



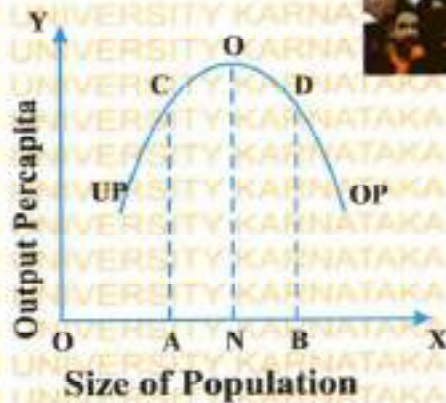
KARNATAKA STATE OPEN UNIVERSITY

Mukthagangotri, Mysore-570 006

ECONOMICS

M.A. (FINAL)

ECONOMICS OF DEMOGRAPHY



COURSE - 4

BLOCK - 1-7





KARNATAKA STATE OPEN UNIVERSITY

MUKTHAGANGOTRI, MYSORE - 570 006.

M.A. ECONOMICS

FINAL

COURSE - IX

Economics of Demography

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M.A. ECONOMICS (FINAL)

Course - 9

Theory of Demography Transition

BLOCK - 1 INTRODUCTION

Dear Student,

Hearty welcome to M.A. (Final) course. "Theory of demography" is one of the five papers, which you will study this year.

Theory of Demography analyses different aspects of population problem, viz., births, deaths, migration, structure and so on. Demography studies, "how to adjust population to the requirements of the development of the economy". It deals with population theories, events, policy propositions etc., It studies the demographic evolutionary process i.e., transition of a society from high birth and death rate to the low birth rate and death rate society.

This paper "Economics of Demography" consists of 7 Blocks and 30 units, which deal with different issues related to population.

The First block "Theory of Demographic Transition" explains the nature and scope of Demography and also analyses the theory of Demographic Transition which explains the demographic evolutionary process i.e., transition of a society from the high birth rate and death rate to the low birth rate and low death society. It explains population dynamics.

The 2nd Block "Population and Development" explains the role of population in economic development and different theories of population.

Block - 3 Studies structure of population.

Block - 4 Deals with theories of fertility and mortality.

Block - 5 is dealt with migration and urbanization.

Block - 6 Explain the relation between population and Human-resource development.

Block - 7 Analyses different aspects of Demography in India and in world.

Before studying various aspects of Economics of Demography, let us study Theory of Demographic Transition. i.e., first block.

There are two units in the first block. The first unit explains the nature and scope of Demography. The second unit explains different theories of Demographic Transition.

Dr. Sathya Prema,
Course Co-ordinator

BLOCK - 3 INTRODUCTION

In the previous two blocks you were concerned with introductory and theoretical aspects. In the above background in this block you will be studying about the phenomenon of population explosion and consequent changes in population structure. Later you will also study about the demographic effects of increasing population and its changing structure. The units in the present block are:

Unit9 : Population Trends in the 25th century.

Unit 10 : Demographic Effects of Population Structure.

BLOCK - 5 INTRODUCTION

Migration is one of the important factors that determines the birth rate, death rate and thereby the size of the population, population growth rate, distribution of population, and density of population and also structure of population. It shows the trends in social changes. It also affects economic conditions. Therefore, the study of migration is of vital importance. Similarly, urbanization is also one of the factors that affect, employment, public policies etc. This block studies migration and urbanisation.

This block consists of three units. The first unit deals with meaning and kinds of migration, effects of migration on population and factors effecting migration.

The second unit systematically describes theory related to internal migration, process of urbanization, measures of degree of urbanization and distribution of rural-urban population.

The third unit gives an insight into the methods of measuring internal migration, sources of finding international migration, Lewis and Todaro models of migration.

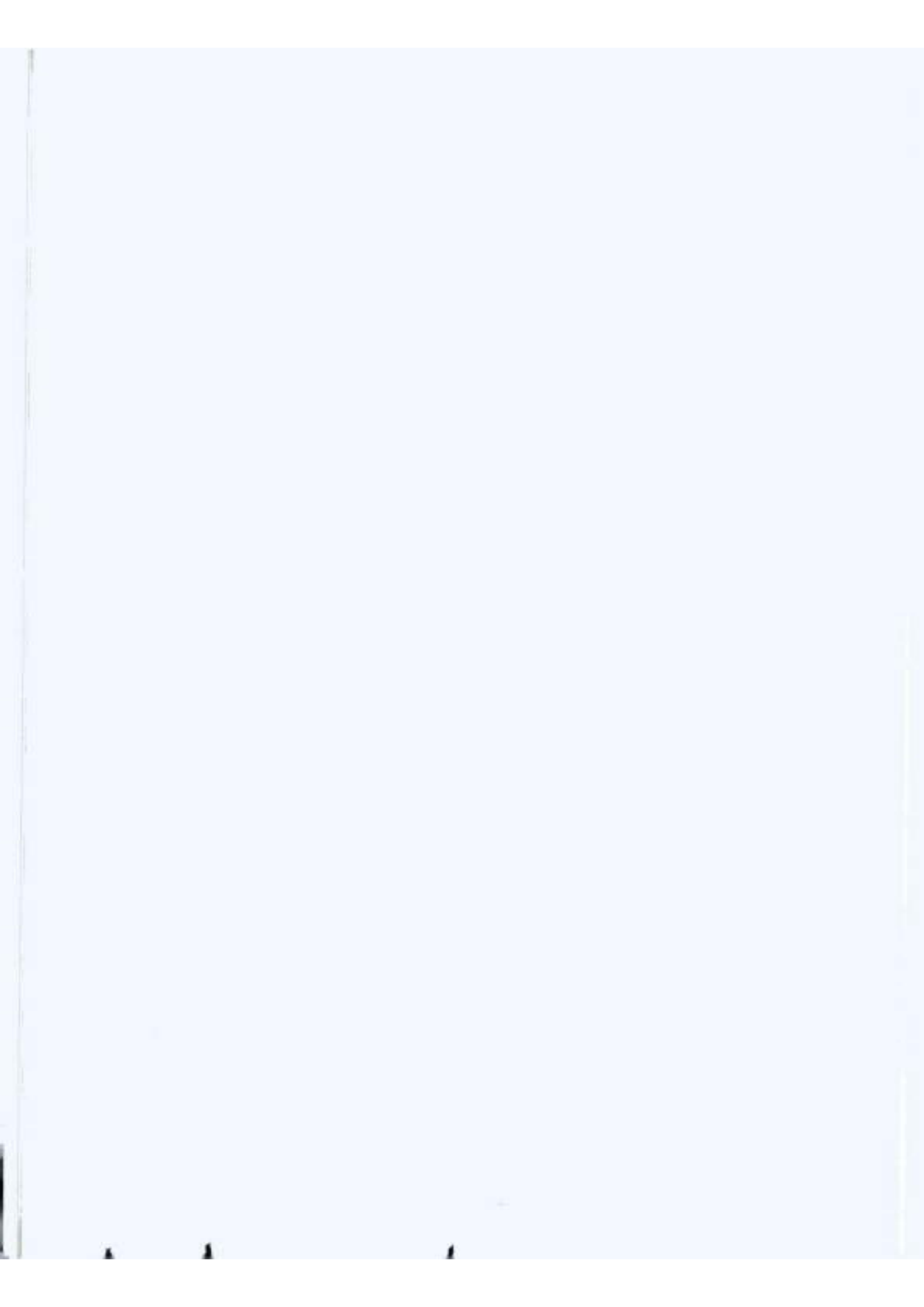
BLOCK - 7 INTRODUCTION

In recent years, study of Global Economy is gaining importance. Global/world economy is the composite of all national economies. Trends in different issues like trends in productivity, population, economic policies, rate of development, economic status of different economies, etc.... all these influence the world economy. Among these issues, world population is one of the important factors that determines the global economy. Today, world population is rising rapidly and distribution of world population is uneven. The uneven distribution has widened the economic gap between the rich and poor countries. Besides,

rapid increase in the world population has created many serious problems viz ; food crisis, unemployment and so on. Therefore, to appreciate the problem and to suggest remedies, it is necessary to study different aspects of the world population. In this context, it is also very essential to understand the demographic situation in India, since, India is the second largest contributor to world population. An attempt has been made to analyse the population problems of both India and the world - in this block : 7.

Block : 7 consists 5 units, The first four units explain different aspects of population in India, viz., fertility and mortality in the first unit, Density, Sex Ratio, Literacy in the second unit. Third and the Fourth units deal with Food and Nutrition and Census in India respectively. The fifth unit explains trends in different aspects of world population.

Dr. Sathya Prema,
Course Co-ordinator



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M.A. FINAL
Course - IV : Economics of Demography
Block - I : Theory of Demography Transition

Block Introduction

Dear Student,

Hearty welcome to M.A.(Final) course. "Theory of Demography" is one of the five papers, which you will study this year.

Theory of Demography analyses different aspects of population problem, viz., births, deaths, migration, structure and so on. Demography studies, "how to adjust population to the requirements of the development of the economy". It deals with population theories, events, policy propositions etc., It studies the demographic evolutionary process i.e., transition of a society from high birth and death rates to the low birth rate and death rate society.

This paper "Economics of Demography" consists of 7 Blocks and 30 units, which deal with different issues related to population.

The First block "Theory of Demographic Transition" explains the nature and scope of Demography and also analyses the theory of Demographic Transition which explains the demographic evolutionary process i.e., transition of a society from the high birth rate and death rate to the low birth rate and low death society. It explains population dynamics.

The 2nd Block "Population and Development" explains the role of population in economic development and different theories of population.

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Before studying various aspects of Economics of Demography, let us study Theory of Demographic Transition. i.e., first block,

There are two units in the first block. The First unit explains the nature and scope of Demography. The Second unit explains different theories of Demographic Transition.

Dr. Sathya Prema,
Course Co-ordinator

M.A.FINAL

Course - IV : Economics of Demography

Block - I : Theory of Demographic Transition

Unit-1 : Nature and Scope of Economics of Demography

Structure :

- 1.1 Objectives
- 1.1 Introduction
- 1.2 Definition of Demography
- 1.3 Nature of Demography
- 1.4 Scope of Demography
 - 1.4.1 Micro-Demography
 - 1.4.2 Macro-Demography
- Check your progress - I
- 1.5 Demography and other Disciplines
- 1.6 Importance of Demography
- 1.7 Let us Sum up
- 1.8 Key words
- 1.9 Reference Books
- Check your progress - II

1.0 Objectives

The main objectives of this Unit are :

- To understand the concept 'Demography'
- To explain the interrelationship between Demography and other leading subjects.
- To describe the nature and scope of Demography.
- To appreciate the importance of Demography.

1.1 Introduction

In recent years, the study of Economics of Demography is gaining its importance. The word Demography is derived from the Greek word 'Demos', which means people. Hence Demography is the science of population. According to some Scholars, Demography analysis primarily concerns with quantitative relations among demographic phenomena. But in a broad sense, Demography also studies interrelationships between population and socio-economic, Cultural, Geographical and other variables. Therefore, Demography is treated as multi-disciplinary subject. Economists, Sociologists, Statisticians, anthropologists, educationists and others have contributed to the subject. In this Unit, you will study nature and scope of Demography in detail.

1.2 Definition

There is a plethora of definitions on Demography. According to Philip M. House and Dudley Duncan, "Demography is the scientific study of the size, territorial distribution and composition of population, changes there in and the components of such changes which may be identified as mortality, territorial movement and social mobility". According to Thompson and Lewis, this definition gives a narrow view. According to Thompson and Lewis demographic trends occur in accordance with time, place and circumstances.

D.J. Bogue defines "Economics of Demography is the mathematical study of size, composition and special distribution of human population and of changes overtime in these aspects through the operation of five process of fertility, mortality, marriage and migration and social mobility". According to this definition, study of demography maintains a continuous descriptive and comparative analysis of trends in each of these process and in their net results. Demography is the study which aims to develop a theory that explains the events that it charts and compares.

According to Spengler, Vance, Moore, "Modern Demography is closely related to Economics, Sociology, Psychology, Geography, Mathematics, Genetics, Ecology and Anthropology. It is thus a multi-science discipline". This definition has been accepted by the UNO as an appropriate definition since it represents the present state of affairs. Spengler, Vance and Bogue and Ryder opine that, Demography analysis and population studies are the parts of Demography. Accordingly, Demography not only deals with quantitative aspect, but also qualitative aspects of the population problem.

1.3 Nature of Demography

Demography is the Science of Population problems. It studies population problems in a scientific manner. The Demographic study aims to achieve the knowledge of size, structure and distribution of population. The study of Demography aims at enquiring into trends of population and its relationships with different aspects of social organizations in an area. It also predicts future demographic evolution and its probable consequences. Thus by applying scientific methods in observation and analysis, Demography explains relationship between cause and effects, and also predicts the future. Study of Demography has its own theories, hypothesis, laws, policy, prescriptions and facts.

Study of Demography uses deductive reasoning and empirical techniques to explain cause and effect relationships and to interpret the past and present variables in projecting future population dynamics.

Generalisations of Demography are vertical, related to time, space and levels of economic development. Demography explains 'what was', 'what is' and 'what will be' relating to population trends. Thus it is a Positive Science, which studies facts both quantitatively and qualitatively.

Laws of Demography part take the nature of universal and fundamental truths, but the policies differ from country to country. For example : In an overpopulated less developed country main objective is to reduce birth rate and thereby the size of population. Whereas, in some developed countries, demography policy would deal with the increasing number of old people in total population.

The above analysis reveals that study of Demography exhibits all the features of a science. Irene Tauber writes, "with improved data, new techniques and precise measurement of the demographic transition that is occurring, demography has become a science rather than mere literature. Infact, it has become an applied technology".

Study of Demography is descriptive and analytical in nature.

1.4 Scope of Demography

The study of Demography has a wide scope. It includes all topics which relate to human welfare. According to Whipple, Demography is concerned with economic aspects, social aspects, genealogy, anthropology, statistical pathology and so on. It deals not only with quantitative aspect of population problems, but also qualitative aspects of population studies. It includes demographic theories, and hypothesis about fertility. The Study of Demography furnishes biological, economic and socio-cultural explanations of differential fertility for different times, regions and groups of persons. It also deals with events like marriages, fertility decisions, deaths and births. In the beginning, women's chronological age was regarded as the most important determinant of fertility. Now, contraceptive acceptance is an important subject matter of demography. At present, new concepts, new measures of study of present state of affairs, new ways of forecasting have become the subject matter of demography.

Besides, the study of cause and consequences of development relating to change in population, at present is the most important aspect of Demography. Demography theory explains transformation of an economy from the status of underdeveloped to the status of developed economies. That means, to

reach a level of development, an underdeveloped economy has to pass through certain demographic stages, viz., (a) stage of high birth and high death rates, (b) stage of static birth rates and declining death rates resulting fast increasing population (c) decline in both birth and death rates but population may be still high, (d) both death rates and birth rates have come down to a low level causing low growth of population.

In the past Demography was concerned with the enumeration of population. But now the study of demography deals with the size, composition, organization, distribution, migration, fertility, mortality, marriage, policies.

Basically, demography is the study of size of population. The demographers in different countries find out the size of population. The organization of population includes measurable features of population like age, sex, education, marital status, religion, caste, health, etc., The distribution of population is studied according to geographical area. Measures of population include percentage of population and density of population.

Fertility and Mortality are important aspects of demographic study. Fertility is expressed in terms of birth rate, family size, sterility, etc., Mortality is measured by crude death rate and infant mortality rate. It includes the study of age, sex, causes of death etc.

Demography also studies general trend of migration i.e., immigration (in-migration), emmigration (out-migration), causes for migration, etc., Demography also deals with social institutions viz., family, marriage, etc., Study of Demography also throws light on population policy which includes philosophy, guiding principles, family planning, etc.

The study of Demography has been classified into Micro-Demography and Macro-Demography.

1.4.1 Micro-Demography

Micro-demography studies the different demographic aspects pertaining to an individual and the family as a unit of society. Micro-Demography study is conducted intensively. According to Bogue, Micro Demography is the study of growth, distribution of population within community, state, economic area, other local area.

1.4.2 Macro-Demography

Macro-Demography refers to the study of different demographic aspects pertaining to a country as a whole. Most of the population studies are mainly related to Macro-Demography. Macro-demography has its macro-static (i.e., national aggregate at a point of time) content and also macro-dynamic contents (i.e., national aggregate over a period of time). It also studies macro-comparatives which reveal inter-regional and intergroup population pictures. Study of both micro-demography and macro-demography are essential to appreciate the demography problems. For instance, death rate or birth rate is studied with the help of both micro and macro approaches. According to D.J. Bogue, "Demography is the study of growth, distribution and redistribution of the population within a community, state, economic area or other local area. This includes both numerical and compositional aspects and is

performed by using meaningful sub-divisions of community or local areas".

Thus, the study of Demography has a wide scope and it has been constantly increasing.

Check your progress - I

1. Define Demography.
2. Explain the nature of Demography.

1.5 Demography and other Disciplines

Demography is not only numerical portrayal of human population, but it also deals with economic, social, psychological, genetical, biological, anthropological, educational, environmental and statistical aspects pertaining to human beings. In a broad-sense, it is a multi-disciplinary science. Let us discuss the relationship of Demography with other studies.

1. Relationship between Demography and Population Studies : Some Scholars namely, P.M. Hauser and O.D. Duncan have distinguished between Demography and Population studies. According to them, Demography studies components of population variation and change. Whereas, population-studies are dealt not only with population variables, but also with the relationships between population changes and other variables like social, economic, biological, geographical variables and so on.

But D.J. Bougue and Lorimer criticised the distinction made between Demography and Population studies. According to them, Demography itself is the science of population. They opine that study of Demography / population is considered to be interdisciplinary.

2. Demography and Economics : There is a closer correlation between Demography and Economics. Study of population is one of the important aspects of the study of Economics. The relationship between economics and demography is particularly explicit in the fields of economic development and population. Population plays an important role in economic development. The rate of increase in population (especially in less-developed countries) determines the economic activities viz., demand, supply, investment, consumption, industrialisation, urbanization, rate of growth of national income, percapita income and distribution of national income. The rate of economic development is determined by the size of the population, age, sex, etc., Migration causes economic changes. Thus, population plays an important role in the economic development of an economy.

Similarly, rapid increase national income, and its equitable distribution, industrialization, production, supply of public goods like defence, etc., infrastructure, education and health facilities, employment opportunities - all these influence population. Besides, government economic policies such as fiscal policies, public expenditure, taxation - etc., determine welfare of the people. Thus, Demography / population studies and economics are closely related. In economics of development, we study how to adjust the economy to population. Similarly, in demography, we learn how to adjust population to the economy.

3. Demography and Sociology : Demography and Sociology are interrelated subjects. Demography studies the fertility, mortality and migration patterns of societies. Survival of population depends upon socialization, education, culture, preservation of order etc., Study of sociology furnishes explanations for high and low fertility and mortality. Fertility behaviour itself is a socially motivated behaviour. Marriage, Sex, population control, size of family - all are determined by social factors.

On the other hand, the survival of a society depends upon the demographic traits viz., Demographic changes are reflexive and behavioural and they affect the component of social system. Thus, the relationship between Sociology and Demography is one of reciprocal influence. Social Demography concerns with social causes and social consequences of demographic transition.

4. Demography and Geography : The subject Geography not only studies spatial distribution of resources and population, but also studies Human geography. Population Geography or Human Geography studies location, features of population, spatial pattern in population distribution. According to Edward Ackerman, "The distributional features are common both to Demography and Geography". Edward Ackerman says that, "Geography can seek understanding of the evolution of earth's distribution in operation of at least eight different physical, biotic and cultural process : (1) Movement of the soil mantle, (2) movement of water overland, (3) climate, (4) biotic process, particularly vegetative (5) demographic movement (6) organizational evolution (5) demographic movement (6) organizational evolution (7) development of resources converting techniques, (8) changes in the space contents. Demographic movement is at the heart of these forces which influence the change content. Population geography deals with demographic facts in their present environmental context. It also deals with causes, origin, features and consequences. Geography studies the relation between man and resources. Study of Geography aims at finding solutions for solving overpopulation and poverty. Population geography examines the influence of the geographical environment viz., location, climate, natural resources, etc., These influences are studied on the spacial distribution of demographic phenomena and demographic process. Thus, population geography seeks to find the interaction between various geographical and demographic factors.

5. Demography and Human Ecology : There is a close relationship between Human Ecology and demography. Human Ecology deals with population, environment, technology and organization. Demography is a part of human ecology. Human ecologists not only furnish biological explanation of population, but also consider socio-cultural aspects of population. Human ecology is also known as "Bio-demography". Biological explanations of human fertility and the effect of density of population on human fertility are subject matters of ecology and demography.

6. Demography and Anthropology : There is intimate relationship between demography and Anthropology. Anthropology is concerned with birth rate, death rate, marriage, migration of different sub-groups of population. Demography is the part of anthropology which treats of the statistics of births, deaths, disease, etc. Both Anthropology and Demography study in breeding, endogamous breeding, mutation, gene flow. Both demographers and anthropologists are interested in the study of inbreeding and endogamous breeding.

7. Demography and Psychology : Both Demography and psychology are interrelated. Psychology is the science of human behaviour. Population growth, family planning, regulation of fertility, marriages, migration - all these are determined by psychological factors. All these factors reveal close relation

between demography and psychology. For instance, migration from rural to urban areas which is influenced by the psychological factors determines the distribution of population. The relationship between demography and psychology can be seen in social psychology, psychology of adjustment etc.,

8. Demography and Mathematics and Statistics : There is an intimate relationship between Demography, Mathematics and Statistics. Quantification of data is very essential in demography. Demography studies birth rates, death rates, size of population, structure of population with the help of mathematical and statistical tools and models. For instance, population census are explained in mathematical terms. Similarly, statistical theory of probability is useful in the analysis of mortality. Thus there is a close relationship between demography and mathematics and statistics.

9. Demography and Law : There is a close correlation between state law and Demography law. State laws concern not only with peace and order, but also deals with the population problems. On the other hand, population law relates to demographic variables like fertility, mortality and migration and their various components, which affect the size of population, distribution of population. Population law also relate to public health, sanitation, migration, marriage, etc., These factors are also determined by the state law. An instance of influence of demography law can be found in Indian Medical Termination of pregnancy Act - 1972. Thus, both demography law and state law are interrelated.

1.6. Importance of Demography

Study of Demography is gaining importance day by day. The following points explain the importance of Demography.

1. Study of demography is very essential in health planning. Persistent of high fertility especially in developing countries causes health problems for both mother and child. Demography which studies fertility and other related problems helps in formulating proper Health Planning.
2. Supply of inadequate and poor quality of food causes high mortality rate, poor health, low physical activity and low productivity, inefficiency. Therefore, to provide adequate and good quality food to total population, food planning should require population studies.
3. Educational planning depends on the study of demography. The study of demography furnishes the details about uneducated adults, illiteracy etc., and also estimation about the future needs of education on the basis of estimates of growth of population.
4. Now-a-days, unemployment is increasing at a rapid rate both in developing and developed countries due to increase in world population, migration, immigration and emigration. Therefore, formulation of proper employment planning depends on the study of demography.
5. When the size of population increases, demand for housing will also increase. Therefore, data for mortality, fertility, migration, etc., provide basis for estimate of housing required. Eg.: The estimate prepared by economic and social commission for Asia and Pacific revealed that percentage of urban population would increase from 25 in 1970 to 44 by 2000. According to this estimate, less than two housing units per thousand population were built each year during the 1960s whereas, the requirement was for eleven units per thousand population.

6. Study of demography is sine-qua-non in the case of migration planning. Migration results in qualitative change in population of a country. For example : data regarding the persons migrating to western countries is necessary to estimate the extent of brain drain and to curb it. Similarly, a large number of poor and illiterate immigrants are coming from Bangladesh for last several years and are creating problems in west-Bengal and Assam. Data concerning immigrants has to be frequently collected. This helps in imposing some sort of restrictions to avoid immigration.

7. Demographic projections not only help in planning at national level, but also in planning at international level.

The international agencies of UNO depend upon the demographical data collected by population division of UNO. to solve the problems of underdeveloped and developing countries like food problem, health problem, etc.,

Thus, study of demography is essential in different fields both at national and international levels.

1.7. Let us Sum up

Demography is the scientific study of size, distribution and composition of population. Study of demography deals with the analysis and measurement of fertility, mortality, migration and net change in population. As a positive science, Demography explains 'what was', 'what is' and 'what will be. Scope of Demography is constantly increasing. Its study is concerned not only with quantitative aspect, but also concerns with qualitative aspects of population. It studies fertility, mortality, marriage, migration, age, sex, education, caste, etc. Study of demography has been classified into (1) Micro demography which deals with the study of different demographic aspects of an individual or a family. (2) Macro demography deals with different demographic aspects of a country as a whole.

Demography is a multi-disciplinary science. It has close correlation with other subjects like Economics, Sociology, Geography, Anthropology, Psychology, Law, Ecology, Mathematics and Statistics. Study of demography helps in formulating different planning process viz., educational, housing, employment, food supply, migration, planning, etc. Both at national and international levels, demographic data and projection help in solving the population problems pertaining to food, health, education, etc.

1.8. Key words

Demography	- Demography is the science of population.
Fertility	- Fertility refers to actual reproductive performance.
Mortality	- Mortality means a percentage of death in the population.
Deductive Reasoning	- Deductive reasoning refers to reasoning from general facts to specific conclusion.
Positive Science	- Positive science is one which explains the things "as they are".
Micro-Demography	- Micro demography studies different aspects of population related to a single unit or a family of a society.

Macro-Demography - Macro-demography studies different demographic aspects of population at national or international levels.

1.9. Reference Books

1. Asha A. Bhende - Principles of Population studies
Tara Kanitkar
 2. Thompson & Lewis - Population problems
-

1.10. Check your progress

1. Define Demography. Describe the nature and scope of Demography.
2. Discuss the relation between Demography and Economics and Sociology.
3. Explain the relationship between Demography and Population Studies.
4. "Demography is a Multi-disciplinary Science" - Elucidate.
5. Discuss the importance of study of Demography.

Prof. Sathya Prema

Unit 2 : Theory of Demographic Transition

Structure :

- 2.0 Objectives
- 2.1 Introduction
- 2.2 Meaning of Demographic Transition
- 2.3 Theory of Demographic Transition
- 2.4 Different Views on Demographic Transition
- 2.5 Notestein and Cowgill's Theories of Demographic Transition
- 2.6 Demographic Transition in the course of Economic Development.

Check Your Progress : I

- 2.7 Zero – Population Growth
- 2.8 Critical Review of Demographic Transition
- 2.9 Let us Sum Up.
- 2.10 Key – Words.
- 2.11 Reference – Books.

Check Your Progress : II

2.0 Objectives

The main objectives of studying this unit are :-

- To understand the concept of Demographic Transition.
- To analyse the different stages of demographic transition.
- To discuss the importance of demographic transition.

2.1 Introduction

Population is one of the important factors that determine the economic development. Economic –development of an economy depends mainly on the quality and quantity of its people. Size, growth of population, age structure etc- all these are related to economic development. Therefore, it is necessary to study demographic features and their effects on economic development. In this unit, first we shall discuss the theory pertaining to Demographic Transition in detail.

2.2 Meaning of Demographic Transition

Demographic Transition means progress from one demographic situation to a different situation i.e. from the stage of high expansion of population to the stage of contraction. Demographic transition throws light on the relationship between demographic change and socio-economic change. The theory of demographic transition explains how demographic pattern of high vital rates associated with an agrarian society will gradually transfers to a pattern of low vital rates associate with industrial society. These two conditions i.e high birth rate plus high death rates and low birth rates plus low death rates are know as the "old balance and new balance" respectively. It also explains the demographic transition will be accomplished by declining mortality at a faster rate than fertility. Thus shift in population from old balance to the new balance is known as "Demographic Transition".

2.3 The Theory of Demographic Transition

The theory of demographic transition explains the relationship between type of population growth and socio-cultural, economic and technological development of an economy. The theory of demographic transition, unlike other population theories is based on the actual experience of the western countries which have passed through different stages of demographic evolution – i.e. from high fertility and high mortality conditions resulting slow growth of population to low fertility and low mortality condition leading to slow growth of population once again. For instance, the world has witnessed, a fall in death rates from 40-45 in the beginning of twentieth century to 15-20 in backward countries, 10-15 in developing countries (Intermediate economies), and to 5-10 in the developed countries.

Earlier demographers, viz., Donald Landrey, Meade, Enk, Simon. Thompson (1929) and others made an attempt to construct typology to describe the transition from high birth rate and mortality rates

to low mortality and fertility rates. These demographers discussed the stages of demographic development and thus stage theories emerged. Let us discuss a few leading demographic theories propounded by different demographers.

2.4 Different Views of Demographic Transition

Landrey's Theory : According to Landrey, demographic transition follows three stages;

- a) In the primitive stage, population increases with the increase in food supply and it decreases when food supply falls. Death rates are directly related to changes in food production.
- b) In the intermediary stage i.e. 2nd stage, increase in population depends on both food supply and the level of economic development.
- c) In the third stage people value higher economic living standard and since increase in population is considered as a constraint to development, people deliberately control population growth. Consequently birth rate falls. Economic development does not have any impact on growth of population.

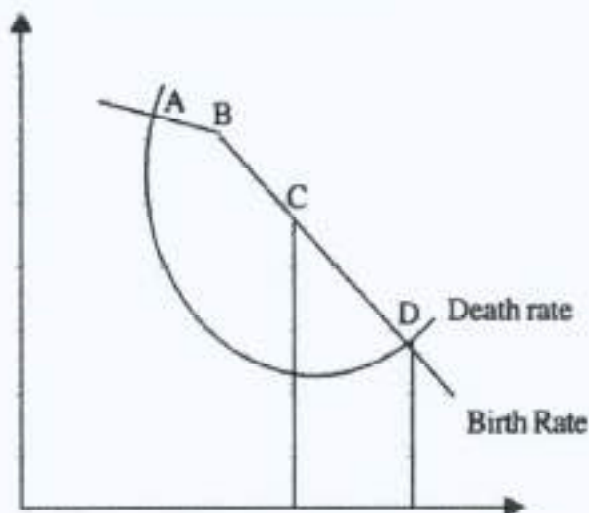
C.P Blaker's View : C.P. Blaker identified five stages of Demographic transition; They are

- 1) **Stationary Stage :** In backward countries both birth rates and death rates are high. Population remains stationary i.e. population growth rate is very slow. India and China were at this stage till 1900.
- 2) **Early Expansionary Stage :** Due to availability of better medical facilities, control of famine, and epidemics etc., death rates fall without any decline in birth rates. As a result, population increases. According Becker, in 1930, nearly 40% of world was in this stage.
- 3) **Stage of Late Expanding Population :** After a time lag, willingness to have more children declines, as result, birth rates fall, but death rates fall more rapidly than birth rates. By 1930, 20% of the world was in this stage. Including India many developing countries have entered in this stage.
- 4) **Low Stationary Stage :** In this stage there will be balance between low birth rates and equally low death rates and there will be no growth of population. However, by the time the country gets into this stage, the population may become large while being stationary. European countries had reached this stage in 1930.
- 5) **Declining Stage :** This stage refers to negative growth rate and high death rates. Death rates exceed fall in birth rates. As a result, total population declines.



Fig 1: explains Blacker's stages of population growth

Fig. 1



As shown in the fig.1, A,B,C, D are time points. To the left of time point : A, population is declining because high death rates exceed high birth rates. To the right of time : D also, population is declining. Because, even though death rate is low, still it is higher than the lower birth rate.

Time Point : A shows high stationary stage of population. At this point, both death rates and birth rates balance at high level. Between A,B,C time points, population is at early expanding stage. Death rate is declining more rapidly than the rate of fall in birth rate.

Between the time points C and D, population is at the late expanding stage. Though the birth rate is declining, is still higher than the low death rate. At time-point :D, there is a balance between low birth rates and low death rates. At this point D, population is at the low stationary stage.

But Blacker's Theory of demographic transition fails to explain the causes for trends in death rates and birth rates.

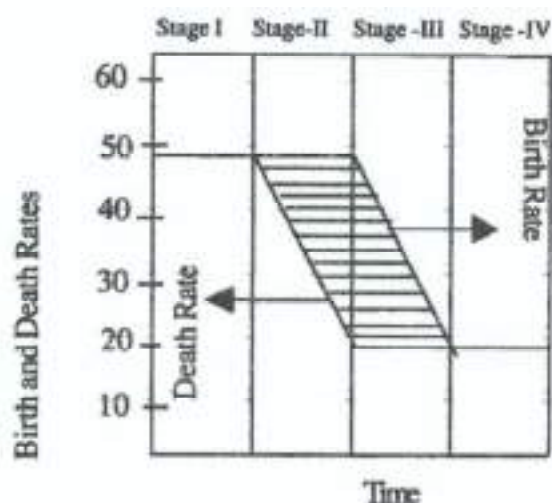
Karl Sax' Theory :

According Karl Sax, there are four stages of population growth. They are :

- 1) High stationary stage which is characterised by high birth rates and high death rates.
- 2) Early explosive stage in which death rate starts declining but birth rates remain high.
- 3) Late explosive stage in which birth rate falls and death rates remain constant and resulting slow decline in population.
- 4) Low stationary stage, is characterised by low birth rates and low deaths.

Fig 2. describes Karl Sax's theory of demographic transition

Fig 2.



As shown in the fig.2, first stage is stationary stage which is characterised by high death rates balanced equally with high birth rates. Second stage witnessed a fall in death rates while the birth rates remain constant. In the third stage, birth rates start declining while the death rates remain constant and population declines further at a slow rate. Both second and third stages are described as periods of population explosion because there exists a large difference between birth rates and death rates. This difference occurs due to delay in birth rates decline. Birth rates decline only after death rates have started dropping. The fourth stage is low stationary stage with low birth rates equally balanced by low death rates.

None of the above discussed theories explain the reasons for trends in fertility and mortality. In 1945, Notestein propounded a theory of demographic transition in which he tried to explain causes for trends in mortality and fertility rates. Now let us study Notestein's theory.

2.5 Notestein's and Cowgill's theories of Demographic Transition

A. In 1945, for the first time, it was Frank Notestein presented a theory of Demographic Transition in a matured form. In his theory he explained the causes for changes in fertility. According to Notestein, the rapid growth of population during the past three centuries was mainly due to decline in the death rate, as a consequence of modernization. Modernization involved high standard of living, rising incomes, improvements in the levels of sanitation, research and inventions in medical field. By the middle of 1930, fertility rates also declined in western countries. This trend in fertility rate was mainly due to wide spread acceptance of contraception. This wide spread acceptance of contraception was mainly due to the influence of ideal of the small family, so common in urban industrialised society.

Notestein describes three types of population according to their stage of demographic evolution.

- a) **Incipient decline** : According to Notestein, in this stage, fertility falls below the replacement level. Eg:- Population of Europe, U.S.A, Australia and New Zealand.
- b) **Transitional stage** : In this stage, "both birth rates and death rates are still high, growth is rapid, but the decline of birth rate is well established". Eg:- Population of the Soviet Union, Japan and some parts of Latin America.
- c) **High Growth Potential Stage** : According to Notestein, in this stage mortality is high and variable. And mortality is the chief determinant of growth. Fertility is also high and has shown no evidence of downward trend. When there is a technical development it results in decline in mortality. And due to this fall in mortality, rapid increase in population growth is expected. Eg:- Population of countries of Asia, Africa and Latin America.

B. Cowgill's Demographic Analysis :

According to Cowgills, there are four stages of demographic transition. While explaining the stages of population growth, he also describes the features of population growth in each stage. These are explained as follows :-

- a) **Primitive Cycle** : This cycle is also called Malthusian Cycle of population growth. According to the Cowgill, backward countries remain in the grip of primitive or Malthus cycle of population growth. This cycle is characterised by high birth rates with fluctuating death rates. Death rates first falls with improvements in agriculture and later start increasing with crop failures; natural disasters and epidemics. This cycle starts with fall in death rates and completes itself when death rates increases. Upto 1910, India was in this cycle and many European countries experienced this cycle, during the Pre-Industrial Revolution period. All under- developed countries were in this cycle during the periods of wars, epidemics, natural calamities etc. Thus, in primitive cycle death rates fall due to improvements in agriculture, then increase due to natural calamities, epidemics, while birth rates remain constant.
- b) **Modern Cycle** : In Modern Cycle of population growth, both death rates and birth rates fall but death rates fall at a faster rate than the birth rate. Even though both rates continue to fall, albeit with birth rates falling with a lag, population increases. Population increases till both death rates and birth rates become equal at a low level. As a result, population becomes stationary or nearly stationary. This is called transitional period of population. In this transition from high stationary to low stationary stage, population growth becomes necessary evil-previous.
- c) **Future cycle** : This cycle is also known as baby boom period. According to Cowgill, in future, when death rates come down to the minimum biological level, population will become a function of trends in birth rate. That means population growth will be determined by changes in birth rate. When birth rates increase, population also comes down and reaches stationary stage. Sri Lanka experienced this cycle during 1850 and 1900. Cowgill opines that in future, this cycle may

become usual population cycle in many countries of the world.

- d) Probable cycle : Probable cycle of population growth is Cowgill's Imaginary Cycle. This may influence the population pattern of a country. In this cycle, both birth rates and death rates may increase. But birth rates increase faster than the increase in death rates. Later, after some periods even rising death rates may catch up with the rising birth rates. But due to improvements and increase in medical facilities, now, this cycle may not be encountered. Cowgill, assumes in the long run, population cycle will follow the shape of 'S' curve.

Cowgill's analysis can be illustrated in the fig :3. A,B,C,D.

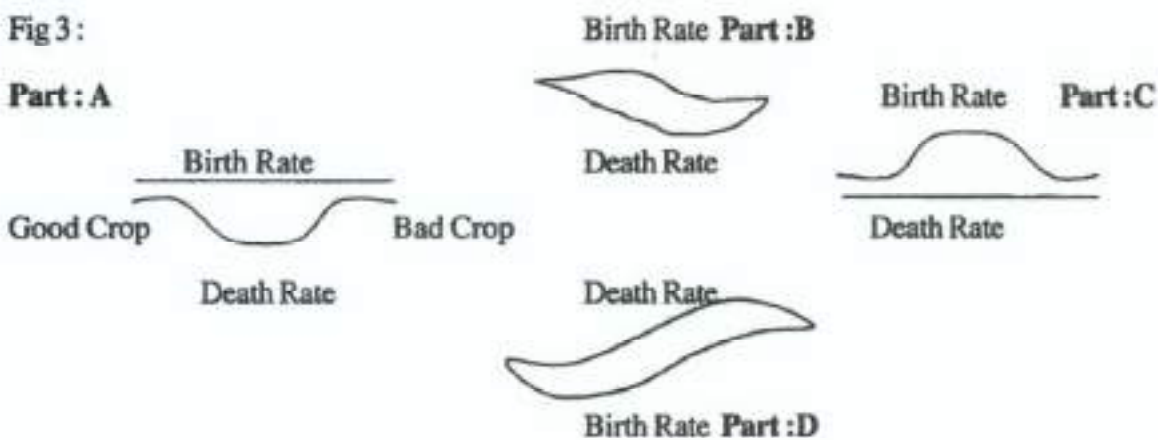


Fig 3, A reveals the primitive cycle in which birth rates remaining constant, death rate falls due to good crops. Later death rate also increases with crop failures, epidemics natural calamities. Fig 3, part B, shows modern cycle, in which both birth rates and death rates are falling, but death rates fall more rapidly than birth rates. In fig 3, part C, explains future cycle, in which, death rates remain constant, and population growth is determined by changes in birth rates. In the beginning of this cycle, birth rates increase and after certain period birth rates come down and reach stationary level. Fig :3, part – D describes the features of probable cycle, where both birth rates and death rates may raise. But birth rates raise at a faster rate than the death rates. Cowgill envisages that in the long-run probable cycle will follow the 'S' curve.

Thus, according to some demographers population growth passes through four stages and according to some other demographers, it passes through five stages.

2.6 Demographic Transition in the course of Economic Development

From the above analysis, it is clear that demographic transition implies certain stages. The experience of the today's developed countries reveals that, during the course of economic development, these nations have moved from a traditional agrarian based economic system to a largely industrial based



economy. These developed countries have also moved from a situation of high mortality and fertility to low mortality and fertility. A.J. Coale and E.M. Hoover have studied the changes in the fertility and mortality rates which associated with economic development. According to R.H. Cassen the socio-economic, cultured and other factors explain fertility differences not only among the countries but also within countries.

According to them, as economic development takes place, demographic transition passes through three stages. These stages essentially refers to the balance of births and deaths which exist 1) Before 2) During and 3) after the transition. These stages are follows :-

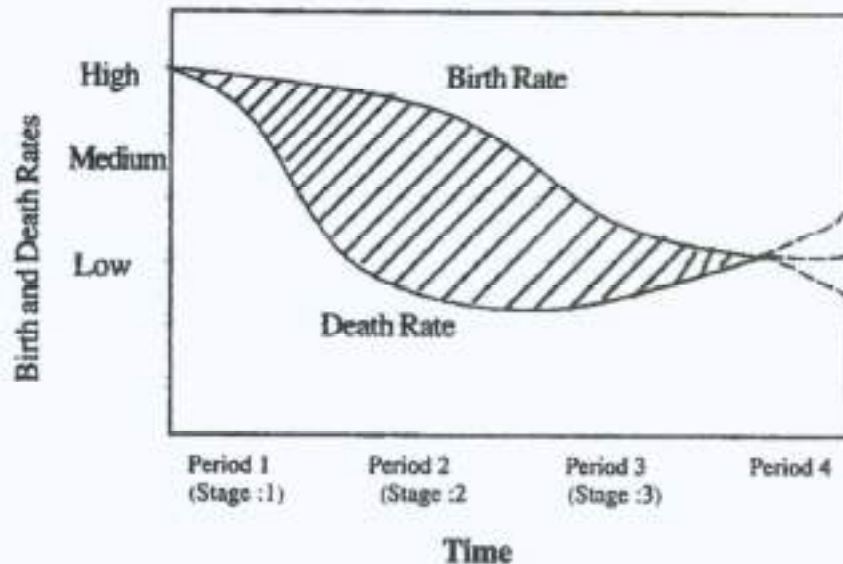
1st Stage : The Pre-transitional stage : - The traditional or pre-transitional stage - agricultural economy is characterized by high death rates and high birth rates. The death rates are very high because of poor diet, primitive conditions of sanitation and lack of preventive and curative medical and public health programmes. The death rates usually fluctuate in response to the variations in the harvests and the incidence of epidemics.

In the traditional agrarian economy birth rates are also high. They are functional response to the high mortality. The fertility rates are ingrained in the social systems, customs, religious beliefs. These ideals are reinforced by economic advantages of having a large number of children. Thus, in a traditional agricultural economy, both birth rates and death rates are very high which are supported by social norms and customs regarding marriage, reproduction etc.,

2nd Stage : The Transitional Stage : - In this stage, gradually the traditional agricultural society starts undergoing changes and ultimately becomes industrialized and urbanised. As a result of this, death rates register drastic reduction – as a consequence of regular supply of better quality of food, improved medical knowledge and care, improved sanitation resulting etc., high rate of growth of population. Gradually birth rates also begin to fall due to the acceptance of the ideal of a small family size initially in urban areas, literacy, changes in customs and conventions etc. Compare to decline in the death rates, fall in birth rates occurs only after a substantial time lag. This delayed response of the birth rate to economic changes comes about because any decline in death rates results only when changes occur in the long standing attitudes of pro-natalists and existing customs. Though both birth rates and death rates move downward, fall in birth rates lags behind – causing increase in population at slow rate.

3rd Stage : Post – transitional change : - During the third stage, i.e. post transitional stage death rates are relatively low and unfluctuating. But birth rates fluctuate from year to year depending upon the voluntary decisions of the individuals. However, in this stage, economy becomes developed economy where both birth rates and death rates are very low.

Fig 4 :

The old Balance and the New Balance

Source : Ralph Thomilson, Population Dynamics

Fig 4 explains about old balance and new balance cause by Demographic Transition. Fig -4, reveals that during period 1, i.e. pre transitional stage, both birth rates and death rates are very high. During the period 2 i.e. Transitional stage, death rates register a drastic reduction causing rapid growth in population. Gradually, birth rate also begins to fall. In the third period i.e. Post-transitional change both birth rates and death rates move downward causing low population. Thus fig -4 explains the process of Demographic Transition i.e. process of shifting from the stage of old balance (i.e. high birth rates = high death rates) to new balance (i.e. low birth rates = low death rates).

Check Your Progress : I

1. What do you mean by Demographic Transition? Explain different views on Demographic Transition.
2. Briefly describe the Notestein and Cowgill's theories of Demographic Transition.

2.7 Zero Population Growth

Zero population growth refers to equal birth rates and equal death rates. Both backward countries and developed countries can attain zero population growth. That means both types of countries can have the situation where Net production Rate (NPR) is one. In backward countries, we find high death rates and high birth rates, therefore, NPR will be one. Similarly in developed countries, both rates and birth rates are very low, therefore, NPR will be one.

A country will have negative growth rate when death rates slightly exceed birth rates. By the end of 1980s, 23 out of 33 developed countries like Germany, Austria, U.K, Belgium, Denmark, then Soviet Russia, Hungary, Norway, Sweden, Finland etc., were marked for negative growth. These countries are worried about higher percentage of aged population.

In the case of developing countries like India, China and other developing economies, they have moved away from the stage of high birth rates and high death rates. However the decline in the birth rate is slow. In these countries, the cessation of population growth i.e. zero population growth is the need of the hour. For this purpose, in these countries, to avoid painful natural solutions of adjustment to high growth of population, NPR of one or two child norm have to be imposed on the individuals.

Bogue and Tsui, had predicted zero population growth by 2000 for the whole world but this did not happen. But due to elongation of the period of demographic transition in the world zero population growth may be far away. However, according to the theory of demographic transition, the world will enter the era of low population growth soon.

2.8 Critical Review of the Demographic Transition

Even though the theory of Demography Transition has been accepted as a useful guide in describing demographic history, there are some limitations which are as follows :-

1. The theory of Demographic theory is based on the actual experience of changes in the vital rates in western countries during their economic development. Now the question is whether these experience can be applicable for predicting the sequence through which developing economies would pass. Even in the cases of western cases, their experience were not the same. Some studies show that in countries of eastern and southern Europe, decline in fertility occurred even when mortality was very high. In some countries like U.S.A, growth rate in the post – transition was higher than the II and III stages. Besides, in countries with predominantly rural populations like France, Sweden etc., birth rates declined to the same extent as did some highly urbanized economies like England. All these differences in experience suggest the theory of demographic transition is only a broad generalization, which does not use the experience of all the Western countries. Besides, the factors associated with fertility decline viz., education, urbanization improved employment opportunities etc., contribute to fertility differences within countries.
2. Demography theory failed to explain the phenomenon of “baby Boom” in western countries after the economic recovery and the second world war.
3. Theory of Demography does not possess any predictive value, since it does not provide a theoretical explanation of fertility decline, which brought about demographic transition. Besides, since it has failed to extract fundamental process from a phenomenon and identify crucial variables related fertility decline, it can not be called a “theory”.

- 16
4. According to the theory of demography, decline in the birth rate is the result of industrialization and urbanization. It is a well known fact that developing economies have recently entered the II stage of demography – in which there has been a decrease in death rates. As a result, there has been a rapid increase in population – which hinders the economic development. In such a situation, developing economies cannot wait for industrialization to bring about the required reduction in death rates. Therefore, many developing countries have adopted direct programmes like family planning to influence death rates negatively. From this it is clear that the theory of Demography cannot be applicable to developing economies.

Thus, the theory of demography cannot be considered as a theory though it provides a frame work for an empirical generalizations, it cannot be treated as a theory.

2.9 Let us Sum Up

Demography Transition refers to progress from one demographic situation i.e. from the stage of birth and death rates to the stage of low birth rates and death rates. The theory of demographic transition explains the relationship between economic development and trends in fertility and mortality. Some demographers have identified five stages and others four stages of demograph. Different analysis of demographs reveal that the agrarian peasant economy characterized by high birth and death rates, due to poor diet, primitive conditions of sanitation, poor medical facilities etc. When the economy becomes industrialized countries, death rates registered a fall due to better quality of food, improved medical facilities. After substantial time lag, birth rates also start moving downwards. In the third stage, both birth rates and death rates will be low.

Though the demographic theory has been widely accepted as an useful tool to describe the population transition based on empirical evidences, it can not be applicable to developing economics, due to different situations. It cannot be considered as a theory, since it failed to provide theoretical explanations of crucial variables related to fertility decline.

2.10 Key Words

- 1) **Demographic Transition** : Progress from one demographic situation to a different situation i.e, from the stage of high expansion of population to the stage of contraction.
- 2) **Theory of Demographic Transition** : This theory refers to the type of population growth to the level of socio-cultural, and economic development of the country.
- 3) **Zero Population Growth** : This refers to a situation, in which net reproductive rate is one. (That means Birth rates equal Death rates).
- 4) **Negative Growth Rate** : Negative growth rate refers to a situation in which death rates exceed slightly the birth rates.

2.11 Reference Books

1. O.S Srivatsava : Demography and Population studies.
2. Lekhi : Economics of Development and Planning

Check Your Progress

1. Describe the theory of Demographic Transition
2. What are the limitations of Theory of Demographic Transition.

Prof. Sathya Prema

H

M.A. (FINAL)

Course :IV

Economics of Demography

Block :II

Population and Economic Development

Block Introduction:

In this block we examine the relation between the trends in population and economic development. Population is one of the factors that determine economic development. A country's economic development depends on the quality and quantity of people. It is the efforts and efficiency of the people that determine the level of production and pace of the economic development. The size of population, its structure and pattern – all these help in germinating the seeds of economic development. On the other hand, trends in population is determined by the level of economic development. In the previous units, we studied how demographic transition passes through different stages in accordance with the changes in economic development. Thus, both population growth and economic development are mutually interdependents.

In this block, we shall study relation between population and economic development and effects of population on economic development, both optimistic and pessimistic theories of population.

Block II consists six units that is from unit 3 to unit 8, in which we discuss role of population in economic development in general and role of population in developing countries and also theories of population pertaining to effects of population on the economy.

Prof. Sathyaprema
Course Co-ordinator

Course :IV
Block :II
Unit :III

Economics of Demography
Population and Economic Development
Role of population in Economic Development

Structure:

- 3.0 Objectives
- 3.1 Introduction
- 3.2 Role of population as an accelerating factor

Check your progress : I

- 3.3 Role of population as a retarding factor
- 3.4 Let us sum up
- 3.5 Key words
- 3.6 Reference Books

Check your progress : II

3.0 Objectives

After studying this unit, you will be able :

- * To analyse the role of population in economic development as an inducing factor.
- * To understand the effects of population on economic development.

3.1 Introduction

In this unit, we examine the interface between change in population and economic development. Economic development means increase in real percapita income plus structural change. It refers to an increase in general economic welfare. Population is an imperative source of economic development where as population supplies labour force to exploit country's natural resources. Large population not only encourages division of labour and large scale production, but also boosts demand and expands market. This induces saving and investment and increase the rate of capital formation.

The effect of population on economic development that is whether it acts an accelerating or retarding factor depends on the pattern, structure of population growth and socio-economic environment and government policies in which growth takes place. For instance, in a technologically advanced country, with abundance of capital, population plays a key role in economic development. Where as, in a capital poor and technologically backward economy, population growth acts as a retarding factor. Thus, the effect of population on economic development is mixed. Let us study in this unit, positive and negative effects of population on economic development in general.

3.2 Role of population as an Accelerating Factor

According to Prof. Hansen population growth is a precondition for economic development. Simon Kuznets says that "The evidence suggests that in modern times, growth in population has been accompanied by growth in aggregate output for many countries so large that there was also a marked secular rise in percapita product". Hirschman opines that population pressure stimulates economic development. These opinions reveal that population growth acts as an accelerating factor in economic development.

Study of population trends shows that the advanced countries, in their early days of industrialization never faced with the threat of population growth out running economic growth seems to influence the views of some modern economists who inclined to minimise the dangers of over population. Authur - Louis, in his growth model shows how the capitalist sector expands and thereby promotes overall

development by drawing excess labour from the subsistence sector at a slightly higher wage rate than that prevails in the subsistence sector. In this model, the limit to the expansion of capitalist sector is set by the availability of cheap labour from the subsistence sector.

On the basis of experience of Italy and Denmark, Colin Clark feels that even with high density of population it is possible to improve agricultural productivity in a country like India, if there is free emigration and liberal foreign trade policy. At the world population conference in 1954, Ryabushkin stressed the need for considering the dynamics of population along with dynamics of production. That means there are possibilities of increasing production when population grows. Thus economic development can keep with and proceed more rapidly than population growth. Now we shall discuss the role of population in economic development in detail.

The rate of economic development is determined by the rate of population growth. Faster rate of growth of population involves higher consumption, reduces the rate of savings and investment and thereby slow down the rate of economic progress. On the other hand, slower rate of growth of population might induce less investment and less favourable to the maintenance of employment and rate of economic progress. Therefore rate of growth of population should not be neither faster nor slower, should be at optimum rate depending upon the availability of natural resources, and other conditions. Besides, population growth can stimulate the economic development only if social attitudes and values of people are conducive to favourable action. Population accelerates economic development in the following manner:

(1) Supply of manpower and economic development :

According to Simon Kuznet, when other conditions being equal, an increase in population means increase in labour force. According to Pigou, "Human beings are ends in themselves and factors of production as well". Labour has to be combined with other factors of production in any productive enterprise. When the size of population is small and supply of labour is inadequate in relation to capital and land resources, under a given state of technology, increase in population is beneficial. When these resources are adequate in relation to population, then population increases per capita output. Growth of population leads to division of labour and brings about economies of scale and assists rapid industrialization and economic development. Thus, given the other factors and state of technology, the optimum size of population – as a most advantageous size of population brings about maximum returns per head of population. Therefore the size and quality of manpower is a major determinant of the pace of economic development. Thus, as a source of manpower supply, population growth is an essential factor for economic development. Karl Marx has laid maximum stress on the need of human beings in production.

(2) Population and capital formation:

Capital is required for the purpose of investment not only in agriculture, industry but also on economic overheads like roads, bridges, railways and also for human investment like investment in providing education, sanitation, health etc. Such type of capital investments provide the necessary basis for economic development. Capital is also required to maintain constant living standards as population grows and also bringing about a rate of growth of national income than the rate of growth of population.

Population growth enables a country to divert a large portion of its labour force on capital creating projects. In labour surplus economies, excess number of workers who are employed in agricultural sector can easily be transferred to capital creating projects without adversely affecting the agricultural production. Thus, potential savings in the form of disguised unemployment can be mobilized for capital formation in a country.

(3) Population Acts as an incentive for economic development :

Population plays dual role – as consumers as well as producers. In combination with other factors of production, labour contributes to total product. As consumers they provide demand for commodities and services. Thus, population helps in the expansion of markets. Larger domestic markets create opportunities for greater economies of scale and diversified productive structure provides more employment opportunities to the growing population. Thus, population growth acts as an incentive for economic development. Kuznet says that, when more hands are engaged in production there is more production, more demand for consumer goods and market expands. Hansen, Handerson opine that decreasing population creates many social and economic problems. Hansen says that decreasing population reduces consumption thereby production and creates unemployment. Therefore development depends on increase in population.

(4) Population and Human Capital :

Human capital refers to technically trained and skilled and efficient labour force. The rate of economic development also depends on the rate of human capital formation. The rate of human capital formation can be increased by improving the quality of manpower through a process in increasing the knowledge, providing basic necessities of life, education, sanitation, drinking water and better food and providing health facilities, housing etc. Besides, population can be considered as a creator of new knowledge. Simon Kuznets rightly says that "growth of economic output is a function of the growth of the stock of the tested knowledge. Increase in population would mean an increase in the number of creative minds. As a result, stock of new knowledge will increase and the society will be able to produce larger output.

From the above analysis, it is clear that population plays a key role in economic development and economic development is possible with an expanding population.

Check your progress : I

1. Critically examine the relationship between population and economic development.
2. Explain the role of population as an accelerator in economic development.

3.3 Role of population as a retarding factor to economic development :

Many economists argue that rapid increase in population creates developmental problems and evoke pessimism in the economy. Prof. Singer has stated that population growth has a negative effect on the rate of economic development. Similarly, Prof. Meier opines that population growth in backward countries instead of inducing capital accumulation, it diminishes the rate capital formation, and rises costs of industries, increases the amount of disguised unemployment, it diverts capital for maintaining children, who die before reaching the productive age, resources go to the formation of population and not capital. This clears that in backward countries, population growth is an obstacle and not conducive to economic development. Only in recent years, it has been arguing that population growth is nothing but an obstacle to economic development. It was a fact that at the time of Malthus and Ricardo, agricultural sector failed to meet the requirements of growing population. However, later, as a result of the revolutionizing of the methods of agriculture, remarkable growth of industries and the expansion of world trade, population growth in western countries like U.S.A, U.K did not affect the economy negatively, instead, favourably responded to the requirements of these economies. But in a capital poor and technologically backward economy, population growth can be considered as a positive hindrance in the path of economic development. Now let us analyze how population acts as an obstacle to economic development.

1) Population reduces capital formation :

Increase in population at a rapid rate hampers capital formation. It reduces capital formation in two ways : (a) Due to high birth rate and low expectation of life, the percentage of dependence increase. Population consists nearly 40 to 50% non-productive age group simply consumes and does not produce anything. This heavy dependency reduces saving capacity of the people and reduces the rate of capital formation. Rapid growth of population diminishes the availability of capital per head, reduces their productivity, their income, and saving capacity. As a consequence, rapid growth of population adversely affect capital formation and thereby the economic development of an economy. Thus, in over populated countries, the savings margin is low because what is contributed by population to the gross national product is low, on the other hand what is absorbed by way of consumption is high in relation to the volume of national product.

2) Population growth reduces percapita income :

Population growth beyond a limit reduces percapita income. In other words, so long as the rate of population growth is lower than the rate of economic development percapita income will raise. But if population growth exceeds the rate of economic development, then it reduces the percapita income and lowers the living standards of the people.

3) Increases pressure on agricultural sector :

As population increases at a rapid rate, the percapita availability of land for cultivation decreases. When size of cultivable land becomes uneconomical, it is impossible to adopt modern technology. Large size of population increases pressure on land and also leads to disguised unemployment. All these reduces agricultural production.

4) Creates food problem :

Rapid increase in population means more mouths to feed. Besides, rapid growth of population increases pressure on land and reduces agricultural production and aggravates the food problem. Food shortage leads to under-nourishment of people, which lowers their efficiency and productivity. The food deficiency necessitates food import from other countries and creates unnecessary strain on foreign exchange reserves. All these affect the economic development of an economy.

5) Creates the problem of unemployment :

In industrially backward countries, rapid increase in population creates unemployment problem. In addition to disguised unemployment, unemployment and underemployment represent wastage of human resource which affects growth rate. Unemployment also affects economic development by reducing the effective demand.

6) Increases Government expenditure :

Increase in population at a rapid rate leads to rise in public expenditure. Increase in population leads to increase in demand for food, cloths, houses, drinking water etc. To meet these public demands and to maintain them, government's, expenditure increases. Recently public expenditure is increasing day by day not only due to its increasing economic activities but also due increasing demand for basic necessities of life, like providing educational facilities, health, housing, drinking water facilities, old age pension etc. Thus, large size of population reduces economic investment.

7) Adverse effect on environment :

Population growth brings environmental change. A large number of people are being pushed in ecologically sensitive areas like hillsides, forests. This change has resulted in cutting of trees for cultivating and housing purposes leading severe environmental change. On the otherhand, large population has also resulted in migration from rural areas to urban areas. Thus results in air, water and noise pollution.

8) Lowers standard of living :

Rapid increase in population leads to increase in demand for basic necessities such as food, cloth etc. This clears that large size of population increases the demographic investment and reduces the saving capacity. On the other hand supply can not be increased to meet the increased demand, resulting increase in price level. All these bring down the living standard of the people.

9) Requires more investment :

Rapid increase in population increases the requirements of demographic investment. At the same time, it reduces the capacity of the people to save. This leads to a serious imbalance between investment requirements and the availability of investible funds. Besides, major portion of total investment will be absorbed by demographic investment and little will be left for economic investment, which is required to rise the standard of living.

10) Population and social infrastructure:

Population growth at rapid rate necessitates large investments in social infrastructure and diverse resources from directly productive assets. Rapid growth in school age population increases the pressure on educational and training facilities and retards improvement in the quality of education. Besides, rapid increase in population aggravates the problem of improving the health of population.

11) Age composition :

Age composition is also one of the factors that determine the rate of economic development. Increase in the lower age (below 15 years) and above 60 years age groups distorts the proportion of total population against production and in favour of consumption. They do not contribute anything to production.

12) Brain Drain :

Excess population also leads to brain drain. Due to lack of employment opportunities/better jobs youths may leave their country in search of better jobs.

13) Constraint to self reliance :

Excess population growth is an obstacle in the way of attaining socio-economic self-reliance. Because, to meet the increasing demand for basic necessities like food, cloth, shelter etc, it cuts down export surplus and increases imports and leads to adverse balance of payments. Thus, rapid population growth is an obstacle in attaining self-reliance.

On these grounds, population growth can be considered as a retarding factor to economic development.

3.4 Let us sum up

Effects of population on economic development depend on number factors such as pattern and structure of population, socio-economic environment, government policies and so forth. In an technologically advanced countries population plays a key role in economic development. It acts as an incentive to economic development by supplying manpower, increasing effective demand, expanding markets, creating greater economies of scale. On the other hand, if population increases rapidly without accompanying by high rate of capital formation, technological progress, adequate employment opportunities etc, it acts as an obstacle to economic development.

3.5 Key words

Economic Development : Economic development is a process which implies increase in percapita real income plus structural changes, that is changes in all economic sectors.

Demographic investment : This refers to investment which is required to provide basic requirements of increased population.

Capital formation : Capital formation denotes investment in physical or material capital as well as personal or intangible capital. It depends on saving and investment.

Human capital : Human capital means technically trained and skilled labour force.

Brain Drain : Out flow of human capital from developing countries to developed countries in search of suitable jobs.

3.6 Reference Books

1. Hans Raj - Fundamentals of Demography
2. Gerald M. Meier - Leading issues in economic development

Check your progress : II

- 1) Explain the adverse effects of population growth on economic development.
- 2) Examine whether population growth is a stimulant or obstacle for economic development.

Prof. Sathyaprema

Course : IV

Economics of Demography

Block : 2

Population and Development

Unit : 4

Malthus' pessimistic theory of population

Structure :

- 4.0 Objectives
- 4.1 Introduction
- 4.2 Malthus pessimistic theory
- 4.3 Assumptions
- 4.4 Central theme of the theory
- 4.5 Checks on population
- Check your progress : I
- 4.6 Importance of Malthusian theory
- 4.7 Application of Malthus' theory
- 4.8 Criticisms
- 4.9 Neo-Malthusian theory
- 4.10 Let us sum up
- 4.11 Key words
- 4.12 Reference Books
- Check your progress : II

4.0 Objectives

The main objectives of this unit are :

- * To examine the pessimistic views of Malthus about population growth.
- * To understand the interrelationship between population change and economic development.
- * To appreciate the importance of Malthus' theory
- * To know the limitations of the Malthus' theory of population.

4.1 Introduction

The earlier optimistic view which considered population growth as a source of wealth was gradually replaced by the pessimistic view which regarded that it was undesirable to have excess population in relation to natural resources. According to this pessimistic view, rapid growth of population creates problem of over population in relation to the means of subsistence. Supporting this view, Thomas Robert Malthus enunciated his ideas in his famous book, "Essay on the principles of population – As It Affects The Future Improvement of the Society" – published in 1798. Not satisfied with merely stating speculative hypotheses, he spent next five years in studying other authors writings on population, visited the continent and collected relevant data. On the basis of these statistical data, he published other essays in 1826, 1872. The inspiration for writing the first essay on population grew out of conversation between Malthus and his father about the feasibility of certain reforms advocated by Godwin for the attainment of happiness by man. Malthus revolted against these optimistic reforms advocated by his father and Godwin. According to Godwin, a perfect state could be attained if human restraints could be removed. But Malthus objection was that the effect of rapid population on food supply would destroy perfection and there would be misery in the world. In this unit, let us study Malthusian views on population growth and economic development in detail.

4.2 Malthus' pessimistic theory of population

Malthus strongly opposed the utopian views of Godwin and Condorcet. According to these two authors, man's suffering was mainly due to bad laws and corrupt government and greedy employers and so forth. If some of institutions were reformed then the suffering would disappear. Godwin and condorcet had optimistic ideas of a perfect society which satisfy the needs of all.

But Malthus refused the utopian ideas of Godwin and Condorcet. He declared his pessimistic arguments. He argued that the tendency of the population to grow faster in relation to its means of subsistence had led to human misery and had caused several obstacles in the path of human progress.

In Malthus model, the progress of society with increasing population depends on the cultivation of inferior grades of land becomes inevitable. As a result, a greater quality of labour gets embodied in each additional unit of agricultural produce. Labour price raises, profit falls, accumulation decreases and growth rate falls to zero. Even if supply increases, it increases at the increasing costs. Consequently, stationary state becomes envitable. Thus Malthus' pessimistic view about population growth at rapid rate reveals the fact that food production goes down and mass starvation ensue. All these threat to economic progress. Malthus opines that power of population is definitely greater than power in the earth to produce subsistence for man. He believed that population invariably increases where the means of subsistence increase, unless prevented by some very powerful and obvious checks.

4.3 Assumptions

Malthus' pessimistic theory of population is based on the following postulates :

1. Food is essential for man's existence,
2. The passion between the sexes is essential and it will merely remain in its present state,
3. Agriculture is subject to law of diminishing returns,
4. Human beings have great potentialities to produce children.

On the basis of these assumptions, Malthus deduced that, power of population is greater than the power in earth to produce food for population.

4.4 Central Theme of the Malthusian Theory

The theme of the Malthusian theory was to refute the optimistic utopian ideas of Godwin and Condorcet. He opines that the tendency of population is to grow faster than growth of means of subsistence. This results in human misery and places several obstacles in the path economic development. If the increase in population is unchecked, it leads to misery.

According to Malthusian theory, there is a natural sex instinct in human beings to increase at a faster rate. As a result of this, population increases in geometrical ratio and if unchecked doubles itself every 25 years. On the other hand, the subsistence that is food supply increases in a slow arithmetical ratio, this is mainly due to the operation of law of diminishing returns based on the assumption that the supply of land is fixed and remain constant.

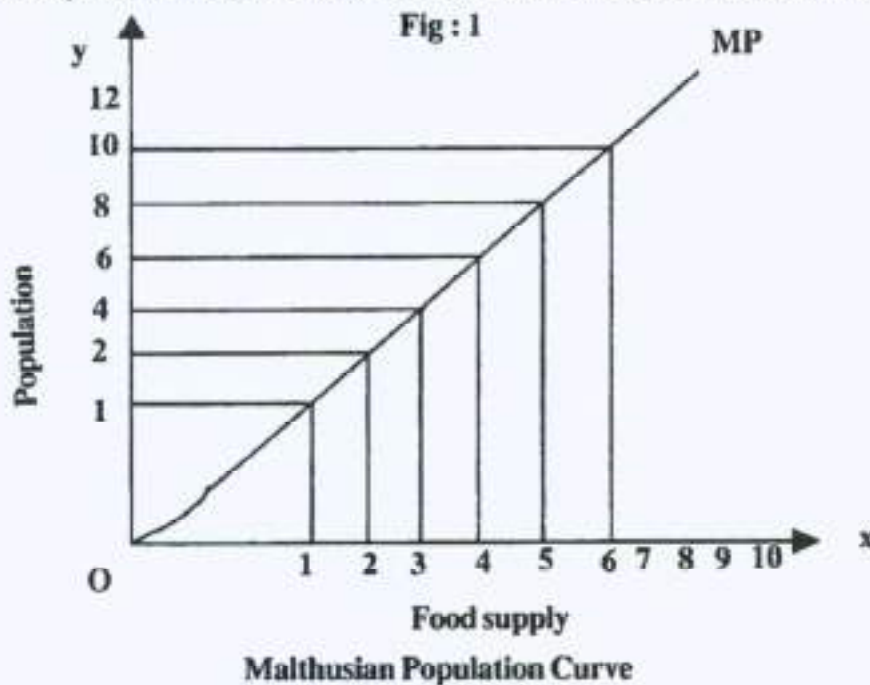
The ratios Malthus had in mind were :

Increase in population in geometrical ratio : 1,2,4,8,16,32 (after 200 years)

Increase in food supply in Arithmetical ratio : 1,2,3,4,5,6,7 (after 200 years)

When population increases at geometrical ratio and food supply at arithmetical ratio, population tends to outrun food supply. Therefore population growth $>$ food supply. An imbalance is created which leads to over- population. Malthus theory can be explained with the help of a diagram 1.

As depicted in the fig: 1, food supply is measured on OX axis and population growth on OY axis.



As shown in the figure :1 MP is the Malthusian population curve which explains the relation between increase in food supply and increase in population. Figure :1 reveals that when food supply has increased in arithmetical ratio, population has increased in geometrical ratio. When the population growth ratio is 4, increase in foods supply is 3, when the increase in food supply is 5, growth of population is 8. When population growth is 10, ratio of increase in foods supply is only 6. Thus, population growth has exceeded the growth in food supply, creating imbalance which leads to over population.

Thompson opines that this situation would be impossible. But Malthus intended the ratios to represent the differences in potentials – the difference between the power of population to increase and power in the earth to produce subsistence for human beings.

Malthus tried to explain how population increases at rapid rate. Malthus also tries to explain the consequences of difference between these ratios of two powers. Malthus believed in two of man's characteristics essential to the maintenance of life were immutable, were natural laws and were antagonistic : (1) Need for food (2) Passion between the sex;

Malthus assumed that passion between sexes would always lead most people to marry at early age and hence would result in large number of births. Thus population would double every few years.

According to Malthus, the differences in ratios of growth in two powers i.e population and food supply are bound to create disequilibrium between food and population. Standard of living comes down. This trend is harmful to the society as a whole. He also believed that food production could not be increased in a short period and continued disequilibrium could disturb the whole order and universe could be faced with miseries. Therefore, according to Malthus, the effect of these two unequal powers must be kept equal. This implies a strong and constantly operating check on population from the difficulty of subsistence.

4.5 Checks on population

Malthus classified the checks on population under two headings :

- (1) positive checks and
- (2) preventive checks.

(1) Positive Checks: Positive checks refer to the factors which tend to shorten human life.

Eg. Bad quality and insufficient food, severe labour and exposure to the seasons, bad nursing of children, diseases, epidemics, wars, natural calamities, like flood, earthquake which tend to reduce population and there by bring a balance with food supply.

Here again Malthus classified these positive checks into two categories (a) Those checks which were brought by natural causes and he names these checks as "Exclusively misery" (b) Those checks which were brought by mankind, such as wars, infanticide etc which were avoidable but which were brought about by vice and were the consequences of misery.

Malthus did not favour the poor laws, which provided relief to the poor. He opined that, poverty was an evil which could be remedied by the poor themselves by delaying marriage. He also advocated the abolishes of poor-law.

Malthus stressed that population checks imposed by nature (i.e. positive checks) were horrifying. it was desirable that people should themselves try to impose preventive checks, so that nature was not forced to impose itself. He also said that people should realise that they themselves were responsible for their poverty and misery by not checking population growth. Therefore he suggested that people should always prefer preventive checks over natures, horrifying checks.

(2) **Preventive checks** : Preventive checks refer to those checks which are applied by man to control the birth rate. These checks imply late marriage, foresight, moral restraint, celibacy etc. Malthus called these checks preventive checks because they operated to reduce the birth rate. In his opinion moral restraint and postponement of marriage were and would remain chief preventive checks. He described moral restraint as "abstinence from marriage, either for a time or permanently from prudential consideration, with a strictly moral conduct towards the sex in the interval. This is the only mode of keeping population on a level with the means of subsistence which is perfectly consistent with virtue and happiness". Malthus was against the artificial methods of population control and considered them as "Conjugal fraud".

If the people fail to check population growth by adopting preventive checks, then, positive checks operate to control population. Malthus suggested that people should prefer preventive checks in order to avoid misery resulting from positive checks.

Check your progress : I

- 1) Explain the central-theme of Malthusian theory of population.
- 2) Which are the measures suggested by Malthus to control population growth?

4.6 Importance of Malthusian Theory

Malthusian theory of population has been acclaimed as an Epoch-making theory. It was a landmark in the history of population. His theory has been studied all over the world. It has drawn the attention of important thinkers of his time proves that this theory is of great significance. Malthus examined the correlation between population growth and economic development. Kenneth opines that success of Malthus may be attributed to opportune circumstances and political conditions prevailing in his time. Malthus offered a scientific pessimism. Malthus' doctrine was convenient to the rulers who were afraid of the growing poverty due to over population. According to Prof. Walker, "Malthusianism has stood unshattered, impregnable amid all the controversy that has raged around it". It is a fact, that in every society, family grows in the hope that efforts will be made to procure food, once the child borns and the size of the family begins to increase endlessly. It can not be denied that the rate of population growth is faster than the rate of increase in food production. Thus Malthus theory is basically sound and even to this day, it holds good in developing and backward countries. Russells has pointed out that "Malthus statement of population has been true enough up to the time when he wrote. It is still true of the barbarous and semi-civilized races and of the most elements among the civilized nations.

4.7 Applicability of Malthus' Theory

Prof. Walker says that, "The Malthusian theory is applicable to all communities without any consideration of colour and place. Joan Robbins opines that "of economic doctrines, the one most relevant to the under developed countries is that associated with Malthus". Even at present, except Japan, the whole of Asia, Africa, South America come under its purview. Even at present century, in these countries population is increasing at a faster rate than increase in food supply and these countries are facing problems like acute food shortage, starvation, poverty, unemployment, epidemics, wars, floods, drought etc. According to Malthus, poor people are responsible for all these miseries. Thus, Malthusian theory can be applicable to all underdeveloped countries. In India, even though we have over come the problem of food supply, in certain aspects of Malthusian theory can be applicable to our country. Since birth rate is high and death rate is declining, India is facing over population. The growth rate of population is high at 1.9% per annum. One-third of population is below poverty line. Due to over population, country is facing certain problems viz, poverty, widespread unemployment, disguised unemployment, low standard of living etc. Government of India has already taken measures to control birth rate by adopting preventive checks like family planning, late marriages etc. Besides, positive checks like drought, floods, earthquake, wars etc. are in operation. Therefore, Thompson says that Malthusian theory deserves study even to-day. He also opines that "Malthusian theory is highly readable, it is a thoughtful and stimulating effort to use knowledge relating to population charges to enhance the understanding of the social and economic development of a society".

4.8 Criticisms

Malthusian theory has been criticized on the following grounds :

1) Many questions have been raised regarding a geometric ratio for population increase and arithmetical ratio for the increase in food supply in any specified period of time. There is no evidence that food always and everywhere can increase only in an arithmetical ratio. This assumption made by Malthus was never proved. Malthus himself pointed out that in U.S in his days, food supply grew faster than population. Besides, it is wrong to believe that population increases in geometrical ratio. These days, due to spread of education and technological advancement, people are themselves quite conscious and prefer to have small family. It is also evident from the fact that Malthus philosophy that population will double itself within next 25 years has not come true.

Malthus assumption that food supply increases in arithmetic ratio is based on static economic law i.e law of diminishing returns.

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2) Malthus was influenced by local conditions in England. He had a narrow view that it would not be possible to meet the needs of increased population because food would increase by arithmetical ratio. But it has proved that food production can be increased by applying new technology, irrigation systems, extensive farming of virgin lands. In modern days, better irrigation systems, new technology, new mode of cultivation etc. have brought green revolution all over the world. Malthus could not foresee the advancement in scientific knowledge and inventions which have restricted the application of law of diminishing returns. Gide and Rist rightly say that "Malthus was a pioneer in pre-historic society only".

3) Malthus failed to distinguished between fecundity that is psychological capacity to reproduce the fertility i.e the actual reproduction performance.

4) According to Cannan, it is not correct to think that there is a direct relationship between population growth and food supply, as Malthus tried to establish. Quoting England as an example, he said that England produced only for 1/6 of its population, as a colonial power, England was able to supply sufficient food by importing food in exchange of exporting finished products.

5) Malthus neglected the manpower aspect in population growth. As a pessimist, he opined that a child would be a burden. But according to Cannan, "a baby comes to the world not only with a mouth and stomach, but also with a pair of hands". The same child when begins to produce does not produce for himself alone but produces for the whole society. Therefore, an increase in population means, an increase in manpower.

6) According to Malthus, increase in population is the result of rising birth rate. But actually, in many developing countries like India, population has increased due to decline in the death rate, as a result of advancement in the medical science.

7) Empirically it has been proved by the Demographers that population growth is a function of the level of percapita income. If percapita income increases rapidly, it lowers the fertility rate and population declines. As percapita income increases, desire to have more children to supplement parental incomes declines. When people are accustomed to high standard of living it becomes costly affair to maintain big family, therefore, people refuse to lower their standard of living.

8) Malthus failed to make clear distinction between sexual desire and desire to have children. People may have sexual desire but desire to have children depends on social religious and cultural psychological and environmental factors.

9) According to Malthus, increase in population is responsible for poverty of society. But actually main cause for poverty is defective policies of the government resulting concentration of power and wealth in the hands of a few people, making rich become richer and poor become poorer.

10) Malthus, as religious man emphasized more on moral restraint to control population. But he failed to visualize that human beings would invent contraceptives and other family planning devices to control population. Besides, as a pessimist and religious man, he believed that since overpopulation was a heavy burden and it was automatically lessened by the God in the form of misery, floods, wars, etc. But these natural calamities occur in those countries like Japan, where population is on the decline.

11) Many criticised Malthus as a false prophet. Malthusian theory is not applicable to western European countries for which it was propounded. His prophecy that these countries have to face misery if they fail to check the growth of population through preventive checks has been proved wrong by a decline in birth rate, adequate food supply etc.

12) Winston Churchill, says that a stage is bound to come when growth of population rate will automatically be checked instead of increasing at geometrical ratio.

13) Thompson point outs, that Malthus in his discussion of the preventive check in Scandinavian countries and in France, he did not mention contraceptive practices which were used as early as 1750. In 1800, low birth rates in Sweden were due to contraceptive practices. This is an important and surprising omission.

14) Malthusian theory is not of much relevance to modern population problems because it does not explain the reasons for decline in birth rate in developing countries, relation between death and birth rates, effect of urbanization etc. Therefore Blaug says that Malthusian theory is silent on the determinates of population growth.

In spite of these criticism Kingsley Davis has rightly said that Malthus theory, though not empirically valid, was theoretically significant Thompson opines that Malthus theory is primary contribution to the study of population and is real father of modern population study. And he is more responsible than anyone for bringing population study with in the field of social science. According to him, Malthus was a social scientist rather than a social philosopher.

4.9 Neo-Malthusian Theory of population

Neo-Malthusians are the successors of Malthus. Mrs. Margaret-Sanger in U.S.A and Mary Stopes in England were the main exponents of the new-Malthusian theory. These neo-malthusians have faith that whatever Malthus said about population growth was absolutely correct.

But these neo-malthusians reject Malthus' version that sex desire is identical with the desire for children. They distinguish between sex desire and desire for children, which Malthus failed to distinguish. According to new-malthusians sex desire is natural and biological desire. Where as desire for children depends on socio-economic conditions moral and cultural values. It is not inherent but product of socio-economic conditions. Besides, they did not accept Malthusian vice that the sexual urge is the same in human beings. Depending on age, health, psychology it differs from person to person and place to place.

Neo-Malthusian did not favour self restraint to check the birth rate. Instead they advocated the use of contraceptive for controlling the birth rate, because they are a means to satisfy sexual urge and also avoid child birth.

Regarding food supply, Neo-Malthusians believed that with the help of modern scientific means and methods, it is possible to check population growth and increase food production in accordance with population growth. Thus, according to New-Malthusians, by adopting birth controlling devices i.e by applying modern methods viz. family planning, contraceptive etc, population growth can be controlled.

These views of Neo-Malthusians have been accepted by all underdeveloped and developing countries. They accepted the views that artificial birth control is necessary to limit the size of the family and there by to raise the living standard, to reduce the burden on world economy and also necessary on the health grounds.

But a number of developed countries afraid that artificial birth control movement may result in secular decline in their population. The use of contraceptives has led to moral degradation of society.

4.10 Let us sum up

Malthusian theory of population is based on three postulates viz, (1) food is necessary to the existence of man (2) passion between sex is necessary (3) Land is subject to law of diminishing returns. On the basis of these postulates, Malthus believed that power of population is greater than power in

earth to produce food for population. Accordingly, food supply increases in arithmetical ratio like 1,2,3,4,5-7 and population increases in geometrical ratio like 2,4,6,8.... Thus difference in these ratios create disequilibrium between population growth and food supply and results in misery, poverty etc. Therefore Malthus suggests two types of checks : (1) positive checks – which refer to drought, war, epidemics, floods etc” to reduce population (2) preventive checks refer to self imposed checks like late marriages, celibacy, moral restraint etc. Malthus suggested moral restraint as the best preventive check. If people fail to check population growth by applying preventive checks positive checks operate. To avoid misery resulting from positive check, Malthus suggested that people should adopt preventive checks to control population growth.

Malthus theory of population has been acclaimed as an Epoch-making theory. Malthus doctrine is basically sound and contains truth. It can be applicable to underdeveloped and developing countries like India.

But Seligman, Blaug, and others criticized Malthus theory on many grounds. Malthus failed to prove his mathematical formulation of his doctrine that food production increases in arithmetic ratio and population increases in geometrical ratio. He also failed to distinguish between sexual desire and desire for children. Thompson and others criticized Malthus as a religious man, false prophet.

Neo-Malthusians like Mary stopes, Margaret Sanger accepted Malthus’ view that famine, empidemics, poverty etc. result from over population. But their solution to over population is not self-restraint as suggested by Malthus but the use of contraceptives.

4.11 Key words

Positive Checks: Positive checks are those imposed by nature to control population growth. Eg. Drought, flood, earthquake, war, empidemics etc.

Preventive Checks: Preventive checks refer to self-imposed checks to control population growth. Eg. Late marriage, celibacy, etc.

Neo-Malthusians: Neo-Malthusians are the successors of Malthus and keen supporters of family planning.

Law of diminishing marginal returns: Law of diminishing marginal returns refers to an increase in

capital and labour applied in cultivation of land causes in general a less than proportionate increase in the produce, when other things like technology etc remain constant.

Reference Books :

1. W.S. Thompson - Population problems
2. Hans Raj - Fundamentals of Demography.

Check your progress : II

1. Critically examine Malthusian theory of population.
2. Write a note on Neo-Malthusian theory of population.

Prof. Sathyaprema

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Course : IV

Economics of Demography

Block : II

Population and Economic Development

Unit : 5

**Optimistic Theories of Population -
Marxian Theory of Surplus Population**

Structure :

- 5.0 Objectives
- 5.1 Introduction
- 5.2 Marx and Malthusian views on Population
- 5.3 Explanation of Marx's Theory – His definition about development
- 5.4 Karl Marx's Theory of Surplus Population
- 5.5 Marx's socialist views about population
- 5.6 Critical evaluation of Marx's Theory
- 5.7 Let us sum up
- 5.8 Key words
- 5.9 Reference Books

Check your Progress : I

5.0 Objectives

After studying this unit, you will be able

- * To know the Marx's definition of economic development
- * To understand the relation between economic system i.e capitalism and population growth
- * To know how surplus value leads to capital accumulation
- * To appreciate the contribution made by Marx to population study.

5.1 Introduction

Karl Marx basically a German social philosopher. He was the founder of modern communism. Karl Marx the famous author of "Das Capital" did not propound any specific theory of population like Malthus. He did not believe that all hardships, misery were due to population growth at a more rapid rate than increase in food production. He did not accept Malthus' view that population increases in geometrical ratio and food production in arithmetical ratio. According to him, Malthus' theory is completely imaginary and false. In Marx's view all misery and hardships are due to evils of capitalism. In this unit, let us study Marxian ideas regarding population and economic development.

5.2 Marxian and Malthusian views on population growth

There are two types of views that have predominated in the discussion of population growth: Natural view and social views. The natural views are basically based on the belief that something inherent in the nature of man or world in which he lives determines his growth at a rate and direction – beyond his control. Except Malthus' many of natural theories have said that the natural determined growth rate of population would lead to satisfactory balance between population and subsistence. But Malthus as a pessimist opined that power of population which is greater than the power of earth to produce subsistence would lead to imbalance between population and subsistence. This imbalance is mainly responsible for misery, poverty etc. But according to social views of Henry George and Karl Marx, social reforms would yield economic returns and there was no need to give any attention to the growth of population, however rapid it might be. Marx believed that improvement in economic system would exercise voluntary control over population growth. But in Malthus' view population growth itself acts as a retarding factor for economic development. But Karl Marx did not accept this view. According to Marx, population growth is not subject to natural law but it is rather determined by social conditions in which he lives. These different views on population growth seem to be closely related to strong currents of thoughts prevailing at the time they were promulgated.

Another point to be noted here is that according to Malthus, poverty is mainly the result of man's insufficient restraint in reproduction, while to Marx, it was mainly the result of exploitation and unfortunate economic institutions. In the last unit we have already discussed the Malthus' pessimistic theory of population. In this unit, let us examine the Marxian views regarding the relation between population growth and economic development.

Marxian Theory of Surplus population:

Karl Marx is one of the propounders of optimistic theory of population. As a sociologist and an economist he has expressed his views on the relationship between population and economic development. Marx, the author of "Das Capital" rejected the Malthusian theory of population, as completely imaginary. He did not accept the Malthus' notion that population increases in geometrical progression and food production in arithmetical ratio. Though he did not propound any specific theory of population like Malthus, his views about population growth are based on his theory of surplus value. In Marx's theory, population is a problem which is related to capitalist system only. Marx says that "Once Capitalism is over thrown by socialism, population will become an asset rather than a liability".

According to Marx, capitalism is a system in which workers sell their labour power and capitalist own the means of production. The labourer sells his labour for its value. The value of labour power is the value of means of subsistence like food, cloth etc. The value of labour is determined by number of hours necessary for its production. But the value of subsistence commodities is never equal to the value of the produce that the labourers produce. For example, a labourer works 7 hours per day to produce a unit of good and receives Rs.100/- which is enough for him to purchase means of subsistence. Suppose the same labourer works for 10 hours per day and receives the wages equal to seven hours. The difference worth 3 hours' labour goes into the capitalist pocket in the form of profit. According to Marx, this unpaid work is known as "Surplus Value". This surplus value leads to capital accumulation. He says that "It is the working population which, while effecting the accumulation of capital also produces the means whereby it itself rendered superfluous, is turned into relatively surplus population and it does so to an ever increasing extent. This is law of population peculiar to the capitalist method".

According to Marx, the main objective of capitalism is Capital Accumulation. This objective can be attained by increasing surplus value. By speeding up of labour that is by increasing labour productivity, the capitalist tries to increase the surplus value that is profit. When labour productivity increases the labourer can produce more goods in less hours. The increase in labour productivity requires technological change to attain production on large scale and to have lower cost of production. For this,

the capitalist introduces labour saving device i.e machines. The process of replacing the labour by machines creates an Industrial Reserve Army. The industrial army refers to force of unemployees. The industrial reserve army is the surplus population. The creation of industrial reserve army deteriorates the conditions of labour population and results in all sorts of problems like poverty, unemployment etc. Larger the industrial reserve army, larger will be the surplus population and worse is the condition of surplus population. This is called the law of population peculiar to capitalist system. Thus according to Malthus, it is the capitalist Mal-adjustments given emergence to the phenomenon of "surplus population (industrial reserve army) and there is no biologically surplus population. Only unemployed and poor persons are regarded as "Surplus" and thus over population is an economic Phenomenon, which capitalism given emergence to. Thus, Marx believes that poverty and unemployment are not due to increase in population growth but due to on account of capitalism which failed to provide jobs. Capitalism is responsible for uneven distribution of wealth by providing employment opportunities to only a few persons on wage. He opines that poverty is inevitable under capitalism and communism is the only remedy because it can alone guarantee to provide employment opportunities at a rate faster than man can reproduce.

Therefore, there is no need to bother about population growth under communism. Besides, there can not be any surplus population under socialist system, in spite of rapid demographic growth.

5.5 Marx's economic and socialist views about population

Karl Marx relates population growth with present economic system, for him, both are inseparable. According to Marx, development occurs through class-struggle that is clash between two classes of people viz, feudalists Vs slaves, Landlords Vs serfes, Capitalist Vs Labourers. The main reason for the clash is exploitation of weaker section by the socially and economically strong. According to Marx, each system or stage is not permanent. Each stage gives rise to new economic system through class struggle. The first two stages are known as population expansion stage and the later stages are stationary stages. Thus, in Marx's view, development produces not only equilibrium but also disequilibrium, continuities and discontinuities, both social harmonies and social conflicts, balance and imbalances, growth and stagnation. It cannot be an uninterrupted development process, in which development is protected from contamination against external antagonists. For the antagonists are found within the development process itself.

Again Marx opines that, "every special historic mode of production has its own special laws of population, historically valid with in its limit alone. Thus the population theory is peculiar to the capitalist system of production. Marx also believes that population becomes a problem and a part of it becomes

relatively surplus because capitalism cannot ensure employment to all. This leads to poverty. Therefore, the evils of capitalism such as unemployment, underemployment, starvation, exploitation – all these are basis for poverty. Man's tendency to press on the means of subsistence is due solely to the evils of capitalism, which would disappear if socialism or communism is to be adopted. Marx believes that in socialist system there will be no population problem at all. Because, this system creates fullest employment opportunities as such, there will be no surplus population. Therefore, when there is no surplus population, there is no need to control birth rate. Besides, in these countries, production is increased by controlling nature and exploiting natural resources in a proper manner. There is no need to check birth rate because of equal distribution system availability of good food. Marks also believes that in socialistic societies, population increase at a lower rate than it capitalist societies because of superior status of women under socialism. In his opinion, reproductive behaviour in a socialist society would develop a complete harmony between the individuals and the society. Since birth control contributes to the emancipation of women it is accepted.

5.6 Critical evaluation of Marxian Theory

Karl Mark was undoubtedly the greatest name amongst social thinkers of the 19th century. As a social philosopher Marx became a founder of modern communist theory. As an economist and political thinker he relates population and economic system. In his surplus theory of population, he tries to explain clearly how capitalist development inevitably produces development at one pole and underdevelopment at the other. Marx socialist theory of population can be applicable modern socialist countries of Europe where it is being supported. In spite of these merits Marx theory has been criticized on the following grounds:

- (1) Marx's contention that there is no population problem in communist countries. But even at present, China, the largest communist country in the world is facing the problem of rapid growth of population. In order to control birth rate, China has adopted "one child" norm.
- (2) In Marxian theory, the concept of surplus – value has not been accepted even in socialistic countries, since it is unrealistic.
- (3) In Marx's opinion, when technical progress increases, reserve army expands, which in turn results in surplus population. But in real world, technical improvements create more jobs.



(4) Marx fails to explain the determination of population growth like changes in birth rate, death and migration etc.

On the basis of above criticisms, it be concluded that Marxian theory population is not at all a theory in the true sense but simply a view

5.7 Let us sum up

Karl Marx was the founder of modern communism. He was one of the propunders of optimistic theory of population. Marx opines that population problem is related to capitalism. Capitalism accumulates capital by increasing surplus value. Surplus value (that is profit) can be generated by exploiting the labourers – by paying low wages for long hours, replacing labour by machines etc. This creates Industrial Reserve Army which is also called surplus labour. This results in increase in unemployment, underemployment, poverty. All these can be cured by adopting modern communism.

Marxian theory can be applicable to some under developed economies where we find over population. To cure the problem of population, adoption of socialism or communism is the only remedy.

5.8 Key Words

1) **Surplus Value** : Surplus value refers to value of labour power is the value of means of subsistence.

2) **Class Struggle**: Clash between two classes of people which takes place because of exploitation of weaker class by strong.

5.9 Reference Books

Thompson and Lewis - "Population Problems"

Gerald M. Meier - "Leading Issues in Economic Development"

Check your progress : I

1. Critically examine Marxian theory of population.
2. Explain Marx' economic and socialist views on population.

Course : IV

Economics of Demography

Block : II

Population and Economic Development

Unit : 6

Population And Keynesian Thesis

Structure :

- 6.0 Objectives
- 6.1 Introduction
- 6.2 Keynes' views and Malthusian Theory
- 6.3 Keynes and Declining population
- 6.4 The Neo-Keynesian views
- 6.5 Advantages of population growth
- 6.6 Criticisms
- 6.7 Let us sum up
- 6.8 Key words
- 6.9 Reference Books

Check your progress

6.0 Objectives

After studying this unit, you should be able

- * To analyse the Keynesian views regarding population and economic development,
- * To evaluate Keynesian thesis.

6.1 Introduction

Keynes' ideas were essentially based on classical teachings. He taught classical economics for more than two decades. Later on he made a significant break with classical doctrines. With the advent of great depression Keynes' faith in classical doctrine was shaken as he saw mass unemployment. He felt that classical policy of free trade could not solve the problems. He was not against the features of capitalism like free trade and price mechanism. But he wanted to reform capitalism and to evolve a theory of employment. During depression when private investors failed to forward and to invest, Keynes recommended for state intervention. He introduced social elements in his policy recommendations to achieve full employment. Even with regard to Malthusian theory of population, initially Keynes overawed by the Malthusian fears of over population. But with the advent of great depression of 1929-34, Keynes opined that the classical theory is misleading and disastrous. Regarding population growth, Keynes expressed his ideas in his writings, "some economic consequences of declining population". In this unit, let us analyse Keynes' ideas about population growth and economic development.

6.2 Keynes' views and Malthusian Theory

According to Malthus, population grows faster than the growth of food production. This creates imbalance between food supply and population. In turn, this imbalance results in poverty, unemployment and migration which leads to regional imbalance. He admitted that population growth cannot take place without proportionate increase in production. But an increase in population does not necessarily provide a stimulus to economic growth because it may not increase effective demand. Effective demand does not increase due to unemployment, low income etc. Keynes also supported Malthusian views. Keynes regarded the large amount of unemployment in England and the difficulties faced in reducing unemployment as proof of over population. He regarded the large volume of unemployment due to lower real income arising from a less favourable relation between resources and population. He believed that an era of diminishing returns had set in and disrupted the delicate economic balance. But according to Beveridge, unemployment was an inevitable feature of industrial system, therefore not he regarded as a proof of over population but merely as an evidence of temporary dislocation of modern industrial organism. It would disappear when the organism was well. Therefore, Beveridge believed

that the rising of the devil of Malthus by Keynes was at least premature and the campaign for lower birth rate was unwarranted and likely to do harm to the nation. But, Keynes, with the advent of depression of 1924, lost his faith in classical doctrine and waged a revolution against it.

6.3 Keynes and Declining population

Keynes was one of the propounders of optimistic theses. After the great depression Keynes strongly opposed the ideas of classists. According to Keynes, Malthus was the first economist who had written about controlling the geometric progression in population growth and also about optimising the effective demand and savings.

But according to Keynes, declining population brings adverse economic consequences which are explained as follows:

- (1) Keynes argues that declining population instills pessimism in the economy. Therefore adjustments in capital supply become difficult.
- (2) A decline in population reduces demand for capital. Demand for capital depends on average period of production and consumption. Raising standard of living of declining population cannot secure as much rise in the demand for capital as the rise in the population.
- (3) In developed economies, declining population is responsible for serious deflation.
- (4) According to Keynes, declining population takes out all the dynamism from the economy and the "frontier spirit" is lost.
- (5) Keynes says that declining population is deflationary and depressing. Because declining population reduces autonomous investment. When autonomous investment goes down, other types of investment like induced investment, supplementary investment, defensive investment by the old industry, speculative investment also decline.
- (6) Downward trend in population leads to downward trend in business. Declining population reduces effective demand and thereby reduces gross national product. Thus it is not possible to attain the employment with small number of people. And this results in downward movement of economic activities.
- (7) With declining population it is not possible to ensure effective demand. Because the aging population may lose their capacity to enjoy luxuries of life.
- (8) Keynes agreed that multiplying population makes us face, "the population devil", while the declining population makes us face the "unemployment devil". When Malthusian devil "P" is chained up, Malthusian "U" is liable to break loose. When devil "P" of population is chained up,

we are free of one menace, but we are more exposed to the other devil "U" of unemployed resources.

- (9) In advanced countries, threat of unemployment exists, because of the inability of the demand to grow with the capacity generated by investment. Whereas, in underdeveloped countries, unemployment and underemployment are due to lack of capital to employ the growing labour force.
- (10) According to Keynes in developed countries, the complementary resources increase at a more rapid rate than increase in population. Therefore, during depression, there is a large scale unemployment of labour and equipment. Where as in underdeveloped countries, capital lags behind the labour force and leads to unemployment.
- (11) Keynes opines that in underdeveloped countries, the problem is providing full-employment under situation in which population growth is rapid. Whereas in developed countries, the problem is that of maintaining full employment under conditions in which population is increasing at slow rate.
- (12) Another problem in under developing countries is to make the investment equal to population growth. In developed countries, the problem is to maintain the population growth in accordance with the rate of investment.
- (13) Again, in underdeveloped countries, the problem is of raising investment, in developed economies, the problem is of raising population.

6.4 The Neo-Keynesian views

The neo-keynesians namely, Hansen, Colin Clark and other want to have a bi-modal model for both developed and less-developed countries. They argue that in developed countries, there is a need for population growth at least by one percent per annum. Whereas in underdeveloped countries, there is a need for population control. The neo-keynesians think about the adverse economic consequences declining population. According to them, the developed economies accelerate the development with an increase in population and decelerate with a decline in population. Decline in population reduces effective-demand, investment, capital accumulation, employment etc. Therefore, both Keynesian and neo-keynesians argue that decline in population should be avoided. Further, they opine that, raising population is necessary for all the dynamisms of the country.

6.5 Advantages of population growth

Keynes opines that since declining population brings adverse consequences on an economy a rising population is required for the dynamisms of the economy. According to Keynes and Keynesians,

the following are the advantages of a rising population.

- 1) Keynes and neo-Keynesians, namely Hansen, Hirschman, Colin Clark and others argue that rising population induces all types of investments. They consider that population growth as an unlimited external economy.
- 2) The growing population increases effective demand. It is an unlimited market for an economy.
- 3) As a result of increasing population, demand for both basic goods and luxury goods increases. The chain linkages promoted by the demand accelerate the pace of economic development.
- 4) Growing population ensures adequate man power for utilizing the natural resources and for increasing the percapita income.
- 5) When population increases, it induces research, inventions and innovations of new product, new source of resources, new market, new method of production etc. All these are of great importance for economic development.

Thus, rising population, according to Keynes and neo-Keynesians exerts healthy effect on economic growth. And increasing population is the best remedy for unemployment.

6.6 Criticisms

The Keynesian theory has been criticized on the following grounds :

- 1) Keynesian views on population growth do not hold good in underdeveloped countries. Keynes himself has agreed with Malthus' theory and opines that rising population will become problem for underdeveloped countries and these countries require control on population. Therefore, Keynesian views regarding population growth refer only to developed countries.
- 2) It is also criticized that high effective demand is not a function of numbers but of high income and spending.
- 3) Even in developed countries, adverse effects of under population are less severe than over population.
- 4) Even stationary population or declining population can maintain the economy with its increasing demand for new types of goods and also luxury goods.
- 5) Even with declining population, the saving and investment can bring qualitative improvement in the living standards of the existing population.

Thus it is wrong to say that the remedy to unemployment is to have more population.

6.7 Let us sum up

Keynes ideas are based on classical theory. With the advent of great depression, Keynes after studying the effects of great depression lost his believes in classical doctrine and revolt against it. Keynes

agrees with Malthus' and says that over population is a problem of under developed economies and these economies require control on population. But regarding developed countries, Keynes opines that declining population brings adverse effect on economic development of these countries. Because, declining population reduces effective demand, autonomous investment, and causes downward trends in business and unemployment and therefore retards economic growth. Therefore these economies (developed) require rising population which induces all types of investments, increases effective demand, expands market, and increases employment opportunities. According to Keynes and neo-Keynesians, the best remedy to unemployment is to have more people. Thus they advocate rising population which increases the pace of economies.

6.8 Keywords

Effective Demand : Effective demand is one which is brought in equilibrium with supply in the economy.

Autonomous Investment : Autonomous investment is that part of the total net investment which is not related to the increase in the income.

Reference Books

1. R.D. Gupta and P.N. Chopra - Keynesian Economics
2. Jhon Maynard Keynes - Essay sin Biography

Check your progress

- 1) Do you think Keynesian views regarding population applies to less developed economies?
- 2) Critically examine Keynes' "Increasing Population" theses

Prof. Sathyaprema

Course : IV

Economics of Demography

Block : 2

Role of Population in Economic Development

Unit : 7

Cannan's Optimum Theory of Population

Structure :

Objectives

- 7.1 Introduction
- 7.2 Definition of optimum population
- 7.3 Assumptions
- 7.4 Explanation of the Theory

Check your progress : I

- 7.5 Superiority of optimum theory
- 7.6 Criticisms
- 7.7 Let us sum up
- 7.8 Key words
- 7.9 Reference Books

Check your progress : II

7.0 Objectives

The main objectives of this unit are :

- * To explain the meaning of the concept "Optimum – Population".
- * To describe the optimum population theory.
- * To evaluate the merits and demerits of optimum population theory.
- * To compare and appreciate the difference between optimum and Malthusian theories of population

7.1 Introduction

The optimum population theory was propounded by Edwin Cannan, popularised by Robbins and Dalton. In 1924, Cannan published his book "Wealth" in which he described his ideas about population. The optimum population theory had its beginnings in the writings of Winkelblech, who classified nations into three categories according to the size of their population :

- a) Under-populated nations
- b) Over-populated nations
- c) Normal populated nations

It was Edwin Cannan used the concept "optimum population" as synonymous with the best possible population. Growth of population is not always bad. In all the countries, it is essential to have some minimum population with the help of which resources can be utilized at optimum level. Optimum utilization of resources is based on the law of diminishing returns. This law states that, to get maximum production, all the resources of production should be combined in an ideal ratio. Otherwise, it is not possible to obtain maximum production. Besides, every country should think of optimum population only and should allow the population to grow beyond certain limit. If natural resources and also other types of resources permit, then such growth in population can be welcome. It is also believed that, from national point of view, population can be considered as labour. If required quantity of labour is not available, then maximum production may not be possible. Because, without adequate labour it is impossible to exploit the resources including capital to maximum extent. Therefore, for optimum utilization of resources, it is essential to have optimum size of population. In this unit let us discuss the meaning of optimum size of population, and its merits and demerits.

7.2 Definition of optimum population

There is a plethora of definitions of optimum population. According to Prof. Cannan, "At any given time, there is what may be called a point of maximum return, when the amount of labour is such that both an increase or decrease in it would diminish proportionate returns. If proportion is not large enough to bring all industry up to this point, returns will be less than they might be and remedy is increase of population. If on the other hand, population is so great that the point has been passed, returns are again less than they might be and remedy is decrease in population. That means, if the size of population is below the point of maximum returns, production will be less than what they might be. Therefore, solution is increase the size of population. On the other hand, if the size of population surpass the maximum return point, production decreases. The remedy is reduce the size of population.

According to Robbins "optimum population is one which makes maximum returns possible". He calls that size of population – the best possible population". Dalton defines "optimum population is one which gives the minimum income per head". Carr-Saunders says that, "optimum population is one which produces maximum economic welfare". According to Boulding, "optimum size refers to population at which the standard of life is maximum". Hicks says that "optimum population is one under which per-capita production is maximum".

From these definitions, it is clear that optimum size of population is one which is equal to maximum returns. When it is equal to maximum returns, it gives maximum income per head.

7.3 Assumptions

Cannan's theory of optimum population is based on certain assumptions. They are :

- (a) The natural resources of a country are given at a point of time, but they change over time.
- (b) Technology remains constant.
- (c) The stock of capital remains constant,
- (d) The taste and preference of the people do not change,
- (e) Even with the growth of population, the ratio of working population to total population remains constant,
- (f) Modes of business organization remains constant,
- (g) There is no change in working hours of labour.

On the basis of these assumptions, Prof. Cannan explains that optimum population is that population which produces maximum production with present level of technology, knowledge and resources. According to Cannan, there is a special relation between the natural resources of a country and its population. Cannan says that, in a country, production goes on increasing up to a point, with the increase in population. When it reaches maximum point, production starts declining with further increase in population. Thus with a given technology, resources, optimum population is that population which produces maximum production. Optimum size of population is the ideal size of population which provides maximum income per head. If the size of population rises above or below the optimum level, then income per head decreases. Other things (eg. Technology, stock of capital etc) being equal, there is a definite size of population corresponding to the highest percapita income. Any deviation from this optimum size of population will result in reduction in percapita income. If the increase in population leads to increase in percapita, then the country is said to be under populated. In such situation, to attain maximum production there should be increase in population till it reaches the optimum level. On the other hand, if an increase in population leads to decrease in percapita, then that country is said to be overpopulated and as such, size of population should be reduced, till the per capita income is maximized.

To judge whether optimum point has been reached or not, Robbins has devised a formula which is given below:

$$M = \frac{A-O}{O}$$

M= degree of maladjustment

A= denotes actual population

O= shows the level of optimum population.

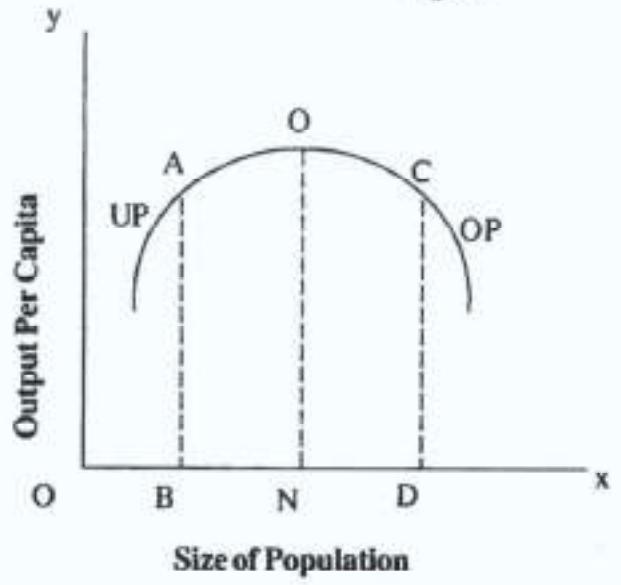
If M is positive, it indicates over - population

If M is negative, it indicates under - population

If M is zero, then it refers to optimum - population.

Thus, any deviation from the optimum, Dalton calls it Mal-adjustment. Maladjustment is a function of optimum level of population (O) and the actual level of population (A). This is explained in the figure = 1.

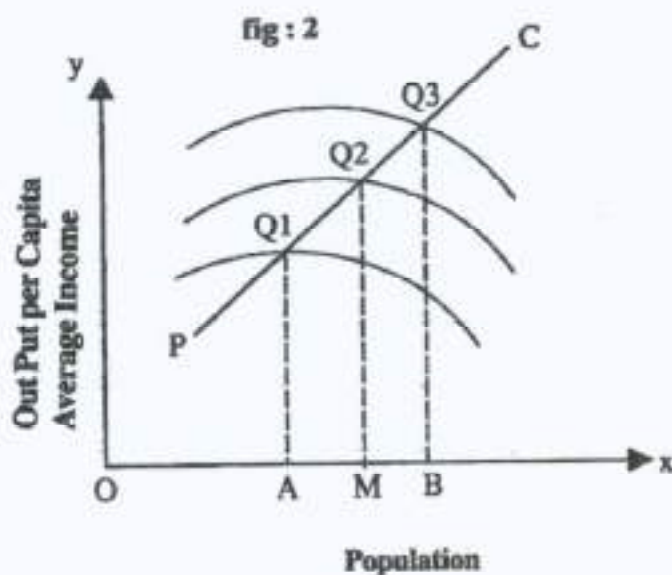
fig : 1



- UP/AB — Under population
- OP /CD — Over population
- ON — Optimum population.

In the figure-1, on OY axis, percapita income is measured and on OX axis size of population is measured. In the beginning there is under population, and percapita increases with increase in population. The percapita income of OB population is BA which is lower than maximum percapita income level that is NO. ON size of population is obtaining maximum percapita that is NO. Therefore, ON size of population is the optimum size of population. If population increases continuously from ON to OD, law of diminishing returns operates to production. OD represents over population as a result of which percapita decreases to CD. This is static explanation of the optimum theory.

Now the question is, whether the optimum size of population, which is obtaining maximum percapita will remain even or not. Optimum population remains static only when there is no changes in resources of a country, technology, capita etc. But in practice, there may be changes in resources. Due to changes in improvements in technology, innovations, increase in the efficiency of labour, all these increase output per head and optimum point shifts upward. Besides, if the stock of natural resources, increases, it pushes the optimum point to still higher level than before. Thus optimum level is not a fixed one but movable depending the changes in stock of resources, innovations, new technology, efficiency of labour, wars, political ideologies etc. Therefore it is clear that in a country an optimum population at one time cannot be for all times to come. This is illustrated in figure-2.



As shown in the figure –2, at a given point of time, optimum population is OM. But after some time, favourable changes in the factors i.e improvement in technology, increase in the stock of natural resources, the output per capita curve (that is PC) slopes upward indicating that a larger population can be maintained at higher standard of living. Figure-2 reveals that as favourable changes take place in natural resources, technology etc, the percapita income rises from Q1 to Q2 which is greater than Q1 and further from Q2 to Q3 – the highest level. And optimum population moves from OA to OM and from OM to OB. And now, due to further improvements optimum population is OB and maximum percapita is Q3. Thus, favourable changes in resources and other factors like technology, skill etc. will increase the optimum. If changes in these factos are unfavourable, they lead to reverse effect that is decrease in optimum level. Thus, optimum point will never remain static, instead depending upon the changes in other factors, optimum point also changes.

Check your Progress : I

- 1) Define optimum - population,
- 2) Write a note on optimum population theory

7.5 Superiority of optimum Theory

Comparison between optimum theory and Malthusian theory throws light on the question i.e canmans' optimum theory of population an improvement. When we compare both the theories, we can say that kannan's optimum theory is superior to Malthus' theory of population. This can be proved on

the following grounds:

1. Since Malthus had a narrow view, he related the growth of population only to food supply. But Cannan in his optimum theory had a wider view and he related the growth of population to the total production of the country i.e he linked population with natural resources, technology, capital etc.
2. Malthus opined that unless some checks are applied, there is a tendency that population will outnumber the resources and food supply. He believed that there must be balance between population and resources. If balance is not maintained, then nature comes to our rescue and maintains such a balance between population and resources. From this point of view, optimum theory is better than Malthusian theory.
3. The Malthusian theory can be applicable to all economies irrespective of their economic conditions. But optimum theory studies the population problem in relation to economic conditions of an economy.
4. Since Malthusian theory can be applicable to a period of time, it is static in nature. But optimum theory is dynamic in nature because, it explains, how percapita income rises with increase in optimum population as a result of favourable changes in stock of resources, technology, skill etc.
5. Prof. Gide has pointed out that Malthus' approach is pessimistic and negative in nature. According to Malthus population growth results in pain, poverty and misery. Optimum population theory ignores such fear of over population, by stressing the fact that increase in population increases labour force which helps in optimum utilization of resources. Cannan says that so long as the actual population is less than optimum size, increase in population is safe and good. Population control is required only when the actual population exceeds the optimum size.
6. Malthusian theory is only theoretical in nature, where as optimum theory is practical because it considers that increase in population is desirable and needed for maximum utilization of natural resources.
7. Malthus believes that law of diminishing marginal returns operates in agriculture. But according to realistic view of optimum theory, law of diminishing returns operates only after reaching the optimum level. According to this theory, first the law of increasing returns operates up to the optimum point, beyond that point law of diminishing returns operates.

8. Malthus says, that, when population fails to adopt preventive check, to control population, nature starts operating its own check that is positive checks viz, misery, droughts, epidemics etc. On the other hand, optimum theory believes that population grows beyond optimum point income of the people will begin to come down.

9. According to Malthus, it is over population mainly responsible for poverty and misery. But Cannan opines that poverty and misery are due to defective policies of government, defective production and distribution system.

10. Malthus has stressed the need of population control by means of late marriage, moral restraint etc. But Cannan opines that it is better to avoid situation of over population rather than resorting to population control.

From the above analysis, it is clear that Cannan's optimum theory of population is superior to the Malthusian theory.

7.6 Criticisms of the Theory

Despite the superiority of optimum theory, some critics have pointed out its defects which have lowered the practical value of the Optimum theory. The main drawback of the theory are as follows:

- a) The main drawback of this theory is that it has neglected the distribution aspect of real national income. Increase in prosperity depends not only on increase in per capita but it also depends on equality of distribution of national income. Here increase in income results the concentration of income in the hands of a few rich people.
- b) Optimum theory does not explain the causes for under - population and over - population.
- c) This theory is not backed by empirical evidence. There is no evidence about the optimum population level in any country.
- d) The concept optimum population, according to Cannan implies qualitative and quantitative ideal population. But it is vague. Qualitative aspect of population not only refers to psychical knowledge and intelligences efficiency etc. But it also implies best age composition of population.

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- e) It is a difficult task to measure percapita because of non-availability of accurate data.
 - f) Another defect of this theory is that this theory considers only economic factors which determines the level of population. But it does not consider social and political conditions which influence the level of population. For example, during war periods, maximum manpower is required to safeguard the country from external aggression.
 - g) In modern state policies, no place has been given to optimum level of population.
 - h) Optimum theory fails to explain the reasons for increase and decrease in both birth rates and death rates.
 - i) This theory does not explain how to maintain the optimum level once it is reached.

Thus, on the basis of these critics, it may be concluded that optimum theory is of little practical use. As pointed by B.K. Sarkar, this theory is unscientific. It is also criticized that this theory is static and volatile. In spite of these defects, optimum polution theory is definitely an improvement over Malthusian theory of population.

7.7 Let us sum up

Optimum population was propounded by Edwin Cannan. Optimum population is one which makes maximum returns possible with the present level of technology, knowledge, resources, etc. Optimum population produces maximum production. Any deviation from the optimum size of population will lead to a reduction in percapita income. If increase in population followed by increase in percapita, then the country is under populated. If increases in population leads to decrease in percapita income, the country is said to be overpopulated and needs a decline in population till percapita income is maximized. Optimum theory is superior to Malthusian theory of population. But it is subject to criticisms. The theory has failed to explain reasons for changes in birth and death rates, it has neglected distribution aspect of percapita income. Many criticized that is static and has little practical use.

7.8 Keywords

Optimum population: Optimum population refers to one which yield maximum returns.

Under population: If population increases with increase in percapita, it refers to under population. Under population means the size of population below optimum level.

Over population: If population increases with decrease in percapita, it refers to over population. That means the size of population beyond optimum level.

7.9 Reference Books

1. Srivatsava - Demography and population Studies
2. Hams Raj - Fundamentals of Demography

Check your progress : II

- 1) Explain the superiority of optimum population theory over Malthusian Theory.
- 2) Critically examine Cannan's theory of optimum population.

Prof. Sathyaprema