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Economic Chapter 10: Population economics

Population

- **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.

The importance of population census in the economy

1. It helps to determine the total population size and its distribution in the country. This is important for national planning purposes.
2. It helps to determine the population growth rate of the country over time. This helps to put in place control measures to regulate the rate of population growth.
3. Population figures are used in the calculation per capita income of the country. This gives an indication of standards of living in the country.
4. It helps to determine the sex composition of the population that is, the ratio of men to women.
5. It helps to show the geographical distribution of the population. This is important for regional resource allocation.
6. It helps to determine the rate of internal and external migration. This enables the government to come up with measures to control migration of people.
7. It helps to determine the ethnic and religious composition of the population that is, the ratio of the population which belongs to different tribes and religions.
8. It is used to determine the population density (number of people per unit area of land). This is used as a basis for demarcating districts for effective service delivery and constituencies for political purposes.
9. It helps to determine the population structure and composition in terms of age and level of education of the people. The age structure indicates the number of dependants in the country.
10. It is used to determine the occupation composition of the population. This is important for proper manpower planning.

Terms used in population economics

- (a) **Demography.** This is the study of the population structure and its composition in terms of age, sex, education levels etc.
- (b) **Population explosion.** This refers to the rapid increase in the population of a given area relative to the available resources. Population explosion leads to over population in the long run.
- (c) **Migration.** This refers to the movement of people from one area (region) to another in a given time.
- (d) **Immigration.** This refers to the movement of people which involves entering and settling into the country from another country.

- (e) **Emigration.** This refers to the movement of people which involves moving out of the country to settle in other countries.

Factors which influence migration of people

1. Imbalances in resource distribution among regions and countries.
2. Differences in levels of development between regions and countries.
3. Differences in incomes and wages between regions.
4. Political instabilities like wars and change of regimes.
5. Educational requirements where people are forced to go to other countries (regions) to acquire education.
6. Differences in climatic conditions which may be favorable or unfavorable.
7. Diseases which may affect certain regions there by pushing people to other regions

- (f) **Birth rate (Crude birth rate).** This refers to the number of children born alive in a year per thousand of the population. It is expressed as a percentage.

$$\text{Crude birth rate (CBR)} = \frac{\text{Number of Live born babies}}{1000} \times 100\%$$

- (g) **Death rate (crude death rate).** This refers to the number of deaths in a year per thousand of the population. It is expressed as a percentage.

$$\text{Crude death rate (CDR)} = \frac{\text{Number of deaths}}{1000} \times 100\%$$

- (h) **Natural population growth rate (NPGR).** This is the difference between the number of live births per thousand of the population and the number of deaths per thousand of the population in a year.

OR. It is the difference between the crude birth rate and the crude death rate.

$$\text{N.P.G.R} = \text{Crude birth rate (CBR)} - \text{Crude death rate (C.D.R)}$$

$$= \frac{\text{Live births} - \text{deaths}}{1000} \times 100\%$$

Example 1

In a certain country, the birth rate is 35 per thousand and the death rate is 15 per thousand of the population. Calculate the natural population growth rate.

Solution

$$\text{N.P.G.R} = \frac{\text{Live births} - \text{deaths}}{1000} \times 100\%$$

$$\frac{35 - 15}{100} \times 100\% = 2\%$$

- (i) **Artificial population growth rate.** This is population growth rate resulting from net international migration that is the difference between immigration and emigration.

$$\text{Actual population growth rate} = \text{C.B.R} - \text{C.D.R} + \text{net international migration}$$

Determinants of population growth rate

1. Birth rates
2. Death rates
3. Immigration
4. Emigration

- (j) **Dependence burden.** This is a situation where there is a big proportion of the non-working population depending on a smaller proportion of working population
- (k) **Dependence ratio.** This refers to the ratio of the non-working population to the working population.

$$\text{Dependence ratio} = \frac{\text{Number of dependents}}{\text{Working population (Labour force)}} \times 100\%$$

$$= \frac{\text{Young dependents} + \text{Old dependents}}{\text{Working population}} \times 100\%$$

Young dependents = people below 18 years; Old dependents = people above 65 years
 Active group (working group) = 18- 65 years

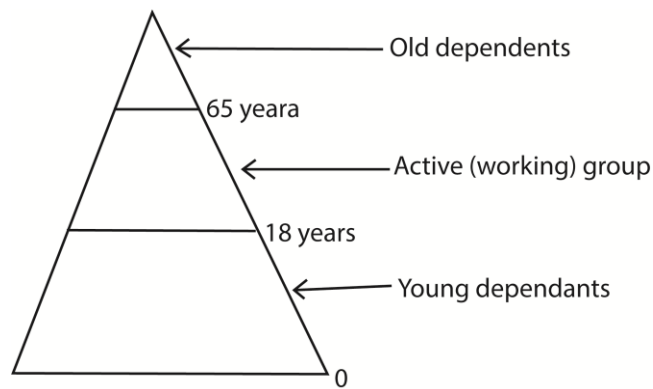
- (m) **Fertility rate.** This is the average number of live children born per a fertile woman. (For Uganda's case it is six children per woman)

The structure of Uganda's population

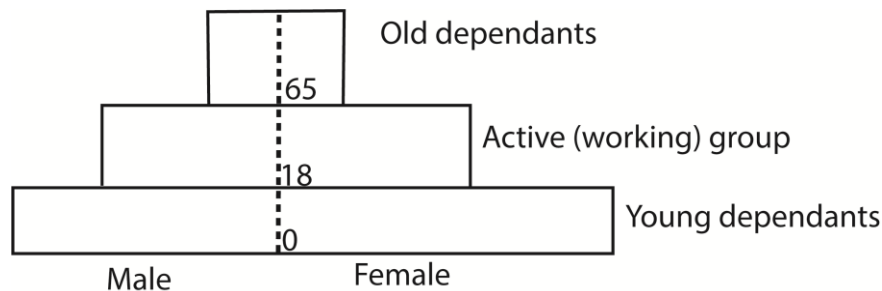
The population structure of Uganda is described basing on the following features

1. **Age structure.** This is categorized under three age groups that are the young dependants (Below 18years), the working age group (18 - 65 years) and the Old dependants (above 65 years).

- (a) The age groups are represented in a triangular form as follows;



- (b) The age groups can also be represented in form 'Ofa pyramid' as follows;



The age structure reflects a high proportion of young dependants followed by a relatively big proportion of the active group and a small old age group. The high proportion of the non- working population compared to the small proportion of the total working population reflects a high dependence burden

2. **Sex structure.** In Uganda, the number of women exceeds the number of men by 2002 census results. Females are limited in participating economically towards development. This is due to social-cultural limitations and the high degree of female absenteeism at places of work due to maternity leaves and their

need for domestic work,

3. **Citizenship structure.** In Uganda, we have the foreigners forming a small proportion compared to the large proportion of the local people. The non-citizens are the major investors because they have capital to invest in large scale projects as compared to the local people.
4. **Size and Population growth rate structure.** Uganda's population size was about 24 .6 million people as per 2002 population census. The growth rate is between 2-3.6%. This is mainly attributed to the high birth rates in the country.
5. **Occupation distribution.** More than 80% of the population is employed in agriculture and other primary production activities with very few in manufacturing and tertiary sectors. The number of people in paid employment (white collar jobs) is very small as compared to the whole population.
6. **Regional (Geographical) distribution.** In Uganda, the urban areas are densely populated as compared to rural areas. This is due to the desirable economic and social conditions existing in towns. But in general, Uganda has a big percentage of the population in the rural areas than in urban areas. In addition, the central region is densely populated because of the productive economic activities, security and other social attractions.
7. **Religion structure.** Uganda's population is characterized by many religions due to freedom of worship, but it is dominated by Catholics and Protestants. This has a political influence in resource and job allocations.
8. **Quality structure in terms of skills, literacy levels and health conditions.** Many Ugandans are illiterate but the number is reducing because of mass education (UPE and USE). In addition, the population is characterized by more unskilled than the skilled labour and more unhealthy than the healthy people.

Implications (Consequences) of Uganda's population structure

Negative implications of Uganda's population structure

1. The population structure depicts a high dependence burden due to a small working population as compared to the young and old dependants. This retards capital accumulation hence low investments
2. **The high population growth rate result into budgetary deficits.** This is due to increased government expenditure not only on social and economic infrastructure but also on consumer goods like food stuffs.
3. **Existence of high levels of unemployment and underemployment in the economy.** This is because the rate at which the population is growing exceeds the growth of the economy.
4. **It leads to balance of payment problems.** This is due to increase in importation of consumer goods to cater for the rapidly growing population.
5. **The structure reflects inefficiency and low productivity of labour.** This is due to low levels of education and poor health conditions. This leads to low levels of resource exploitation hence retarded economic growth and development.
6. **It leads to inflationary tendencies in the economy.** This is due to high demand for consumer goods and services as compared to the capacity to supply them.
7. **It leads to over utilization of natural resources and public utilities.** This is due to high population pressure on land, forests, aquatics etc. This leads to environmental degradation.
8. **It accelerates rural urban migration with its associated problems like urban unemployment, development of slums, increased crime rate etc.** This is because the majority of the poor who stay in rural areas end up moving to urban areas in search for green pastures.
9. **This structure reflects low per capita income and low standard of living.** This is due to high and increasing population size as compared to almost a low and stable national income.
10. **Low levels of economic growth and development:** This is due to dominance of females in the population structure yet they are generally weak and therefore they cannot manage physical work which demands physical labour.

11. It leads to "brain drain". This is because the educated and highly skilled labour leave the country in search for "greener pastures" in foreign countries due to high levels of unemployment and under employment in the country.

Positive implications of Uganda's population structure

1. **Increase in the market size.** The high population size increases the market size for the domestically produced goods. This promotes the establishment of import substitution industries thereby creating more employment opportunities.
2. **It stimulates rapid economic growth.** The high population growth rate stimulates rapid economic growth as a result of increase in labour supply. This leads to low costs of production hence increase in output.
3. The small section of foreigners with enough capital encourages capital-inflow in the economy. Such capital is used to set up investments which are used to generate government tax revenue.
4. The big population size is easily mobilized in war times to protect the country from external invasion.
5. The big population size puts pressure on the government to provide social facilities. This helps to improve on the welfare of the people.
6. **It encourages geographical mobility of labour.** This is because the young people available for work are willing to work-anywhere in the country and to accept new assignments which they may be given at any time.
7. **It increases government revenue.** The government is able to get much tax revenue in case the big percentage of the population is productive.
8. **The high population growth rate increases the labour force in the country.** This leads to increase in output, provided labour has other co-operant factors like capital.

Increasing, decreasing and ageing population

Increasing population

This is the population which is characterized by high population growth rates due to high birth rates as compared to the low death rates. The increasing population may result into population explosion

Declining (decreasing) population

This refers to the population characterized by a continuous population growth fall. It is common in developed countries where the birth rate is very low for example European countries, USA, Japan etc.

Negative effects (implications) of a declining population

1. **It leads to a fall in aggregate demand for goods and services in the economy.** This reduces the level of investments in the economy hence unemployment in the long run.
2. **It reduces the government tax revenue derived from taxes imposed on incomes of the people.**
3. **It reduces labour supply.** This makes it difficult to expand production in the economy and enjoy economies of large scale due to labour scarcity and high wages paid.
4. **It reduces competition among the workers.** This leads to inefficiency in production.
5. **It discourages geographical labour mobility.** This is because workers are not on pressure to look for employment in other areas.

Positive effects (implications) of a declining population

1. **It reduces pressure on land and other natural resources.** This minimizes the diminishing returns associated with land and environmental degradation.
2. It strengthens the ability of the government to provide its people with most of the essential services. This is so because the government is not over strained.

3. **It reduces the dependence burden on the working group.** This improves the standards of living and capital accumulation in the economy.
4. **It helps the country to attain the required optimum level of resource allocation.** This is true in case the economy is over populated.
5. **It reduces on the problem of unemployment in the economy.** This is because labour supply reduces as the population declines and therefore the remaining labour force is in position to get employment.
6. **It encourages savings due to reduced dependence burdens.** This helps to break the vicious circle of poverty as a result of increased investments and incomes.
7. **It encourages proper planning in the economy.** The government is in position to match the population of the country with the available resources.
8. **It reduces congestion and rural urban migration.** This helps to control open urban unemployment in the economy.
9. **It reduces on the social and political unrests in the country.**
10. **It helps to check on inflationary tendencies and shortage of goods and services in the economy.** This is because of reduced aggregate demand due to a declining population.

Ageing population

This refers to the population characterized by a big proportion of people in the old age group, that is people above 65 years.

The Ageing population is due to,

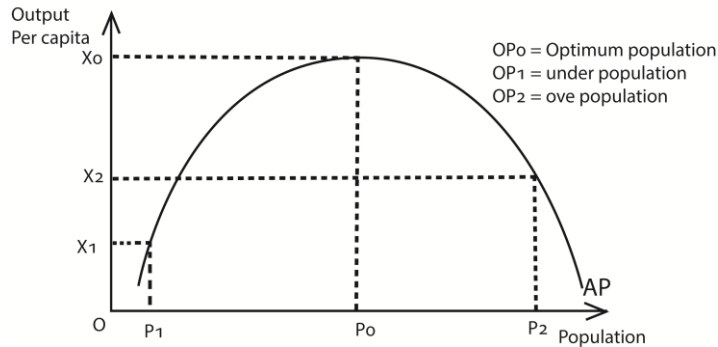
1. A fall in birth rate due to improved medical services.
2. Improved nutrition and balanced diet.
3. Improvement in technology.
4. Low death rates.

Negative effects of an ageing population

1. It increases occupational and geographical labour immobility. This is because old people find it hard to adapt to new changes and they are reluctant to move to new places.
2. **It reduces the labour force of the economy.** There is a threat on the future manpower requirements necessary to run the economy due to the limited number of young people in the population.
3. **High levels of conservatism.** This is because old people find it difficult to learn new skills and techniques of production.
4. **It increases the dependence burden on the active group** and the government in general in form of feeding, health care, clothing, shelter etc.
5. **It increases government expenditures** in terms of pensions and other retirement benefits to the old people.
6. **There is loss of efficiency and retardation in technological development.** This is because old people are not very innovative like the young people.
7. It leads to a reduction in per capita income. This is due to the limited contribution of the old people to GNP hence low standard of living.
8. It leads to structural unemployment due to the change in demand in favour of production of goods and services for the old.

Under population, optimum population and overpopulation

Graphical illustration of optimum population, under population and over population



Under population

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

Advantages of over population

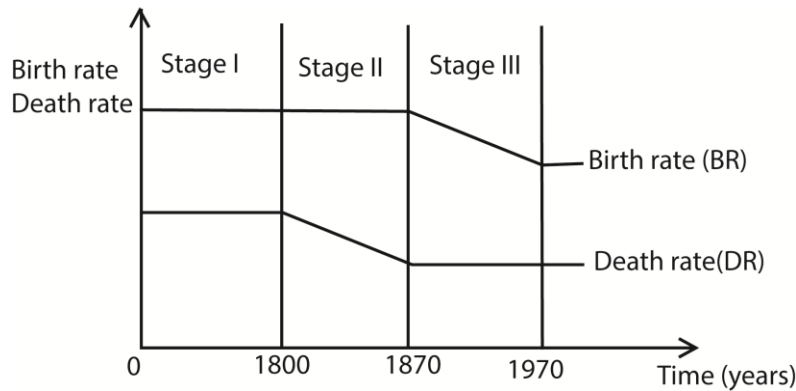
1. **It increases the size of the domestic market for both the manufactured and agricultural products.**
2. **It encourages labour mobility.** This is because many young people can easily move to other areas in search of employment.
3. **It stimulates rapid economic growth.** This is due to the expansion of investments as a result of increase in market size. .
4. **It increases labour 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**

The theory of demographic transition

This theory explains population growth from a historical perspective for developed countries. According to this theory, population growth in developed countries has passed through three main stages that is the stagnant phase, rapid population growth rate phase and the stable population growth rate phase.



The theory is explained in three stages as follows

Stage I (The stationary population growth phase). This stage is characterized by high birth and death rates which are almost equal (balanced). Therefore the rate of population growth is very low.

- The high death rates are due to poor medical facilities, poor living conditions, malnutrition, diseases and poor technology.
- The high birth rates are due to low levels of education, high demand for children, cultural values, early polygamous marriages etc.

Stage II (The early transition phase). This is also called the early expanding phase. The birth rate is still very high. There is a sharp fall (decline) in death rates due to improved technology and standard of living. Therefore the rate of population growth (BR - DR) is very high. This marks the beginning of demographic transition and most developing countries are still in this phase (stage)

Stage III (The late transition phase). This is also called the late expanding phase. It is characterized by falling birth rates and low but constant death rates. The fall in birth rates is due to improved standard of living, family planning and high female education due to modernization. Therefore population growth rate (BR - DR) is very low. Developed countries like Britain have reached this stage.

The Malthusian population theory

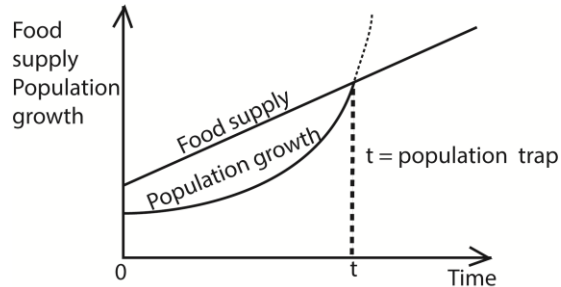
This theory was put forward by a British economist in the 18th Century called Reverend Malthus. He used this theory to explain the relationship between population growth and economic development in form of food supply and other necessities. He observed that since land and other resources are fixed, any 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 be checked by preventive negative checks such as celibacy, late marriages, family planning, moral restraint, etc.

NB. 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 led to an increase in food production with the use of agricultural mechanization and irrigation.
3. He ignored the fact that a continuous supply of food can be 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 definite 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 increases in an arithmetic progression.
11. It ignored the possibility of emigration to ease pressure on resources. People emigrate from countries which are densely populated to countries which are less populated resulting in reduced pressure on resources in the overpopulated countries.

12. Failure of the theory to visualize (foresee) the possibility of labour 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, labour, 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 to 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.**

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