/Sources) of monopoly power

Monopoly power refers to the ability of the producer to determine the price of the commodity and restrict entry of other producers from entering the market.

The factors which give rise to monopoly power include the following: -

- **Patent rights.** These are legal barriers where the products of some people like authors; musicians etc. are protected from other producers by law. The law forbids other producers or firms from producing a similar commodity. The producer is given the sole right to produce a commodity or provide a service for a certain period of time without interference from other producers.
- **Ownership of a strategic raw material.** Some firms or countries may be having the capacity to control the ownership of the only raw material. Therefore they become monopolists in the production of a certain commodity using such a raw material under their ownership e.g. middle east has the monopoly power in oil production.
- **Exclusive knowledge of production techniques; i**n this case a person or firm may possess specific and unique knowledge which may not be possessed by others in the production process e.g. some specialists in the medical field whose services cannot easily be substituted like surgeons.

- **Long distance between potential rivals**. Long distance can be the source of monopoly power among the producers of the same commodity in different localities. Each producer monopolizes the region in which his production unit is located as other producers from other regions cannot interfere due to long distance.
- **Large scale of production.** The large efficient and well established firm may adopt the limiting pricing policy which aims at preventing the entry of new firms and elimination of the already existing inefficient firms by charging lower prices for the commodity in consideration. The large scale firm remains a monopolist because other firms are pushed out of the production process.
- **Protectionism (trade restrictions).** This is where the government imposes tariffs and non-tariff barriers on the imported products so as to reduce foreign competition on the locally produced goods. The home producers therefore become monopolists as they are protected from foreign competition.
- **Merging of firms.** This is where two or more firms producing related commodities come together to form one firm (collective monopoly). This can be aimed at controlling the materials, market, price of the commodity etc.
- **Product differentiation.** This is another form where the firm may become a monopolist by supplying a commodity that is differentiated from others by certain trade market or brands.
- **Nationalization by the government.** In this case, the government can take over private individual firms and therefore it becomes the monopolist. .
- **Market limitation.** The entry of new firms may be limited due to existence of a small market this is because they may find it uneconomical to and therefore already existing firm remains the monopolist.
- **Large capital requirements.** Some firms may remain monopolist due to failure of other firms to raise enough capital to start similar businesses e.g. iron and steel industry.
- Long period of training, Monopoly power can be created by restricting entry of new individuals by extending the training period required to join a given profession (industry).

The theory of demand

Demand refers to a consumer's desire to purchase goods or services and willingness to pay for them at a particular price

Effective demand refers to a customer’s desires to purchase goods and services and ability to pay for them at particular prices.

Quantity demanded. This is the volume of goods and services that consumers are willing and able to buy at a given price in a given time.

Factors affecting the quantity of a commodity demanded for

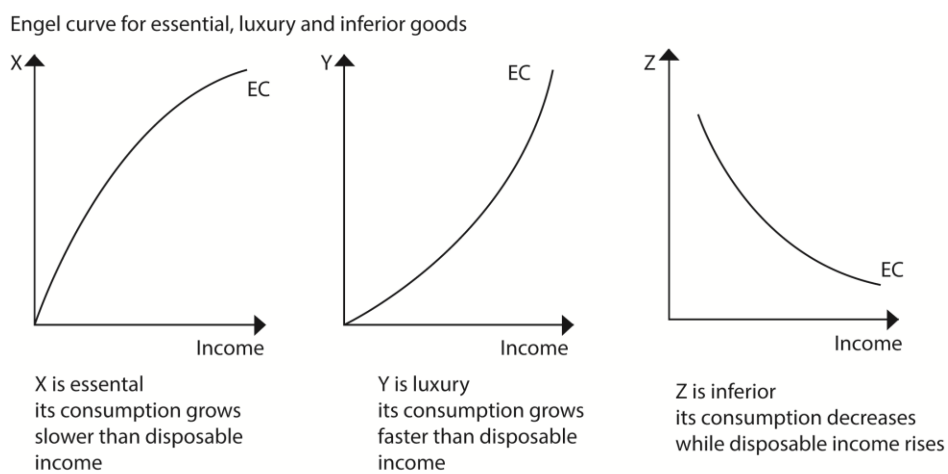
- **The price of the commodity. The** higher the price, the lower the quantity demanded and the lower the price, the higher the quantity demanded of the commodity.
- **The nature of tastes and preferences**. Favorable tastes and preferences by the consumer increase the quantity demanded of the commodity but unfavorable tastes and preferences decrease the quantity demanded.
- **The price of related commodities.** An increase in the price of **the substitute** increases the demand for the commodity in question but a reduction in the price of the substitute reduces the demand for

the commodity in question. For example increase in price of rice may increase the quantity of maize flour demanded.

- **Price of complements**. An increase in the price of the complement leads to a fall in the demand of the commodity in question and a fall in the price of the complement leads to an increase in demand for the commodity in question. For instance increase in the price of electricity reduces the number bulbs bought.
- **Government policy.** An increase in taxes on the commodity by the government leads to a decline in quantity demanded of the commodity but subsidization to consumers by the government encourages the consumption of the commodity and therefore quantity demanded Increases.
- **Population size and structure.** A population comprised of a big percentage of middle- and high-income earners increases the quantity demanded of the commodity but a population with a big percentage of low-income earners leads to a fall in quantity demanded of the commodity.
- **The nature of income distribution.** Even distribution of income among the consumers increases the quantity demanded of the commodity but uneven distribution of income reduces the demand for the commodity.
- **The level of the consumers' income.** This depends on the nature of the commodity, that is, normal good, a necessity or an inferior good.

  - For a normal good, an increase in the consumers' income increases the quantity demanded of a commodity and the decrease in the consumers' income leads to decrease in the quantity demanded.
  - For the necessity, an increase or decrease in the consumers' income does not affect quantity demanded of the commodity.
  - For the inferior good, an increase in consumers' income leads to the decrease in quantity demanded and a decrease in consumers' income increases the quantity For example a fall in customer's income increases demand of inferior rice.

  The three situations are illustrated using the angle curves below:



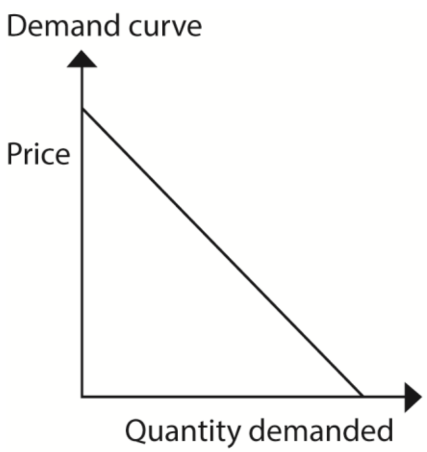
- **Future price speculation.** An expected future increase in the price of a commodity increases its current demand but an expected future reduction in the price reduces the quantity demand for the commodity with the hope of consuming more in future at a lower price.

- **Seasonal factors.** In certain seasons of the year, the demand for some commodities increases or decreases e.g. in the rainy season, there is high demand for rain coats and their demand decreases in the dry season.
- **Religion and culture** The demand for pork is low in places where there are many Moslems as compared to places where there are many Christians especially
- **Sex of the consumer.** Some commodities are demanded by a particular sex e.g. the demand for shirts is likely to be high in places where there are many males as compared to females. Also, the demand for sweets and sanitary pads is likely to be high in a girls' school as compared to a boys' school.
- **Marital status.** For example, the demand for wedding rings is high in a society where there are many married couples as compared to that dominated by singles.
- **Level of education.** For example, the demand for scholastic materials is high in places where there are many people going to school as compared to places where there are few students.
- **Level of advertisement/consumer knowledge.**
- **Technology:** consumers prefer modern technology

Demand curve

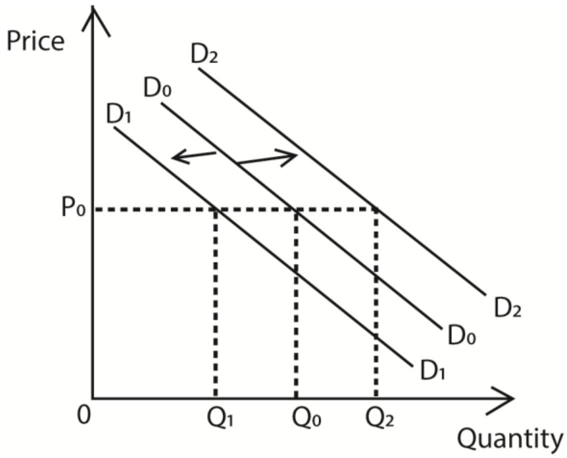
The demand curve is a graphical representation of the relationship between the price of a good or service and the quantity demanded for a given period of time.

The graph shows that increase in price leads to reduction in quantity demanded and vice versa



Change in demand

This refers to increase or decrease in amount of the commodity bought due to changes in other factors affecting demand keeping price of the commodity constant. It involves a shift in demand curve either to the left or to the right.



A shift in the demand curve to the right (from D_0D_0 to D_2D_2) is called an ***increase in demand***. It refers to the outward shift in the demand curve caused by the favorable factors which affect demand at constant price of the commodity. Such factors include;

- Increase in the price of the substitute
- A fall in the price of the complement
- A favorable change in the tastes and preferences of the consumer
- Expected increase in the future price of the commodity
- An increase in the size of the population
- Favorable season of the commodity
- Favorable government policy like subsidization of consumers
- Increased even distribution of income
- Increase in the disposable income of the consumer
- Increase in advertisement of the commodity
- Increase in the amount of credit facilities offered by the government to consumers.

A shift in the demand curve to the left (from D_0D_0 to D_1D_1) is called a ***decrease in demand***. It refers to an inward shift in the demand curve caused by the unfavorable factors which affect demand a t constant price of the commodity. Such factors include;

- Decrease in the consumer's disposable income
- Decrease in the price of the close substitute.
- An increase in the price of the complement.
- Unfavorable change in tastes and preferences of the consumer
- Expected fall in the future price of the commodity
- A decrease in the size of the population.
- Unfavorable season of the commodity
- Unfavorable government policy like increased taxation of consumers.
- Increase in income inequalities.
- Reduction in the advertisement of the commodity
- Withdrawal of credit facilities offered by the government to consumers

Types of demand

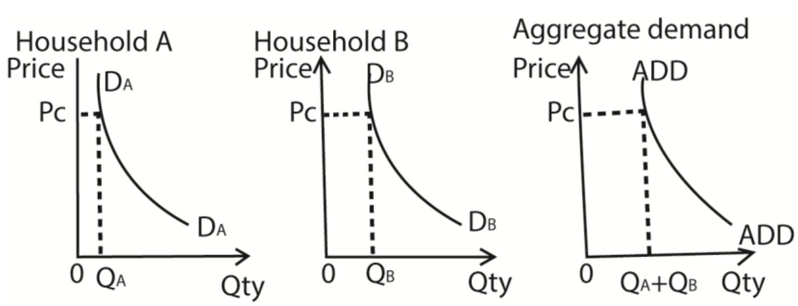
1. **Competitive demand.** This is the demand for commodities which serve the same purpose. (Demand for substitutes). For example the demand for tea and coffee, brands of detergents, etc.
2. **Complimentary (Joint) demand**. This is the demand for commodities which are used together. (Demand for complements). An increase in the demand for one commodity leads to an increase in demand for another commodity. For example demand for car and petrol, camera and films, guns and bullets, etc.
3. **Composite demand**. This refers to the demand for the commodity which is used for several (various) purposes e.g. the demand for water, electricity.
4. **Independent (unrelated) demand.**
   This refers to the demand for commodities which are not related such that the demand for one commodity does not directly affect the demand of another commodity. For example demand for a car and a pen, clothes and sugar.
5. **Derived demand.** It refers to the demand for a commodity not for its own sake, but for its own purposes (uses). For example the demand for factors of production.
6. **Effective demand.** Is the amount of goods the consumer is willing and able to buy at a particular price.
7. **Elasticity of demand** is the change in the quantity demanded resulting from a change in an attribute of a commodity.

Aggregate demand

Aggregate demand refers to the total demand of finished goods and service produced in an economy by both households and firms

Aggregate demand curve

A **demand curve** is the locus of points showing total demand of finished goods and service produced in an economy by both households and firms in a period of time. It draws on assumption that the higher the price, the lower the quantity demanded other factors remaining constant.



The factors which affect the level of aggregate demand

- **The general price levels in the country**: when the general price levels of goods and services are high, aggregate demand lowers and when the general price level is low aggregate demand increases.

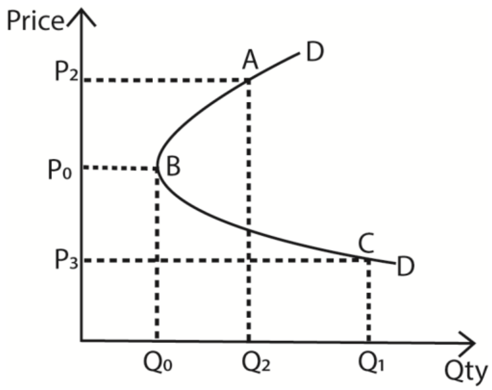
- **The general level of incomes:** when the incomes of households and firms in a country are high, the demand **for** goods and services are high and vice versa.
- **The amount of money supply in an economy:** the high supply of money in the country increases the purchasing power of the households and firm raising the aggregate demand.
- **The level of aggregate money demand in a country.** High level of aggregate money demand reduces the purchasing **power** of consumers reducing aggregate demand and the vice versa.
- T**he supply of consumer goods and service**. A limited supply of good and services force prices to increase and reduces the aggregate demand and vice versa.
- **The distribution mechanism of good and services:** When the distribution of goods and services is poor, the level of **aggregate** demand will be low and vice versa.
- **The size of the population:** high population increase purchasing power and aggregate demand and vice versa.
- The tastes **and** If the tastes and preferences are positive for particular goods and service, the purchasing power increases leading to increase in aggregate demand.
- **The political climate in the country.** A stable conducive political climate increase the purchasing power leading to increase in aggregate demand
- **Economic climate.** Stable economic climate such as stable prices increase purchasing power and therefore increase aggregate demand.
- **Levels of development of the commercial sector**. A well-developed commercial sector implies high levels of income leads to an increase in aggregate demand.
- **Government polity on taxation and subsidization.** When the tax rates in the country are high, this reduces the income of consumers leading to low purchasing power thus reducing aggregate demand.
- **The expectation of inflation/speculation:**- If the consumer expects high inflation in the future then the demand rises in the present such that the aggregate demand curve shifts rightward.
- **Level of Advertising.** The higher the level of advertising the higher the aggregate demand

Abnormal (Regressive/exceptional) demand curves

These are demand curves which violate(disobey)the law of demand which state that "the higher the price, the lower the quantity demanded and the lower the price, the higher the quantity demanded keeping other factors constant". The demand curves normally slope from left to right.

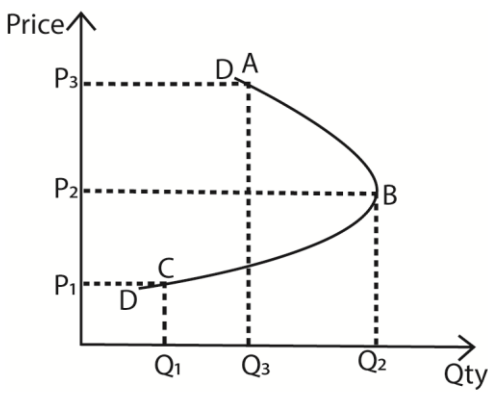
Causes of the Abnormal demand curve

1. **Demand for goods (Articles) of ostentation.** This refers to the demand for expensive luxurious commodities .For example very expensive smart phones. In this case, a further price increase leads to an increase in the demand of the commodity. This is because consumers want to be unique, and they tend to show their economic status by demanding for very expensive items so as to impress the public



AB is the abnormal part of the demand curve. Further increase in the price from $0P_0$ to $0P_2$ leads to an increase in quantity demanded from $0Q_0$ to $0Q_2$.

2. **Giffen good paradox.** Giffen goods are inferior goods which take a large percentage of the consumer's income such that as their prices increase, their quantity demanded also increase and as their prices fall, quantity demand also decreases g. staple food stuffs.



ABC is the demand curve. *CB is* the abnormal part. An increase in the price form *0P1 to* $0P_2$ leads to an increase in quantity demanded from OQ_1 *to* $0O_2$.

3. ***Future price expectation.*** *When the consumers* expect a future price, buy more units of the commodity in the current period even if the prices are slowly. On the other hand, when they expect future price fall, they buy less units of the commodity even if the prices are falling slowly hence violating the law of demand.
4. ***Ignorance effect of the consumers.*** Some consumers may buy more units of the commodity at high prices due to their ignorance about the existing market This is normally due to persuasive advertisement sellers hence violating the law of demand.
5. ***Depression effect.*** A depression is an economic situation where all economic activities are at low levels g. low prices, low incomes, low investment levels etc. In such situations when the price of the commodity reduces, quantity demanded remains low due to the low purch asing power of consumers as a result of low incomes. This violates the law of demand.
6. ***Addiction (Habit) to the consumption of the commodity***. This violates the law of demand in such a way that increasing the price of the commodity may not reduce the

quantity demanded of that commodity to a consumer who is addicted to consuming that commodity, e.g. smokers

7. ***High degree of necessity of the commodity***. When the commodity is of high degree of necessity, its demand remains constant even if its price increases or reduces, for example the demand for salt.
8. ***Judging quality by price. Some consumers tend to judge quality by price.*** Hence they tend to buy more of a commodity whose price is high, thinking that it is of high, quality. This is common in developing countries.
9. ***Special seasons (occasions).*** For example, during Christmas seasons, wedding occasions In such seasons, the demand for certain commodities increases with an increase in their prices due to high need for them. For example the demand for fruits increases during Idd season.

The supply theory

Supply is the total amount of a given product or service a supplier offers to consumers in a given period and at a given price level.

Supply Schedule refers to the numerical representation showing the quantity supplied of the commodity at various prices in a given time. *OR.* It is the table showing quantities of the commodity supplied in the market at various prices in a given time.

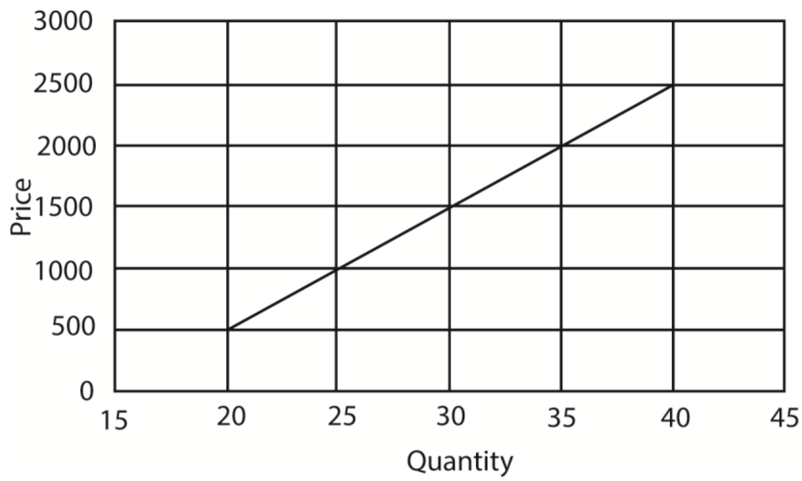
Hypothetical example to illustrate the supply schedule

Price	500	1000	1500	2000	2500
Quantity	20	25	30	35	40

- From the supply schedule above, as the price increases, quantity supplied also
- From the supply schedule we derive the supply curve by plotting price against quantity supplied.

Supply Curve.

This refers to the graphical representation of quantity supplied of a commodity at various prices in a given time. *OR.* It is a locus of points showing quantity supplied of a commodity at various prices in a given time.



From the graph, the supply curve is positively slopping that is, “it slopes upwards from left to right.

The law of supply states that "the higher the price, the higher the quantity s of product supplied and the lower the price the lower the quantity supplied keeping other factors constant".

Reasons

The higher the price, the higher the quantity s of product supplied because higher prices lead to more profit for producers, so they are encouraged to supply more.

Factors affecting quantity supplied of the commodity

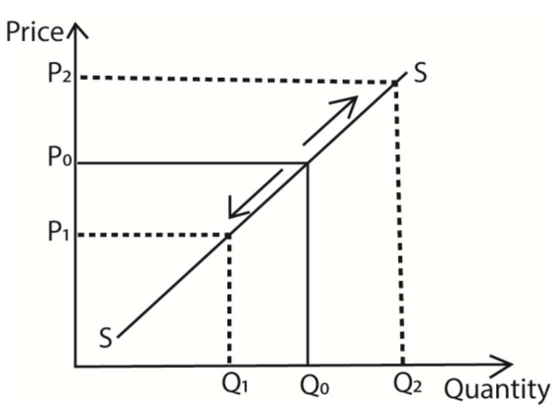
1. **The price of the commodity.** *The higher*, the higher the quantity supplied and the lower the price of the commodity the lower the quantity supplied.
2. **The number of producers of the commodity**. The higher the number of producers of the same commodity the greater the quantity supplied, and the smaller the number of suppliers, the lower the quantity supplied:
3. **Level of costs of production.** A reduction in the factor prices reduces the cost of production and this leads to an increase in supply but an increase in the costs of production discourages producers and this leads to a fall in the quantity supplied.
4. **Degree of availability of factor inputs**. An increase in the supply of factor inputs in form of raw materials increases quantity supplied of the commodity but a reduction in the supply of factor inputs reduces the quantity supplied of the product.
5. **Degree of freedom of entry of firms in production.** Free entry of firms increases the supply of the commodity while restricted entry of firms reduces the supply of goods.
6. **Level of technology used in production.** Use of better and improved technology increases quantity supplied but in case the technology used is inefficient, the quantity supplied reduces e.g. a tractor versus a hand hoe.
7. **Nature of the working conditions.** Favorable working conditions in form of higher wages, transport and food allowances etc. motivate workers to work hard and this increases quantity

supplied of the product. But unfavorable working conditions encourage workers to become inefficient and therefore quantity supplied of the product decreases.

8. **The length of the gestation period.** This is the time taken for a commodity to be ready on market. The longer gestation period, the lower the quantity supplied and the shorter the gestation period, the higher the quantity supplied.
9. **Goal of the firm.** A firm that aims at profit maximization may put less quantity on market and charge a high price hence reducing the quantity supplied of the commodity but for the firm aiming at sales maximization, quantity supplied of the product increases.
10. **Government policy,** increasing taxes by the government on the producers of a certain commodity increases the cost of production and this reduces quantity supplied of the product. But subsidization of producers by the government in form of reduced prices for factor inputs increases the quantity supplied of the commodity.
11. **The nature of the Climate.** Favorable climate increases the supply of the comm odity especially for the agricultural products but unfavorable climate reduces the suppl y of agricultural commodities.
12. **Degree of political stability of the country.** A politically stable country encourages investments and production of goods and services hence increasing the supply of commodities. But a politically unstable country discourages the production of goods and services hence a fall in the supply of commodities.
13. **The size of the market**, the bigger the market size, the higher the supply of the commodity **and** the smaller the market size, the lower the supply of the commodity.
14. **Future price expectations.** An expected future increase in the price of the commodity by the producers reduces the current supply of the commodity. This is because they expect to sell at a higher price and earn more profits in future. But an expected future fall in the price increases the current supply of the commodity. This is because the producers want to avoid making losses by selling at lower prices in future

Change in quantity supplied

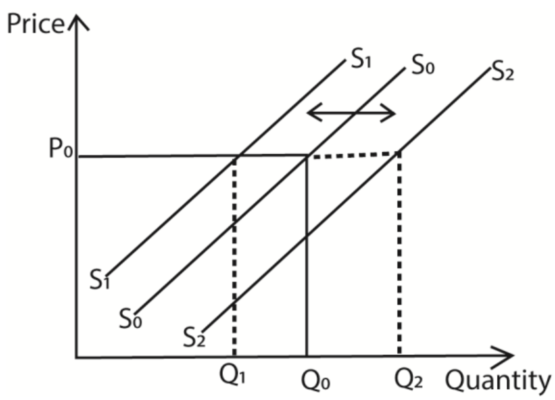
This refers to the increase or decrease in the quantity supplied of a commodity due to change in its price keeping other factors constant. It involves the movement along the supply curve.



- The movement downwards the supply curve is called a **contraction** (decrease in quantity supplied). It is brought about by the fall in price of a commodity keeping other factors constant.
- An upward **movement** along the supply curve is called an **expansion** (increase in quantity supplied). It is brought about by increase in the price of the commodity keeping other factors constant.

Change in supply

Change in supply refers to an increase or decrease in supply due to changes in other factors affecting supply of the commodity at a constant price. *OR.* It refers to a shift in the supply curve brought about by the changes in other factors affecting supply at constant price of a commodity.



- A shift in the supply curve from S0 to S_1 is called a decrease in supply. It refers to the shift in the supply curve to the left caused by the unfavorable factors which affect supply at a constant
- A shift in the supply curve from S_0 to S_2 is called an increase in supply. It refers to the shift in the supply curve to the right caused by the favorable factors which affect supply at a constant

Types of Supply

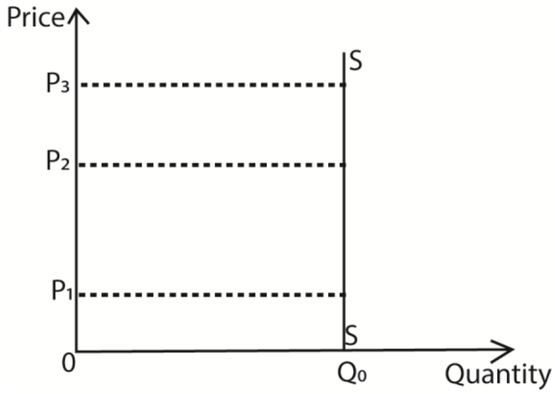
1. ***Competitive supply***. *This is where* the supply of one commodity leads to a reduction in the supply of another commodity. For example, increasing the supply of beef at the expense of milk.
2. **Complementary (Joint***) supply.* This refers to the situation where the commodities are supplied together. That is, the supply of one commodity automatically leads to the supply of another e.g. beef and hides, mutton and wool.

Regressive (Abnormal/Exceptional) Supply *curve*

A *regressive supply* curve is one which the law of supply which states that "the higher the price, the higher the quantity supplied and lower the lower the quantity supplied keeping other factors constant". It does not slope upwards from left to right.

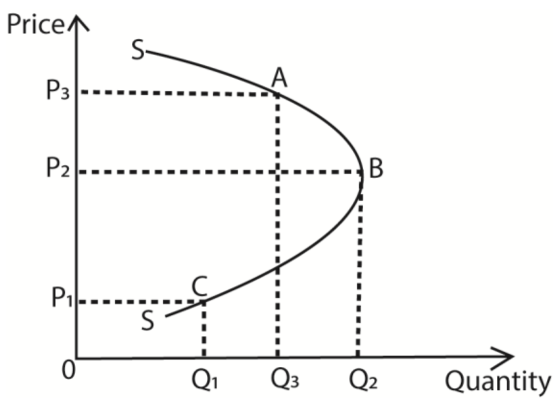
Examples of regressive supply curves

(a) Fixed supply curve of land in short run



From the graph above, an increase in price from OP_1 to OP_2 does not lead to an increase in the quantity of land supplied; that is; despite the increase in price, the quantity supplied remains constant at OQ_0. It a supply curve for a necessity such as salt

(b) Supply curve for Labor



From the graph, ABC is the backward bending Labor supply when the wage increases from OP1 to OP_2 Labor supply increases from OQ_1 to $0Q_2$, after point B, the wage increase from OP2 to OP_3 leads to a reduction supply from OQ_2 to OQ_3

This regressive Labor supply curve is due to the following factors.

- **Presence of target workers.** These are workers who work only to fulfill their targets or objectives after which they abandon work or decide to work for fewer hours. This violates the law of supply.
- **High preference for leisure**. As workers earn more wages, they prefer leisure to work and therefore they end up working for fewer hours.

(c) Decline in the real wage of workers **due to high levels of inflation. This** forces workers to work for fewer hours.

(d) Use of progressive taxation **by the government.** That is where the tax rate increases as the income of the taxpayer These discourage hard work for high wage earners and are forced to work for fewer hours so as to earn a lower wage and pay fewer taxes.

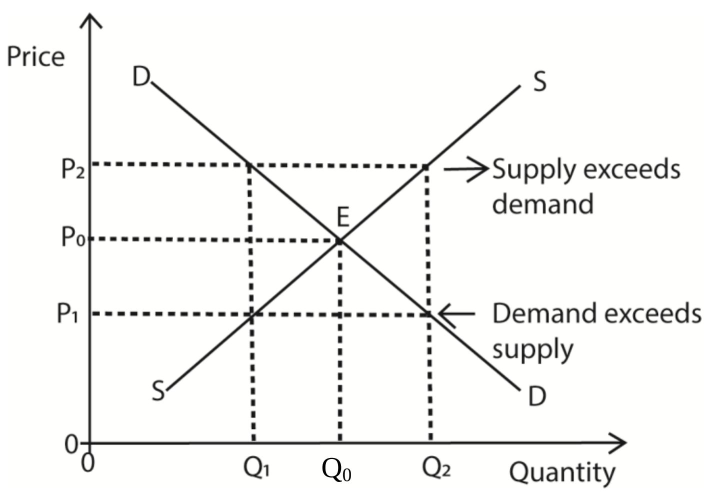
(e) Speculative supply. When prices are expected to increase in future, sellers or producers put less on market even if prices are slightly increasing. This is because they are expecting to get a lot of profits in future at very high prices.

(f) Supply of perishable goods. For perishables, more is supplied (put on the market) immediately after harvest. Therefore, even if prices are low or decreasing, more is supplied hence violating the law of supply**.**

(g) Existence of Catastrophic periods. In such periods, supply may not increase even if prices are increasing due to scarcity of commodities.

Price mechanisms

Price is determined by law of demand and supply. In a competitive market, equilibrium price P_0 occurs when quantity demanded equals quantity supplied. This is graphically illustrated as shown below



- At high price $0P_2$ supply exceeds demand and therefore a surplus of Q_0Q_2 is When supply is in excess, the producers decrease the price in order to
  sell the surplus (excess) and in the process equilibrium is restored in the market at point E.
- At lower price OP_1, quantity demanded exceeds quantity supplied therefore a shortage Q_1Q_0 is
  created which forces the producer (seller) to increase the price until the equilibrium point is attained at point E.

Note

- **Market price** refers to the prevailing (ruling) price in the market at a given time. Market price is any price determined by the buyers and sellers in the market irrespective of w hether quantity demanded is equal to quantity supplied at a given.
- **Equilibrium price** refers to the market price where quantity demanded is equal to quantity supplied.
- **Normal (natural) price** refers to the long run equilibrium price established in the market after a long period of price fluctuations.
- **Reserve price** refers to the minimum price set by the seller below which he is not willing to sell his commodity.
- **Reserve wage** refers to the minimum wage set by a worker below he is not willing to work/offer services.

The theory of elasticity

Elasticity is the measure of degree of responsiveness of variable due to changes (variations) in the independent variable(s).

In the theory of demand and supply, quantity supplied, and quantity demanded are said to be dependent variables while their determinants like price of the commodity are said to be independent variables.

There are two broad categories of elasticity. These include:

1) Elasticity of demand

2) Elasticity of supply

Elasticity of demand

This is the measure of degree of responsiveness of quantity demanded due to changes in the factors which influence quantity demanded.

Types of Elasticity of demand

(a) Price elasticity of demand (b) Point elasticity of demand (c) Arc elasticity of demand (d) cross elasticity of demand (e) Income elasticity of demand

(a) Price elasticity of demand

This is the measure of the degree of responsiveness of quantity demanded due to changes in the price of the commodity.

Price elasticity of demand (PED) = $(-)\frac{\%\ change\ in\ quantity\ demended}{\%\ chnage\ in\ price}$

The negative is multiplied in the formula because of the negative relationship between quantity demanded and the price of the commodity.

Examples 1

A change in price form 10/= to 15/= lead to a reduction in quantity from 24 to 20. Calculate price elasticity of demand

Percentage change in quantity demanded = $\frac{20-24}{24}\ x\ 100 = \ -16.67\%$

Percentage change in price = $\frac{15-10}{10}\ x\ 100 = \ 50\%$

(PED) = $(-)\frac{\%\ change\ in\ quantity\ demended}{\%\ chnage\ in\ price} = (-)\frac{-16.67}{50} = 0.33$

Example 2

A 20% change in price of a commodity led to a fall in quantity demanded of the commodity from 40 to 20 units. Calculate price elasticity of demand.

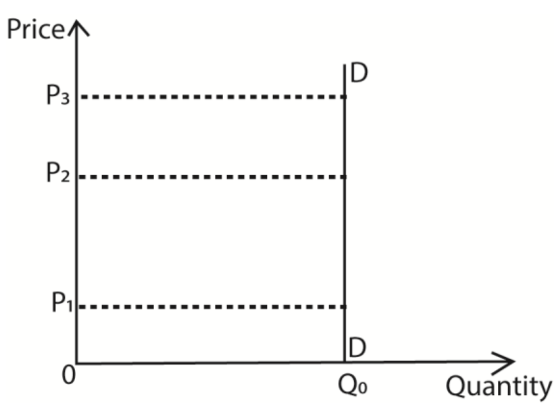
Percentage change in quantity demanded = $\frac{40-20}{40}\ x\ 100 = \ -50\%$

Percentage change in price = 20%

(PED) = $(-)\frac{\%\ change\ in\ quantity\ demended}{\%\ chnage\ in\ price} = (-)\frac{-50}{20} = 2.5$

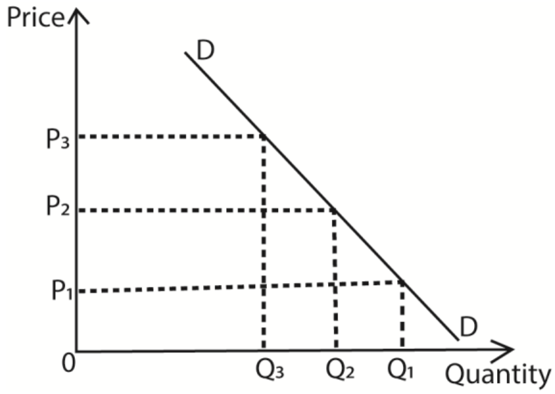
Interpreting price elasticity of demand

(i) Perfectly inelastic demand (E_P= 0). This is when price elasticity of demand equals to zero. Here the quantity demanded does not respond to changes in price at all.



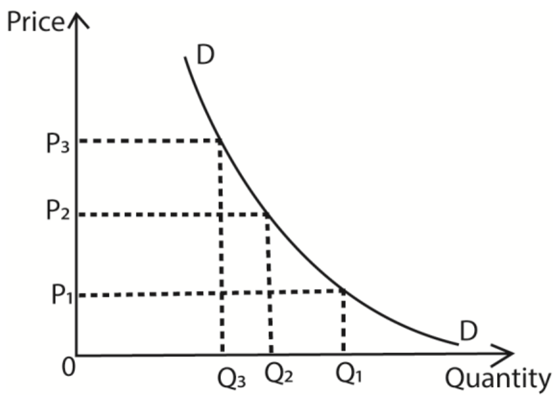
From the graph a change in price from OP_1 to OP_2 to OP_2 leaves quantity demanded unchanged at *$0Q_0$*.

(ii) Inelastic **demand (0 < Ep <1)**



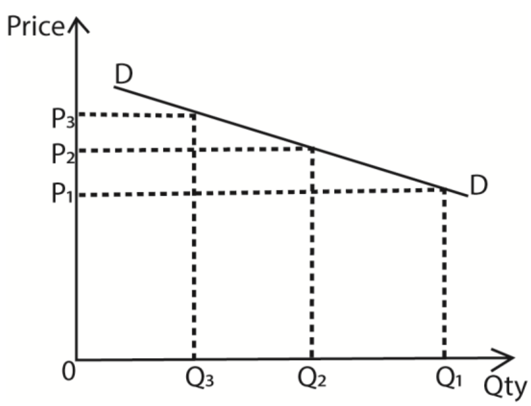
In this case, the price elasticity of demand is greater than zero but less than one. A big proportionate change in price leads to a smaller percentage change in quantity demanded.

(iii) Unitary elasticity of demand



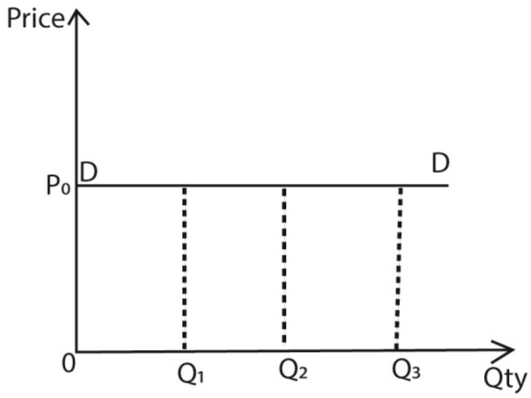
In this case, the price elasticity of demand equals to one. The percentage change in quantity demanded equals to the percentage change in price. It is illustrated by a rectangular hyperbola.

(iv) Elasticity of demand (1 < Ep < ∞)



In this case, the price elasticity of demand is greater than one but less than infinity or is between one and infinity. A big percentage change in quantity demanded is due to a small percentage change in price

(v) Perfectly elastic **demand (Ep = ∞)**



(b) Income elasticity of demand

Income elasticity of demand is the degree of responsiveness of demand of a commodity due to a change in Consumer's income.

It is obtained as a ratio of the percentage change in the quantity demanded of a commodity to the percentage change in the customer's income

Income elasticity of demand (YED) =$\frac{\%\ change\ in\ quantity\ demanded\ of\ \ Y}{\%\ chnage\ in\ income}$

Interpretation of Income elasticity of demand

- If YED > 0 (positive): the commodity is a normal good. The demand for normal good increase as the consumer's income increase.
- If YED < 0 (negative): the commodity is an inferior good. The demand for an inferior good reduces as the consumer's income increases.
- If YED = 0: the commodity is a pure necessity. The increase in consumer's income has no effect on the quantity demanded for a pure necessity such as salt.

Example 5

An increase in the consumer's income from 1000/= to 1800/= led to an increase in the quantity demanded of commodity X from 20 to 30.

(i) Calculate the income elasticity of demand for commodity X.

Percentage change in income = $\frac{1800-1000}{1000}\ x\ 100 = \ 80\%$

Percentage change in quantity of X demanded = $\frac{30-20}{200}\ x\ 100 = 50\%$

Income elasticity of demand (YED) = $(-)\frac{\%\ change\ in\ quantity\ demended}{\%\ chnage\ in\ income}$

$$= \frac{50}{80} = 0.625$$

(ii) What is the nature of commodity X

It is a normal good because YED > 0 (positive): the commodity is a normal good.

Example 6

A 10% decrease in consumers income led to an increase in quantity demanded of commodity P from 25 to 32.

(i) Calculate the income elasticity of demand of commodity P

Percentage change in income = $\frac{32-25}{25}\ x\ 100 = \ 28\%$

Percentage change in quantity of X demanded = -10%

Income elasticity of demand (YED) = $(-)\frac{\%\ change\ in\ quantity\ demended}{\%\ chnage\ in\ income}$

$$= \frac{-10}{28} = -0.35$$

(ii) State the nature of commodity P

P is an inferior good

Example 7

Income	Quantity demanded of commodity P
250	50
600	25

(i) Calculate the income elasticity of demand of commodity P

Percentage change in income = $\frac{600-250}{250}\ x\ 100 = \ 140\%$

Percentage change in quantity of X demanded = $\frac{20-50}{50}\ x\ 100 = -50\%$

Income elasticity of demand (YED) = $(-)\frac{\%\ change\ in\ quantity\ demended}{\%\ chnage\ in\ income}$

$$= \frac{-50}{140} = -0.36$$

(ii) What is the nature of commodity P

P is an inferior good

Determinants of price elasticity of demand

1. **Level of consumers' income.** The higher the level of consumers' income, the lower the elasticity and the lower the level of income, the higher the elasticity of demand (elastic).
2. **Degree of necessity of the commodity.** The higher the degree of necessity of the commodity likes salt, the lower the elasticity of demand (inelastic) while the lower the degree of necessity of the commodity the higher the elasticity of demand (elastic).
3. **Degree of availability of substitutes.** The demand for a commodity with many substitutes tends to be elastic while the demand for a commodity with few or no substitutes tends to be inelastic.
4. **The cost of the commodity.** The demand for the commodity that takes a small proportion of the consumers' income tends to be inelastic. For example elasticity of demand for a match box is inelastic. On the other hand, the demand for a commodity that takes a large proportion of consumers' income tends to be elastic.
5. **Habit (addiction) in the consumption of the commodity.** The demand for the commodity for which the consumer is addicted to tends to be inelastic for example a consumer who is addicted to the consumption of cigarettes. On the other hand, the demand for the commodity for which the consumer is not addicted to tends to be elastic
6. **Number** of **uses of the commodity.** The demand for the commodity that has many uses "tends to be elastic. For example, if the unit price of electricity increases, consumers use less of it for only vital purposes for lighting: On the other hand, the demand for the commodity that has few uses tends to be inelastic.
7. **Degree of durability of the commodity.** The demand for a durable commodity tends to be inelastic. This is because even if the price of such a commodity falls, the consumer may not demand more of that commodity because he already has that commodity. On the other hand, the demand for a perishable commodity tends to be elastic.
8. **Level of advertisement for the commodity**. The demand for a commodity that is highly advertised tends to be inelastic but the demand for the commodity that is not highly advertised tends to be elastic.
9. **Future price expectations.** The demand for the commodity whose price is expected to decrease in future makes its current demand to be elastic but the demand for the commodity whose price is expected to increase in future makes its current demand to be inelastic.
10. **The demand for a commodity whose use can be postponed**. The demand for the commodity whose use can be postponed to a future date tends to be elastic but the demand for the commodity whose use cannot be postponed tends to be inelastic.

11. **Time period.** In the short run, the demand for the commodity may be elastic because the consumers are not yet used to the new product on the market while in the long run the demand for such a commodity may be inelastic after the consumers getting used to the product.
12. **Level of consumers' ignorance.** Consumers may buy commodities at a high price when they do not know where such commodities or their substitutes are sold. Consumers may also mistake the increase in the price to be a result of increase in the quality of products which may not be the case. Consumers' ignorance therefore leads to low elasticity of demand of commodities.
13. **Degree of convenience in obtaining the commodity**. The higher the level of convenience, the lower is the elasticity of demand and the lower the level of convenience, the higher the elasticity of demand.

Elasticity of supply

Elasticity of supply refers to the degree of responsiveness of quantity supplied due to changes in the factors which influence supply

Price elasticity of supply is the measure of the degree of the responsiveness in quantity supplied due to changes in the price of commodity supplied

Price elasticity of supply (PED) = $\frac{\%\, change\ in\ quantity\ supplied}{\%\, change\ in\ price}$

Example 8

An increase in the price of sugar from 100/= to 120/= per kilogram lead to an increase in the quantity supplied of sugar from 30kg to 40kg. Calculate the price elasticity of supply.

Solution

Percentage change in quantity = $\frac{40-30}{30}\ x\ 100 = \ 33.3\%$

Percentage change in price = $\frac{120-100}{100}\ x\ 100 = 20\%$

Income elasticity of demand (YED) = $(-)\frac{\%\, change\ in\ quantity\ demended}{\%\, chnage\ in\ price}$

$$= \frac{33.3}{200} = 1.67$$

Example 9

An increase in the price of commodity by 40% causes an increase in quantity supplied of sugar from 200kg to 250kg. Calculate price elasticity of supply.

Solution

Percentage change in price = 40%

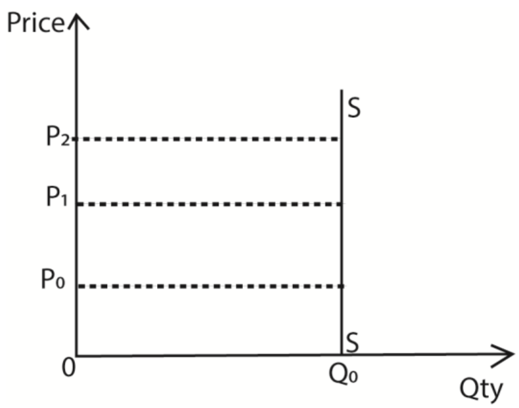
Percentage change in quantity of X demanded =$\frac{250-200}{200}\ x\ 100 = \ 25\%$

Income elasticity of demand (YED) = $(-)\frac{\%\ change\ in\ quantity\ demended}{\%\ chnage\ in\ income}$

$$= \frac{25}{40} = 0.625$$

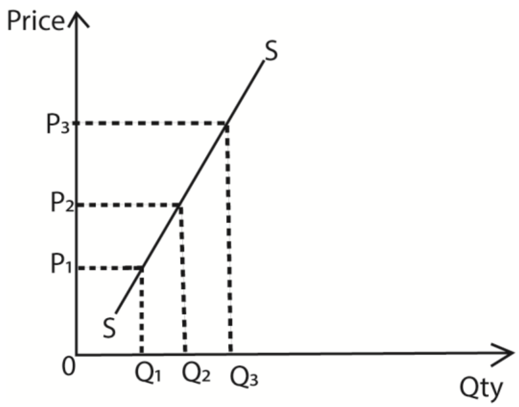
Interpretation of price elasticity of supply

(a) Perfectly inelastic supply (E_S= 0).



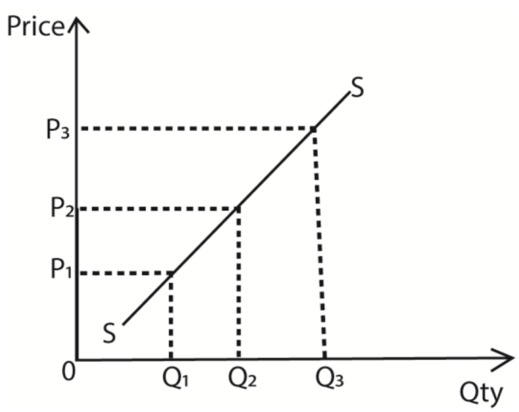
In this case, quantity supplied does not respond to changes in price. For example, the supply of agricultural products in short runs.

(b) Inelastic supply (E_P= 0 < E_S < 1).



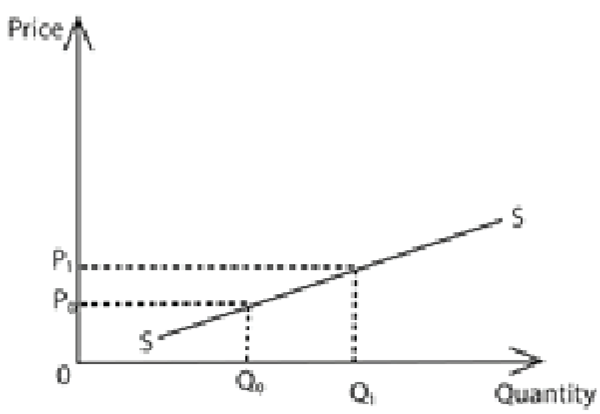
In this case, a big proportionate change in price leads to a small proportionate change in quantity supplied

(c) Unitary supply (E_S = 1)



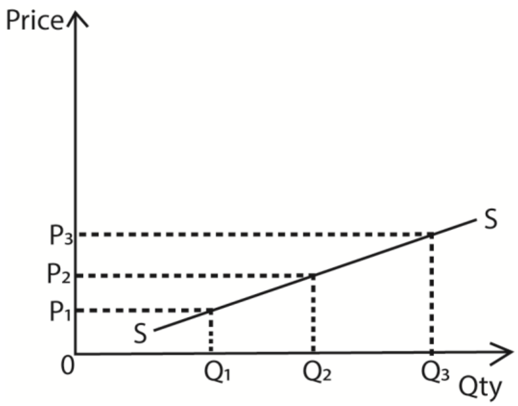
In this case, a percentage change in price leads to an equal percentage change in quantity supplied

(d) Elastic supply



In this case, a small percentage change in price leads to a big percentage change in the quantity supplied.

(e) Perfectly elastic supply



In this case, at constant price, quantity supplied increases. This situation is not applicable in the real world.

Determinants of Price Elasticity of supply

6. ***Cost of the higher*** the cost of production, the more inelastic the supply of the commodity and the lower the cost of production; the higher the elasticity of supply.
7. ***Gestation period (Length of the production process)****.* The longer the gestation period, the lower is the elasticity of supply and the shorter the gestation period, the higher the elasticity of supply.
8. ***Level of technology****.* The higher the level of technology e.g., use of modem techniques of production the higher the elasticity of supply while the lower the level use of inelastic production techniques) the lower the elasticity of supply
9. **Degree of availability of factor inputs.** The supply of the commodity whose factor inputs are readily available tends to be elastic but the supply of the commodity whose inputs are scarce tends to be inelastic.
10. **Degree of entity of firms in the production process**. Free entry of firms in the production process increases the number of producers of the product hence elastic supply while restricted entry of firms in the production process leads to inelastic supply e.g., the case of a monopolist.
11. **Degree of factor mobility.** Factor mobility refers to the ease with which a factor of production be changed from one occupation/geographical location to another. Highly mobile fa ctors of production make the supply of the commodity elastic while immobile factors of production make supply inelastic.
12. **Government policy of taxation.** High taxes imposed by the government on producers increase the cost of production hence inelastic supply. However, subsidization of producers by the government reduces the cost of production hence elastic supply.
13. **Price expectation**. An expected future price fall by the producer relative to the current prices makes the current supply of the commodity elastic. But the expected future price increase by the producer relative to the current prices makes the current supply inelastic.
14. **The nature of the product (commodity)**. Durable commodities have elastic supply. This is because they can be stored for a long time and any increase in price is accompanied by

an increase in price. On the other hand, perishable commodities have inelastic supply because they cannot be stored for a long time such that if there is an increase in price nothing can be supplied.

15. **Objectives of the firm.** A firm whose objective is to maximize sales is associated with elastic supply of the commodity while a firm whose objective is to maximize profits, the supply of the commodity tends to be inelastic.
16. **Time.** This can be short run or long run. In the long run supply becomes elastic since producers have enough time to the factors of production so as to increase output but in the supply is inelastic because it is difficult to change the fixed factors of production in order to increase supply.

Price discrimination (Parallel pricing)

Price discrimination is the process (practice) of selling the same commodity to different consumers at different prices by the same seller in a given period of time, for reasons not associated with costs. For example, prices of entertainment tickets at different costs for public and students or children and adults.

Conditions necessary for Price discrimination to succeed

- The commodity should **not have close substitute.**
- **Businesses must prevent resale.** Prevention of re-sale could be enforced in many different ways. For example, students can only receive student discounts with a legitimate student ID, children can easily be identified from adults.
- The **market in question must be geographically distant /spatially separated** in case of seats for football or entertainment such that it is easy for monopolist to charge different prices in the different marketplaces or transfer of goods from one market to another is difficult
- **There should be different elasticity** of demand in the different markets.
- **Ignorance among customers** about other markets
- **The seller or producer** must be a monopolist, or the market must be imperfect.
- **Personal services** that can be resold or transferred e.g. medical Doctor, teacher, entertainment etc.
- **Product differentiation:** artificial differences made on similar products by a way of branding, trademarks.
- **Low transport costs also lead to monopoly power** in that goods can be transferred from one market to another without affecting their prices.
- **No government interference**

Forms (Basis) of Price discrimination

1. **Price discrimination according to personal income.** This is where different prices are charged to different income groups for example charging low prices to the low-income earners and high prices to the rich for the same service.
2. **Price discrimination according to sex and age.** This is where different prices are charged for different sexes or ages for example higher charges may be fixed on tickets for a

football match for adults and lower charges for the children, lower charges on tickets a dance for females and higher charges for males.

3. **Price discrimination according to status**. Students or soldiers in uniforms may be charged lower than other groups of people for certain services like transport and entertainment.
4. **Price discrimination according to geographical factors**. Price discrimination may be geographical, for example dumping where commodities are sold at lower prices in a foreign market as compared to the one charged in the domestic market.
5. **Price discrimination according to time of service.** This is where different prices are imposed on consumers when getting services at different times or period e.g. film shows tend to be more expensive on weekends as compared days, evening dances are more expensive as compared to dances organized during daytime.
6. **Price discrimination according to use.** For example, during transportation, low transport charges can be charged on essential commodities and high transport charges for luxurious commodities.
7. **Price discrimination according to differentiation of product.** This is where consumers are charged differently according to the class. For example seats in air transport, first class seats are charged higher amounts as compared to other classes.
8. **Price discrimination according to the nature of the product**. For example, packed commodities are charged higher amounts as compared to unpacked commodities even if they are of the same quality.

Advantages (Merits) of Price discrimination

1. **Price discrimination increases the total revenue of the monopolist.** This is because, output sold increases due to the act of charging different prices to different consumers of similar units of the same commodity. .
2. **It helps to reduce income inequalities.** This is because the rich consumers are charged higher prices and the low income earners are charged low prices.
3. **It enables the low income earners to get essential commodities at fair prices e.g.** medical services, transport and housing etc.
4. **Price discrimination helps producers or countries to dispose of the surplus output through the process of dumping.** Dumping is important to the producer because it encourages exploitation of resources within the home country by widening the external market for goods and services.
5. The profits earned by a monopolist through price discrimination can be used to expand on the business and to improve on the welfare of the workers.
6. **Price discrimination increases quantity sold and consumed example for electricity, the** first units are charged a high price as compared to the extra units. Therefore, the more units you use, the less charge you incur for the extra units.

Disadvantages (Demerits) of price discrimination

1. **Price discrimination leads to the provision of poor-quality services especially to the low-income earners.** This is because there is no competition since it is carried out by a monopolist.

2. **Price discrimination based on dumping retards the development of young industries in a country where the commodities are dumped.** This is because consumers may prefer the cheap dumped commodities as compared to the expensive locally produced commodities.
3. **Price discrimination on the international market leads to the consumption of harmful a nd expired commodities** for example cheap expired drugs or food stuffs sold to developing countries by developed countries.

How price influence agricultural production

- When prices in the market is high farmers are encouraged to produce more produce than when prices are low
- When prices are high farmers make high profits
- Price determine what the farmers produce to fetch high profits
- High input prices may discourage some farmers causing low agricultural production.

Effects of agricultural price fluctuation in Ugandan economy

- Farmers get discouraged
- Leads to fluctuation of government revenue from agricultural related products
- Leads to unemployment because people abandon agriculture
- Leads to unstable export earnings
- Unstable terms of trade since the cost of imports remain constant
- Make planning agriculture difficult leaving it to mere speculation
- Encourages rural-urban migration search of job with stable income
- Reduced production because price fluctuation discourage investment in agriculture
- Income inequality rises because some become rich others poor due to agricultural price fluctuations.
- Make it hard to pay back agricultural loans
- Make it hard for banks to avail agro based loans

Reasons to stabilize prices of agricultural products

- to stabilize incomes of farmers
- to stabilize balance of payment
- for stabilize government revenue
- to stabilize foreign exchange earnings
- to control rural-urban migration
- to minimize unemployment
- to discourage speculations in the agriculture
- to ensure stable foreign exchange rate
- to encourage investment in agriculture

Measures that can be adopted to stabilize agricultural prices

- **Buffer stocks.** The government should buy up part of the supply when output is in excess, store this surplus and later sells it to the consumer in times of reduced supply.

- **Stabilization fund**. The government through marketing boards can maintain or increase prices of agricultural products, depending on world market prices. If profits are made, they are saved and used to stabilize prices and incomes of the farmers.
- A variety of agricultural activities should be introduced e.g. crop farming, poultry, animal husbandry etc. to reduce over dependence on one or a few sources of agricultural income in a bid to stabilize farmers' income.
- **Encourage formation of cooperatives** to bargain fair prices
- **Introduce irrigation schemes** to ensure continuous supply of agricultural products.
- **Stability in prices of agriculture** can also be attained by improving transport system to enable easy marketing
- There is a need to improve, **develop and expand storage facilities** to accommodate excess output in agriculture.
- **Price control**. Government should establish the minimum and maximum prices for agricultural output.
- **Market expansion**. Government should expand agricultural output market through economic integrations
- encourage further diversification of agriculture
- Encourage processing to increase value and shelf-life
- Dissemination of marketing information to the farmers.

Challenges encountered by government while stabilizing the price of agricultural products in Uganda

- conflicts with the policy of liberalization
- standardization of quality and quantity of the produce
- inadequate funding
- poor road and communication network
- need to process agricultural produce and extend self-life
- shortage of storage facilities
- competition from synthetic substitutes
- lack enough market for the produce
- high illiteracy rate among farmers
- subsistence production/low product quantities
- limited diversification of agricultural production
- corruption and embezzlement

Ways of improving the marketing of farm products in Uganda

- Providing adequate market information i.e. the buyer should be informed of availability of the produce.
- Standardization of the quality and package of products.
- Improvement of transport network to enable transport of produce to the market
- Processing to increase value and lifetime of produce
- Formation of marketing cooperatives that help farmers to improve quality, source for the market and bargain for good prices
- Improving on security of the country to allow free movement of traders.

- International integration to increase market for produce
- Promoting agro-industries to provide market for agricultural produce

Reasons why the supply of an agricultural commodity may be low even when the demand for it is high.

- Bulkiness of the products making it difficult to transport to places where they are demanded
- Lack of method of preservation to sell in time of scarcity
- Poor transport system that fails transportation of agricultural products
- Long biological lag makes it difficult to increase supply in short run
- Weather uncertainties may disrupting production
- Use of poor technology leading to low production
- Low production due to few farmers
- Seasonality making them to be in excess in certain part of the year and in short supply in the other part of the year e.g. grasshoppers (ensenene)
- Lack of storage facilities store excess
- Lack of inputs such as land

Concept of the firm

- **A firm** is a production unit under one management which organizes resources to produce goods and services.
- **An industry is** a collection of firms dealing in related products for example foot wear industry plastic industry, textile industry etc.

Types of industries

1. **Rooted Industries***.* These are industries located near the source of raw materials e.g. Cement industries located near lime stone rocks, sugar industries located near, sugar cane plantations
2. **Footloose Industries.** There are industries which can be located anywhere without considering the source of raw materials or market.
3. **Tied Industries.** These are industries located near the market for their finished products e.g. furniture industries, bakeries, carpentry workshops soda industry, etc.

Objectives of the firm

1. **Profit maximization.** This is a major objective of the firm. The firm tries to minimize the costs and maximize the revenue the revenue in order to maximize profit. Profits are maximized at a point where marginal cost equals to marginal revenue.
2. **Sales revenue maximization.** The firm may aim at increasing sales through reduced prices, advertisement and other incentives given to customers with the aim of maximizing t he sales revenue.
3. **Good image.** Some firms do not aim at profit making but to serve the community and maintain their reputation especially parastatals. This can be achieved by fixing low average prices, providing quality products and services that are appropriate to community needs.
4. **Market expansion.** Firms aim at getting a bigger market share as compared to their competitors through market research, supplying good quality products, advertisement etc.

5. **Long run survival.** The firm may operate in such way to exist for a long time. This can be achieved through proper management and making proper decisions.
6. **Entry limitation.** Some firms are interested in preventing other firms from entering the industry. This is achieved by setting lower prices that make entry of new firms in the-industry un attractive. This is referred to as **limiting pricing policy**.
7. **Employee welfare maximization**. Some firms aim at maximizing the welfare of their workers increasing the wage and non-wage benefits,

Survival of small-scale firms alongside large firms

As firms increase their scale of operation, they enjoy economies of large scale. Therefore, every firm must strive hard in order to reap such benefits. However, some firms continue to operate on a small scale because of the following factors.

1. **Limited capital.** Small firms may be limited by capital for their expansion and this makes them to remain small for a long time.
2. **Limited Market Size.** Some firms may remain small due to a small market size which necessitates the production of low output. Therefore the firm remains small to avoid loss resulting from over production.
3. **Using bi-products from large firms.** Small scale firms may survive When they are using raw materials supplied by large firms. This makes them to remain in a small state despite the benefits of large production.
4. **Providing personalized services.**
   Small scale firms which provide personal services and pay individual attention to their customers like doctors, tailors may not need to operate on a large scale if they are to provide standardized services to their customers.
5. **Need for personal contact.** The owners of small scale firms can easily develop personal contacts with their customers. This may help the firms to keep on operating unlike large firms where the owners may not develop personal contacts with their customers e.g. salons.
6. **Simplicity in management.** Small scale firms are easy to manage that is there is easy communication and co-ordination within the small firm unlike large firms.
7. **Beginner firm.**
   When the firm has just started, it operates on a small scale because time is required for it to expand and enjoy the economies of large scale.
8. **Fear of diseconomies of scale.** Unlike large scale firms, small firms do not face internal diseconomies of scale and therefore, this forces them to small for a long time.
9. **Production of very expensive products.** Firms engaged in the production goods of ostentation may remain small because of the nature of their expensive products and the need to show class among their customers. Examples are firms dealing in sports cars, expensive jewelry etc.
10. **Flexibility in production.** Small scale firms can easily change the line of production without wasting much resources for example when the market demand changes, a small firm does not lose so much as compared to a large firm,
11. **Production of bulky and fragile products.** Small scale firms dealing in bulky and fragile products may feel secure to remain small to avoid risks of over expansion e.g. Firms dealing in glass making, brick making, eggs etc.

12. **Fear of paying taxes to the government.** Small firms can easily avoid and evade paying taxes and this makes them to operate on a small scale.

Merging (Integration) of firms

This is where two or more firms join together to form one business unit with the aim of enjoying economies of large scale.

Reasons (Aims/Objectives) for merging/integration

1. To **expand the market** in form of increased sales resulting from large production.
2. To **ensure efficient management,** that is, different firms can combine different management skills which enable them to operate more effectively and efficiently.
3. **To reduce on the risks involved in business operations.** This is because under mergers risk bearing economies of scale can be enjoyed through diversification in production.
4. **To monopolize business activities.** When a number of firms combine to form one large firm, they can outcompete other small firms hence enjoying the monopoly power.
5. **To increase employment opportunities.** A number of business activities are created due to large scale of production hence more employment opportunities.
6. **To increase resource utilization.** A combined big firm can be able to raise more capital in order to increase on the utilization of resources and produce more goods and services, in case small firms have been operating at excess capacity.
7. **To ensure reliable supply of raw materials, f**or example when one firm is using bi-products of another firm as its source of raw materials.
8. To **increase on the profits** of each firm within the merger due to the large scale of operation of the merger.
9. To **ensure increased quality and quantity of output**. For example, through joint research, firms can be able to improve on the quality of their products.
10. **To promote specialization in production.** Each firm under the merger can specialize in producing a given product. This increases the efficiency and output of each firm.

Factors which make it difficult for firms to Merge

1. Fear of complexity in management in form of bureaucracy
2. Fear of losing independence enjoyed by individual firms
3. Differences in aims and objectives of individual firms
4. Government policy which may be aimed at discouraging merging of firms
5. Fear of losing employment due to merging for example the managers
6. Fear of paying high taxes by one single big firm
7. Fear of losing personal contact with the clients of the firm.
8. Fear of under taking high risks associated with large scale operation
9. Fear of not achieving the optimum level of production due to a large scale of production
10. Fear of diseconomies of large scale. For example marketing and technical diseconomies of scale
11. Market potential may favor competition which forces firms to remain independent.

Advantages of merging of firms

1. It helps to expand the market in form of increased sales resulting from large firms.
2. It increases employment opportunities as a result of large scale production.
3. It increases utilization of resources hence increased output.
4. It helps to minimize unnecessary competition among firms producing related products in form of duplication of commodities.
5. It ensures reliable supply of raw materials.
6. It improves efficiency in management. This is because people of different expertise and experience are combined together under the merger.
7. It reduces the cost of advertising for individual firms.
8. It enables firms to carry out research jointly at a reduced cost.
9. It enables firms to access capital (loans) from financial institutions as a result of merging.
10. It enables the firms to share risks involved in production.
11. It enables firms to access the use of better techniques of production.
12. It increases profits of each firm due to large scale production.
13. It promotes specialization among firms which increases the level of output.

Disadvantages of merging of firms

1. It leads to over exploitation of resources.
2. It increases pollution due to the existence of the industry.
3. It leads to congestion of firms within the industry.
4. It leads to over production due to large scale production hence wastage of resources.
5. It leads to price fluctuations due to over production.
6. It leads to loss of independence of individual firms
7. It increases complexity in management due to large scale operation.
8. It leads to emergency of collusive monopoly and its associated negative implications
9. It leads to unemployment in firms when the firms use capital intensive techniques of production.

Location of firms (Industries)

This refers to the setting up of a firm in a particular area.

Factors affecting the location of firms

1. **Availability of raw materials.** In situations where the raw materials are bulky the firm finds it cheaper to be near the source of raw materials. For example the location of cement factory in Tororo was due to the presence of limestone rocks.
2. **Availability of power supply.** Industries which require a lot of power are located near source of power, for example, industries manufacturing metal products like steel rolling mills. This explains why Jinja became the industrial town of Uganda due to the presence of hydroelectric power source.
3. **Availability of market.** Industries or firms producing perishable commodities like flowers, bread etc. are located near the market to avoid their products from getting spoilt or damaged while in transit. In addition, industries

producing fragile and bulky commodities like glass and bricks need to be located near market areas.

4. **Availability of transport facilities.** There is need to locate a firm where transport is readily available and cheap .For example along railway lines, good road networks, water ways etc. This helps to minimize on the transport costs.
5. **Availability of water supply.** Some firms require water as a raw material in the production process, for example, water is used as an input in the brewery industry and it can be used for waste disproval by many industries. Therefore, it is economical for some industries to be located near a water source.
6. **Availability of land.** Land provides a site where a production unit can be established. Therefore it is economical for firms to be located in areas where land as available and cheap so as to provide room for industrial expansion.
7. **Availability of cheap Labor.** Firms are located in areas where Labor is cheap and is in enough supply. This is true with firms which are Labor intensive.
8. **Government policy.** The government may be aiming at balanced regional development, employment creation, controlling rural urban migration which may force the government to locate a firm in a certain area.
9. **Political climate.** The location of a firm is determined by political stability (security) of the area. This is because a politically stable area provides a conducive investment climate which attracts firms to be located in a certain area.
10. **Availability of economic infrastructure.** For example banks, insurance companies, advertising companies etc. may force firms to concentrate in an area.
11. **Availability of suitable climate**. Firms are located in areas where the climate is generally favorable for their activities. For example, it is not advisable to locate a paper industry in a swampy area.

Localization of firms

This refers to the concentration of firms in a particular area.

Factors which influence the localization of firms

1. **Industrial inertia.** This is the tendency of the existing firms to remain established in a given area even when the location factors are exhausted.
2. **Availability of ready market.** The already established firms may provide market for the incoming firms and the new firms may provide raw materials for the already established firms and therefore such firms may decide to localize in one area.
3. **Power supply.** Availability of cheap and constant power supply may lead to the concentration many firms in one area.
4. **Availability of enough land.** When land is available and cheap, many firms concentrate in that area because of the existence of room for expansion.
5. **Availability of supply of skilled and unskilled Labor**. When Labor is readily available, and in large quantities, many firms may be established in that area hence localization e.g. many firms are concentrated in Kampala.

6. **Security and political stability.** Localization of firms may be due to constant security and political stability which attract many firms in a particular area.
7. **Availability of water supply.**
   Water is needed for industrial purposes in various ways, for example, it is used an input, for waste disposal, a cheap means of transport etc. This can attract firms to concentrate in such an area so as to minimize on production costs.

Non-price competition in agriculture

This is where rival firms compete using other means other than changing (adjusting) the price of the commodity. Examples of non-price competition include;

1. Improvement and maintaining the quality of the products with the aim of promoting customer loyalty.
2. Giving (distributing) free samples of the products to customers. This is mainly used when the product is new on the market for example soft drinks, telecommunication companies etc.
3. Use of persuasive advertisement with catchy slogans for example breweries companies, soft drink companies, firms selling cosmetics etc.
4. Carrying out promotional offers. For example selling the product at a lower price to customers through sales promotions, giving free training services to customers etc.
5. Offering gifts and prizes. For example petrol stations giving soap and other detergents to their customers
6. Sponsoring sports activities like volley ball, football, cricket etc. This is aimed at winning and selling the product to the consumers who are supporters of a given sports activity
7. Supporting charity organizations by giving them household items like food, clothing, soap etc. For example child care centers, orphanage homes etc.
8. Carrying out trade fairs and exhibitions. For example firms participating in the international trade fair at Uganda Manufacturers Association grounds in Lugogo to showcase their products.
9. Providing after sales services. For example providing transport for those who buy in large quantities, free installation services, repairs etc.
10. Organizing consumer games in form of raffle draws where a customer buys the product and enters a draw. The winners are given prizes for example cars, phones, domestic appliances etc.
11. Opening up many branches and distribution centers in form of regional distributional centers and shopping outlets.
12. Using one stop shopping centers where the customer can conveniently find all what he requires in one place. This is common in big shopping malls like Shoprite, Garden city. Mazima mall etc.
13. Offering credit facilities to customers, for example allowing customers to acquire products on hire purchase, giving airtime on credit to their customers by telecommunication companies etc.

E-marketing of agricultural products

It is the application of marketing of goods and services through internet.

Advantages of e-marketing in agriculture

- Cheap
- Has a global reach
- Enable farmers/produces and customers to access information on commodities and prices
- Fast communication
- Easy access to information

Limitations of e-marketing in Uganda

- Computer illiteracy of farmers/producers and customers
- Remotes/lack of connection
- Lack of/unsteady electricity in rural areas to enable use of computers
- Language problems
- Technology dependence: E-marketing relies on technology and the internet, which can be disrupted.
- Worldwide competition: Launching products online exposes businesses to global competition.
- Privacy and security issues: Concerns about data privacy and security.
- Higher transparency and price competition: Online platforms make pricing and information more transparent.
- Maintenance cost: Managing and updating e-marketing resources can be expensive.

Efficiency of a farm

Farm efficiency is the ability to achieve maximum productivity with minimum wasted effort or expense

Farm efficiency lead less wastage, more income, better resource utilization.

Reasons why it is necessary to assess the efficiency of a farm from time to time

- To find out whether the farm is making profit or loss
- To determine growth
- To identify weakness in order to improve on efficiency

Measures to improve efficiency on farm

- Good management through proper decision making
- Selecting proper and marketability
- Application of fertilizers to increase plant yield.
- Planting early maturing crop varieties
- Irrigation to produce crops throughout the year
- Pest control to reduce farm losses
- Use of skilled labor to produce quality products

- Use of specialized extension service
- Fencing to ensure safety of the farm
- Proper record keeping to enable proper farming
- Proper feeding of farm animals.
- Proper housing of farm animals
- Timely weeding
- Proper spacing of crops
- Castration, dehorning, and debeaking to improve farm production
- Processing of farm product/value addition

Budgeting

A budget is an estimate of income and expenditure for a set period of time. A complete budget is a statement that describe and specifies income and expenditure of a firm for a given period of time.

Partial budget

It is a financial statement outlining the anticipated revenue and expenditure for and enterprise or part of the whole farm in the fourth coming financial period

Complete budget

It is a financial statement outlining the anticipated revenue and expenditure for the whole farm in the fourth coming financial period

Importance of budgeting on a farm

1. To estimate required production resources in form of labor, capital and inputs.
2. To estimate profitability of the farm enterprise.
3. To attract funding from money lenders such as banks
4. To direct or control expenditure in the business to enable high profitability.
5. To provide basis of performance appraisal
6. To exploit idle resources
7. To set goals and provide direction to the managers of the farm.

Information required making a budget on a farm

- Scheduled expenditure
- Scheduled income
- Planned expansion
- Results from research station which show expected production of an enterprises.
- Data on input-output relationship i.e. production functions

Steps followed when making a complete budget in agriculture

- State objectives
- List all available resources
- Estimate the size of land to estimate the number of livestock or planting materials required
- Estimate inputs and labor
- Work out estimates for the cost of inputs
- Estimate the value of expected revenue
- Estimate profit

Constraints in budget making in agriculture

- Lack of skill
- Illiteracy of among farmers in developing countries
- Lack of information on prices and sources of inputs
- Price instability
- Risks and uncertainties
- budget making is tedious
- limited funding sources
- Failure to follow the proposed budget

Depreciation

Depreciation is the fall in the price of a tangible asset which reduces the asset's monetary value due to a variety of reasons like wear and tear that is caused by a prolonged use of the asset.

Record keeping on the farm

Farm record keeping involves documentation of vital activities that took place on the farm using record-keeping systems.

Characteristics of good farm records

- Records should carry a date
- Records should be summarized
- Records should be clear, easy to read and understand
- Records should be classified and kept according to type

Importance of record keeping on a farm

- Tracking animal and worker healthy
- Ensuring tax compliance
- Tracking revenue and expenses
- Financial requirements for lenders, government agencies and insurance
- Farm planning and forecasting based on previous performance
- Enable improvements on the farming methods
- Help detect fraudulent practices on a farm
- To show economic status of a farm

Farm documents

- Documents on daily activities: records all things that happen on a farm on daily basis such as cash transactions, labor used, quantity of crops harvested and so on
- Order forms, invoices and Receipts show orders made, invoices and receipts received
- Cash book and payment receipt record book shows receipts issued from the farm
- Statement book contains a list of invoices indicating the things a farm has bought to enable payment at the end of the month.
- Inventory record which shows a list of items present on a farm at a particular time
- Yield and production record in which the various outputs of the farm are recorded
- Employment /worker records including general records, pay and hours worked, leave, superannuation and tax
- Safety reporting procedures - any incidents and injuries, including near misses. This will help you determine actions to improve and prevent reoccurrences.
- Hazardous chemicals on site and an asbestos register if there is any at your workplace.
- Registration documents for machinery.
- Testing, maintenance and inspection details for specific types of equipment.
- Hazard identification, risk assessment and control processes you have in place at your workplace. This is particularly useful in showing you are actively keeping your workplace safe by being proactive.
- Training and induction for workers and contractors

Factors that determine the type of record to keep on the farm

- Nature of the farm i.e. livestock, poultry etc.
- Size of the farm
- Number of enterprises on the farm
- Skills and ability of the farm manager
- Number of activities on the farm e.g. irrigation, spraying etc.

Importance of warehouse receipts

- details quantity and quality of produce stored/received
- provide proof of ownership of the commodity stored
- In case of damage, the warehouse receipt may be used to claim for compensation to the producer.

Importance of inventory records of a farm

- used to calculate the value of farm assets or financial position of a farm
- Well-maintained inventory records can help farmers obtain **bank loans**. Lenders often require detailed information about a farm's assets, including inventory, to assess creditworthiness.
- Provide the value of a farm in case of selling it.
- Useful for sharing the estate among beneficiaries in case of death of owner or dissolution of a cooperative.

A balance sheet

It is a financial statement that reports a company's assets, liabilities and shareholder equity at a specific point in time.

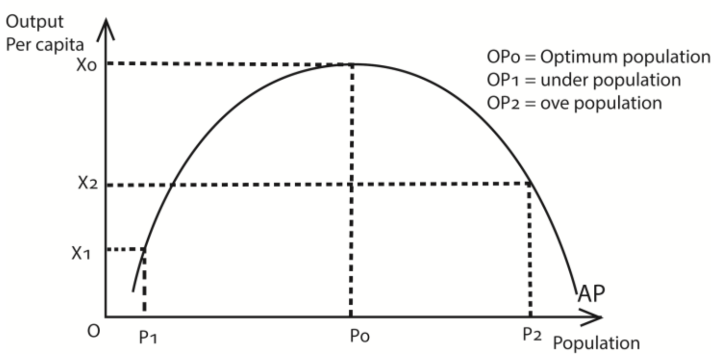
Population economics

Population refers to the number of people living in a certain area (region) at a given time. The total number of people is established by carrying out population census.

- **Population census** refers to the physical counting of people in the country after a given period of time. In Uganda, population census is normally carried out after every 10 years.

Under population, optimum population and overpopulation

Graphical illustration of optmum population, under population and over population



Under population

This refers to the population size where the increase in Labor force leads to an increase in output per capita given the available resources and capital stock.

Negative effects of under population

1. **It leads to underutilization of resources in the economy**. The economic potential of the country is not properly tapped since some resources remain idle.
2. **It discourages specialization and division of Labor.** There is a tendency of people to engage in subsistence production by producing a variety of traditional crops. This hinders economic growth and development.
3. **It discourages both local and foreign investors.** This is due to the limited market size resulting from the small population.
4. **It leads to low per capita income**. This leads to low standard of living of the people.
5. **It increases the unit costs of providing social services by the government**. The expenditure on social capital per head is relatively high and not cost effective. It is not worthy to build roads, dams, schools, and hospitals for a small population.
6. **Under population hinders economic growth and development.** This is due to lack of competition and initiative in the production process.

7. **It leads to shortage of Labor force**. This forces the country to rely on foreign man power which is expensive.
8. **It makes it difficult to trade and exchange goods and services between regions.** This is due to high transport costs as a result of the sparsely distributed population.

Optimum population

This refers to the size of the population which provides the Labor force that yields the highest possible output per capita given the available natural resources and capital stock. A country which experiences optimum population is one in which the existing technical knowledge, capital equipment and other natural resources are all used to yield the maximum possible output.

Over population

This refers to the population size where the increase in the Labor force leads to a decrease in output per capita given the available natural resources and capital stock.

Advantages of over population

1. **It increases the size of the domestic market for both the manufactured and agricultural products.**
2. **It encourages Labor mobility.** This is because many young people can easily move to other areas in search of employment.
3. **It stimulates rapid economic growth.** This is due to the expansion of investments as a result of increase in market size. .
4. **It increases Labor supply and mobility in the country.** This increases output hence economic
5. **The big population puts pressure on the government to provide social services so as to meet the basic needs of people.**
6. **Stimulates investment**
7. **increased exploitation and utilization of resources**
8. **encourages innovations and inventions**

Disadvantages of over population

1. **It leads to low standards of living.** This is due to high cost of living and low per capita income.
2. **It leads to over straining of the available social amenities like water supply, medical services, electricity, roads etc.**
3. **It leads to food shortage in the economy**. This results in famine and malnutrition hence poor health conditions.
4. **It leads to excessive demand for goods and services in the economy hence demand pull inflation**.
5. **It leads to balance of payment problems**. This is due to increased importation of commodities in the country.

6. **It encourages rural urban migration with its associated problems**. This is because people leave the rural areas to come and enjoy the better services in urban areas.
7. **It increases the levels of unemployment and under employment in the economy** as a result of excess population.
8. **It leads to over exploitation of natural resources** hence environmental degradation in form of pollution.
9. It reduces government tax revenue in case the majority of the people are poor.
10. It encourages political instabilities in form of civil wars due to the excessive pressure on the government for social
11. It increases dependence burdens in the economy. This discourages savings and investments due to high consumption expenditure.
12. leads to income inequality
13. High social costs in form of pollution
14. it results in brain drainage
15. Limited domestic market due to low income

Measures to ensure food security in developing countries

- Intensive farming to produce food in small space
- Large scale farming to ensure large food production
- Mechanization of agricultural production
- Use of improved planting material and animals
- Use of improved production techniques such as use of fertilizers and pest control.
- Land reclamation to increase agricultural land
- Agro-processing to increase self-life of food and reduce wastage
- Importation of food to supplement local production
- Improved transport system to allow movement of food from where it is produced to where it is required.

The Malthusian population theory

This theory was put forward by a British economist in the 18th Century called Reverend Malthus. He used this theory to explain the relationship between population growth and economic development in form of food supply and other necessities. He observed that since land and other resources are fixed, any effort to increase food production would be frustrated by an increasing number of people due to the law of diminishing returns.

Rev. Malthus based his theory on the following assumptions.

1. Population growth entirely depends on food supply.
2. Population grows at a geometric rate doubling every after 30 years; for example 2, 4, 8, 16, 32 …
3. Food supply grows at an arithmetic rate for example 2, 4, 6, 8, 10 …

Due to the differences in increase of population and food production; Malthus proposed, a given time T (the population trap) when the population growth would outstrip the means of subsistence (food supply) leading to starvation and death.

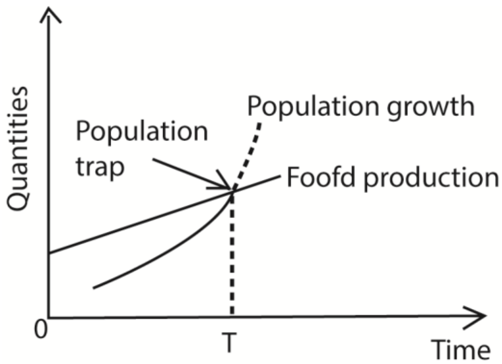


Illustration of the Malthusian Population Trap

Malthus suggested that the only way to avoid human suffering beyond the population trap; population growth must checked by preventive negative checks such as celibacy, late marriages, family planning, moral restrain, etc.

1. **Population Trap** refers to the inevitable level of population at which population growth stops because of shortage of food to support it.

Limitations of Malthusian population theory

To a greater extent, the Malthusian population theory is of limited relevance or to developing countries in the following ways:

1. He assumed that resources e.g. land are fixed and therefore food production cannot increase faster than population but ignored that the quality of resources can be improved.
2. He ignored the fact that improvement in technology lead to increase in food production with use of agricultural mechanization and irrigation.
3. The ignored the fact that continuous supply of food can obtained from international trade.
4. He assumed that food is the only determinant of population growth; yet there are other factors such as immigration, levels of education, and cultural beliefs. The modern medicine and public health programs have reduced the death rate and therefore population increase does not show a define relationship with income per capita
5. Foreign aid may not necessarily increase population in LDCs, because not all foreign aids are used in food production
6. Malthus never indicated the time when the population trap would occur which means the theory is in waiting for the reality to occur.
7. Malthus did not realize that rising living standards can cause a fall in birth rates and population growth. The theory assumes that national rates of population growth increase are positively related to the levels of national income. Therefore, as national income increases, population growth rates also increase yet in many countries as national income increases, birth rates have tended to fall.

8. The theory was developed in Britain and has never been experimented in LDCs like Uganda and probably not substantial.
9. The theory did not foresee great improvement in transport that makes it possible to transfer food from areas of plenty to areas of scarcity hence developing countries can offset the problems of food shortages.
10. There is no mathematical relation as regards growth in food and population. There is no proof to show that population increases in a geometric progression and food production increase in an arithmetic progression.
11. It ignored the possibility emigration to ease pressure on resources. People emigrate from countries which are densely populated to countries which are less populated resulting into reduced pressure on resources in the overpopulated countries.
12. Failure of the theory to visualize (foresee) the possibility of Labor mobility from areas where opportunities are limited to areas where high wage employment opportunities exist.
13. The theory is based on the subsistence economy yet modern economies of developing countries are not predominantly subsistence any longer. Commercialization of production leads to specialization and increased output for exchange thus averting any possibility of shortages in food supply. This too was not envisaged by the theory.
14. The theory ignored the deliberate and scientific methods of birth control. Malthus did not foresee the possibility of applying modern family planning methods like use of condoms, vasectomy and contraceptive pills to reduce on population increase.
15. Malthus was influenced by the law of diminishing returns which is not always true. At times increasing amount of a variable factor, Labor, to a fixed factor, land, results in increasing and constant returns not diminishing returns as the theory assumed.

Population problems in developing countries (Uganda)

1. **There is food shortage to support the increasing population**. Countries are forced to import foodstuffs or to seek for foreign aid from other countries.
2. **Balance of payment problems.** This is as a result of increased government expenditure on food imports and other social requirements for the population.
3. **High levels of unemployment and under-employment.** The population growth rate exceeds the rate at which jobs are being created. This is due to limited job creating investments as a result of low savings and capital.
4. **Diminishing returns in the agriculture sector due to high population pressure on land and other natural resources.** This leads to low levels of productivity and per capita income.
5. **Low capital accumulation**. This is due to high consumption expenditures leaving little or nothing for savings and investment.
6. **Poor standards of living**. This is due to shortage of goods and services and high levels of inflation due to excessive demand for goods and services.
7. **Over exploitation of natural resources hence environmental degradation and pollution**.
8. **Rural urban migration leading to congestion, high crime rates, prostitution, theft etc. in urban centers**.
9. **High dependence burdens.** The increasing population makes developing countries to depend on other developed countries for foreign aid in form of food and other consumer goods.
10. **High levels of brain drain**. The increasing population accelerates brain drain as the young and highly educated individuals leave their countries in search of "greener pastures" in developed countries.

11. **High levels of illiteracy due to low levels of education and poor health services**. The majority of the people are poor and they cannot access the expensive higher education due t o high dependence burdens.
12. **Political instabilities in form of civil wars and struggle for the limited social services**.

Possible solutions to the population problems in developing countries

The solutions aimed at solving the problems of increasing population are contained in the population policy. Therefore the population policy is aimed at attaining optimum population by checking on population growth and increasing resources and production capacity. Such population policies include the following;

1. **Family planning.** This includes the use of contraceptive pills, condoms and other intra-uterine devices. However, this method has not been effectively used due to high levels of illiteracy and fear of side effects.
2. **Encouraging higher education.** Emphasis should be put on female education so as to check on the fertility rates and emphasize the quality of children other than the quantity. In addition, education also helps to postpone marriages for the future.
3. **Adopting production policies aimed at increasing food supply to reduce on food shortages.** This helps to reduce on the diseases associated with malnutrition.
4. **Rural development policies aimed at making rural areas attractive so as to check on rural urban migration.** Such policies include rural electrification, security, water supply etc. This also promotes agricultural production.
5. **Disease control measures.** Health programs should be set up to educate the people on how to control and reduce on the spread of diseases through primary health care.
6. **Legalizing abortion as a way of controlling unwanted pregnancies and population growth**.

The causes of famine in some parts of Uganda

Human factors

- Political instability in many parts of Uganda such as Kasese has kept the population on the run this failing to carry out productive activity including farming.
- Subsistence production where whatever food is produced is for consumption. This limits production of excess food for storage and consequently famine in case of delayed rainfall.
- Poverty/ unemployment leading to insufficient resources and becomes worse of the head of the family is unemployed.
- The over and population explosion leads to shortage of food and there by off-setting famine.
- Poor storage facilities also contribute to famine in a sense that many homes do not have ways of keeping the dry ration. Food is lost during seasons of harvest and shortage follows shortly after.
- Poor technology and poor farming methods such as use of rudimentary tools lead to poor crop yields and lack effective preservation means lead to high post-harvest losses.
- Poor land tenure system where majority lack land to plant food crops and hence famine
- Rural urban migration drains farmland of labour leading to low farm yield

- Poor government policies like taxation and the failure to plan for the agriculture ministry, failure to produce and sustain enough skilled manpower, and provide extension services.
- Corruption and embezzlement by government official and failure to implement government policies.
- Poor transport network hinders movement of food from its source in remote areas to the market or where it consumed. Therefore surplus food cannot easily reach places of scarcity.

Others factors /Physical factors

- Pests and diseases damage and destroy crops and animals leading to inadequate food production
- Poor and unfertile soils lead to limited agricultural and food production.
- Rugged terrains that do not support mechanization and limit the sizes of farms affecting food production.
- Natural calamities such as landslides on Mt. Elgon, flooding e.g. in Kasese. Earthquakes etc. These destroy crops and property leading to low food production
- Climate vulnerabilities such variable seasons and frequent droughts.

Roles of agricultural research institution in Uganda

- They develop new farming machinery or improve existing ones e.g. Namalere research station.
- They develop new crop varieties through crop breeding.
- They conduct animal selection
- They train agricultural professions
- Produce and sell planting materials
- Work as demonstration farm to the farmer

Agricultural development

This a process of improving agricultural capacity characterized by sustainable, efficient utilization of factors of production.

Limitations/Challenges that agricultural development faces in Uganda

- Low and unreliable rainfall such as in in northern and north-eastern Uganda limits growth of crops and pastures for the animals
- Rugged relief or steep landscape for example in Kasese and KigeZi discourage agricultural mechanization
- Poor drainage such as floods destroy crops and animals
- Occurrence of pests and diseases that destroy crops and infect animals
- Poor quality crop and animal varieties e.g. Zebu cattle in Karamoja region

- Poor land tenure system limits effective use of land
- Rural-urban migration Uganda have led to scarcity of labor on farms
- Political instability in some parts of the country discourages investment in agriculture.
- Inadequate capital to purchase farm inputs
- Inadequate market for agricultural produce
- Cultural and religious constraint that limit farming e.g. rearing pigs by Muslims
- Inadequate storage and preservation facilities lead to post harvest losses
- Poor transport networks to market centres lead to losses
- Inadequate skilled labour in form of extension workers and veterinary doctors to stimulate agricultural modernization
- Corruption and embezzlement of agricultural funds for modernization of agriculture.
- Poor technology
- Inadequate research to develop resistant high yielding crops and animals

The role of government in promoting agricultural development

- Liberalization of agriculture enabling private investors.
- Construction of dams and setting up irrigation schemes to enable cropping throughout the year.
- Provision of agricultural inputs such as fertilizers at subsidized prices.
- Development of improved planting materials.
- Provision of agricultural extension services.
- Provision of better tools equipment and cheap short and long-term credit.
- Encourage and assist farmers to form cooperative unions to source cheap inputs and market for the produce.
- Provision of water through valley dams and borehole to livestock in dry areas.
- Improvement of road network in rural area to enable marketing of produce and acquisition of inputs
- Construction of collection centres and modern storage facilities for produce.
- Promote agro-processing in order to add value to agricultural produce.
- Universal education to reduce illiteracy and ignorance
- Land reclamation to increase agricultural land

Agricultural extension services such as NAADS And UPA

Agricultural extension services are defined as "the entire set of organizations that facilitate and support people engaged in agricultural activities to solve problems and to obtain information, skills, and technologies to improve their livelihoods and well-being"

Importance of extension workers in rural agricultural development

- They train and educate farmers on modern farming practices to boost agricultural productivity.
- Train farmers on agribusiness techniques such as book keeping
- They encourage people in farming business to improve rural livelihoods
- They empower rural communities on their social economic and health aspects such as HIV prevention.
- They improve nutrition and household income through increased productivity and market oriented farming.
- Promote agricultural innovations
- Empower marginalized groups in agriculture such women and youth to access and utilize agricultural resources.
- Promote cooperation of farmers
- Provide agricultural advisory services.

Methods of value addition of agricultural produce

- Processing of produce to acceptable form
- Organic production, since consumers have high preference for organically produced products.
- Attractive packaging
- Blending with other substances to improve taste and flavor
- Transporting produce to the market
- Advertisement i.e. providing timely and persuasive information
- Early harvesting/planting

Gender analysis in agriculture

This is the systematic gathering and examination of information on gender differences and social relations in order to understand and redress inequalities based on gender.

Reasons for use of gender analysis in agriculture

- To remove constraints to participation of women and men in agriculture.
- To promote interests and needs of both women and men in agriculture
- To effectively control, monitor and evaluate development interactions.
- To ensure equitable and sustainable development of both men and women.
- To identify issues among a given group
- To ensure knew innovations, inventions and technologies will not adversely affect women.

Reasons for empowering women in agricultural production

- To increase the number of women involved in agricultures.
- To increase the work force in agriculture.
- To improve women social status in decision making

Factors that limit women's participation in agriculture in Uganda

- Lack of land and other resource to carry out agriculture
- Lack security to obtaining credit
- Majority are illiterate with limited education
- Reproductive responsibility and children raising deny them enough time to engage in agriculture
- Lack of adequate time in agriculture due to their physiology such as pregnancy
- Inability to use big machines
- Poor /low income which makes it difficult for them to raise capital.
- Long distances to the market.
- Low access to information
- Introduction of modern crop hybrids that require additional labor.
- Low self-esteem of women in decision making

Ways of improving women participation in agriculture

- Encourage women to own land on which to grow crops even in absence of husbands.
- Promote positive self-esteem of women in decision making
- Increase women in agricultural education.
- Promote women in order to get credit.
- Build a positive attitude of women towards agriculture.
- Women should be encouraged to participate in extension workers' meeting.
- Provision of social services in rural areas where most women reside.

Importance of market information on improvement of the efficiency of marketing agricultural products

- Help a farmer to find the market for his produce
- Enable a farmer to negotiate appropriate price for the produce
- Enable locating the source of the produce
- Enable farmer to know their competitor and what they are doing.
- Enable farmers to understand the needs of their customers and decide on what to produce
- Helps farmers to design marketing strategy

Methods/ways of improving the marketing of perishable agricultural products.

- Processing thereby adding value for instance turning into tomato sauce
- Preserving to increase self-life e.g. refrigeration
- Improving transport network for easy access to the market
- Producing perishable products near the market
- Advertisement of the products
- attractive packaging
- Quality standardization
- Early harvesting

Questions and answers

1. In the production process, it not advisable to operate below the economic optimum region because at this stage
   A. there is over utilization of resources
   B. there is scarcity of resources
   C. there is underutilization of resources
   D. resources are expensive
2. Which one of the following least affects the farming decision made by a common farmer?
   A. Government policy
   B. Opportunity cost
   C. Personal taste
   D. Farmer's family size
3. Which one of the following is a limitation of obtaining loans from individual money lender for a farm business?
   A. Individual money lender are dishonest
   B. Interest rates on loans are too high
   C. Only short term loans are offered
   D. Terms of repayment are not specified
4. Which one of the following information should be entered in a farm dairy?
   A. Farm tractor registration number
   B. Items sold or bought
   C. Farm enterprise
   D. Farm size
5. Which one of the following constitutes only liabilities in a balance sheet?
   A. Buildings, bank loan, tractor
   B. Overdraft, bank loans, unpaid salaries
   C. Cash at hand, owner's capital, depreciation
   D. Land, over draft, bank loans
6. Inventory record should have the following except
   A. number of equipment
   B. quality of animal feeds
   C. quantity of milk produced
   D. quantity **of fertilizer**
7. Which one of the following is an advantage of diversifying farm production?
   A. Reduction in pest and disease attack
   B. Easy marketing of farm products
   C. More efficient use of farm resources
   D. Increased yield
8. When the value of assets equals liability, he farm business is said to be
   A. in in balance
   B. bankrupt

    C. solvent
    D. insolvent
9. A farm inventory indicates all the following except the
    A. number of livestock in farm at the beginning of the year
    B. sales, deaths and purchase of stock during the year
    C. value of crop in the field
    D. quantities of crops in the store
10. When a farmer buys a tractor, the type of cost incurred is referred to as
    A. a fixed cost
    B. an explicit cost
    C. an implicit cost
    D. an opportunity cost
11. Which one of the following pairs consists of supplementary products on a farm?
    A. Chicken and diary animals
    B. Grass and legume in a pasture
    C. Eggs and off-layer chicken
    D. Crop and livestock
12. Efficiency of labour on a farm may be increased by
    A. giving workers specific jobs to do
    B. raising the work load for each worker
    C. giving worker freedom to choose which jobs to do
    D. giving workers enough time to rest
13. The demand for agricultural commodity is least influenced by a rise in
    A. income
    B. commodity price
    C. quality of the commodity
    D. supply of the commodity
14. The monetary value attached to the farmer's own labour and management
    A. an explicit cost
    B. a variable cost
    C. an implicit cost
    D. a marginal cost
15. Which of the following statement is true of relationship between supply, demand and price of commodity
    A. When demand decreases and supply remains constant, the price increases
    B. When demand increases and supply remains constant, price falls
    C. When supply increase and demand falls, the price rises
    D. When supply increases and demand remains constant, the price falls
16. Which one of the following is not a marketing function
    A. Location of buyer
    B. Collection of product at a point
    C. Risk taken during transfer of ownership

D. Consumption of produce

17. Which one of the following would be the opportunity cost of growing vanilla with a net income of four million shilling instead of maize with a net income of two million shillings on the same acreage of land?
    A. 6million
    B. 2million
    C. 3million
18. In a budget, the break even indicates the minimum yield value that would give
    A. a loss
    B. maximum profit
    C. minimum profit
    D. no profit
19. The only situation in which opportunity cost is equal to zero is when
    A. the two alternative enterprises are equal in value
    B. there is no alternative to the enterprise being considered
    C. the alternative enterprise is beyond the farmer's means
    D. one enterprise cannot be undertaken without the alternative
20. In a maize production function, which of the following situation would give less output of maize for additional unit of labour?
    A. Few tools for large number of laborers
    B. Lack of division of labour
    C. Too many laborers for available working space
    D. Over-cultivated land
21. Land reforms refers to measures aimed at
    A. changing land ownership
    B. improving land management practices
    C. ensuring everybody owns land
    D. controlling of land use by government
22. The following are activities involved in decision making in farm management:
    (i) Collection of information
    (ii) Problem recognition
    (iii) Analysis of alternatives
    (iv) Taking action
    (v) Making a decision

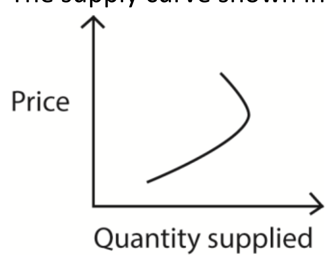
    Which one of the following is the correct order of the activities?
    A. (i), (iii), (ii), (iv) and (v)
    B. (iv), (ii), (i), (iii) and (v)
    C. (ii), (i), (iii), (v) and (iv)
    D. (ii), (i), (v), (iii) and (iv)

23. Which one of the following is not a factor of production?
    A. Management
    B. Labour
    C. Capital
    D. Transport
24. Gross National Product (GNP) is the
    A. total values of all goods and services produced both internally and externally
    B. total value of all goods and services produced excluding external earning
    C. gross internal income less the variable costs
    D. difference between total earnings and total expenditure
25. Which one of the following is an indicator of farming efficiency?
    A. Increase in the rate of investment in new enterprises
    B. Percentage increase in capital investment
    C. Increase in man hours spent in production
    D. Increase in returns to capital and land investment
26. When the price of meat was 1500 Uganda shillings per kg, a family consumed 20kg per month. When the price raised to 2500 Uganda shillings, the family readjusted to 10kg per month. What is the elasticity of demand for meat?
    A. 1.33
    B. 0.4
    C. 0.67
    D. 0.75
27. Which one of the following statements is true of complementary products?
    A. An increase in production one leads to an increase in the production of the other
    B. They have equal demand in the market
    C. They use the same quantities of input
    D. An increase in the production of one leads to a decrease in the production of the other.
28. The most profitable level of production is when the
    A. Marginal product is at its maximum
    B. Average product is at its maximum
    C. Marginal product and average product are at maximum
    D. Marginal product is at zero
29. A balance sheet is a statement showing the
    A. Assets and liabilities of a business
    B. Income and expenditure of a business
    C. Profit or loss of a business
    D. Cash inflow and outflow
30. The following are uncertainties except
    A. Price fluctuation
    B. Technological change
    C. Change of government policy
    D. Theft of produce

31. Which one of the following measures can control fluctuations in the prices of agricultural products?
    A. Diversification
    B. Contract farming
    C. Specialization
    D. Intensive farming
32. Standardization in agricultural marketing refers to
    A. putting products of the same kind together
    B. grading of products
    C. processing of agricultural products
    D. making quality specification used in grading
33. In a profit and loss Account, the items under closing valuation are reflected as total
    A. expenditure during that year
    B. value of all the assets on the farm at the end of the year
    C. liabilities of the farm during that year
    D. value of all transactions during that year
34. Which one of the following is implicit cost?
    A. Tax on farm income
    B. Insurance for farm assets
    C. Supervision by the farmer
    D. Cost of inputs
35. The demand for agricultural products is said to be inelastic because a
    A. slight rise in price leads to a big reduction in demand
    B. big increase in price causes a small decrease in demand
    C. a slight increase in price produces a slight increase in demand
    D. big increase in price leads to a big decrease in demand
36. In farm production, the total cost remain constant when
    A. the variable input is free
    B. not fixed costs are incurred
    C. the variable cost is greater than the total cost
    D. the fixed cost is free
37. A likely response when price of a product is set below equilibrium is that
    A. buyers become reluctant to buy the product
    B. the product floods the market
    C. seller hoard the product and raise the price of the product
    D. the price of the product continues to fall
38. Which one of the following factor does not affect the price of a commodity?
    A. Government policy
    B. Sex of a customer
    C. Cost of implement
    D. Marketing cost
39. Price mechanism in agriculture assists farmers in the following **except**
    A. Deciding on production alternatives

B. Improving productivity
C. Deciding on production combinations
D. Guiding on choice of market

40. The value of assets minus debts on a farm, is referred to as the
    A. Profit
    B. Capital
    C. Gross margin
    D. Net worth
41. Which one of the following is a likely solution to risks in agricultural credits?
    A. Charging high interests
    B. Presenting collateral in form of sale
    C. Giving credit in cash to encourage its fast utilization
    D. Number of animals kept by farmers
42. Which one of the following least influences land tenure system?
    A. Population density and pressure on land
    B. Political and social organization of the people
    C. Economic situation and level of development
    D. Number of animals kept by farmers
43. The supply curve shown in figure 1 represents



    A. supply in subsistence agriculture
    B. a normal supply curve
    C. a supply curve for luxury goods
    D. supply of labor
44. The following are aspects of land reforms except
    A. Redistribution of land rights
    B. Land tenure
    C. Resettlement
    D. Land consolidation
45. Which one of the following directly affects the demand for agricultural product?
    A. Quantity produced
    B. Price of the product
    C. Method of production
    D. Cost of production
46. Total cost in production includes the following except
    A. Variable cost
    B. Fixed cost

C. Opportunity cost
D. Overhead cost

47. The aim of budgeting on a farm is to
    A. prepare a balance sheet
    B. estimate expected returns
    C. control farm income
    D. work out each analysis
48. Which one of the following is a means of improving agricultural marketing?
    A. Specialization in production of some products
    B. Mechanization of farming
    C. Construction of storage facilities
    D. Training of farmers in agricultural production
49. Figure 1 shows production possibilities available to a farmer

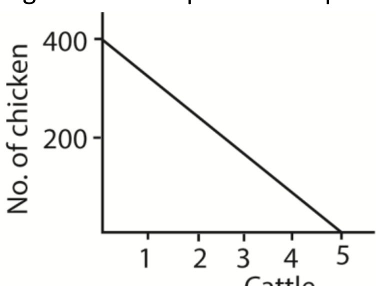


Fig. 1

    If a farmer decided to rear chicken only how many of them would be reared?
    A. 5
    B. 100
    C. 200
    D. 400
50. Which one of the following is the most important determinant of the efficiency of land use?
    A. Good management
    B. Security of tenure
    C. Improved technology
    D. Availability of capital
51. The profit calculated for farm production may be higher than the actual profit due to exclusion of
    A. Estimated costs
    B. Opportunity cost
    C. Implicit costs
    D. Explicit cost
52. Which one of the following is not a benefit of being a member of a cooperative society?
    A. Using the society as a collateral to access loan
    B. Selling agricultural commodities at a fair price
    C. Getting a higher profit due to marketing costs
    D. Accessing agricultural inputs reduced prices

53. Which one of the following stages of a production function shows optimum utilization of an input factor?
    A. Constant returns
    B. Increasing returns
    C. Negative returns
    D. Diminishing returns
54. Which one of the following would be the most appropriate use of long term credit?
    A. Buying seeds form planting
    B. Repairing broken structures
    C. Buying agricultural implements
    D. Paying salaries
55. Which one of the following is a feature of resettlement? It involves
    A. a planned transfer of a population from one area to another
    B. a process of transferring people from a more populated area to a sparsely populated area
    C. a transfer of people to an area that has not been previously inhabited
    D. relieving population pressure from an area by reducing the number of people settled on it.
56. Keeping inventory records on a farm can enable a farmer to
    A. Evaluate the financial stand of the farm
    B. Establish the value of liabilities on the farm
    C. Identify the source of asset on the farm
    D. Establish the value of assets on the farm
57. Which one of the following describes buffer stocks in the marketing of agricultural products?
    A. Products kept in store and only released during shortage
    B. Products imported into the country during periods of emergency
    C. Products kept in store waiting to be processed into finished grade
    D. Products kept in store awaiting exportation
58. Which one of the following is considered as uncertainty in farming?
    A. Change in weather
    B. Theft of agricultural products
    C. Changes in government policies
    D. Disease outbreak
59. The type of loan extended to farmers to carry out fencing of land and buy machinery is an example of
    A. Seasonal loan
    B. Long term loan
    C. Short term loan
    D. Intermediate term loan
60. The price of perishable agriculture products can be stabilized by
    A. Production of the amount demanded
    B. Increasing the amount of products
    C. Processing the produce
    D. Introducing a buffer stock

61. A practical illustration of stage 1 of production function is
    A. Overstocking in a paddock
    B. Insufficient use of fertilizers
    C. Heavy feeding of a dairy cow
    D. Use of a big tractor on small pieces of land
62. The best solution for fluctuation in the prices of agricultural products is to
    A. provide good transport and communication
    B. fix prices irrespective of the quality of products
    C. provide market information
    D. emphasize production of high quality products.
63. The supply of labour for agricultural production is determined by the
    A. Amount of work available on the farm
    B. Active proportional of the total population
    C. Type of work available on the farm
    D. Policy of the government on labor use
64. In agricultural production, a measure of the cost of output against the cost of input is described as
    A. technical efficiency
    B. economical efficiency
    C. production efficiency
    D. overall efficiency
65. Which one of the following conditions necessitates the use of partial farm budget?
    A. Overhauling of farm business
    B. Expanding an existing enterprise
    C. Termination of an enterprise
    D. Evaluating farm enterprise
66. The efficiency of manual labour on a farm can be improved by
    A. Assigning a specific job to each laborer
    B. Involving laborer in budgeting
    C. Taking roll calls
    D. Prompt payment of laborer

Suggested answers

1C	6B	11B	16D	21A	26D	31B	36A	41B	46C	51C	56D	61B
2D	7C	12A	17B	22C	27A	32B	37C	42D	47B	52A	57A	62C
3C	8C	13D	18D	23D	28D	33D	38B	43D	48D	53A	58C	63B
4B	9C	14C	19B	24A	29A	34C	39B	44C	49D	54C	59B	64C
5B	10B	15D	20C	25D	30D	35B	40D	45B	50A	55B	60C	65B

67. (a) What is **agricultural policy**? (01 marks)

An agricultural policy is a set laws relating to domestic agriculture and import of of foreign agricultural product.

(b) State four objectives that agricultural policies aim to achieve (04marks)

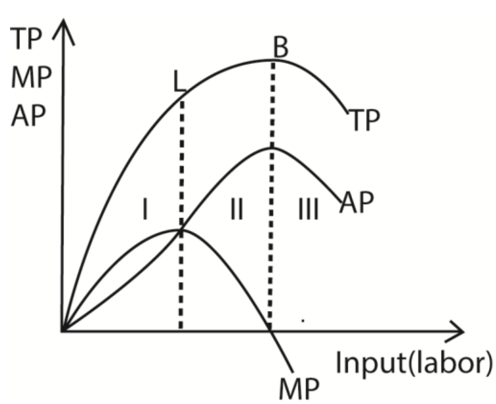
- Ensure household and national food and nutrition security for all Ugandan
- Increase income of farming households from crop, livestock, fisheries and all other agriculture related activities
- Promote specialization in strategic, profitable and viable enterprises and value addition through agro zoning
- Promote domestic regional and international trade in agricultural products
- Ensure sustainable use and management of agricultural resources
- Develop human resource for agricultural development

(c) How do agricultural research organizations contribute to the development of agriculture in Uganda? (05marks)

- Develop new crop varieties and animal breeds
- Test new crop varieties, animal breeds and machinery to determine how they perform in different environmental conditions
- Improvement of the existing crop varieties and animal breeds
- Train farmers on modern agricultural practices
- Finding the best methods of guarding against pests, parasites, weeds and diseases
- Develop new farming machinery and improve on the existing ones to adapt to local conditions
- Evaluation and testing chemicals on crops and animals
- Comparing performance of crops and animals to a particular environment.

68. (a) Using an illustration, describe the relationship between total product, average product and marginal product of a production function. (09marks)

Graphical illustration of the relationship between Average product, Marginal product and Total product



From the graph the following is observed.

- T.P(total product) begins by increasing, reaches maximum point B and then falls
- Marginal product (MP) begins by increasing reaches a maximum at L and then decreases up to the negatives.
- Average product begins by increasing, reaches a maximum and then falls.
- When total product (TP) is increasing at an increasing rate (up to point L), Marginal product (M.P) is also increasing. When TP is at maximum M.P is zero, when T.P is falling M.P is negative. Therefore M.P is the measure of the rate of change of total product.
- When average product (A.P) is increasing; M.P is higher than AP and when average product (A.P) is falling M.P is lower than A.P and when A.P is at maximum when MP = A.P.
- **L is called a point of inflexion.** It refers to the point below which MP is increasing and beyond which M.P is declining. OR. It is a point below which total product is increasing at an increasing rate and beyond which total product is increasing at a declining rate.

(b) Describe the characteristics of stage one of production function. (05marks)

- Production is not yet maximum.
- TP is increasing at increasing rate.
- Increase in variable input increase output.
- Marginal product increases more than average product.
- When marginal product is maximum, it is equal to average product
- The fixed factor is under utilized

(c) Suggest with reasons the region of the production function, farmers would be advised to operate in. (06marks)

The second stage because resources are optimally utilized. Beyond this stage increase in variable input lead to negative marginal product

69. (a) Describe the activities carried out to facilitate marketing of agricultural products. (12marks)

- Processing thereby adding value for instance turning into tomato sauce
- Preserving to increase self-life e.g. refrigeration
- Improving transport network for easy access to the market
- Producing perishable products near the market
- Advertisement of the products
- attractive packaging
- Quality standardization
- Early harvesting

(b) What is the role of advertising in marketing? (08marks)

- Inform customers providing product information
- Reinforces customers' positive attitude towards the product.

- Persuades the customer to buy products
- Educates the customers about the product
- Adds value to the products
- Builds brand equity
- Reinforces brand image
- Creates demand
- Counter competitor's claims
- Creates awareness about the product brand and/or price
- Reminds the target customers about the product

70. (a) Suggest five factors to be considered when planning a settlement scheme. (05marks)
    - Location of resettlement/settlement area
    - Size of the area whether it can accommodate the people to be resettled
    - Environmental impact i.e. risk of endangering to natural resources and environmental disasters
    - Accessibility/road network
    - Access to basic needs (Sanitary facilities, Health facilities, Education facilities, Counseling services etc.)
    - Providing enabling environment for livelihoods and economic inclusion
    - Addressing housing, land and property issues
    - Social issues

    (b) Explain five ways in which settlement and resettlement increase agricultural production. (05marks)
    - Provides agricultural land to the settlers
    - Presence of labor
    - Organized agricultural extension service
    - Presence of market for agricultural produce
    - Organized agricultural training protocol
    - Organized transport network to deliver inputs to the farms and outputs to the market.

71. (a) Explain the factors that influence the efficiency of labor on a farm (14marks)
    - on job training
    - mental abilities and physical strength
    - effective supervision/management
    - encouraging specialization
    - providing incentives such as attractive salary
    - improving technology
    - timely payment of wages
    - provision of job security
    - division labor among employees
    - favorable climate/temperature
    - maintaining good health of workers

(b) Give the qualities of a good entrepreneur. (06marks)

- determination to face and withstand risks without giving up
- self-discipline such as punctuality and hard work
- self-awareness
- curiosity
- have passion for the business
- make decisions
- flexible and adaptable
- willing to take risks
- unafraid of failure

72. (a) Explain how farmers in Uganda would benefit from being members of a farmers' organization (12marks)

- Market farmers' produce
- Get farm inputs at reasonable price
- Offer banking/credit facilities at reasonable interest
- Farmers get advisory services
- Members get dividends
- Members learn management skills
- Members get employment
- Members organize training session cheaply
- Easily obtain extension services
- Higher profits

(b) What are advantages and disadvantages of using a farmers' organization as a channel for credit to farmers? (08marks)

Advantages of channeling credit through farmers' organizations/ cooperative

- Credit easily accessed by farmers.
- Guaranteed funds to the farmers.
- Farmers' organizations are in close touch with members and therefore aware of their ability and integrity.
- The organization can easily follow up the funds.
- Financial training from farmers' organizations is easily acceptable.

Disadvantages of channeling credit through farmers' organizations/ cooperative

- Lack of skill
- Political interference
- Corruption
- Farmers' organization often provide short term and not long term loans.
- Do not select project for members

73. (a) Explain the functions of organizations that market agricultural commodities (12marks)

- **Market regulation**: These organizations often set and enforce standards for quality, safety, and fair trading practices to ensure a transparent and efficient market.
- **Price stabilization**: they help stabilize prices by managing supply and demand, often through mechanisms like buffer stock or price support schemes.
- **Market information**: provide timely and accurate market information to farmers, trader and consumer
- **Facilitation of trade**: they facilitate trade by providing platforms for buying and selling; such as commodity exchange and by ensuring smooth logistics and transportation.
- **Support services:** they offer support services like warehousing, financing, grading, packaging, transport and processing to add value to agricultural products.
- **Policy advocacy:** These organizations often advocate for policies that support the agricultural sector, including trade policies, subsidies and infrastructural development.
- **Buy and sell agricultural products**
- Undertake the task of processing agricultural products into forms that satisfy customers' needs
- Receive goods and sell them on behalf of the farmers

(b) Describe the problems which these organization face in the marketing of agricultural commodities (08 marks)

- Lack of marketing skill
- Political interference
- Inadequate warehouses/storage
- Poor transport network increasing costs of transport
- Lack of organized market since most of farmers reside in villages
- Lack of standardization and grading
- Scanty market information
- Subsistence production responsible for low production
- Bulkiness of agricultural products increasing transport cost
- High interest rates on loans making financing of marketing activities very expensive
- Lack of preservation facilities causing losses as products are moved the market
- Limited processing facilities hindering value addition
- Price fluctuation
- Illiteracy of farmer making it difficult to pass on market information
- Excessive production leading low prices

74. (a) Describe the stages of management process on a farm. (08marks).

(b) Discuss the factors that govern the choice of a farm enterprise. (12marks).

- Farmers interest influences their efforts to the nature and level of production
- Availability of market for the intended produce
- Level of skills and experience affects the level of production and efficiency

- Government regulation on zoning and land use.
- Social and religious factors, for instance the Muslims may not invest in pigs
- Soil type and climate to support the choice crops and/or animals
- Available capital to finance the enterprise
- Availability of labour to work on the enterprise
- Pests and diseases limit agricultural activities
- Availability of land on which the enterprise is to be seated
- Security: the site should be protected from theft and vandalism
- Water supply: the farm site should be able to access water for animals and
- Future expansion: there should be room for expansion
- Topography: the site should be gentle sloping, free from flooding and erosion
- Accessibility: the site should be easily accessible to ease transportation and other farm activities
- Relationship other enterprises carried out on the farm
- Environmental impact of the farm: implement measures to prevent soil erosion, waste management and protect natural resources.

75. (a) Suggest six advantages of packaging as a marketing function (06marks)

- **Protection:** It safeguards products from damage during transportation, handling, and storage.
- **Information:** Packaging provides essential details about the product, such as ingredients, usage instructions, and expiration dates.
- **Safety:** Proper packaging ensures that products reach consumers in good condition, preventing contamination and spoilage.
- **Branding:** Attractive and well-designed packaging helps in building brand identity and recognition.
- **Marketing:** Packaging can be a powerful marketing tool, attracting customers and influencing their purchasing decisions.
- **Convenience:** It makes products easier to handle, store, and use.
- **Sustainability:** Innovative packaging solutions can reduce environmental impact by using recyclable or biodegradable materials.

(b) Give four measures that could be taken to reduce the effects of price fluctuation on a farmer. (04marks)

- **Buffer stocks.** The government should buy up part of the supply when output is in excess, store this surplus and later sells it to the consumer in times of reduced supply.
- **Stabilization fund**. The government through marketing boards can maintain or increase prices of agricultural products, depending on world market prices. If profits are made, they are saved and used to stabilize prices and incomes of the farmers.
- A variety of agricultural activities should be introduced e.g. crop farming, poultry, animal husbandry etc. to reduce over dependence on one or a few sources of agricultural income in a bid to stabilize farmers' income.
- **Encourage formation of cooperatives** to bargain fair prices
- **Introduce irrigation schemes** to ensure continuous supply of agricultural products.

- **Stability in prices of agriculture** can also be attained by improving transport system to enable easy marketing
- There is a need to improve, **develop and expand storage facilities** to accommodate excess output in agriculture.
- **Price control**. Government should establish the minimum and maximum prices for agricultural output.
- **Market expansion**. Government should expand agricultural output market through economic integrations
- encourage further diversification of agriculture
- Encourage processing to increase value and shelf-life
- Dissemination of marketing information to the farmers.

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77. (a) Distinguish between a partial budget and complete budget. (02marks)

Partial budget is a financial statement outlining the anticipated revenue and expenditure for and enterprise or part of the whole farm in the fourth coming financial period.

Complete budget is a financial statement outlining the anticipated revenue and expenditure for the whole farm in the fourth coming financial period

(b) Give three considerations that a farmer should make when drawing a budget? (03marks)

- Scheduled expenditure
- Scheduled income
- Planned expansion
- Results from research station which show expected production of an enterprises.
- Data on input-output relationship i.e. production functions

78. (a) What are the characteristics of a good farm record? (02marks)

- Records should carry a date
- Records should be summarized
- Records should be clear, easy to read and understand
- Records should be classified and kept according to type

(b) How can good record improve farming efficiency? (08marks)

- Tracking animal and worker healthy
- Ensuring tax compliance
- Tracking revenue and expenses
- Financial requirements for lenders, government agencies and insurance
- Farm planning and forecasting based on previous performance
- Enable improvements on the farming methods
- Help detect fraudulent practices on a farm
- To show economic status of a farm
- Tracking management practices

79. **(a) Differentiate between an agricultural credit scheme and a subsidy scheme. (02marks)**

Agricultural credit schemes give loan to farmers while subsidy scheme give incentives to the farmer usually in form of reduced prices.

(b) Outline ways in which subsidy schemes promote agricultural production. (04marks)

- Stabilize price of agricultural products
- Supplement farmers' income
- Ensure that the domestic food supply is secure.

- Protect farmers from excessive loss in case of calamities

(c) State reasons why a farmer may need credit. (04 marks)

- For buying of planting materials
- Provision of farm building and other farm structure
- Finance treatment of farm animals
- Improve farm implements
- For paying salaries
- For expansion activities
- Sponsoring education and training

80. **(a) Explain five ways in which land fragmentation affects agricultural production. (05marks)**

- It's difficult to supervise all plots effectively.
- Large scale/commercial farming is not possible
- It's difficult to offer agricultural extension services on such scattered plots.
- Theft of farm produce is common due to reduced supervision.
- It encourages low agriculture production.
- Farmers fail to secure land title deeds.
- Farmers fail to access social services such as road, water for irrigation etc.
- Farm planning is difficult due to the small size of the fragments.
- Agricultural mechanization is expensive due to the small size of the plots which are scattered.
- It's difficult to carry out soil conservation measures due to the distance involved.

(b) Outline the steps involved in consolidating land. (03marks)

- Establish land ownership
- Measurement of the plot to be consolidated in order to establish their size.
- Describing the nature of the fragment
- Valuing the fragments to be consolidated
- Recording each fragment of land for further consideration
- Issuing of the title for the consolidated land or fragments.

(c) **Suggest two problems that may be associated with the land consolidation process (02marks)**

- It may make people landless.
- It may cause political unrest among the population
- It's a very costly exercise since each fragment is of a different value.

81. **(a)** Give the meaning of the following terms
    (i) Profit and loss account (01marks)

It is a statement that summarizes the revenues, costs, expenses and profits/losses of a firm during specified period.

(ii) Gross margin (01mark)

Gross margin is the percentage of farms revenue that is retained after direct expenses such as labour and material have been subtracted.

(iii) Complete budget. (01marks)

It is a financial statement outlining the anticipated revenue and expenditure for the whole farm in the fourth coming financial period

(b) State four types of information required to make a farm budget. (04marks)

- Scheduled expenditure
- Scheduled income
- Planned expansion
- Results from research station which show expected production of an enterprises.
- Data **on input-output relationship i.e. production functions**

(c) Give three constraints farmers face in making farm budgets. (03marks)

- Lack of skill
- Illiteracy of among farmers in developing countries
- Lack of information on prices and sources of inputs
- Price instability
- Risks and uncertainties
- budget making is tedious
- limited funding sources
- Failure to follow the proposed budget

82. (a) Differentiate between

(i) effective demand and elasticity of demand (02marks)

Effective demand is the amount of goods the consumer is willing and able to buy at a particular price while elasticity of demand is the change in quantity demanded resulting from a percentage change in a price of a commodity.

(ii) profit and interest (02marks)

Profit is equal to total revenue minus total cost i.e. is the difference between the total revenue and the total costs while interest is the additional money paid using borrowed money.

(iii) variable cost and fixed costs (02marks)

Variable costs are cost which change with output while fixed costs are those that do not vary/change with the volume of output

(b) (i) What is meant by Agricultural Credit? (01marks)

It is a financial assistance given to farmers either in cash or in kind to be paid back at an agreed interest and time/loan to farers to aid in agricultural production.

(ii) Suggest three reasons why agricultural credit scheme has not been successful in Uganda. (03marks)

- High interest rate
- High financial illiteracy level of farmers.
- Unstable weather

- Insecurity in some area
- Price fluctuation
- Poor market
- Dishonesty among borrowers
- Lack of security/collateral
- Corruption of officials
- Political interference
- Misallocation of funds

83. **)** Explain six ways in which a farm record is important. (06marks)
    - Tracking animal and worker healthy
    - Ensuring tax compliance
    - Tracking revenue and expenses
    - Financial requirements for lenders, government agencies and insurance
    - Farm planning and forecasting based on previous performance
    - Enable improvements on the farming methods
    - Help detect fraudulent practices on a farm
    - To show **economic status of a farm**

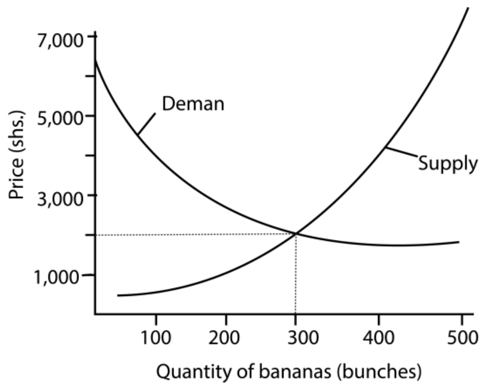
    (b) Suggest four practices of good farm record–keeping (04marks)
    - Records should carry a date
    - Records should be summarized
    - Records should be clear, easy to read and understand
    - Records should be classified and kept according to type
84. (a) State four factors that affect the profit margin in agricultural production. (04marks)
    - Farm input costs;
    - Crop yield metrics;
    - Nature of adoption rate;
    - Size of the farm
    - Type of enterprise

    (b) Calculate the gross margin per hectare of a maize crop grown on 5 hectares of land, if the total yield is 10,000kg: given that the maize was sold at sh 500= per kg, seeds were bought at 20,000, fertilizers at sh 400,000= and herbicide s at sh 100,000=. (02marks)
    Sales = 10,000 x 500 = 5,000,000=
    Costs = 20,000 + 400,000 + 100,000 = 520,000=
    Gross profit = 5,000,000 – 520,0000 = 4,480,000=

    (c) Give four conditions under which a farmer would change a farm plan. (04marks)
    - Fluctuation of prices of crops and animals and changes in costs of inputs
    - Changes in weather patterns
    - Adoption of new technologies
    - Policy changes such as new environmental or labor protection laws
    - Financial difficulties or gains

- Personal reasons such as personal health
- Market demands

85. Figure below is a graph showing the relationship between demand and supply of bananas in a market. Study it and answer the questions that follow.



(a)(i) Determine the equilibrium price of bananas (½ mark)
2000
(ii) What is the quantity of bananas demanded and supplied at equilibrium price? (½ mark)
300
(b)Explain the state of demand and supply
(i) below the equilibrium price(02marks
Below equilibrium price demand increases due to low prices while supply decreases before due to low profits.
(ii) above the equilibrium price (02marks)
Above equilibrium price demand decreases due to high prices while supply increases before due to high profits.
(b) Give five factors that influence the price of a commodity (05marks)
- Cost of production which includes raw materials, labor and overhead cost
- Demand: high demand increases price
- Supply: high supply lowers prices
- Cost of substitutes
- Market conditions such as inflation, recession and change in consumers purchasing power
- Government policy such as taxTaxes
- Marketing and branding
- Transport costs
- Storage costs

86. (a) Give five reasons why women's participation in large scale production is limited (05marks)

- Lack of land and other resource to carry out agriculture
- Lack security to obtaining credit
- Majority are illiterate with limited education
- Reproductive responsibility and children raising deny them enough time to engage in agriculture

- Lack of adequate time in agriculture due to their physiology such as pregnancy
- Inability to use big machines
- Poor /low income which makes it difficult for them to raise capital.
- Long distances to the market.
- Low access to information
- Introduction of modern crop hybrids that require additional labor.
- Low self-esteem of women in decision making

(b) Suggest five ways of encouraging women to participate in agricultural production. (05Marks)

- Encourage women to own land on which to grow crops even in absence of husbands.
- Promote positive self-esteem of women in decision making
- Increase women in agricultural education.
- Promote women in order to get credit.
- Build a positive attitude of women towards agriculture.
- Women should be encouraged to participate in extension workers' meeting.
- Provision of social services in rural areas where most women reside.

87. (a) Suggest **six** challenges faced by a farmer who owns fragmented land (05marks)
    - It's difficult to supervise all plots effectively.
    - Large scale/commercial farming is not possible
    - Farmers fail to secure land title deeds.
    - Farmers fail to access social services such as road, water for irrigation etc.
    - Farm planning is difficult due to the small size of the fragments.
    - It encourages low agriculture production.
    - Theft of farm produce is common due to reduced supervision.
    - Agricultural mechanization is expensive due to the small size of the plots which are scattered.
    - It's difficult to offer agricultural extension services on such scattered plots.
    - It's difficult to carry out soil conservation measures due to the distance involved.
    - Pest and disease control on the fragments is difficult.
    - It's difficult to control grazing since farmers have small plots that are prone to overstocking and overgrazing.

    (b) Outline **four** benefits of having a land tittle to a farmer (04marks)
    - The land owner has security of tenure hence can develop the land.
    - He can use the land title to obtain loans.
    - Land owner can easily rent out land to get extra income.
    - It minimizes land disputes because of proper land demarcation
    - It encourages land development through establishment of perennial crops
    - Land owner is encouraged to carryout soil conservation measures in order to protect his land.
    - It is easy to sale or transfer the ownership of land.
88. Give the meaning of

(i) Land registration (01mark)

This is the official recording of land ownership details by land registrar into the national database in order to get legal land ownership documents or title deeds.

(ii) Land adjudication (01mark)

This is the process of final and authoritative determination of the existing right and claims of people to land and subsequent issuance of the legal ownership document or title deed by the registrar.

(b) State the features of land title deed (02marks)

- District and county where the land is located
- Block and plot number of the land
- Size of land in hectares
- Registrar of land tittle signature
- Sketch of shape of land
- Occupants Name and address
- The title instrument number
- Date of issuance of the title deed
- Stamp seal mark of the land office
- Chronology of transfer from the first owner to the current occupant

(c) Explain the benefits of

(i) **land registration (03marks)**

- The land owner has security of tenure hence can develop the land.
- He can use the land title to obtain loans.
- Land owner can easily rent out land to get extra income.
- It minimizes land disputes because of proper land demarcation
- It encourages land development through establishment of perennial crops
- Land owner is encouraged to carryout soil conservation measures in order to protect his land.
- It is easy to sale or transfer the ownership of land.

(ii) **land adjudication**

- It settles land disputes since it's the final and authoritative way of determining the existing claims of people to land.
- It aids surveying and takes measurements, description and recording of land details used in land registration.
- It facilitates registration, transfer of interest and allocation of land in areas where land is not owned by any authority or person.
- It helps in compilation and maintenance of a list of rates of compensation payable in respect of crops, buildings of a non-permanent nature and any other thing that may be prescribed.

89. (a) Briefly explain the following market condition (04marks)

(i) Perfect market: is a market structure where there are many sellers and buyers dealing in homogenous products.

(ii) Imperfect market: is a market structure where there are many sellers and buyers dealing in different products.

(iii) Monopoly: is a market structure where there is one firm selling a good that does not have close substitute but facing many buyers.

(iv) Oligopoly: is a market structure where there are a few big firms dealing either in homogenous or differentiated products facing many buyers e.g. MTN and Airtel or petrol stations

(b) Give six reasons to explain why the supply of an agricultural commodity may be low even when the demand for it is high. (06marks)

- Bulkiness of the products making it difficult to transport to places where they are demanded
- Lack of method of preservation to sell in time of scarcity
- Poor transport system that fails transportation of agricultural products
- Long biological lag makes it difficult to increase supply in short run
- Weather uncertainties may disrupting production
- Use of poor technology leading to low production
- Low production due to few farmers
- Seasonality making them to be in excess in certain part of the year and in short supply in the other part of the year e.g. grasshoppers (ensenene)
- Lack of storage facilities store excess
- Lack of inputs such as land