



ALAGAPPA UNIVERSITY

[Accredited with 'A+' Grade by NAAC (CGPA:3.64) in the Third Cycle
and Graded as Category-I University by MHRD-UGC]

(A State University Established by the Government of Tamil Nadu)

KARAIKUDI – 630 003



Directorate of Distance Education

M.A. [Sociology]

I - Semester

351 13

POPULATION STUDIES

Author:

Dr Rakhi Mittal, Associate Professor, Ginni Devi Modi Girls PG College, Modinagar, Ghaziabad

"The copyright shall be vested with Alagappa University"

All rights reserved. No part of this publication which is material protected by this copyright notice may be reproduced or transmitted or utilized or stored in any form or by any means now known or hereinafter invented, electronic, digital or mechanical, including photocopying, scanning, recording or by any information storage or retrieval system, without prior written permission from the Alagappa University, Karaikudi, Tamil Nadu.

Information contained in this book has been published by VIKAS® Publishing House Pvt. Ltd. and has been obtained by its Authors from sources believed to be reliable and are correct to the best of their knowledge. However, the Alagappa University, Publisher and its Authors shall in no event be liable for any errors, omissions or damages arising out of use of this information and specifically disclaim any implied warranties or merchantability or fitness for any particular use.



Vikas® is the registered trademark of Vikas® Publishing House Pvt. Ltd.

VIKAS® PUBLISHING HOUSE PVT. LTD.

E-28, Sector-8, Noida - 201301 (UP)

Phone: 0120-4078900 • Fax: 0120-4078999

Regd. Office: 7361, Ravindra Mansion, Ram Nagar, New Delhi 110 055

• Website: www.vikaspublishing.com • Email: helpline@vikaspublishing.com

Work Order No. AU/DDE/DE1-238/Preparation and Printing of Course Materials/2018 Dated 30.08.2018 Copies - 500

SYLLABI-BOOK MAPPING TABLE

Population Studies

Syllabi	Mapping in Book
BLOCK I: Demographic Determinants of Population Change UNIT-1: Demographic Determinants of Population Change–Births, Deaths, Migrants, Marriages UNIT-2: Concept of Natural Increase of Population and Growth of Population–Measurement and Indicators of Demographic Determinants: Fertility, Mortality, Migration, Marriage UNIT-3: Data Sources–Census–Vital Registration System–National Sample Surveys–Sample Registration System–Adhoc Surveys–Standard Fertility Survey–National Family Health Survey	Unit-1: Overview of Demographic Determinants of Population Change (Pages 1-15); Unit-2: Natural Increase in Population and Measurement of Demographic Determinants (Pages 16-24); Unit-3: Data Sources (Pages 25-58)
BLOCK II: Population Theories and Social Theory of Population Change UNIT-4: Population Theories–History and Development of Population Theories–Mercantilist and Related Theories UNIT-5: Theories of Malthus and his Immediate Predecessors–Socialist and Marxist Writings–Growth Theories UNIT-6: Social Theory of Population Change–Demographic Transition Theory–Theories of Ester Boserup and Julian Simon–Trends in Population Growth–India World States in India	Unit-4: Population Theories-I: History and Mercantilist (Pages 59-69); Unit-5: Population Theories-II: Malthusian, Marxist and Growth Theories (Pages 70-98); Unit-6: Social Theory of Population Change (Pages 99-152)
BLOCK III: Theories of Fertility and Fecundity and Concepts UNIT-7: Concepts of Fertility and Fecundity–theory of Marriage and Family–Social Structure and Fertility–Role of Intermediate Variables (Davis and Blake) UNIT-8: Economic Theory of Fertility (Becker)–Socio Economic Theory of Fertility (Leibenstein and Easterlin)–Regional Variations in Fertility Levels in India. Concepts of Mortality UNIT-9: Life Expectancy–Components of Mortality, Determinants of Infant and Child Mortality. UNIT-10: Causes & Death, Life & Working Years Lost, Differentials in Mortality & Morbidity	Unit-7: Fertility and Fecundity (Pages 153-195) Unit-8: Fertility: Economic, Socio-Economy and Variations (Pages 196-210); Unit-9: Life Expectancy and Mortality (Pages 211-228); Unit-10: Causes of Deaths, Mortality and Morbidity (Pages 229-238)
BLOCK IV: Concepts of Migration and Types Causes of Migration UNIT-11: Concepts of Migration: Types of Migration, Forced Migration, Political, Economic and Social Consequences UNIT-12: In-Migration, Out-Migration, Immigrants, Emigrants–Theories of Migration–Ravenstein’s Laws of Migration UNIT-13: Everette Lee’s Perspectives on Migration–Push Pull Theories of Migration–Social Process of Migration–International Migration.	Unit-11: The Concept of Migration (Pages 239-249); Unit-12: Migration Concepts and Theories (Pages 250-257); Unit-13: Social Process of Migration and International Migration (Pages 258-277)
BLOCK V: Indian Population Policy UNIT-14: Indian Population Policy–Kinds of Population Policy, Fertility Influencing Policy, Anti-National Policy, Population Education.	Unit-14: Population Policy And Population Education (Pages 278-308)

CONTENTS

INTRODUCTION

BLOCK I: DEMOGRAPHIC DETERMINANTS OF POPULATION CHANGE

UNIT 1 OVERVIEW OF DEMOGRAPHIC DETERMINANTS OF POPULATION CHANGE 1-15

- 1.0 Introduction
- 1.1 Objectives
- 1.2 Nature and Significance of Population Studies
 - 1.2.1 Advantages of Population Study
 - 1.2.2 Phases of Demography
- 1.3 Demographic Factors for Population Change
 - 1.3.1 High Birth Rate
 - 1.3.2 Declining Death Rate
 - 1.3.3 Migration
 - 1.3.4 Marriages
- 1.5 Answers to Check Your Progress Questions
- 1.6 Summary
- 1.7 Key Words
- 1.8 Self Assessment Questions and Exercises
- 1.9 Further Readings

UNIT 2 NATURAL INCREASE IN POPULATION AND MEASUREMENT OF DEMOGRAPHIC DETERMINANTS 16-24

- 2.0 Introduction
- 2.1 Objectives
- 2.2 Concept of Natural Increase in Population and Growth of Population
 - 2.2.1 Measurement and Indicators of Demographic Determinants
- 2.3 Answers to Check Your Progress Questions
- 2.4 Summary
- 2.5 Key Words
- 2.6 Self Assessment Questions and Exercises
- 2.7 Further Readings

UNIT 3 DATA SOURCES 25-58

- 3.0 Introduction
- 3.1 Objectives
- 3.2 Census Method
- 3.3 Sampling Method for Population Data
- 3.4 Registration Method
 - 3.4.1 Vital Registration
 - 3.4.2 Population Registers
 - 3.4.3 Government Records
 - 3.4.4 Sample Registration System in India
- 3.5 Other Systems of Data Sources
 - 3.5.1 National Sample Survey
 - 3.5.2 Double Report System
 - 3.5.3 International Resources
 - 3.5.4 Adhoc Surveys
 - 3.5.5 Standard Fertility Survey
 - 3.5.6 National Family Health Survey
- 3.6 Population Statistics
- 3.7 Answers to Check Your Progress Questions

- 3.8 Summary
- 3.9 Key Words
- 3.10 Self Assessment Questions and Exercises
- 3.11 Further Readings

**BLOCK II: POPULATION THEORIES AND SOCIAL THEORY OF
POPULATION CHANGE**

UNIT 4 POPULATION THEORIES-I: HISTORY AND MERCANTILIST 59-69

- 4.0 Introduction
- 4.1 Objectives
- 4.2 History and Development of Population Theories
- 4.3 Mercantilist and Related Theories
- 4.4 Answers to Check Your Progress Questions
- 4.5 Summary
- 4.6 Key Words
- 4.7 Self Assessment Questions and Exercises
- 4.8 Further Readings

**UNIT 5 POPULATION THEORIES-II: MALTHUSIAN, MARXIST
AND GROWTH THEORIES 70-98**

- 5.0 Introduction
- 5.1 Objectives
- 5.2 Theories of Malthus and his Immediate Predecessors
- 5.3 Malthusianism and Neo-Malthusianism
- 5.4 Socialist and Marxist Writings
- 5.5 Growth Theory
- 5.6 Answers to Check Your Progress Questions
- 5.7 Summary
- 5.8 Key Words
- 5.9 Self Assessment Questions and Exercises
- 5.10 Further Readings

UNIT 6 SOCIAL THEORY OF POPULATION CHANGE 99-152

- 6.0 Introduction
- 6.1 Objectives
- 6.2 Theory of Demographic Transition
 - 6.2.1 Opinion About the Four Stages of Population Growth
 - 6.2.2 Analysis and Criticism of Views
- 6.3 Theory of Ester Boserup
 - 6.3.1 Gender Studies
 - 6.3.2 Boserup's Theories on Agriculture: 'The Conditions of 'Agricultural Growth'
- 6.4 Julian Simon's Theory
 - 6.4.1 Population Growth Spurs Economic Development
 - 6.4.2 Views on Simon's Theories
- 6.5 India's Population: Size and Growth Trends
- 6.6 Trends in World Population
- 6.7 Answers to Check Your Progress Questions
- 6.8 Summary
- 6.9 Key Words
- 6.10 Self Assessment Questions and Exercises
- 6.11 Further Readings

BLOCK III: THEORIES OF FERTILITY AND FECUNDITY AND CONCEPTS

UNIT 7 FERTILITY AND FECUNDITY 153-195

- 7.0 Introduction
- 7.1 Objectives

7.2	Concepts of Fertility and Fecundity	
7.2.1	Thoughts of Various Authors about Fertility	
7.2.2	Determinants of Fertility	
7.2.3	Need for Fertility Rate	
7.3	Theory of Marriage and Family	
7.3.1	Social Structure and Fertility	
7.4	Answers to Check Your Progress Questions	
7.5	Summary	
7.6	Key Words	
7.7	Self Assessment Questions and Exercises	
7.8	Further Readings	
UNIT 8	FERTILITY: ECONOMIC, SOCIO-ECONOMY AND VARIATIONS	196-210
8.0	Introduction	
8.1	Objectives	
8.2	Economic Theory of Fertility (Becker)	
8.3	Socio-Economic Theories of Fertility	
8.3.1	Leibenstein Population Law	
8.3.2	Easterlin's Theory of Fertility	
8.4	Regional Variations in Fertility Levels in India and Concepts of Mortality	
8.4.1	Concepts of Mortality	
8.5	Answers to Check Your Progress Questions	
8.6	Summary	
8.7	Key Words	
8.8	Self Assessment Questions and Exercises	
8.9	Further Readings	
UNIT 9	LIFE EXPECTANCY AND MORTALITY	211-228
9.0	Introduction	
9.1	Objectives	
9.2	Life Expectancy	
9.3	Components of Mortality	
9.3.1	Infant and Child Mortality	
9.4	Answers to Check Your Progress Questions	
9.5	Summary	
9.6	Key Words	
9.7	Self Assessment Questions and Exercises	
9.8	Further Readings	
UNIT 10	CAUSES OF DEATHS, MORTALITY AND MORBIDITY	229-238
10.0	Introduction	
10.1	Objectives	
10.2	Causes of Death: Life and Working Years Lost	
10.2.1	Morbidity and Mortality	
10.3	Answers to Check Your Progress Questions	
10.4	Summary	
10.5	Key Words	
10.6	Self Assessment Questions and Exercises	
10.7	Further Readings	
BLOCK IV: CONCEPTS OF MIGRATION, TYPES AND CAUSES OF MIGRATION		
UNIT 11	THE CONCEPT OF MIGRATION	239-249
11.0	Introduction	
11.1	Objectives	
11.2	Migration: An Overview	
11.2.1	Types of Migration	

11.3	Consequences of Migration	
11.3.1	Political Consequences of Migration	
11.3.2	Economic Consequences of Migration	
11.3.3	Social Consequences of Migration	
11.4	Answers to Check Your Progress Questions	
11.5	Summary	
11.6	Key Words	
11.7	Self Assessment Questions and Exercises	
11.8	Further Readings	
UNIT 12	MIGRATION CONCEPTS AND THEORIES	250-257
12.0	Introduction	
12.1	Objectives	
12.2	Basic Concepts of Migration	
12.3	Theories of Migration	
12.4	Answers to Check Your Progress Questions	
12.5	Summary	
12.6	Key Words	
12.7	Self Assessment Questions and Exercises	
12.8	Further Readings	
UNIT 13	SOCIAL PROCESS OF MIGRATION AND INTERNATIONAL MIGRATION	258-277
13.0	Introduction	
13.1	Objectives	
13.2	Measurement and Factors Affecting Migration	
13.2.1	Internal Migration	
13.3	Everett Lee's Perspectives Push-Pull Theory	
13.4	Social Process of Migration and International Migration	
13.4.1	Social Process of Migration	
13.4.2	International Migration	
13.5	Answers to Check Your Progress Questions	
13.6	Summary	
13.7	Key Words	
13.8	Self Assessment Questions and Exercises	
13.9	Further Readings	
BLOCK V: INDIAN POPULATION POLICY		
UNIT 14	POPULATION POLICY AND POPULATION EDUCATION	278-308
14.0	Introduction	
14.1	Objectives	
14.2	Indian Population Policy	
14.3	Kinds of Population Policy: Fertility Influencing and Anti-Natalist	
14.4	Population Education	
14.4.1	Objectives, Importance and Characteristics	
14.4.2	Problems of Population	
14.4.3	Interdisciplinary or integrated or infused approach	
14.4.4	Population Education Programme in India	
14.5	Answers to Check Your Progress Questions	
14.6	Summary	
14.7	Key Words	
14.8	Self Assessment Questions and Exercises	
14.9	Further Readings	

INTRODUCTION

Introduction

Demography and the nature of population as well as its characteristics are very important components of sociology. Studying the human population gives several clues as to the nature of the society, its growth and the future changes. Even though population studies is considered a major part of sociology, this subject also finds relevance in several other related fields like economics, anthropology, biology, political science, etc. Population studies may be defined as the scientific study of the elements of population. This pertains to the study of fertility rates, birth rates, death rates, mortality levels are many more such concepts.

Population studies deals with the analysis of the different population statistics. This is extremely helpful is not only identifying the problems within the human society in particular regions, but also understand the patterns of change, learn how different determinants are related and then providing the solution apart from making future predictions and engage in efficient planning.

Population studies covers topics like demographic determinants, the different theories of population change and fertility, the factors related to migration and policy matters. These issues are very important in today's times with critical problems like the ever-growing population, limited resources, and human-induced migrations.

This book, *Population Studies*, is written with the distance learning student in mind. It is presented in a user-friendly format using a clear, lucid language. Each unit contains an Introduction and a list of Objectives to prepare the student for what to expect in the text. At the end of each unit are a Summary and a list of Key Words, to aid in recollection of concepts learnt. All units contain Self-Assessment Questions and Exercises, and strategically placed Check Your Progress questions so the student can keep track of what has been discussed.

NOTES

BLOCK - I
DEMOGRAPHIC DETERMINANTS OF
POPULATION CHANGE

*Overview of Demographic
Determinants of
Population Change*

NOTES

UNIT 1 OVERVIEW OF
DEMOGRAPHIC
DETERMINANTS OF
POPULATION CHANGE

Structure

- 1.0 Introduction
- 1.1 Objectives
- 1.2 Nature and Significance of Population Studies
 - 1.2.1 Advantages of Population Study
 - 1.2.2 Phases of Demography
- 1.3 Demographic Factors for Population Change
 - 1.3.1 High Birth Rate
 - 1.3.2 Declining Death Rate
 - 1.3.3 Migration
 - 1.3.4 Marriages
- 1.5 Answers to Check Your Progress Questions
- 1.6 Summary
- 1.7 Key Words
- 1.8 Self Assessment Questions and Exercises
- 1.9 Further Readings

1.0 INTRODUCTION

Demography has become a serious subject of study. There are still differences of opinions about the scope of the subject. Demography is the study of statistics such as births, deaths, income, or the incidence of disease, which illustrate the changing structure of human populations. Study of demography is assuming increasingly more significance not only in India, but all over the world. It is primarily because of the ever-growing population in both developing and under-developing countries. Rising population % in developing in particular and in developed countries in general % is straining social, economic and even political systems of the nations. By now, it has been fully realized that in case demographers could not play their role in focusing the attention of their nations towards their population problems, the nations will reach a point of no return in almost all walks of life and every activity will come under heavy strain. In this unit, you will learn about the basics of demographic determinants of population change, including births, deaths, migrants and marriages.

*Self-Instructional
Material*

NOTES

1.1 OBJECTIVES

After going through this unit, you will be able to:

- Discuss the various aspects of population studies
- Describe the importance of populations studies
- Explain the demographic factors responsible for population change: births, deaths, migrants and marriages

1.2 NATURE AND SIGNIFICANCE OF POPULATION STUDIES

Significance of population studies has been realized even since the ancient times. History is a witness that both in India and United States, in one or another form, some account detailing the population and its expansion was kept, so that state remained aware of growing population. No doubt, during those days population explosion did not become a matter of concern, because needs of growing population were very limited and available resources adequate enough to meet the ever increasing needs of the continually growing population.

Demography today neither be ignored by the planners, nor policymakers, nor administrators, nor by academicians and politicians. It provides them with foundational support for their work and is springboard from when to jump. Population studies are being increasingly developed and used from different perspectives and these have today become an integral part of the socio-economic and political systems on one hand and planned economic development on the other.

Aspects of Population

Under population studies three main aspects are covered namely size, composition and distribution of population:

- (1) Size:** While studying size, that aspect of the study is taken which deals with such problems as to how many people live in a given population group, what changes are taking place in the size of the group and how these changes are affected. It also aims at finding out how many people live in a given place at a given point of time. But this can be accurately found out by clearly defining the terms 'place,' 'person' and 'time'.

In any population study, the concern is not only restricted to finding out how many people live in a particular area at a given point of time but also to have a comparative approach, namely whether the number is larger than what it was and what is the future like number etc. Such facts are needed by industrialists; those concerned with providing social utility services like education, medical aid, legislators, planners, policymakers; and social

scientists. It is with the help of these figures that the government and planners can develop their future plans, strategies and expansion of activities. It is again after getting this actual and estimated data that production for consumer goods can be enhanced and arrangement for providing basic necessities and facilities to the society can be made. A demographic should also find out the extent of changes, but he is also required to find out the causes responsible for the changes. These can be due to increase in the rates of birth and migration and decrease in death rates etc. These can also be both due to lack of medical facilities or consciousness among the masses about their health or availability of health facilities.

(2) Composition: After size comes composition in population study. All the measurable characteristics of the people who form a given population. The composition of two groups can differ when one of the groups has larger or smaller proportion of persons with a given characteristics. The composition of two groups differ in a number of ways. There are, however, usually two major considerations while selecting characteristics. The characteristics must be effectively related to demographic processes and that these must be relevant to the attempt to understand certain specific aspects of national or community life. Age and sex are the most widely used characteristics of population study. In the words of Thompson and Lewis, the relationship between the composition of a population and its mortality, fertility and net migration is a reciprocal one; i.e., composition affects the demographic process and these processes in turn affect the composition by determining the age and sex structure of a population.

(3) Distribution: Population distribution study is concerned with such matters as to how are the people distributed and what is the nature of changes in population distribution. In a population study one would be engaged in finding out the nature of the world population living in advanced urban industrial areas, newly developing and growing urban industrial areas and pre-urban industrial areas and the way in which changes are taking place in each category. The distribution can also be studied by dividing population and finding out ratio of people living in small, urban, farm non-farm areas etc. Basically, changes in population distribution are caused by the cumulative effect of difference in mortality birth and net migration rates. In the words of Thompson and Lewis, if a person asks:

How the world's people are distributed among within continents, world regions and countries how their number and population change and he wants to know the political, economic and social causes and the result of these changes to answer these questions, he must learn what the demographic means by the sizes, composition and distribution he must understand nationality and migration, and finally, he must search for social significance of satisfies he has studied under these heading.

NOTES

NOTES

1.2.1 Advantages of Population Study

After nature and scope of the study of population, one needs to know the advantages of population study. Not only in India, but all over the world, population has been rapidly increasing. But more saying that it has been increasing does not serve under purpose. It is with the help of serious study of population problems, that one would come to know about the extent of increase in population and also about the responsibility of the state and citizen in respect of social, economic and political problems as well as the state and their possible solution as well. Significant advantages of the study of population may briefly be discussed as under:

Political: In the political field on the basis of population studies concerned political leadership and authorities come to know about the rate at which number of voters (male and female) is increasing, how the generation gap is now concentrated where more stress should be laid, what type of arrangements will be needed for conducting elections, which are the areas from where population is increasing and constituencies delimited accordingly, so that there are no dummy or semi-dummy constituencies.

Economic: The importance of study of population in the economic field is immense. It is with the help of population studies that nation would come to know how far the rate of population growth is keeping pace with economic development and in case both are not keeping pace with each other, how to adjust these so that economic problems do not seriously threaten the nation. Obviously if economic crisis, poverty and shortages. The problem will have to be solved either by checking population growth rate or by speeding up economic development plans. It is again population study which provides information about per capita income of the people, their consumption habits, per capita production and consumption rate, etc. It is desirable that population growth and economic standard of the people keep pace with each other. If there is serious gap between the two that is bound to create social and economic disorder.

Planning: Most of the developed countries are now accepting the concept of planned development. Thus, planning of resources has become an unavoidable process. It is accepted that limited human and natural resources must be utilized in a planned manner in the best intent of the society. But, no planning can be a success, unless the planners are aware of the population growth rates and the areas in which population is much more rapidly growing than the others. It is with the help of population studies that the planners can allocate resources to avoid regional imbalances and also provide for more matters to be fed in the coming years. Needless to say that without proper population studies, the whole plan will collapse.

Again, it is with the help of population data that it becomes possible for the planners to provide for more educational institutions, hospitals, transport and essential services and to ensure that the people, whether the number is increasing or decreasing get what is essentially needed by them.

NOTES

Social: Population study is very much advantageous in the social field as well. It is here that the society comes to know what basic needs (social) are unavoidable for the growing population. It is population study which can help in finding out extra electricity, roads, water, housing, schools, hospitals and other similar needs of the society on one hand and shopping centres, hygienic facilities etc. on the other. Again, it is with the help of these studies that the state can come to know about the magnitude of law and order problem which growing population will create and how to solve these problems, so that the citizen feel secure. Since every state is taking more and more responsibilities upon itself, therefore, its dependence on population statistics is on the increase. In the social field many world states have given 'right to work' and 'right to leisure' to its people. Unless they are aware of latent of burden which they are taking upon themselves, they cannot take heavy responsibilities. Even developed countries are trying to provide social security to the population by providing old age pension, health insurance and child care and maternity centres, and so on. These steps can effectively be taken with the help of population studies alone.

Administrative: Administrations find population studies immensely useful. It is with the help of these studies that they are in a position to understand where there should be more and where less stress should be laid down an administration. In fact, whole administrative machinery moves keeping in view growth of population. An administrative, whether in social, economic or political field will always have the growth of decline of population in view of smooth running of administration.

Essential for checking regional imbalances: Population study is essential for finding out population migration trends which result in creating regional imbalances particularly when due to one scalar or the other there is migration. This trend is quite visible these days because of the educated people and landless labour are migrating from rural to the urban areas and from one region to the other. Many serious law and order problems arise because of it and even some regions became more advanced industrially than the other, thus creating industrial backwardness in some parts of the country. It is because of regional imbalances that demand for more autonomy is made and, in the process, agitational approach is adopted by some aggressive leaders who try to exploit regional sentiments of the people.

1.2.2 Phases of Demography

Demography can broadly be divided into two phases namely, (i) Static phase and (ii) Dynamic phase.

- (i) **Static phase:** Under the static phase, the position of the population is studied. Those engaged in population studies are not only supposed to collect important facts about population, but they should also pay proper attention towards population growth.

NOTES

(ii) **Dynamic phase:** It deals with studies and internal developments within the population. Taking these two phases into consideration, demography can be studied under four important and broad heading namely:

- o Descriptive demography
- o Analytical demography
- o Comparative demography
- o Historical demography

There are various techniques adopted for demographic analysis. Demography is the study of changes which take place in population (size, distribution and composition). Population problems are ever-changing. Rate of population growth changes according to times and conditions and as such it is unavoidable to continuously collect figures and to properly classify them. But the problem is what should be the technique of analysis of these figures and the data thus collected. In brief, for instance figures are collected about one particular aspect and field of population study which are then compared and those figures which are left out are filled up by imagination. Thereafter these are interpreted. But practical difficulties arise only when these are put to actual use. equally important problems are how to define and discover the sources of collection of material and to draw conclusions from the available material. It is difficult to lay down any rules for this because these depend and vary accordingly to scope of the study, time, problem etc. and changes which must come with time. Usually, however in population studies questions asked are about the growth rate of death, birth and the figures about marriage, whether there has been any basic change over a period of time in any important population aspect and whether there have been any changes in class structure in a given population keeping in view age, sex, occupation, education etc.

Usually demographic studies are analysed on two basis, namely; (i) Micro-demographic analysis and (b) Macro-demographic analysis

Under the micro-demographic analysis internal problems relating to population are studied. These problems include the study of rate of populations growth in a particular region, distribution of population in the region and migration of population from one place to other. Though in these studies both composition and size are covered, yet more stress is laid down on composition in latter than on the size.

Under the macro-demographic analysis stress is laid on broader issues. of course, in their analysis, information is collected by local areas, yet it is believed that without taking into consideration economic setup, it is not possible to properly study population problems. It is perhaps the reason that UNO has been stressing that population and census studies should be undertaken during one and the same period. The analysis of population studies namely death, birth rate etc. are calculated after taking into consideration the whole economic system. It is in this broader system of analysis that comparisons are made about population problems of two countries, two cultures and even two continents.

Check Your Progress

1. Name the two most widely used characteristics of population study.
2. List the factors which cumulatively affect changes in population distribution.
3. How do developed countries provide social security to its population?

NOTES

1.3 DEMOGRAPHIC FACTORS FOR POPULATION CHANGE

Population studies are increasingly becoming popular on account of their practical utility in every walk of life. These studies are being studied today for solving housing, water, electricity, law and order and administration problems. Demography is also assuming popularity and importance because it is closely related to other subjects of social sciences. It is because of utility of the study of their subject that many new universities are setting up department where population research is being seriously undertaken.

The major causes responsible for the rapid growth of population for the last decades can be classified into:

- (A) High birth rate
- (B) Decline death rate
- (C) Migration
- (D) Marriage

1.3.1 High Birth Rate

A characteristic feature of under-developed countries in transition is the prevalence of high birth rate. Birth rate refers to the number of live births per thousand of population per year. A high birth rate is a function both of social and economic factors. While with the process of growth underway, conditions are created for the material well-being of the people they are slow to react to these conditions. It may take a full generation, or even more to pass before any notable change in the attitudes may be in evidence.

In India climate, social and economic factors all combine to cause the birth rates to remain high. Their reproductive period begins normally from fourteen years resulting in a later reproductive span. These climatic conditions gets supported by existing social and economic institutions.

1. Social factors

Marriage a universal phenomenon in India: Historically, Indian women got married relatively early and only a very small proportion were spinster beyond the end of

NOTES

the reproductive period i.e., age 50. Three factors are important in this connection, and deserve attention:

- The proportion of women in the child bearing age, 15–19 has been around, 47 per cent of total female population; 47.2 in 1961, 46.2 in 1971, 47.7 in 1981, 46.02 in 1992, 47.08 per cent in 2001 and went up to 48.55 in 2005.
- 84.53 per cent of total female population in the reproductive age group 15–49 was married in 1961, the corresponding figure was 83.55 per cent in 1971 and 81.44 per cent in 1981. The proportion, although declining, but still it is very high.
- The average age of marriage among female was 15.6 years in 1951 and 1961. It has gone up marginally to 17.2 in 1971, 18.3 in 1981 and 20.0 in 1991. Although, the age at marriage has been going up and the once widespread child marriages has been relatively infrequent, the rise in mean age at marriage has been slow. Further, As per the National Family Health Survey (NFHS)-4 (2015-16), the percentage of women in the age group 20-24 married before age 18 years is 26.8 which was 47.4 in National Family Health Survey (NFHS)-3 (2005-06), thus showing decreasing trend.

In India, marriage is a social compulsion. It is not only universal but takes place at an early age. About 80 per cent of the girls are married during the most fertile period of 15–20 years of age.

But, in developed countries like UK the percentage of unmarried girls aged 30 and aged 41 in USA is quite high.

In short:

- The number of women in the reproductive age is large.
- The number of married women in the reproductive age is large and
- The average age of marriage among females is very low.

All above discuss factors contribute to high fertility rate defined as the average number of children a woman bears in her life time – and the prevailing high birth rate in the economy.

Joint family system: India is basically an agricultural country. The social structure is dominated by the joint family system. The joint family system prevalent in a large part of the country provides a future spent to population growth. An additional child causes no immediate hardships to the parents. Moreover, prolonged sterility is looked down upon by the family members as well as by the members of the neighbourhood. There is direct and indirect pressure to have offspring. This factor is responsible for high birth rate.

Preference for a male child: Male child is a religious necessity among the Hindus. Son is eligible to perform certain religious rites. e.g., cart rites. Daughters can not perform these rites. So, a couple without son is looked down upon in the society. So people take chances to be blessed with son.

NOTES

The number of children born per couple tends to increase when the couple desires of male progeny. A study by the Operations Research Group found that only 13 per cent of couples with three sons and no daughters wanted to have another child; but among families with three daughters and no sons, 66 per cent were relentlessly committed to continue child bearing. (It was estimated for India that in order to have a 95 per cent probability of raising a son to adulthood, the couple had to have at least six children). Another study reveals that several socio-economic cultural and psychological factors that motivate this preference. Old age security, economic support for the family). Above value of male child, perpetuating the family tradition, the percentage of a need for sons to uphold with violence, a family's power vis-à-vis neighbours, not infrequently including kinsfolk, inheritance of property, for the salvation of the deceased including getting dowry, etc. This increases the birth rate.

Rise in natural fertility: India is a tropical country, where girls attain puberty at an early age. They achieve motherhood in the age group of 12–15 years. Hence a woman in India delivers 6 to 7 children on an average, whereas a woman in Japan delivers 5 and in America 3 children.

A number of studies within India have revealed that the marital fertility rate among young women below age 30, who did not use contraceptive, rose steadily during the period 1951–1991 in a number of states. This rise in natural fertility among younger women has been associated with these factors:

First, improved biological fecundity of couples because of better nutrition and health.

Secondly, relaxation of traditional cultural checks or fertility that prevailed earlier such as though sexual abstinence by couples as a number of days in a month because of religious and social reasons.

Thirdly, because of reduction in the duration of breast feeding of infants by mothers due to assimilation of urban values that promote bottle feeding.

All these changes are necessary consequences of early stages of modernization and every country with a strong cultural heritage goes through it. It is only in the 2001 census that a reversal of trend is seen when the total fertility rate is estimated to have come down to 3.2. The TFR for India in the year 2012 was 2.4 per woman and varies from 2.6 in rural areas to 1.8 in urban areas. It gives a clear indication that India is passing through the last phase of fertility transition moving towards moderate to low fertility.

2. Economic factors

Widespread Poverty: Economic factors responsible for rising birth rate is poverty of the people. Poor people hence to spend little as the upbringing of their children. Besides, the children supplement the family income by involving themselves in same odd jobs at an early age.

NOTES

The incidence of pregnancy and the number of children born in a poor household is generally larger. This is explained by a number of factors. Once, poverty is attended by a number of other evils like poor diet, illiteracy, ill-health etc. These are all indicative of low standards of living, for a country whose one third population lives below the poverty line. Living means base subsistence, a few additional children, hardly make a difference to that subsistence living; the standard of living is a mere myth. On the contrary, children at a very young age begin helping their parents in work and therefore prove to be an asset for the family. Hence, they become indifferent to the quality of their own lives and the size of their families.

High infant mortality: Infant mortality rate is very high in India due to hunger, malnutrition and poor living conditions. Infant mortality rate refers to the death of children under the age of one year. So, the fear of early death of their infants encourages the parents to have more children.

Because of deficient diet, lack of medical facilities, unhealthy living conditions, etc., the infant survival rate is very low. This may result in high birth rates for two reasons.

If an infant survives and the mother continues to breast feed, Lactation amenorrhoea will lengthen the period before the next conception, on the other hand, an infant death can lead to an early fresh conception due to the interruption of bacteria and earlier asset of renewed fecundity.

For the parents, a higher fertility rate is an issuance against high infant mortality. The expenses the safety is numbers, acquires a whole new meaning. United Nations figures from 25 developing countries reveal that couple experiencing the death of one child are likely to have large families than those whose children all survived. The more recent the death, the greater the likelihood of an additional child.

Children as an insurance: Due to lack of saving a large number of children act like insurance for their parents. Those children, when grow up, provide security to their parents in old age. A leading sociologist, Mahmood Mautani, reworked that while rich families invest in machines, poor villagers invest in children. One UN survey of 50 countries found that government spending on pensions was associated with lower fertility rates. Child's birth rate was halved in less than 10 years when people know that they would be cared for in the communes when they grew old. The less parents' future is dependent on their children, the fewer children they need to ensure their security. In India when the given situation of large-scale like unemployment, the smaller the chances of a job young men, the greater the incentive for more children. So that at least child earns a regular income. At the level of the economy such large numbers add only to the pressure on employment opportunities, and only serve in reducing the chances even further.

Inadequate supply of family welfare services: There is inadequate supply of family welfare services e.g., Contraceptives. Poverty, illiteracy and ignorance defer

people from using contraceptives to practice small family norms. Any income provided by children from odd jobs can make the difference between longer and life at a subsistence level. This explains continued resistance to the acceptance of family planning although the message has trickled down to the masses even in remote and distant areas.

Inadequate Recreational facilities: Due to poverty, people have very little entertainment facilities, sex is the only entertainment with most of the people. So, the birth rate increases.

Effect of Religion: In India, religion plays a major role in large size families. A son is must to provide continuity to family legacy. Even after so many girls in the family, they desire for one son prompts parents to continue with reproducing more children.

Agricultural Occupation: India is an agricultural country. Even children get some sort of work in agriculture. Thus, they do not prove to be burden on the family so rural people in India have tendencies to have larger families.

1.3.2 Declining Death Rate

As far as death rate is concerned, India is fast closing the gap with the rest of the world. A declining death rate is a characteristic feature of a developing economy. As civilization advances and conditions are created for the maternal well-being of the people, mortality falls. Fortunately, the technology of disease control and death control has so much advancement during the last few decades that many dreadful and chronic diseases no longer hold a threat. Among these plague, small pox, typhoid which used to take a toll on entire villages together are no larger dreaded. Anti-biotics and other life-saving medicines are now freely available that causalities resulting from these diseases have been drastically reduced.

To this, one must also add the growing awareness and facilities for sanitation and cleanliness, which help to reduce the incidence of mortality. The provision of better maternity and post-natal care has helped to bring down the infant mortality rate.

Another important factor that has contributed to bringing about a fall in the death rate is that faced shortages and scarcities which used to cause dreaded famines in the past are themselves a phenomenon of the past. The Bengal famine of 1943 had a toll of lakhs. These things do not happen now partly because of responsible administrative arrangements and primarily due to the availability of the vast network of transport and communication facilities.

In brief, it is an accepted fact that any improvement in material well-being meets with a reduction in mortality. As such, death rate in India is expected to fall well till the turn of the century. Thereafter, it will tend to rise for some time as the population as a whole will begin to comprise of a large proportion of ageing people.

NOTES

NOTES

1.3.3 Migration

Migration is the third dynamic constituent of population growth. A population may gain in size by experience of influx of migration and it may diminish in size by an exodus of some of its members to join another population. Both international and internal migration has played a very important role in the history of population growth of any country.

Differences in the natural increase among the states of a country are often rather very small, while in reality there are wide variations in their growth rates. The only principal mechanism for such wide variations is internal migration. The rural to urban migration is usually associated with industrialization and urbanization. Migrants from the rural areas tend to adopt the urban way of life, which in turn has a direct impact on reducing the fertility a striking feature of the migration is that while changes caused by the fertility and morality in the size and structure of the population are never drastic migration may change the size, structure and sex ratio of the population quite drastically at any point of times. Regional growth rates result from both differential natural increase and migration increase leading to growth of population. It is assumed that economic hard times would cause people to migrate in search of jobs and thus increase migration.

1.3.4 Marriages

Marriage is the stage to which demography pay their considerable attention. Marriage may be defined as legal union of persons of opposite sex. The legality of such a union may be established by civil, religious or other means as recognized by law of each country and irrespective of the type of marriage, each should be reported for vital statistics purpose.

In India, marriage is considered compulsory because of social, personal, religious and many other so as reasons. Not only marriage, but widow remarriages polygamy among Muslims are providing a suitable environment for population growth.

There is no denying the fact that the high population growth rate in India is attributed to certain deep-rooted factors lying in our society cultural, religious and economic environment. An important reason for the unimpressive performance of the family planning programme in relation to cost, effort and time invested in it has been the failure of the programme to check socio-economic, cultural and psychological impulses of the masses to have a layer family. The control of such impulses requires long range measures, and not were 'quick-fix techno-managerial solutions'.

However, at present, when the population is expanding, the resources are in the already scarce position, these factors require serious attention of the demographers, policy-planners, academicians to put their joint efforts to solve thing (population growth) giant problem immediately.

Check Your Progress

4. What are the reasons for high infant mortality rate in India?
5. Name the concepts with which the rural to urban migration is usually associated.

NOTES

1.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Age and sex are the most widely used characteristics of population study.
2. Changes in population distribution are caused by the cumulative effect of difference in mortality birth and net migration rates.
3. Developed countries try to provide social security to the population by providing old age pension, health insurance and child care and maternity centres, and so on.
4. Infant mortality rate is very high in India due to hunger, malnutrition and poor living conditions.
5. The rural to urban migration is usually associated with industrialization and urbanization.

1.5 SUMMARY

- Demography has become a serious subject of study. There are still differences of opinions about the scope of the subject. Demography is the study of statistics such as births, deaths, income, or the incidence of disease, which illustrate the changing structure of human populations.
- Demography today neither be ignored by the planners, nor policymakers, nor administrators, nor by academicians and politicians. It provides them with foundational support for their work and is springboard from when to jump.
- Population studies are being increasingly developed and used from different perspectives and these have today become an integral part of the socio-economic and political systems on one hand and planned economic development on the other.
- While studying size, that aspect of the study is taken which deals with such problems as to how many people live in a given population group, what changes are taking place in the size of the group and how these changes are affected.

NOTES

- After size comes composition in population study. All the measurable characteristics of the people who form a given population. The composition of two groups can differ when one of the groups has larger or smaller proportion of persons with a given characteristics. The composition of two groups differ in a number of ways
- Population distribution study is concerned with such matters as to how are the people distributed and what is the nature of changes in population distribution. In a population study one would be engaged in finding out the nature of the world population living in advanced urban industrial areas, newly developing and growing urban industrial areas and pre-urban industrial areas and the way in which changes are taking place in each category.
- Significant advantages of the study of population may briefly be discussed as under: Economical, social, political, planning, administrative, etc.
- Demography can broadly be divided into two phases namely, (i) Static phase and (ii) Dynamic phase. demography can be studied under four important and broad heading namely: Descriptive demography, Analytical demography, Comparative demography and Historical demography.
- Demographic studies are analysed on two basis, namely; (i) Micro-demographic analysis and (b) Macro-demographic analysis.
- The major causes responsible for the rapid growth of population for the last decades can be classified into: High birth rate, Decline death rate, Migration and Marriage.

1.6 KEY WORDS

- **Demography:** It refers to the study of statistics such as births, deaths, income, or the incidence of disease, which illustrate the changing structure of human populations.
- **Birth Rate:** It refers to the number of live births per thousand of population per year.
- **Infant Mortality Rate:** It refers to the death of children under the age of one year.

1.7 SELF-ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. 'Demography today neither be ignored by the planners, nor policymakers, nor administrators, nor by academicians and politicians.' Elucidate.

2. What are the different phases of demography?
3. List the four important and broad heading under which demography can be studied.
4. Write a short note on how the preference for male child affects the birth rate.

*Overview of Demographic
Determinants of
Population Change*

NOTES

Long-Answer Questions

1. Explain the important aspects of population studies.
2. Discuss the advantages of population studies.
3. Describe the social and economic factors affecting high birth rate.
4. Examine the role of mortality rate, marriages and migration in the increase of population.

1.8 FURTHER READINGS

- Bhende, Asha A. and Tara Kanitkar. 1994. *Principles of Population Studies, Sixth Edition*. Mumbai: Himalaya Publishing House.
- Heer, David M. 1987. *Society and Population, Second Edition*. Delhi: Prentice-Hall India.
- Raj, Hans. 1984. *Fundamentals of Demography (Population Studies with Special Reference to India), Third Edition*. Delhi: Surjeet Publications.
- Kumarasena, Harsha. 2004. *Population Education*. Delhi: Dominant Publishers and Distributors.

NOTES

UNIT 2 NATURAL INCREASE IN POPULATION AND MEASUREMENT OF DEMOGRAPHIC DETERMINANTS

Structure

- 2.0 Introduction
- 2.1 Objectives
- 2.2 Concept of Natural Increase in Population and Growth of Population
 - 2.2.1 Measurement and Indicators of Demographic Determinants
- 2.3 Answers to Check Your Progress Questions
- 2.4 Summary
- 2.5 Key Words
- 2.6 Self Assessment Questions and Exercises
- 2.7 Further Readings

2.0 INTRODUCTION

Population is the biggest asset of a country. The social, economic and political factors within and outside a region greatly affect the decrease or increase in population growth. It is very important for countries to study the growth of population as this affects the planning that is done on the country level. This planning includes the important factors like the judicious use of resources, as well as the distribution of resources and income. Population growth, in layman terms, is understood as the growth in the size of population of a region over a period of time. However, when looked at in the context of population studies, it can be defined as the combination of rate of natural increase of population along with the effects of migration. Natural increase merely refers to the difference between birth rates and death rates of a population. The migration factors affect the manner in which population grows, but it is not the sole factor affecting the change. Other factors include the mortality rate, and fertility rate along with the marriage scenario in the region. In this unit, we will learn about the concept of natural increase in population, the growth of population along with the measurement and indicators of demographic determinants.

2.1 OBJECTIVES

After going through this unit, you will be able to:

- Discuss the concept of natural increase in population
- Enumerate the factors of population growth
- Describe the measurement of demographic determinants

2.2 CONCEPT OF NATURAL INCREASE IN POPULATION AND GROWTH OF POPULATION

Population in human biology, is defined as the whole number of inhabitants occupying an specific area and continually being modified by increases (births and immigrations) and losses (deaths and emigrations). As with any biological population, the size of human population, is limited by the supply of food, the effect of diseases and other environmental factors. Human populations are further affected by social customs governing reproduction and by the technological developments, especially in medicine and public health that have reduced mortality and extended the life span.

Few aspects of human societies are as fundamental as the size, composition and rate of change of their population. Such factors influence economic prosperity, health, education, family structure, crime patterns, language, culture, etc. Indeed, visually every aspect of human society is influenced by population trends.

The **components of population change** are few indeed. A closed population can change according to the following simple equation: the population (closed) at the end of an interval equals the population at the beginning of the interval plus birth during the interval, minus death during the interval. In other words, only addition by births and reduction by deaths can change a closed population.

Population of nations regions, continents, island or cities, however are rarely closed in the some way. If the assumption of a closed population is relaxed, in and out migration can increase and decrease population size in the same way as do births and deaths, thus, the population (open) at the end of an interval equals the population at the beginning of the interval, plus births during the interval minus deaths, plus-in-migrants minus out migrants. Hence the natural increase in population includes knowledge of fertility (births), mortality (deaths), migration and marriage. Natural increase in population refers to the difference between the numbers of births and deaths in a population; the rate of natural increase is the difference between the birthrate and the death rate. And population growth is reflected through these factors.

*Natural Increase in
Population and
Measurement of
Demographic Determinants*

NOTES

NOTES

2.2.1 Measurement and Indicators of Demographic Determinants

In this section, we will have a look at the indicators of demographic determinants and their measurement.

A. Fertility: Demographics distinguish between fecundity the underlying biological potential for reproduction, and fertility, the actual level of achieved reproduction. The difference between biological potential and realized fertility is determined by several intervening factors including the following:

- o Most women do not begin reproducing immediately upon the onset of puberty, which itself does not occur at a fixed age.
- o Some women with the potential to reproduce never do so.
- o Some women become widowed and do not remarry.
- o Various elements of social behaviour restrain fertility, and
- o Many human couples choose consciously to restrict their fertility by means of sexual abstinence, contraception, abortion or sterilization.

The total fertility rate in a specific year is defined as the total number of children that would be born to each woman if she was to live to the end of the child-bearing years and give birth to children in alignment with the prevailing age specific fertility rates. It is calculated by totalling the age specific fertility rates as defined over five year intervals. Assuming no net migration and unchanged mortality, a total fertility rate of 2.1 children per woman ensures a broadly stable population. Together with mortality and migration, fertility is an element of population growth, reflecting both the causes and efforts of economic and social developments. The reasons for the dramatic decline in birth rate during the past few decades include, postponed family formation and child bearing and a decrease in desired family sizes. This indicator is measured in children per woman.

B. Mortality: As noted above, the science of demography and natural increase in population, has its intellectual roots in the realization that human mortality, while consisting of unpredictable individual events has a statistical regularity when aggregated across a large group. This recognition forms the basis of a life insurance. The basis of their industry is the life-table or mortality table which summarizes the distribution of longevity – observed over a period of years among members of a population.

Overall human mortality levels can best be compared by using the life-table measures including life expectancy at birth, the number of years of life expected of a newborn baby on the basis of different mortality levels for persons of all ages. Life expectancies of premodern populations, with the poor knowledge of sanitation and health care, may have been low as 25–30 years. The largest toll of death was observed in infancy and childhood, perhaps 20 per cent of new born children died in their first 12 months of life

and another 30 per cent before they reached five years of age. Life expectancy of females usually exceeds that of males and this female advantage has grown as overall life expectancy has increased. Following may be factors of natural increase in population.

- o **The epidemiologic transition:** It is the process by which the pattern of mortality and disease is transformed from one of high mortality among infants and children and episodic famine and epidemic affecting all age groups to one of the degenerative and man-made diseases affecting principally the elderly. It is generally believed that the epidemiologic transitions prior to the 20th century were closely associated with rising standards of living, nutrition and sanitation. In contrast, those occurring in developing nations have been more or less independent of such internal socio-economic development and more closely tied to organized health care and disease control programme developed and financed internationally. There is no doubt that 20th century declines in mortality in developing countries have been far more rapid than those that occurred in the 19th century.
- o **Infant mortality:** Infant mortality is conventionally measured as the number of deaths in the first year of life per 1,000 live births during the same year. Approximately 8 per cent of new born babies die within the first year of life. In developing countries, substantial declines in infant mortality have been credited to improved sanitation and nutrition increased access to modern health care and improved birth spacing through the use of contraception.
- o **Infanticide:** The deliberate killing of new born infants has long been practiced in human societies. It seems to have been common in the ancient cultures of Greece, Rome and China and it was practiced in Europe until the 19th century. In many societies practicing infanticide, infants were not deemed to be fully human until they underwent a rite of initiation that took place from a few days to several years after and therefore killing before such initiation was socially acceptable. The purpose of infanticide were various:
 - (i) Child spacing or fertility control in the absence of effective contraception,
 - (ii) Elimination of illegitimate deformed or orphaned or twin children, and
 - (iii) Sex preferences

With the development and spread of the means of effective fertility regulation, infanticide has come to be strongly disapproved in most societies, though it continues to be practiced in some isolated traditional cultures.

NOTES

NOTES

- o **Mortality among the elderly:** During the 1970s and 1980s, in industrialized countries there were unexpectedly large declines in mortality among the elderly, resulting in larger than projected numbers of the very old. The decline in elders' mortality rate was the result of improved health and hygiene conditions, good health facilities, improved nutrition and other improved surroundings for the better quality of life.

C. Marriage: One of the main factors affecting population growth, and an important contributor to the fertility differences among societies in which conscious fertility control is uncommon, is defined as the patterns of marriage and marital disruption. In mostly societies, marriage occurs soon after the sexual maturation of the woman, around the age of 17 which is a stray cause of increase in population growth. In the 20th century, dramatic changes have taken place in the patterns of marital dissolution caused by widowhood and divorce. Widowhood has long been common in all societies, but the declines of mortality have sharply reduced the effects of this source of marital dissolution as fertility. Meanwhile, divorce has been transformed from an uncommon exception to an experience terminating a large proportion of marriages in some countries. Taken together, these components of marriage patterns can account for the elimination of as little as 20 per cent to as much as 50 per cent of the potential reproductive years. Many developed countries have experienced significant increase in the number of cohabiting unmarried couples. Extra-marital fertility as a percentage of overall fertility accordingly has risen in many developed countries, accounting for one in five births in the United States.

D. Migration: Since any population that is not closed can be augmented or depleted by in-migration or out-migration, migrates patterns must be considered carefully in analysing population growth. The common definition of human migration limits the term to permanent change of residence, so as to distinguish it, from commuting and other more frequent text temporary moments. Human migrations have been fundamental to the broad sweep of human history and have themselves changed in basic ways over the epochs. Many of these historical migrations have by no means been the morally uplifting experiences depicted in mythologies of heroic conquerors, explorers, and pioneers, rather than frequently have been characterized by violence, destruction, bondage, mass mortality, and genocide in other words, by human suffering of profound magnitudes.

The movement by humans from one area to another is known as migration. The humans who undergo migration are called migrants. However, according to the International Organization for Migration, there is not a universally accepted definition for a migrant. Nevertheless, the United Nations defines migrant as an individual who has resided in a foreign country for more than a year irrespective of the causes, voluntary or involuntary.

An important distinction is that people who migrate into a territory are called immigrants, while people who leave a territory are called emigrants. Under such a definition, those travelling for shorter periods of time as tourists or business-persons would not be considered migrants, immigrants or emigrants.

Thus, several factors combined together have resulted in rapid population growth. Although modern scientific means and methods have helped in checking population growth. The people are quite conscious about the benefits of small size family beings with it, but still more and more awareness needs to be created among the people of under developed and developing countries. If, world population is to be brought within desired limits. Fertility rate can be brought down both by persuasion as well as coercive methods. Since developing countries are not yet fully appreciating the need and significance of family planning programmes and checking fertility rate, therefore, persuasion does not work. At the same time there is sharp reaction to the use of force in checking fertility. Therefore, problem in these counties is really serious and needs tactful management.

Check Your Progress

1. List some of the factors which are influenced by fundamental aspects of human societies.
2. Mention the total fertility rate which ensures a broadly stable population.
3. What are the epidemiologic transitions of developing nations tied to?

2.3 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Fundamental aspects of human societies such as the size, composition and rate of change of their population influence factors like economic prosperity, health, education, family structure, crime patterns, language, culture, etc. Indeed, visually every aspect of human society is influenced by population trends.
2. Assuming no net migration and unchanged mortality, a total fertility rate of 2.1 children per woman ensures a broadly stable population.
3. Epidemiologic transitions occurring in developing nations have been more or less independent of internal socio-economic development and more closely tied to organized health care and disease control programme developed and financed internationally

2.4 SUMMARY

- Population is the biggest asset of a country. The social, economic and political factors within and outside a region greatly affect the decrease or increase in

NOTES

NOTES

population growth. It is very important for countries to study the growth of population as this affects the planning that is done on the country level.

- Population in human biology, is defined as the whole number of inhabitants occupying an specific area and continually being modified by increases (births and immigrations) and losses (deaths and emigrations).
- As with any biological population, the size of human population, is limited by the supply of food, the effect of diseases and other environmental factors. Human populations are further affected by social customs governing reproduction and by the technological developments, especially in medicine and public health that have reduced mortality and extended the life span.
- The components of population change are few indeed. A closed population can change according to the following simple equation: the population (closed) at the end of an interval equals the population at the beginning of the interval plus birth during the interval, minus death during the interval.
- Population of nations regions, continents, island or cities, however are rarely closed in the some way. If the assumption of a closed population is relaxed, in and out migration can increase and decrease population size in the same way as do births and deaths, thus, the population (open) at the end of an interval equals the population at the beginning of the interval, plus births during the interval minus deaths, plus-in-migrants minus out migrants. Hence the natural increase in population includes knowledge of fertility (births), mortality (deaths), migration and marriage.
- The total fertility rate in a specific year is defined as the total number of children that would be born to each woman if she was to live to the end of the child-bearing years and give birth to children in alignment with the prevailing age specific fertility rates. It is calculated by totalling the age specific fertility rates as defined over five year intervals. Assuming no net migration and unchanged mortality, a total fertility rate of 2.1 children per woman ensures a broadly stable population. Together with mortality and migration, fertility is an element of population growth, reflecting both the causes and efforts of economic and social developments.
- The science of demography and natural increase in population, has its intellectual roots in the realization that human mortality, while consisting of unpredictable individual events has a statistical regularity when aggregated across a large group. This recognition forms the basis of a life insurance. The basis of their industry is the life-table or mortality table which summarizes the distribution of longevity – observed over a period of years among members of a population.
- One of the main factors affecting population growth, and an important contributor to the fertility differences among societies in which conscious fertility control is uncommon, is defined as the patterns of marriage and martial disruption.

- Since any population that is not closed can be augmented or depleted by in-migration or out-migration, migrates patterns must be considered carefully in analysing population growth.

*Natural Increase in
Population and
Measurement of
Demographic Determinants*

2.5 KEY WORDS

- **Natural increase in population:** It refers to the difference between the numbers of births and deaths in a population; the rate of natural increase is the difference between the birthrate and the death rate.
- **Total fertility rate:** It is defined as the total number of children that would be born to each woman if she was to live to the end of the child-bearing years and give birth to children in alignment with the prevailing age specific fertility rates.
- **Life-table or mortality table:** It is table of statistics which summarizes the distribution of longevity – observed over a period of years among members of a population.
- **Life expectancy at birth:** It refers to the average period that a person may expect to live.
- **The epidemiologic transition:** It is the process by which the pattern of mortality and disease is transformed from one of high mortality among infants and children and episodic famine and epidemic affecting all age groups to one of the degenerative and man-made diseases affecting principally the elderly.

2.6 SELF-ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Mention the equation which explains the change in closed population.
2. What is the meaning of natural increase in population?
3. What are the factors responsible for the difference between biological potential and realized fertility?
4. List the purposes of the practice of infanticide.

Long-Answer Questions

1. Describe the mortality related factors which affect the natural increase in population.
2. Write short notes on the measurement and effect of the following on population growth: fertility and marriage.

NOTES

3. Explain the concept of migration in the context of analysing population growth.

NOTES

2.7 FURTHER READINGS

- Bhende, Asha A. and Tara Kanitkar. 1994. *Principles of Population Studies, Sixth Edition*. Mumbai: Himalaya Publishing House.
- Heer, David M. 1987. *Society and Population, Second Edition*. Delhi: Prentice-Hall India.
- Raj, Hans. 1984. *Fundamentals of Demography (Population Studies with Special Reference to India), Third Edition*. Delhi: Surjeet Publications.
- Kumarasena, Harsha. 2004. *Population Education*. Delhi: Dominant Publishers and Distributors.

UNIT 3 DATA SOURCES

Structure

- 3.0 Introduction
- 3.1 Objectives
- 3.2 Census Method
- 3.3 Sampling Method for Population Data
- 3.4 Registration Method
 - 3.4.1 Vital Registration
 - 3.4.2 Population Registers
 - 3.4.3 Government Records
 - 3.4.4 Sample Registration System in India
- 3.5 Other Systems of Data Sources
 - 3.5.1 National Sample Survey
 - 3.5.2 Double Report System
 - 3.5.3 International Resources
 - 3.5.4 Adhoc Surveys
 - 3.5.5 Standard Fertility Survey
 - 3.5.6 National Family Health Survey
- 3.6 Population Statistics
- 3.7 Answers to Check Your Progress Questions
- 3.8 Summary
- 3.9 Key Words
- 3.10 Self Assessment Questions and Exercises
- 3.11 Further Readings

NOTES

3.0 INTRODUCTION

In population studies, a demographer is expected to collect figures which are of great interest to policy formulators. But it is not easy to collect data, for which different methods are used these days. The figures must be related to some aspect. In demography a figure is known as universe. A universe of population may be defined as an aggregate of items possessing a common trait or traits. The universe is always to be defined because it can be a state, city or village. Thus, it can be both definite as well as infinite.

Broadly speaking, the figures about a universe can be collected by three methods, namely census method, sample method and registration method. In this unit, we will discuss the different sources of data for population studies.

3.1 OBJECTIVES

After going through this unit, you will be able to:

- Explain the census method
- Discuss the sample survey method

NOTES

- Describe the registration method
- Examine the sample registration system in India
- Discuss methods like: adhoc surveys, standard fertility survey, NFHS, etc.
- Explain the current status and benefits of population statistics

3.2 CENSUS METHOD

A census of a population may be defined, 'As the total process of collecting, compiling and publishing demographic, economic and social data pertaining, at a specified time or times, to all persons in a country or delimited territory.' In other words, it can be said that census is the collection of information about birth, death, occupational, social and economic conditions of the people of the country at a given point of time. According to VM Dandakar 'A census of population is the total process of collecting, compiling, evaluating, analysing and publishing demographic, economic and social data pertaining at a specific time, to all persons in a country or in a well delimited part of the country.' Census has become a very popular method of collecting information about people. It helps not only in collecting figures, but is much more informative beyond that. It provides information about the economy of the nation, rate of birth and death, rural-urban migration, living standard of the people, family size, educational achievements, etc.

Significant Features of Census

Census has the following certain very important and significant features:

1. Census is a national stock taking process in which nation gets information about migration of the people; their age, sex, occupation, etc.; about people living in a country at a given point of time, etc. Nation also gets information about social and economic conditions of the people.
2. Census is almost always organized and conducted by the government because it is such a gigantic task that it is impossible to get the whole work completed by any private agency, more so when the country is wide and vast and also densely populated.
3. Census is almost carried out once in a decade in every country and as such considerably dependable figure can be obtained.
4. Every country makes an attempt to ensure that census operations be completed within limited and specified time periods and that too without the involvement of huge manpower and economic resources, but not at the cost of efficiency or work.
5. While collecting information it is to be seen that it is of national use. The willingness and ability of the respondent to give information should also be taken into consideration before proceeding with the work. All those

questions which are likely to arouse fear and prejudices and are difficult for the respondents to answer should be avoided.

6. During census operations every effort is made to collect first-hand information about every person. While collecting information about either individual or a family, it is considered as a unit.
7. Before census data collection, it is essential that all concepts should be made very clear because in the absence of clarity many mistakes are likely to occur which can frustrate the very purpose of census operation.
8. Census data is published, after data collected has been authentically verified and properly analysed.
9. Before census operation are actually carried out some preliminary steps should always be taken. These include identification of area, collection of information of house etc. in the area, the form in which information is to be collected, to make arrangements for getting the forms filled in and to collect and analyse the data. The questions to be asked are pretested on a sample population and if necessary these are modified as well. The process is called pre-testing of questions.
10. During census operation information is collected with personal contacts. The enumerator should reach the house-holders and collect on the spot information. In 1991, census in India questionnaires were mailed to certain categories of persons like the professionals and highly qualified persons, etc.

Census method can be both *de-jure* as well as *de-facto*. In *de facto* census, the person is counted at a place where he is found whereas in *de-jure* census he is counted at the place of his real residence. Census data can also be collected by direct as well as indirect means. When enumerator personally collects data that is called direct method but where information is collected by means of a schedule that is called indirect method of data collections.

Census data can be correct if every double counting is avoided and no person is left outside counting. Information should be collected for every unit and that too within a limited time. In it there is no place for sample data.

Census and Registration

Sometimes by mistake, census and registration are confused with each other and figures collected by way of registration are treated as population figures. But this mistake can be avoided. During census direct contacts are established, whereas in registration only names are registered and as such no direct contacts are established. Then another difference is that whereas registration process continues throughout the year, census operations are carried out during a specific time and are completed within limited period. Similarly census operations are repeated after regular interval which is usually 10 years. But for registration there is no such interval and as

NOTES

NOTES

already pointed out it is a continuous process. However, Barclay, in his 'Techniques of Population Analysis' has pointed out, that census operations have their own problems. According to him, 'In practice, some people are always missing. It is unpracticable to include all cases which belong to the universe. By definition no statistical system functions perfectly. Some cases which ought to be covered according to rules are always omitted. On the other hand, some may be recorded more than once.' But these days with the help of statistical errors & some of the omissions are rectified.

Problems Connected with Census

Census operations in every country are a costly affair. It is both time as well as patience consuming process. It is, therefore, very essential that during census operation maximum information should be collected so that nation is benefited, and the policy makers can use the available information for policy formulation purposes till the next census data is available. Accordingly, in census information, information about average age of the people, birth rate, death rate, occupation of the people, mortality rate, educational standards, health standards occupation, economic and social conditions of the people, etc., are collected. But census operation and those engaged in the work have their own problems. Some of the important problems are:

1. The terms used in the proformas used for the collection of information are usually interpreted differently by different data collector, more so in a vast country like India, which is multi-lingual and area and population to be covered is very vast. In order to overcome this difficulty, the enumerators are given short training before they are sent to field.
2. At the time of every census almost everywhere, it is realized that there is shortage of trained people and as such in the absence of competent and trained people, satisfactory completion of work becomes rather difficult. Difficulty also arises because casual nature of work it is not possible to keep trained staff on regular basis.
3. Census operation requires a lot of field work, which of course is very tedious. It can be completed only when the people are very honest and do their duty with a sense of duty and responsibility. But usually it is difficult to find and recruit such people. There are quite frequent complaints that some of the field workers do not go to their field and cook all the information while sitting at home.
4. Though the information to be collected is to be used for about a decade by the nation, yet it is unfortunate that there is no uniformity about some of the basis terms e.g., the replies to questions as mentioned below can vary much, in spite of detailed instructions which might be given to those who are engaged in field work:
 - (a) Are you educated?
 - (b) Do you belong to upper class, middle class or lower middle class?

(c) Economically are you poor, rich or just pulling on.

Data Sources

(d) What type of business you have? Is it poor, satisfactory or soaring?

When one talks about the term 'educated', it can be seen that it is differently understood by different people. In a rural area, a person who can just read and write may be called 'educated' whereas in urban area even a senior secondary boy may be considered uneducated. Similarly, the term 'rich,' 'poor,' 'middle class' etc. have different meanings, for different people.

NOTES

5. Then another difficulty is that many persons may not like to give correct information about themselves due to personal reasons or on account of failure of the field investigator to establish a sort of proper liaison with the person from whom information is to be collected.

6. There are no adequate arrangements to know the family size and number of family members who have gone abroad, as under the existing procedure, in most of the counties, there is no obligation on such persons, to send vital information to another country.

7. Still another problem which arises is that even when the proforma to be got filled in is being finalized, wide gaps are deliberately left because it is difficult to fill them e.g., it is provided that while collecting information about age, age groups are made, and the investigator is expected to put his information in the proper cage e.g., question can be:

Do you belong to age group 1–5, 6–10; and 16–20 and so on? In this way a gap of 5 years is even otherwise allowed. Similarly, when information about land cultivation is being collected, the question can be: Do you have cultivable land between 1–5 acres; 6–10 acres, 11–15 acres or 16–20 acres? In this way gap of 5 acres is deliberately allowed to exist. Moreover, income from cultivable land can also differ widely, for which no information can be collected. Similarly, we can ask a person whether he depends on agriculture and reply in the positive even then correct information is not available because land on which a person is dependent can be 5 acres or 50 acres and in both the cases difference is quite wide.

Similarly, if an attempt is made with the help of census to find out, if arranged or love marriages are happy or whether the trend is for arranged or love marriages, the difficulties can be many. It will be difficult to uniformly define such terms, as æ happiness Æ, æ love marriage Æ or æ arranged marriage Æ and so on.

8. For poor countries it is difficult to maintain regular census staff, as that is likely to prove burdensome. Such a staff having no real work, once the census operations are over and data collected has been tabulated. Therefore, to keep pace with increasing workload, at the time, the man power is borrowed from other departments. Such borrowed people have no interest in this extra work. They treat it as liability and are clear that its proper or

NOTES

non-proper performance is no way going to affect their future official career. They, therefore, take work lightly and finish it in a very casual manner. In this way quantity of work seriously gets effected.

9. In many developing and underdeveloped countries, the people on the whole do not understand real significance and importance of census. In fact, they are not made to realize that. In rural areas and among illiterate and semi-literate people there is a feeling that it is another exercise to find out their sources of income for taxation purpose or that they will be subsequently harassed on the basis of this information. Census enumerator is, therefore, very much avoided.
10. Census operations can only be a success when the respondents fully co-operate with the enumerators. In this case the former feel as to why should they co-operate and in what way are they going to be benefited. Since they have not been made to realize the importance of census and there are no prima facie benefits, the result is that respondents are in no real mood to extend their whole hearted co-operation.
11. In many countries noncooperation is census operation, providing or collecting wrong information at the time of census, has not been made a punishable legal offence.

Advantages of Census

Of course, census has its own problems, but it has its advantages as well. It is an important source of basis national population data which is very much required for administrative purpose. It can be put to use for studying and researching economic and social problems on the one hand and their planning on the other. It also provides authentic trends in population growth, changes in the age and sex structure of the population, the extant of mortality as well as fertility. It provides useful data about migration and urbanization. It is in census operation that data on current and mortality is collected which is always useful for analytical purpose particularly in countries where vital registration statistics are both inaccurate and inadequate.

It is again census which helps us in knowing the changes which are coming in national, occupational and industrial composition, in the level of literacy, changes coming in levels of living, religion and language. It also provides base for various kinds of surveys. It makes computation of birth and death rate easy. Census data is very much used for preparation of life tables for analysing economic development.

Then an idea about estimated future population and its age sex structure is very useful for estimating future military and economic manpower needs and in planning future growth in metropolitan cities on the one hand and in estimating future health, water, educational institutions, housing, etc. needs on the other.

Census Techniques: As mentioned earlier, there are two important census techniques namely (i) *De Facto* method (b) *De Jure* method. Each method is being quite extensively used and has merits as well as demerits.

1. ***De Facto Method:*** It is one of the census techniques. Under this system a date is fixed for taking census for the whole country. Usually such an operation is conducted at night because it is left that after day long work the people will come back to their homes at nights. Such a night is called census night. This night is very carefully selected. Usually it is a moonlit night and an appeal is made to the people that they should stay at home and to the extent possible avoid travelling as well. All the field workers are fully well prepared for this night work and given proper training. It is seen that on this night there is no likelihood of either piercing cold or that of the heat wave. At this night all those who are found anywhere are counted. When the people actually present are counted at same moment in a census technically that is called '*de facto* population.' Since the census is completed on a particular date, it is also called 'Date system' or 'One Night Enumeration System.' Both in India as well as in England this was the only system which was followed up to 1931. But after this, for quite some time in many parts of the world both *de facto* and *de jure* methods were adopted. During 1971 census in India *de facto* method was not adopted.

Merits and Demerits of the system: *De facto* method of census has its own advantages as well as disadvantages. One important advantage of the system is that it is quite simple and clear. It is also easy for international comparisons and time consumed for the whole operation is very little. The information collected is almost realistic and dependable.

But the system has its own disadvantages as well. Some of the important disadvantages are:

- (a) Under this system usually floating population is not counted and such people are ignored, and data collected becomes inaccurate.
- (b) This system needs a large number of well qualified and trained field workers, but these are usually not available, and data is collected by incompetent workers. That is likely to be inaccurate.
- (c) Since the time limit is very short, therefore efforts are made to put as few questions as possible. But since census is conducted once in a decade, it is desirable that maximum information collected which is not possible under this system.
- (d) Since everybody is in a hurry to complete its work, therefore, inaccuracy and mistakes very much increase.
- (e) The system does not provide for counter checks. In this way inaccuracies and mistakes cannot be rectified. Not only this but extent of mistakes i.e., per cent age of errors is not known.

NOTES

NOTES

(f) Night time is a time when people want to take rest. They are tired after day long work and as such no enumerator is welcome at this time. In many cases the respondent is in a mood to provide accurate information but in a mood to give good rebuff to everyone who approaches him for collecting information. In fact, this time is not a welcome time even for enumerators and supervisory staff, who cannot do any justice work after day long hard work.

2. **De Jure Method:** As against *de facto* method, is *de jure* method. Under this system every person in an area is personally counted and information obtained from him. An effort is made that a temporary resident is not included in it, who is enumerated at his permanent place of residence. For census a period is fixed, after taking into consideration area to be covered and people to be dealt with etc. Usually census work is completed within a period of two to three weeks. This period is, therefore, called a period enumeration.

Merits and Demerits of the method: Like the *de facto* method, this method too has its own advantages as well as disadvantages. One important advantage of the system is that since the period given for completion of work is quite sufficient, therefore, chances of inaccuracy, which are due to shortage of time are reduced to the minimum. Similarly, many questions about sex, age, social conditions of the people can be asked. Even if the number of trained and sincere workers is less, then also work can be completed without much difficulty, because that can be spread over a span of time. Since the work is completed without haste, therefore, data collected is dependable and can be used depended upon for such purpose as transfer of property, dispute about succession, formulation of government policies about the spread of education, for providing better health and similar other facilities. Similarly, these figures can also be used for removing many regional imbalances. Then another advantage is that the figures can be re-checked by the supervisory staff. It is also possible to find out percentage of inaccuracies and at the time of analysis, etc., that fact can be taken proper care.

- (a) Under this system some such terms as permanent residence, household, etc. are to be defined. Usually it is difficult to uniformly define these terms.
- (b) The period of completion of work is rather too long. Once an area has been visited, there are no provisions for knowing the deed and those who have taken birth or migrated to other places during the intervening period. i.e., the period when the census was taken and when it was completed.
- (c) It becomes difficult to collect information in respect of those who have no permanent residence and usually such persons are left out.
- (d) It also becomes equally difficult to have correct and accurate information in respect of these who have more than one residence and continue to shift from one place to the other.

Since both the systems have their own advantages as well disadvantages therefore, there is no single system which is being adopted all over the world.

Each country adopts the system as suits its convenience. In the words of Barclay, 'Hence, we cannot say there is any perfect or correct scheme for counting the population. The selection of either one of these standards or more commonly, same mixture of the two has an effect which is present in very figure of the census. Obviously more people in the questionable categories, the greater the effect of choosing one standard or the other.'

Methods of Collecting Information: For census operations information can be collected by two methods. First method is one in which a trained enumerator approaches those from whom the information is to be collected. The enumerator keeps the questionnaire with himself, and only puts the questions. He himself records the reply of the party. Another method is that the questionnaire is distributed to the persons concerned from whom information is to be collected. The party is expected to answer all the questions mentioned in the questionnaire. In some cases, the questionnaires are even filled up by the head of the family and filled in questionnaires are collected and then analyzed by the enumerators at his convenience.

Obviously in those countries where the respondents are educated, second method can be adopted but not in the cases of those countries where the vast majority is illiterate. In an illiterate society only the first method can work well. In India enumerators themselves are expected to fill in all the questionnaires because the people by and large are illiterate and even hesitant to provide information.

Each system, of course, has its own advantages. In the first method since the enumerator himself fills up the questionnaire, therefore, the chances of mistake are very few and minimum, but the disadvantage is that in many cases the enumerator himself may not be in a position to get confidential information. There can be some confidential information which the party may not be willing to speak out but provide in writing when questionnaire is being filled. Similarly, in a society where there is paradah system the information can be collected only through writing by the party himself rather than by asking the questions.

Not only this but when the enumerator is putting questions are recording information he can introduce his biases as well. Thus, the whole purpose of collecting information is defected. Instead wrong information is made available for analysis which still more harms the whole operations.

As regards second method it does not suit the illiterate societies. In many cases the people are not willing to reduce much in writing due to one reason or the other. Moreover, the terms used in the questionnaire can be differently understood by different respondents. In this way the problem of uniformity arises, which becomes serious at the time of analysis of data.

UNO's views about Census: UNO feels that in every country census operations should be conducted in a year which is nearest to '0' e.g., 60, 70, 80 and 90. In its opinion, if the counting is done simultaneously in all the countries almost at the same time then it shall be possible to simultaneously in all the countries almost at the same time then it shall be possible to simultaneously develop some international

NOTES

NOTES

standards and comparisons in population studies. In some countries if sudden need for population counting arises, even that also can be arranged. UNOs Hand Book of population Census Method (1970) favours the use of following list in the census:

- Geographical
- Residence at the time of counting/normal place of residence
- Used place of residence : Locality
- Place of birth: Urban/Rural
- Duration of residence
- Place of previous residence:
- Place of work:
- Family: Relationship with the head of the family
- Personal: Sex
- Age:
- Martial status:
- Family composition: Relationship to the head of house hold
- Citizenship: Relationship to the head of family
- Age at marriage:
- Duration of marriage:
- Marriage Order:
- Children living:
- Economic: Nature of business
- Type of Activity:
- Occupation:
Industry:
- Owner/Servant:
- Main source of livelihood:
- Cultural: Language
- Caste:
- Education: Educated/Illiterate
- Standard up to which studied
- Education in school
- Educational attainment
- Educational qualifications
- National and ethnic group

- Language
- Religion:
- Fertility:
- Number of children born
- Total population
- Density of population
- Urban/Rural clarification
- Family system followed

But all the nations of the world do not follow this questionnaire and change the criteria that suits their convenience e.g., the following type of information is usually collected in the USA during census operation which is clearly different from the one followed by UNO.

S. No.	Social characteristics	Economic characteristics
1.	Sex	Employment status (a) Employed (b) Unemployed (c) Armed forces
2.	Age	Weeks worked in -----year
3.	Race	Occupation of worker
4.	Colour	Industry worked in
5.	Place of residence (a) Urban (b) Rural etc.	Class of worker (a) Private wage (b) Government (c) Self-employed (d) unpaid family worker
6.	Nativity	Place of work
7.	Place of birth	Means of transportation to work
8.	Percentage	Income
9.	Mother tongue of foreign born	
10.	School enrolment	
11.	Years of school completed	
12.	Veteran status	
13.	Marital status	
14.	Relationship with the head of hold	
15.	Children ever born	

Legal Provisions for the census – In every country some legal provisions are made for the conduct of census. It is done primarily because it is found unsafe to leave everything optional. Some people thus may not be willing to divulge information or co-operate with the government in census work. Similarly, all information collected during census is not open to everybody. It is considered that

NOTES

NOTES

the information collected in confidence should remain so, so that the faith of the people is not shattered, and they remain every willing to provide information in future as well. In order to maintain confidential nature of census also legal provision is needed.

Check Your Progress

1. What are the preliminary steps that are undertaken before the census operation are actually carried out?
2. In which census method is every person in an area personally counted and information obtained from him?

3.3 SAMPLING METHOD FOR POPULATION DATA

Sampling method is one of the important methods for the collection of population data. Census operations at national level being costly affair are conducted once in a decade, but in between many happenings necessitate collection of information on different aspects of population. In some areas it is not possible to have counting at the time of census, whereas in many other cases it may be found that collection of data was erroneous. In order to deal with these problems and overcome difficulties sample surveys are organized. In every country this type of survey is always carried either in one form or the other. In some countries there is also the system of National Surveys. Such a survey can be Random Sampling or Stratified Random Sampling. For a good sample, it is essential that it should be independent and available. It should also not have any bias, if unbiased and dependable results are desired to be collected. Whether it is random sampling or stratified random sampling it is essential that the system should be very carefully picked up and used. In the words of Fredrik F. Stephen, 'Samples are like medicines. They can be harmful when they are taken carelessly or without adequate knowledge of their effects. We may use their results with confidence if the application are made with due restraints. It is foolish to avoid or discard them because someone else has misused them or suffered the predictable consequences of his follies. Every good sample should have a proper table with instructions about its use.'

Usually there are coverage, classification and sampling errors, in sampling method for population data. It is therefore very essential that this type of work should be assigned only to competent persons so as to reduce the chances of such errors creeping in. But when the work is in the hands of incompetent persons, may errors creep in, in large numbers. As such it is very essential that his method should be very carefully and consciously used.

Advantages of Sampling Survey

This method of survey has its own advantages. Firstly, it is not a costly method and a nation can afford it, if need be. Then another advantage is that in it number of people to be engaged is much less, as compared with the census and as such it is possible to get required number of trained and qualified persons. Still another advantage is that it can be used as complementary method of collecting information, so that trends about population are made known to the society. It is also seen that at the time of census operation some information is not deliberately collected, because it is felt that the time for the collection of information will not be sufficient. Such information can be collected with the help of sample surveys. Thus sample, survey and census are not contradictory to each other.

Another advantage is information on such population aspects as abortions, contraceptions, study of fertility which cannot be collected during census can be collected with this method. It has also been found that quality of data collected through this method is better than that which is collected through census because usually we trained interviewers are put on the job. These are becoming popular with the planners and administrators because of their reliability.

Sampling Method in India

In India population surveys are comparatively new. In 1949, Registrar central of India was appointed who was made responsible for collecting information about deaths and birth in the country and also he was required to bring national population register up-to-date. He was also made responsible to complete data gaps and to verify authenticity of already available data. Accordingly, system of collecting inter-census period information started and with that National Sample Surveys began to be conducted. For instance, let's have a look at the data for National Sample Surveys of 1952-53 and 1953-54, it was gathered that fertility between the ages of 15-19 was much less as compared with fertility between the ages of 20-24 years. This, however, remains high between the age of 25-29, but considerably goes down between the age of 45-49, whereas in many European countries women give birth to children even at the age of 50, in India the instances of birth of children at this age are not very many. In India on the whole fertility is higher than in many other countries of the world. sample survey of 1952-53 brought out many interesting facts to light. It was during this survey that it was found that in India on an average, during her fertility period, a woman gives birth to 6-7 children whereas in Japan average was 5.8, in the USA it was 3.3, whereas in UK it was only 2.6. It was also found that in India 22% to 33% children died before the deaths of their mother, whereas this ratio was very low in many other countries. In India, it was found that the family proportionately increased after the birth of third child. The pressure on mother increased by 40.50% in India whereas in Japan it was 33.9%, in the USA it was 14.33%, in UK 19.2%, in France 19.7% and in Germany it was only 12.3%. The sample survey revealed that death of children in the age group of

NOTES

NOTES

10 years was very high. In fact, 50% of the total children who died, belonged to the age group of 1-10 years. In UK this percentage was only 5.3%. In India children constitute 26.1% of the total population, whereas in the USA this percentage was only 19.6 and in UK 14.7. Then it was also found that death rate of woman of productive age group was always higher, as compared with men, in every section of our society.

In India with the use of sample survey method several surveys have been conducted. As early as in 1952 surveys were conducted by Institute of Politics and Economics, Poona and in 1970 Operational Research Group (ORG) conducted family planning survey. In 1953, United Nations jointly conducted a sample survey in the erstwhile Mysore state in which information was collected about birth and death rates, growth rate of the population and its social and economic characteristics, age of marriage, fertility of married couples, migrations, labour force, employment, etc. It made valuable contribution to our knowledge about sample surveys.

A survey of about 5,400 married women of Patna city was carried in 1955, in which fertility from two difficult aspects was studied. ORG family planning survey about which a mention has been made earlier covered the entire country except J&K, NEFA and offshore islands. The information was collected from currently married women in the reproductive age group. It covered such items as awareness about family planning programme and willingness to adopt that and space out children, use of family planning devices being made and their effects on the target couples.

National Sample Survey: During the last two decades the National Sample Survey Organization (NSSO) of India have been conducting quinquennial surveys on employment and unemployment primarily with a view to measuring extent of employment and unemployment in quantitative terms. The 75th round of the National Sample Survey Organization was conducted between July 2017 and June 2018.

NSSO has defined work of gainful activity as the activity pursued for pay, profit or family gain or other words the activity which adds value to the national product. Normally it is an activity which results in production of goods and services for exchange. It has defined work as any market activity and any non-market activity relating to agricultural sector. Both beggars and prostitutes, etc., are not considered as workers even though they may have some earnings.

NSSO has adopted three different approaches to measure employment and unemployment. These are approach with reference period of 365 days and each day preceding the date of survey.

A person's principal usual status is considered working or employed if he or she was engaged during the reference period of 365 days, in any one or more of the work activities. A person is considered as seeking or available for work or unemployed if he or she was not working but was either seeking or was available for a relatively longer time of specified reference period. A person is considered

not in labour force if he or she was engaged for a relatively longer period in any one of the non-gainful activities. A non-worker who pursued some gainful activity in a subsidiary capacity is referred to as subsidiary status worker. Principal status workers together with subsidiary status workers constitute all workers.

NOTES

3.4 REGISTRATION METHOD

It is third method for the collection of population data. The method of registration started during 19th century under which every death, birth and marriage is required to be registered. Ecclesiastical authorities used to register information about the person who converted themselves to their faith. They also kept information about the deaths of their followers. Though the information kept was quite crude, yet it proved very useful for the purpose of analysis of those days. Civil Registration was proposed in England as well as in 1836 and in Scotland in 1854. It was in 1874 that both in England as well as Wales non-registration of births was made a punitive offence, but registration of death was made compulsory only in 1926. But, in matters of registration of births and death England cannot be termed and characterized as leader. It was early as in 1848 that some sort of registration of births started in Sweden. For births some tables were prepared and information of births was kept about sex, marriage age, at death and marital status etc. These tables once maintained were annually reviewed. Some of the tables reviewed show that the information now kept and maintained. On the other hand, in the USA whole process about registration was very slow. In fact, national registration office in the country started only in 1946.

Usually under registration are covered such events as birth, death, marriage, divorce, separation, etc. For registration there is no specific time schedule and it is almost compulsory for all the family members that they should get the events registered as quickly as possible. Sometimes, therefore, such a data is called as registered statistics. Since the whole work continues throughout the year, as such shortage of enumerators, etc., is never felt. The registration has legal importance as well because with its help it is easy to find out information about citizenship, marital status of the persons, succession rights and settlement of disputes about death and birth etc.

Registration of Secondary Data Source: Sometimes demographers use secondary data for their work and registration is one such source. This data is available from three important sources namely, (a) Vital Registration (b) Population Register and (c) Government Records

3.4.1 Vital Registration

Vital registration is an important source for getting information about births etc. Census gives information only about the population of that time. But under registration system every important event about population is registered. In every country of the world today it is almost compulsory that every death, birth, marriage

NOTES

etc. should be registered. Such population figure makes it possible to compare data at given point of time. It is known as comparative static analysis. It is with the help of such analysis that information can also be collected about fertility and mortality. It is, however, not easy to expand registration system and collect information out of that. In fact, it takes decades to make the data obtained through registration as useful. Even upto 1933, in USA registration system did not become popular to the desired extent. In Asia, where a considerable population of the world lives, there is no popular system of registration. Even today in most of the Asian countries the people started doing registration about deaths and births very presently but, still they do not get marriages, separation and divorces registered which is no less a serious problem even now, for those who are:

Suggestions for Improvement: It is very important that vital registration system be improved and its shortcomings removed to the extent possible. Some of the suggestions which can be made in this regard may briefly be mentioned below:

1. It is essential that for the whole country there should be one uniform system of data collection. If necessary vital statistical act may be passed by which providing information to the government should be made compulsory.
2. House list should be prepared for the country as a whole, so that information can be collected on its basis when necessary.
3. There should be one single organization which should be made responsible for the collection of information about births and deaths, so that some uniformity can be maintained.
4. This important work should not be assigned to person who are expected to do it an addition to their normal duties and responsibilities. On the other hand, the work should be treated as a priority item and those who are expected to do it are made to realize its importance.
5. Annual sample survey of at least 11% population should be carried out, so that it is possible to know the trends of population annually, instead of waiting for that for the whole decade.
6. Information about death should be classified on the basis of causes of death. The information should point out if he/she death was on the basis of violence, injury, child birth, complicated pregnancy, diarrhoea, swellings, fever, infant death or due to any other important reasons.
7. Those who are engaged in field work should be given proper training so that they know how to collect reliable information.
8. The people should be properly educated so that they realize the importance of vital statistics and give correct information when field investigators approach them.
9. Every head of family should be given some certificate by which he can prove that the information about his family has been registered and he is

also in a position to get such benefits which accrue to him out of such a certificate.

Data Sources

Defects of the system: There are some serious defects in so far as working of vital registration system in India is concerned. First important defect or shortcoming is that for this work there are no whole time employees. The work is expected to be done by regular employees to do this work in addition to their normal duties and responsibilities and such they feel this work in additional burden on them. Therefore, instead of attending to it properly they just attend to it casually with the result that many discrepancies creep in and data becomes incorrect and undependable.

Another defect is that in many states there is no separate department to deal with population data. The result is that even when the figures pour in, the records are not properly maintained, and it takes a very long time before these are published. In fact, when these are available to the society, those have become quite outdated and nobody takes interest in these.

Those who do not get registered are not punished and as such the people, particularly in the rural areas, do not bother about getting registration formalities completed.

Still another difficulty is that the data collected are usually not correct. Registration work is done by those employees who are not directly responsible for this work. Similarly, those who supply information are many a time not directly linked with the person about whom information is being supplied. Thus, whatsoever, occurs to him at the spur of the moment he gets that recorded. Even after some time, if he comes to know that he/she information supplied by him/her was incorrect, he/she does not bother to get that corrected.

The scope of registration is even now very limited. Even today stress is laid on deaths and births and not on marriages, divorces and separation, etc. Therefore, whatsoever, information is collected that too has very limited scope and cannot be put to much use in the long run. Registration of vital events was the responsibility of religious authorities because at that time baptisms, weddings and burials were always within the jurisdictions of the Christian church. In 1608, the first systematic parish register was established in Sweden. But the records maintained so far were defective as these covered only particular religious groups and did not cover the whole population. Qualitatively also these records were defective.

The credit of introducing system of registration of deaths, births, marriages etc. under civil authorities independent of church goes to Incas of Peru. It was thereafter that the process of secularization of vital registration started. This trend received support when in 1804 Napolenic code was adopted in France. Under the code civil rights could be granted by the state and proof of one. Is claim to such right was dependent on official registration. This was an important landmark in the history of vital registration. It was later in the 19th century that vital registration system was introduced in Western Europe and South American countries.

NOTES

NOTES

The responsibility of such registration however was made that of the central government.

It may, however, be mentioned that till 1662 no use was officially made by the government of vital statistics. It was in that year that John Grant thought of using that. In his famous book entitled, 'Natural and Political Observation Made upon the Bill of Morality' that he made use of available information for studying mortality, fertility and migration. Dr. William Carr spent years of his active life for the development of national system of vital statistics and conducted several studies on health and mortality conditions. The system developed by him was followed by many countries of Europe. Today almost every country is collecting vital statistics. Providing information about deaths, births, etc. is now a legal obligation.

Individual and Registration of Vital Statistics: Registration of vital statistics is of considerable use to the individual. Certificate of registration issued by the authorities to the individual can be produced as an evidence even in courts of law and anywhere else and also for establishing one's identity in society and for getting rights of nationality and citizenship. It is significant record for providing the fact, the time and place of occurrence of event. The individual's date of birth as recorded on the birth certificate is the best proof of his age and for obtaining a passport. It is also a legal proof for establishing family relationship and for settling questions of inheritance and insurance claims. A death certificate is today required for the disposal of death bodies whereas a marriage certificate is very useful for establishing marital status of the person on the one hand and legitimacy of children born of the marriage on the other.

Nation and Registration of Vital Statistics: No only individual but nation as a whole is benefited by registration of vital statistics. It provides data on births, deaths, marriages and divorces which can be used for providing medical, education and other social services and also for estimation and population projections. In the population field many analytical studies can be undertaken. It also helps in evaluating the effectiveness of an on-going family planning programme and birth fertility differentials can be studied. On the basis of death certificate causes of death can be analysed and thus health conditions of a society can be analysed and assessed. The information can be useful in planning and evaluation of public health programmes. The data can also help in knowing social, economic and health conditions of the people of the country. Thus, vital statistics is important for the individual as well as the society. It is because of usefulness of system that many European and Asian countries have made it legal offence not to register vital events. It is quite defective, if viewed scientifically. To begin with Sanitary Commissioner of the Government used to collect information of this type. At that time main aim was to collect information and data about health conditions of the people. With the figures available steps were taken for checking diseases and famines. It was in 1873 that Bengal Birth and Death Registration Act was passed. After sometimes this Act was also extended to Bihar and Orissa. In 1880, Indian Famine Commission laid particular stress on the correctness of these figures. In 1886,

Death, Birth Registration Act was passed for the whole in India. But quite sometimes no special attention was paid to the implementation of this Act.

Data Sources

After independence, however for planning purposes, population figures became very important. It was very important to have upto date figures in order to have correct idea about manpower needs for development purposes and the responsibilities which growing population would fall on the government. For knowing exact population figures, the planners could not wait for ten long years and as such it was felt essential to have information at least annually about growth rate of population. Accordingly, Registrar General of India was held responsible for collecting death and birth figures on regular basis. Municipal Corporations, Committees, Notified Area Committees and Town Area Committees were authorized to arrange for the registration of deaths and births all over the country. In the villages this type of work is done by the village Panchayat. Usually the work involved is not so heavy therefore, whole time workers are not employed for the purpose.

NOTES

Historical Background of Vital Statistics: Registration of vital events or collection of vital statistics has its own background. As said earlier, in the past the registration of birth and death in most European countries was done by church and other religious bodies. In the middle ages the other keep population figures to meet such social responsibilities as unemployment, insurance scheme, employment statistics and the people to be provided employment, old age pension scheme, etc. Similarly, these figures are essentially needed for providing nation to the people, maintaining electoral lists, income-tax list, list of telephone subscribers, information about people who are associated with various social and other organizations, etc. While discussing significance and importance of administrative operations are limited, they provide an ideal sampling frame for carrying out special surveys. For example, it is very costly to find by routine interviewing of randomly selected households, representative samples of migrants, divorced person, members of particular ethnic or religious or couples with two children. The records kept for administrative purposes may provide a comparatively complete or representative set of homes and addresses, which can then be sampled for intensive interviewing.

3.4.2 Population Registers

It is another important secondary source of data collection. In many European countries maintenance of permanent population register. For certain administrative and legal reasons, is considered absolutely necessary. The figures, collected at the time of census are verified by it and gaps filled in where necessary. These also clarify population trends. This type of register is most perfectly maintained in Sweden. This register is prepared annually and on its basis itself matters regarding franchise, settlement and employment, etc., are settled. There is however, no such register in the USA. In countries like Israel, Belgium, Korea, etc., population registers are important source of information. In this system population registers are continuously maintained. In these, name of every person in the country is entered

NOTES

along with some migratory movements of persons. The aim is to establish indent of the individuals and exercise control over them. These help in knowing current information on such demographic problems as population size, vital events and internal migration.

Registration of population in India

Today, it has been accepted beyond all doubts all over the worlds including India that registration of birth and death is absolutely necessary and unavoidable. It is perhaps the reason that in many countries highly developed and efficient machinery is kept for the purpose. In India system of registration of deaths and births is very old, but still

Residence of bride/bridegroom

Age of the bride

Place of birth of Bride/Bridegroom

Occupation of Bridegroom

Obviously, accuracy of information very much depends on the accuracy of information which is supplied to the Registrar office. Usually the information given is correct because it is simple and of non-confidence nature. Moreover, it is a type of information what is known to every person in the family. Difficulty can however, arise only in cases where one person like chowkidar, etc., is required to supply information for the whole village and he does not realize its importance or significance. He, therefore, either omits some of the cases or reports cases with incomplete information. In advanced countries like USA, people compulsorily register themselves simply because registration certificates are needed for obtaining citizenship rights, employment and social securities, etc.

3.4.3 Government Records

Secondary data about population is also collected from other records. In some countries such bodies as Life Insurance Companies and Corporations keep records about population trends and birth and death rates. Similarly, almost all civilized countries of the world in one form or concerned with population studies.

Under the system of registration every person is required to fill up certain forms. Those are:

- Birth Certificate
- Name
- Father's name
- Age of mother
- Age of father
- Legitimacy

- Order of birth
- Occupation of husband
- Place of birth
- Place of residence
- No. of children already alive
- Whether male or female
- Name, if any
- Date of birth
- Name of the reporting person
- Death certificate
- Name of the deceased
- Sex
- Race/Caste
- Age of the deceased
- Place of death
- Occupation
- Marital status
- Place of death
- Permanent residence
- Place of birth
- Cause of death
- If foetal or still birth
- Place of residence
- Marriage Certificate
- Name of the bridegroom
- Name of the husband/wife
- Race of bride
- Race of bridegroom

NOTES

3.4.4 Sample Registration System in India

Sample Registration system in India was introduced in 1964. A.S.P. Jain in 'Demography: A status study in Population Research' has said that the scheme was to 'satisfy requirement for reliable estimates of state birth and death rates. It is a miniature registration system set in randomly selected villages and towns for continuously recording of events, through local information; and is supported by independent annual house to house surveys to detect omissions.'

NOTES

Though registration system in India is in vogue for quite some time now, yet the figures collected and data available is not very accurate. Though several committees have been set up for the purpose, yet it is quite clear that for bringing accuracy in data considerable time and energy will be needed. The data cannot be accurate unless and until public co-operation is available and the people are awakened and they realize the importance of vital statistics. Not only this but the whole department, as already pointed out, will have to be geared up.

One serious problem with which India is faced in the field of vital statics is, that in India masses are illiterate and about 80% of the whole population is spread in the villages. Not only this that the investigator will have to reach these far off villagers, but he will also have to establish a liaison with the villagers for the collection of Information. In India Sample Registration System (S.R.S.) has been started. Under this system few villages are selected and, in these population, events are continuously entered. From time to time sample surveys are also carried out. In this way dual record system is maintained. In the words B.P. Brahma, 'The dual record system is based on the idea that, which an adequate machinery for the recording the births and deaths as they occur in a sample of villages and towns, occupied with a periodic survey under proper supervision at all levels, it should be possible to obtain reliable estimates of vital rates at national and sub-nations levels. Thus, it combines the advantages of both continuous (longitudinal) enumeration and survey procedure.'

Under SRS, population events are entered by two methods namely by way of: (a) continuous enumeration and (b) retrospective survey. This survey is done by supervisor after every six months. It is believed that six months is such a short period that in it all population events are remembered. The information obtained from both the sources is compared. Where there are differences in the collection of information, original source is contacted, and data is corrected. That perhaps is the reason that it is believed that information collected under SRS system is almost accurate.

Problems Under SRTS System: It is hoped that data collected under SRS system will be accurate. In case this accuracy is to be maintained for that special care will have to be taken, because there are many inherent problems in the whole process. Some such problems are:

1. In India there is pardah system among Muslim women and usually it is difficult to collect information from them.
2. In many families all its members go out for earnings, sometimes even after few visits it is not possible to contact them. Usually there is temptation to omit such houses, which makes the whole data inaccurate.
3. Some families do not deliberately give correct information because they feel that they will be brought under some family planning programme or might be for the verification of their ration cards or due to some other government programme.

4. Usually the parents do not give information about the babies which are born dead or about illegitimate children or about abortion because they feel that divulging such information will socially downgrade them.
5. In some cases, dead bodies of the new born children are buried in the courtyard of the house itself. Usually the parents feel reluctant to give information about them because that sentimentally injures them and there is also a fear that they may be punished for burying children in house courtyard.
6. Sometimes those engaged in the collection of information, do not clearly understand exact nature of information required to be collected and thus they go either beyond their scope or much narrow that down. In some other cases their behaviour is so rude that those who are otherwise willing to give information, refuse it.
7. Knowingly or unknowingly sometimes surveyors and supervisors leave some houses and in many other cases count them twice which results in many problems. This becomes very serious when mistake is being intentionally made.

Some of the difficulties can, however, be overcome in case the surveyor or supervisor belongs to area about which information is being collected. It will still be better, if both are socially well connected and have good relations with the people of the area. The hope arises because such people are quite familiar with the people and customs of the locality and can also recollect certain happenings as well.

Check Your Progress

3. Which type of errors are found in sampling method for population data?
4. When was the Registrar Central of India appointed and why?
5. Mention the two methods by which population events are entered under SRS.

NOTES

3.5 OTHER SYSTEMS OF DATA SOURCES

In this section, we will discuss the other systems of data sources:

3.5.1 National Sample Survey

In India National Sample Survey (NSS) is a permanent organization, which came into existence in 1950. The aim of this organization is to collect comprehensive information about socio-economic and agricultural statistics for the whole of India. Since its inception it has conducted several rounds of surveys and brought very useful publications as a result of each survey. Topics covered under survey include capital formation, indebtedness, employment and unemployment position, consumer

NOTES

expenditure, etc. It also collects information about labour force, mortality, fertility, family planning urbanization, migration, etc. Since data is collected from primary sources, therefore, it is of immense use for researchers, policy makers and administrators.

3.5.2 Double Report System

It is another source of data collection. In many developing countries birth and death dates are quite incomplete and inaccurate. In order to have accurate data, the system of dual report has been introduced, which is being considered quite useful for demographic purpose. In this system each birth and death event is enumerated by two independent procedures; one is that of registration and the other is that of sample survey. In it each sample area is created, and a continuous record is kept of the events of births and deaths as these occur, along with any other event. The information is collected through periodic retrospective surveys and through continuous current registration. By matching the two efforts are made to find out number of events missed, and it then becomes possible to arrive at an accurate estimate of total birth and death rates in the sample.

3.5.3 International Resources

One of the important data source about population is publications brought out by UNO and other international organizations which contain very useful information about countries spread over different parts of the world. One such publication is demographic year book which is annually published by UNO. It contains information about population, size area, density, population growth, population characteristics, birth and death rates, number of marriages etc. Another important publication is statistic year book which contains information about various countries of the world on such topics as health facilities available, food production, energy consumption, availability of labour force and educational facilities, etc. In addition, World Health Organization brings out a monthly publication entitled 'Epidemiological and Vital Records' which contains information about many countries of the world on public health and mortality.

3.5.4 Adhoc Surveys

An adhoc survey is a survey without any plan for repetition.

Ad-hoc is a Latin phrase meaning Literally "for their". In English, it generally signifies a solution designed for a specific problem or takes- non-generalizable, and not intended to be able to be adapted to other purposes.

Adhoc can also be an adjective describing the temporary, provisional, or improvised methods to deal with a particular problem, the tendency of which has given rise to the Adhocism. It also could mean shifting contexts to create new meanings or inadequate planning.

Adhoc Research Surveys are used to address specific marketing issues or areas of enquiries by collecting data at one point in time from one sample. Adhoc

Research Surveys are a one-off, deployed on as-and-when basis to address a particular research need. Where responses and attitudes require tracking over an extended period, continuous research surveys are more apt.

Ad-hoc survey is a developed survey for the target audience with no previous contact by the examiner.

NOTES

3.5.5 Standard Fertility Survey

The procedures demographics have invented for estimating basic demographic measures from incomplete or inaccurate data from a long list. Included are numerous techniques that solely utilize information obtained from a single census or survey (United Nation 1967; carrier and Hobcraft 1971; Brass and Coale 1968). Estimates from a single census or survey is best accomplished, of course, when errors of coverage are small and when the reporting of characteristics, especially age, is highly accurate. An outstanding example of estimation from high determinations of a sequence of 10 or more annual age specific fertility schedules by single years of age from tabulation of own children by age of child and age of mother in the recent censuses of the Republic of Korea (Cho 1971). However, in many less developed countries the reporting of age is characterized by gross misstatements. Unless estimation is insensitive to such misstatements the true value of the required basic measures remains highly uncertain. Methods for estimating standard measures of mortality, in the early years of life, devised by Brass and modified by Sullivan and Trussell (Brass and Coale 1968; Sullivan 1972; Trussell 1975), are widely used and, from a mounting body of evidence, appear to be estimates of about the correct magnitude. These estimates are derived from the proportion of children dead among those ever born reported by women in different age intervals. They remain approximately valid even in populations in which the misreporting of age is severe. On the other hand, the usual procedures for estimating fertility from a single census are much more vulnerable to inaccuracy in the reporting of age. One widely used approach infers the recent birth rate of the population from the Brass estimate of the population dying before, the second birthday and the cumulative proportion of the population below certain ages such as 5, 10, 15 or 20 (United Nations 1967, pp. 76–77).

3.5.6 National Family Health Survey

The National Family Health Survey (NFHS) is a large scale, multi round survey conducted in a representative sample of households throughout India. Three rounds of the survey have been conducted since the first survey in 1992-93. The survey provides state and national information for India on fertility, infant and child mortality, the practice of family planning, maternal and child health, reproductive health, nutrition, anaemia, utilization and quality of health and family planning services. Each successive round of the NFHS has had two specific goals: (a) To provide essential data on health and family welfare needed by the Ministry of Health and Family Welfare and other agencies for policy and programme purposes, and (b) to

NOTES

provide information on important emerging health and family welfare issues. The Ministry of Health and family welfare (MOHFW), Government of India, designated the International Institute for Population Sciences (IIPS), Mumbai, as the nodal agency, responsible for providing coordination and technical guidance for the survey, IIPS collaborated with a number of field organizations (FO) for survey implementation. Each FO was responsible for conducting survey activities in one or more states covered by the NFHS.

The National Family Health Survey (NFHS) have played a crucial role in providing the Government of India with reliable evidence on the success of its flagship programmes as envisioned in National Health Survey policy that aims to improve the reproductive and child health and the health care delivery system in the country:

NFHS administered three types of questionnaire:

- The Household questionnaire
- The women's questionnaire
- The Village questionnaire

The village questionnaire was administered only in the rural areas. For each state and at national level three data files are associated with these questionnaires. Data files are available with information of children born during the three years preceding the survey (last two children) along with mother's basic characteristics. Data files are available in user friendly formats for SPSS, SAS and STATA users. All the data files for 24 states and the National Capital Territory of Delhi as well as the National data set of NFHS -1 have been published.

The first National Family Survey (NFHS-1) was conducted in 1992-93. The survey collected extensive information on population, health and nutrition with an emphasis on women and young children. Eighteen population Research Centres (PRCs); located in universities and institutes of national repute, assisted IIPS in all stages of conductivity NFHS-1. All the State-level and national-level and national-level reports-for the survey have been published. (48 Reports in all).

The second National Family Health Survey (NFHS-2) was conducted in 1998-99 in all 26 states of India with added features on the quality of health and family planning services, domestic violence, reproductive health, anaemia, the nutrition of the women and the status of women.

The third National Family Health Survey (NFHS-3) was carried out in 2005-2006. Eighteen Research Organizations including five Population Research Centres carried out the survey in 29 states of India. The funding for NFHS-3 was provided by USAID, DFID, the Bill and Melinda Gates Foundation, UNICEF, UNFPA and MOHFW GOI, ORC Macro, USA, is providing technical assistance for NFHS-3 and the National AIDS control organization (NACO) and the National AIDS Research Institute (NAR) are providing technical assistance for the HIV component.

The fourth round of the National Family Health Survey (NFHS-4) conducted during 2015-16, provides crucial information on reproductive and child health including socio-economic characteristics of the usual members of household and visitors, fertility, family planning, water and sanitation, health insurance, deaths in the past three years preceding the survey, nutrition, Life style, HIV/AIDS, Violence against women (VAW), certain non-communicable diseases (NCD) and many other relevant areas were covered. The report of the NFHS-4 was prepared by the International Institute for Population Sciences (IIPS), Mumbai would further strengthen the country's demographic and health database, and the information will serve as a benchmark for the Government's initiatives in its commitment to achieve the Sustainable Development Goals (SDG) by 2030.

Over the years, the NFHS has expanded its scope and coverage to fill the gap in the data required by the Government, NGOs, and Researches in the field of population and health. For the first time, in NFHS-4, all 640 districts in the country were covered by adopting a modular approaches to arrive at estimates of crucial indicators at the district and state levels. This will act as a useful trigger to prioritise action to address key health can challenges facing the districts and the states. After rigorous sounds of mapping and listing of all households in the selected first stage units in each state and union territory, information was collected from each selected household and from women age 15-49 and men age 15-54 in each selected household, including biomarkers for all eligible persons (including children age 6-59 months) through the use of computer-assisted personal interviewing (CAPI).

The success of such a large scale survey of national importance (NFHS-4) has been due to the diligent efforts of all in the Ministry of Health and Family Welfare, IIPS, NACO, NARI, the chairman and members of the Technical and Administrative Committees, partners from USAID, DFID, the Bill and Melinda Gates Founation, UNICEF, UNFPA, the MacArthur Foundation and ICF.

NOTES

3.6 POPULATION STATISTICS

In this section, we will discuss the present status of population statistics and its importance.

Present Position of Population Statistics: It has already been said that due to various reasons population data as collected in India, is incomplete and full of many defects. Some of the important reasons due to which these defects have crept in or usually creep in have too been discussed. This problem of defective population data is not peculiar to India alone but to a varying degree it persists in almost every country of the world. There are various reasons for this. One finds that population figures are not available for the whole world even now. Even information collected by UNO is usually outdated, when made available to the world. Then there is no uniformity because while collecting information in every country whole country is divided in many parts, each having its own problems and

NOTES

peculiarities, some being conscious of the problems, while others not. Similarly, in some parts people belonging to one community or tribe live, while there are other tribes or communities which live in other parts and thus not to speak of international comparison, it becomes difficult to have comparable figures even at national levels.

Importance of Population Statistics

In spite of the fact that in collecting population data one is encountered with many difficulties and scarce national resources are required to be diverted for collecting information a very pertinent question, therefore arises as to why at all should population statistics be collected and what is their social importance. Every society today feels need and necessity of collecting population statistics and that is one reason why more and more stress is being laid on it. Some of the important benefits or advantages of population statistics may be discussed as under:

- **Social Benefit:** It is with the help of population statistics that in a country like India, it is possible to know about trends in child marriage, Sati, widow remarriage and social evils and improvements towards which our society is heading.

These statistics help in finding out child mortality rate and causes of deaths of the male and female e.g., due to family disputes, frustration in love, etc.

Linguistics behaviour of the people and progress which each language is making in a particular community can be found out with the help of this statistics.

These statistics help in providing social amenities and facilities to the society e.g., by knowing needs and requirements of additional school, hospitals, colleges, cinema houses, sanitary facilities etc.

- **Economic Benefits:** These help in knowing regional imbalances and draw the attention of the government towards need and necessity of their removal.

With their help it becomes possible to find out progress which a nation is making towards industrialization and mechanization.

Population statistics help in finding out the living standard of the people and also whether the wealth is being diversified or getting concentrated in the hand of only few persons.

By finding out whether the population is increasing or decreasing it becomes possible to find out consumption needs of the people at home and the possibility of increase or decrease in export commodities and also in identifying new export commodities.

It helps the authorities in formulating new labour policies on the one hand and employment policies on the other.

Population statistics go a long way in knowing food needs of the nation and thus help in avoiding starvation.

Density of population of different regions in a country and different countries of the world is known with the help of population statistics.

- **Political Benefits:** With the help of population statistics it becomes possible to know the number of voters and then to make arrangements for getting papers printed, polling booths set up, etc.

In India the total number of seats in the Lok Sabha and State Legislative Assemblies are linked with increase or decrease in population. Thus, such statistics help in deciding number of seat in these and other bodies. Where seats are to be reserved in elected bodies on the basis of scheduled caste and scheduled tribe population, it becomes possible only to reserve seats when correct population figures are available. Constituencies are delimited only on the basis of available population statistics.

- **Other advantages:** In fact, today there is no walk of life in which figures are not needed and are not being extensively utilized. The statistics and figures are needed for opening of schools and colleges, employment centres and introduction of new trades in technical and non-technical institutions and also in striking a balance between growing population and food needs. Not only this, but population figures are needed by sociologists, economists, traders and trading institutions and organization. The economists, with the help of population figures, try to analyse and solve economic problems. Who can deny that in a developing country like India most of the problems are economic in nature and are created due to shortages. Some of the problems can, however, be solved in case population figures are available. In the economic field there is considerably close link between population and prices of commodities, population and local consumption and exports. Even insurance companies decide about their business on the basis of death and birth figures on the one hand and the rate at which people die on the other. In fact, one can say that no sound institutions and organization can plan its future on scientific lines unless it has population figures available with it. The figures are needed not only by the politicians and economists but also by welfare organization as well. While discussing the significance of statistical figures and data, UNO in one of its reports has rather very significantly said, 'The developments of statistics are causing history to be written. Now statistical inquiry and all other places where human nature displays his weakness and strength. In these explorations he discovers the seeds of national growth and decay and thus becomes the prophet of his generation.'

One important advantage of collection of population figures is that these helps us in knowing how far existing population programmes are providing effective and what type of changes are needed in these. Accordingly, these help in introducing policy changes.

NOTES

NOTES**Check Your Progress**

6. What is double report system?
7. Why are adhoc research surveys taken?
8. Mention the two specific goals of each successive round of NFHS.

3.7 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Some of the preliminary steps that are always taken before census operation are actually carried out include identification of area, collection of information of house etc. in the area, the form in which information is to be collected, to make arrangements for getting the forms filled in and to collect and analyse the data. The questions to be asked are pretested on a sample population and if necessary these are modified as well. The process is called pre-testing of questions.
2. Under the de-jure census system, every person in an area is personally counted and information obtained from him.
3. Usually there are coverage, classification and sampling errors, in sampling method for population data.
4. In 1949, Registrar Central of India was appointed who was made responsible for collecting information about deaths and birth in the country and also he was required to bring national population register up-to-date.
5. Under SRS, population events are entered by two methods namely by way of: (a) continuous enumeration and (b) retrospective survey.
6. In the double report system, each birth and death event is enumerated by two independent procedures; one is that of registration and the other is that of sample survey. In it each sample area is created, and a continuous record is kept of the events of births and deaths as these occur, along with any other event. The information is collected through periodic retrospective surveys and through continuous current registration. By matching the two efforts are made to find out number of events missed, and it then becomes possible to arrive at an accurate estimate of total birth and death rates in the sample.
7. Adhoc research surveys are used to address specific marketing issues or areas of enquiries by collecting data at one point in time from one sample.
8. Each successive round of the NFHS has had two specific goals: (a) To provide essential data on health and family welfare needed by the Ministry of Health and Family Welfare and other agencies for policy and programme

purposes, and (b) to provide information on important emerging health and family welfare issues.

Data Sources

3.8 SUMMARY

NOTES

- In population studies, a demographer is expected to collect figures which are of great interest to policy formulators. But it is not easy to collect data, for which different methods are used these days. The figures must be related to some aspect. In demography a figure is known as universe. Broadly speaking, the figures about a universe can be collected by three methods, namely census method, sample method and registration method.
- A census of population may be defined, 'As the total process of collecting, compiling and publishing demographic, economic and social data pertaining, at a specified time or times, to all persons in a country or delimited territory.
- Sometimes by mistake, census and registration are confused with each other and figures collected by way of registration are treated as population figures. But this mistake can be avoided. During census direct contacts are established, whereas in registration only names are registered and as such no direct contacts are established.
- Sampling method is one of the important methods for the collection of population data. Census operations at national level being costly affair are conducted once in a decade, but in between many happenings necessitate collection of information on different aspects of population. In some areas it is not possible to have counting at the time of census, whereas in many other cases it may be found that collection of data was erroneous. In order to deal with these problems and overcome difficulties sample surveys are organized.
- In India population surveys are comparatively new. In 1949, Registrar central of India was appointed who was made responsible for collecting information about deaths and birth in the country and also he was required to bring national population register up-to-date. He was also made responsible to complete data gaps and to verify authenticity of already available data. Accordingly, system of collecting inter-census period information started and with that National Sample Surveys began to be conducted.
- Usually under registration are covered such events as birth, death, marriage, divorce, separation, etc. For registration there is no specific time schedule and it is almost compulsory for all the family members that they should get the events registered as quickly as possible.
- Sometimes demographers use secondary data for their work and registration is one such source. This data is available from three important sources namely, (a) Vital Registration (b) Population Register and (c) Government Records

NOTES

- Sample Registration system in India was introduced in 1964. A.S.P. Jain in 'Demography: A status study in Population Research' has said that the scheme was to 'satisfy requirement for reliable estimates of state birth and death rates. It is a miniature registration system set in randomly selected villages and towns for continuously recording of events, through local information; and is supported by independent annual house to house surveys to detect omissions.'
- Under SRS, population events are entered by two methods namely by way of: (a) continuous enumeration and (b) retrospective survey. This survey is done by supervisor after every six months.
- In India National Sample Survey (NSS) is a permanent organization, which came into existence in 1950. The aim of this organization is to collect comprehensive information about socio-economic and agricultural statistics for the whole of India.
- In this double reporting system, each birth and death event is enumerated by two independent procedures; one is that of registration and the other is that of sample survey. In it each sample area is created, and a continuous record is kept of the events of births and deaths as these occur, along with any other event. The information is collected through periodic retrospective surveys and through continuous current registration. By matching the two efforts are made to find out number of events missed, and it then becomes possible to arrive at an accurate estimate of total birth and death rates in the sample.
- One of the important data source about population is publications brought out by UNO and other international organizations which contain very useful information about countries spread over different parts of the world.
- Adhoc Research Surveys are used to address specific marketing issues or areas of enquiries by collecting data at one point in time from one sample. Adhoc Research Surveys are a one-off, deployed on as-and-when basis to address a particular research need. Where responses and attitudes require tracking over an extended period, continuous research surveys are more apt.
- The National Family Health Survey (NFHS) is a large scale, multi round survey conducted in a representative sample of households throughout India. Three rounds of the survey have been conducted since the first survey in 1992-93. The survey provides state and national information for India on fertility, infant and child mortality, the practice of family planning, maternal and child health, reproductive health, nutrition, anaemia, utilization and quality of health and family planning services.

3.9 KEY WORDS

- **Census:** It is the collection of information about birth, death, occupational, social and economic conditions of the people of the country at a given point of time.
- **Quinquennial Surveys:** This refers to surveys which are carried out every five years.
- **Registration Method:** It is a method of population data collection which covers such events as birth, death, marriage, divorce, separation, etc. For registration there is no specific time schedule and it is almost compulsory for all the family members that they should get the events registered as quickly as possible.
- **Population Registers:** In this system, registers are continuously maintained. In these, name of every person in the country is entered along with some migratory movements of persons. The aim is to establish indent of the individuals and exercise control over them.
- **Adhoc Research Surveys:** These are used to address specific marketing issues or areas of enquiries by collecting data at one point in time from one sample.

NOTES

3.10 SELF-ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Why has census become a very popular method of collecting information?
2. Differentiate the census and registration system of collecting population data.
3. What are the advantages of sampling survey?
4. Write a short note on population registers.
5. Briefly explain the standard fertility survey method.

Long-Answer Questions

1. Describe the significant features of census.
2. Discuss the problems connected with census.
3. Explain the different census techniques.
4. Critically analyse the vital registration method of collection of population data.

5. Discuss the sample registration system in India.
6. Write an essay on the National Family Health Survey.
7. Examine the importance of population statistics.

NOTES

3.11 FURTHER READINGS

- Bhende, Asha A. and Tara Kanitkar. 1994. *Principles of Population Studies, Sixth Edition*. Mumbai: Himalaya Publishing House.
- Heer, David M. 1987. *Society and Population, Second Edition*. Delhi: Prentice-Hall India.
- Raj, Hans. 1984. *Fundamentals of Demography (Population Studies with Special Reference to India), Third Edition*. Delhi: Surjeet Publications.
- Kumarasena, Harsha. 2004. *Population Education*. Delhi: Dominant Publishers and Distributors.

BLOCK - II
POPULATION THEORIES AND SOCIAL THEORY
OF POPULATION CHANGE

*Population Theories-I:
History and Mercantilist*

NOTES

**UNIT 4 POPULATION THEORIES-I:
HISTORY AND
MERCANTILIST**

Structure

- 4.0 Introduction
- 4.1 Objectives
- 4.2 History and Development of Population Theories
- 4.3 Mercantilist and Related Theories
- 4.4 Answers to Check Your Progress Questions
- 4.5 Summary
- 4.6 Key Words
- 4.7 Self Assessment Questions and Exercises
- 4.8 Further Readings

4.0 INTRODUCTION

It is very difficult to specifically mention and pin-point when demographic studies began in the world. From all accounts it, however, becomes clear that these studies are as old as human society itself. Traditionally, all over the world there has been a tendency to keep on account of human population. It can safely be said that demography started when human beings joined civil society. As the time passed, every nation realized the need and necessity of maintaining proper records of human population for smooth running of administration and for solving many social as well as economic problems. In this unit, we will trace the history and development of population theories and discuss one important theory of mercantilist. The other theories will be discussed in subsequent chapters.

4.1 OBJECTIVES

After going through this unit, you will be able to:

- Discuss the history and development of population theories
- Describe the different theories on population
- Explain Mercantile and related theories of population

4.2 HISTORY AND DEVELOPMENT OF POPULATION THEORIES

NOTES

It appears that population records were maintained during the times when Egyptian, Chinese, Greek, and ancient Indian civilizations flourished in the world. It also appears that population was counted in Jeddah in 2030 B.C. Greek historian Herodotus makes us believe that in about 400 B.C. Zerxes had the counting of his soldiers before invading Greece. From the records it also appears that among Romans counting of their population for the first time was done in 435 B.C. and thereafter in 470 years, population was counted as many as 69 times.

In so far as ancient India is concerned, from our religious books it appears that population was counted during Ramayana and Mahabharata times as well. We come across frequent references about population counting particularly those who laid their lives during Mahabharata was. Similarly, we also find references about population counting in *Arthasastra* of Kautilya and in later texts as *Ain-i-Akbari*.

Coming to recent times we find that Henry VIII of England got the records of the number of people who were the victims of plague of 1535. He also got weekly, wills of mortality prepared in which information was provided about those who died during the course of the week. For this purpose, even a press was set up in London. But it may be clearly understood that during that period population counting was not considered as end in itself, but was only means to an end; end being either to know the strength of the armed forces or making an estimate of available man power for invading the enemy, etc. etc. Another important reason and consideration which weighed with them was that they wanted to know how many more persons had been ordered to pay revenue. Even some religions maintained an account of deaths and births of their followers and those who performed marriages according to their religious traditions.

In the development of demographic studies, since the very initial stages, attention of the society and demographers has been drawn towards population theories. Even Confucius and Chinese thinkers at the very initial stages of development, realized that population explosion could dislocate economic system of a nation. The old writers and thinkers, however, could not clarify how death or birth rates influenced and disturbed economic system. Both Plato and Aristotle believed that a state should have only such population as was essential for economic self-sufficiency and national defence. If less population made a nation dependent on other, then more population was likely to become a burden on society. 17th and 18th century economists also paid attention to this problem. According to them, increase in population as such was not bad. According to them increased population was bound to result in increased wages and labour and also in increased production. But Queney believed that instead of increase

in population there should be increased population. In our own times Smith linked wages with population.

Greek thought on population. Historically both Plato and Aristotle believed that limited population was essential for happy life of a society. Low population will make the society poor. According to them the laws of succession and inheritance should be such that in that there were no sharp variances either in family or properly structure. If someone had no child, he should be permitted to adopt someone as his child. Both of them believed that in order to check abnormal population growth it was idea of communism of wages as a means for checking population. He also did not favour the idea of using artificial means and method for checking population growth.

Population Philosophy during Middle ages. As regards population ideas of the people of middle ages Europe, the whole period can be divided into two parts; namely the period from 400-1200 A.D. and 1200-1500 AD. But on the whole population control philosophy was not favoured. Christian thinkers, during this period took a moral view of the population problem. On the one hand they opposed divorce, killing of children, abortion etc., whereas on the other hand they laid stress on controlling of passions and leading a bachelor's life. These people believed that nature and natural calamities could reduce population to a considerable extent and as such they pleaded that in order to save population and to keep that at a particular level, birth rate should always be high. During this period the muslims and the Mercantilists believed that there should be growth in population because manpower will be available to produce more and more and demands for finished goods for consumption will go up. They wanted to have more births, no matter what the living standard of the people was. According to these people, population could be controlled by the spread of diseases, abortions, late marriages etc.

Many thinkers believed that birth and death rates were predestined and that nothing could be done to check these. Many also believed that growth of population should not be checked because people were real strength of a country. In the words of Samuel Forrey 'People and plenty are commonly the begetters. The one of the other, if rightly ordered.' Prof. Child pleaded that increasing population alone could make the people happy and prosperous.

In France, M. Dela Riviere L. said, 'The social order is not the work of man but is on the contrary instituted by the author of all nature himself as all the branches of physical order.' Similarly, Dr. Quesnay also said that, 'Nature order is merely the physical constitution which God himself has given to the universe'. They believed that whatever nature has made for man is essential and that the men should practice celibacy. They also laid stress on the establishment of new colonies. They have also said that in order to increase population, the people should be given suitable rewards as well; if growth rate was very low, so that population growth continued.

NOTES

NOTES

Both of them believed that there was direct relationship between population and poverty. Plato also believed that population equilibriums were necessary for maintaining social equilibrium. Other Greek thinkers who discussed population problems included Herodotus, Thucydides and Xenophon. The last mentioned one who is believed to have lived between 440-335 B.C. believed that for division of labour it was essential that there should be more population. He wanted that all restrictions on immigration and emigration should be removed.

Many thinkers in the past believed that in case poverty was to be removed, it was essential that the state should take steps for increasing income of people. One of the methods which state could follow was that all restrictions on the coming of the foreigners in the country should be removed. They should be provided all facilities so that international trade could increase. This will result in increased profit, trade and peace between the two countries. Obviously, it is in peace that income can increase and not in a war situation in any way.

Roman thinkers on population. Romans did not favour city states and instead they believed in the idea of having big states and empires. On the whole they did not bother about the growth of population and roman economists did not spend much time on this problem as well. In the words of Prof. Haney, 'Athenians were thinkers keen and analytical. The Romans were men of action, warriors and statesmen. The former left a philosophy which influenced that ethics and economics of later thinkers, the latter built institution which as profoundly affected law and politics.' They on the whole wanted to have more population because then alone the state could have soldiers to fight and help in the expansion of empire. Cicero, an important Roman thinker bitterly opposed that is complete and perfect. They however, also believed that, 'As it is in the physical order that men thus united in society multiply promptly, by natural and necessary parallel to the multiplication they are reduced to lack of means of subsistence if they do not at the same time, multiply those means of cultivation.' According to them any attempt to check population was only a hindrance on the way of will of God and as such population growth was in the interest of society as a whole. There were some thinkers, however, who believed that if population growth gave strength to the nation then such a growth also created many problems for the country as a whole. On the whole, however, in the past population growth was not condemned in any society as that did not create any problem.

The Mercantilists: Somewhere during 16th century mercantilists came to the front and continued to preach their philosophy for about two centuries. These people were primarily in favour of increased population.

B.Colbert, Charles Devant and John Locke were among many who can be mentioned in this regard. According to them real happiness came with trade, because then alone people could earn wealth. Increase in population can help in the development of trade and industry. More the number of people in a state, more shall it be possible for it to have increased trade and industry. Since more man

power will be available therefore, people will be available on less wages and there will be more profits and production. Both the society and individual shall have more income. Many believed that if there was more population then nature automatically checked that and as such there was no need to use artificial means and methods for checking population. More population was also favoured because that was essential for the defence of country that is to say that the nation could have any number of soldiers, if need be.

The Physiocrats: These scholars mostly belonged to France. Among others mention may be made of the names of F. Quesnay, Robert Turgot, Marquis Reviere, etc., by and large. They did not believe that population growth in any way should be checked. They were of the view that population of a state was always a source of strength as well as cause of misery and thus a double-edged sword. But still they did not favour the unnatural means for checking population growth. Malthus formulation on population was a landmark in the history of population theories. He generalizes the relationship between population factors and population growth.

Malthusian Theory

Malthus was undoubtedly important in the history of political, economic and welfare theory and was at the same time a crucial and acknowledged influence in the evolutionary debate, carrying the history of socio-economic theory with a deeper analysis of Darwin's development of evolutionary theory.

Malthusian law that population when left unchecked, increases geometrically (while at most the food supply can increase arithmetically) can be seen as a natural law about man. Indeed, it was evolutionism which brought the distinction between mind and body into question: if man is considered a person for social purposes, he remains an organism from a biological point of view. Looking back once again, one sees Malthus as the source of the view of nature which led to Social Darwinism—The social struggle for existence, the survival of the fittest.

The significance of this view for the history of Evolutionary Theory (is the process by which organisms change over time as a result of changes in heritable physical or behavioral traits as proposed by Darwin) is that it so affronted Malthus's sense of reality that it occasioned his essay. Even though Malthus softened his doctrine in later editions, it altered the image of nature from benign harmony to an inexorable imbalance between nature's supply of sustenance and man's need for both food and sex and became the hallmark for the way he envisioned the Social Theory to be acting as an important catalyst for the development of Evolutionary Theory. To Malthus, Godwin had gone too far in removing man from nature.

Human life would be prolonged indefinitely; both the physical and mental constitution of man would undergo limitless improvement; slavery and war would

NOTES

NOTES

cease; and the acquired perfections of an individual would naturally be transmitted to the next generation by inheritance, the basis of this all were the improvement in domesticated animals, lending this credence hope. Condorcet posited that the population might exceed the means of subsistence, but this day was far away and posed no threat to the indefinite perfectibility of the human race; by which time there would be some technological way to overcome the said problems.

Malthus observes in the additions made to the essay in 1817, that ‘It is probable, that having found the bow bent too much one way, I was induced to bend it too much the other, in order to make it straight....But I shall always be quite ready to blot out any part of the work which is considered by a competent Tribunal as having a tendency to prevent the bow from becoming finally straight, and to impede the progress of truth...’ and in so doing, rejected this view as well. Malthus concentrates first on the impediments to progress, and thus that the perspective on man’s place in nature was radically changed.

This shows how Robert Wallace, Godwin, Condorcet and even Paley, among many others, had acknowledge some version of potential disproportion between population and food supply: yet, the paradigm within which they viewed it prevented them from taking it seriously, and as a genuine prospect for mankind. The problem was absorbed in the general area of optimism, and lingering doubts were put to sleep with the promise of progress overcoming the obstacle should it arise.

Now that we have studied about the history of population theories, in the next section, we will concentrate on the Mercantilist theories.

Check Your Progress

1. Name some of the Indian texts in which there are references of population counting.
2. Who are some of the popular mercantilist thinkers?
3. What was the change in the image of nature as observed from Malthus’s law on population?

4.3 MERCANTILIST AND RELATED THEORIES

Mercantilism was the theory of trade espoused by the major European power from roughly 1500 to 1800. It advocated that a nation should export more than it imported and accumulate bullion to make up the difference. The exportation of finished goods was favoured over extractive industries like farming.

Mercantile was a reaction against the economic problems of earlier times when states were too weak to guide their economies and when every town or principality levied its own tariffs on goods passing through its borders.

The modern age brought the rise of powerful nation states (Holland, France, Spain and England) and was marked by almost constant warfare. Money (bullion) was needed to support ever-expanding armies and navies. Mercantilist concept developed from this need.

Underlying their theory was the belief that wealth was finite. If one nation hoped to grow richer, it had to do so at the expense of some other nation.

The development of colonies became very attractive during this era. Wealth could be kept by a nation if its colonies provided raw materials to the mother country and the mother country could sell finished goods to the colonies.

In England, the application of mercantilist theory led to the development of a skilled labour force at home and the creation of a large navy and merchant marine. However, mercantilism also led to inflation and alienation in the colonies.

The theory of mercantilism was put into practice in the English colonies through the Navigation Acts. The Navigation Acts were efforts to put the theory of mercantilism into actual practices.

Mercantilists viewed the economic system as a zero-sum game, in which any gain by one party required a loss by another. Thus, any system of policies that benefited one group would be a definition among the other, and there was no possibility of economics being used to maximize the commonwealth or common good. Mercantilist writings were also generally created to rationalize particular practices rather than as investigations into the best policies.

Mercantilist domestic policy was more fragmented into its trade policy. While Adam Smith portrayed Mercantilism as supportive of strict controls over the economy, many mercantilists disagreed. The early modern era was one of letters patent and government imposed monopolies; some mercantilists supported these, but others acknowledged the corruption and insufficiency of such systems. Many mercantilists also realized that the inevitable results of quotas and price ceilings were black markets. One notion that mercantilists widely agreed upon was the need for economic operation of the working population. Labourers and farmers were to live at the 'margins of subsistence'. The goal was to maximize production, with no concern for consumption. Extra money, free time and education for the lower classes were seen to inevitably lead to vice and laziness and would result in harm to the economy.

The mercantilists saw a large population as a form of wealth that made possible the development of bigger markets and armies. Opposite of mercantilism was the doctrine of physiocracy, which predicted that mankind would outgrow its resources. The idea of Mercantilism was to protect the markets as well as maintain agriculture and those who were dependent upon it.

The Austrian lawyer and scholar Philipp Wilhelm von Horwicz, one of the pioneers of Cameralism, detailed a nine-point program of what he deemed effective national economy in his *Austria Over All, If She Only Will* of 1684 which comprehensively sums up the tenets of mercantilism':

NOTES

NOTES

- That every little bit of a country's soil be utilized for agriculture, mining or manufacturing.
- That all new materials found in a country be used in domestic manufacture, since finished goods have a higher value than raw material.
- That a large, working population be encouraged.
- That all exports of gold and silver be prohibited, all domestic money be kept in circulation.
- That all imports of foreign goods be discouraged as much as possible.
- That where certain imports are indispensable they be obtained at first hand, in exchange for other materials that can be finished.
- That opportunities be constantly sought for selling a country's surplus manufactures to foreigners, so far as necessary, for gold and silver.
- That no importation be allowed if such goods are sufficiently and suitably supplied at home.

Mercantilism was a system of statism which employed economic fallacy to build up a structure of imperial state power, as well as special subsidy and monopolistic privilege to individuals or groups favoured by the state. Thus, mercantilism held exports should be encouraged by the government and imports discouraged.

Check Your Progress

4. What did the Mercantilists advocate?
5. State the underlying belief behind the mercantilists theory.

4.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Some of the Indian texts in which we find references about population counting are Maharabharata, *Arthasastra* of Kautilya and in later texts as *Ain-i-Akbari*.
2. B.Colbert, Charles Devant and John Locke were some of the popular mercantilist thinkers.
3. Malthusian law on population altered the image of nature from benign harmony to an inexorable imbalance between nature's supply of sustenance and man's need for both food and sex.
4. The Mercantilist theory advocated that a nation should export more than it imported and accumulate bullion to make up the difference.

5. Underlying the Mercantilist theory was the belief that wealth was finite. If one nation hoped to grow richer, it had to do so at the expense of some other nation.

*Population Theories-I:
History and Mercantilist*

4.5 SUMMARY

NOTES

- It appears that population records were maintained during the times when Egyptian, Chinese, Greek, and ancient Indian civilizations flourished in the world. It also appears that population was counted in Jeddah in 2030 B.C. Greek historian Herodotus makes us believe that in about 400 B.C. Zerxes had the counting of his soldiers before invading Greece.
- In so far as ancient India is concerned, from our religious books it appears that population was counted during Ramayana and Mahabharata times as well. Similarly, we also find references about population counting in *Arthasastra* of Kautilya and in later texts as *Ain-i-Akbari*. Coming to recent times we find that Henry VIII of England got the records of the number of people who were the victims of plague of 1535.
- Historically both Plato and Aristotle believed that limited population was essential for happy life of a society. Low population will make the society poor. According to them the laws of succession and inheritance should be such that in that there were no sharp variances either in family or properly structure.
- The middle ages can be divided into two parts; namely the period from 400-1200 A.D. and 1200-1500 AD. But on the whole population control philosophy was not favoured. Christian thinkers, during this period took a moral view of the population problem.
- Romans did not favour city states and instead they believed in the idea of having big states and empires. On the whole they did not bother about the growth of population and roman economists did not spend much time on this problem as well.
- Somewhere during 16th century mercantilists came to the front and continued to preach their philosophy for about two centuries. These people were primarily in favour of increased population. B.Colbert, Charles Devant and John Locke were among many who can be mentioned as popular thinkers of Mercantilism. According to them real happiness came with trade, because then alone people could earn wealth.
- The Physiocrates scholars mostly belonged to France. Among others mention may be made of the names of F. Quesnay, Robert Turgot, Marquis Reviere, etc., by and large. They did not believe that population growth in any way should be checked. They were of the view that population of a state was

NOTES

always a source of strength as well as cause of misery and thus a double-edged sword.

- Malthus was undoubtedly important in the history of political, economic and welfare theory and was at the same time a crucial and acknowledged influence in the evolutionary debate, carrying the history of socio-economic theory with a deeper analysis of Darwin's development of evolutionary theory.
- Mercantilism was the theory of trade espoused by the major European power from roughly 1500 to 1800. It advocated that a nation should export more than it imported and accumulate bullion to make up the difference. The exportation of finished goods was favoured over extractive industries like farming.
- Mercantilists viewed the economic system as a zero-sum game, in which any gain by one party required a loss by another.
- Mercantilism was a system of statism which employed economic fallacy to build up a structure of imperial state power, as well as special subsidy and monopolistic privilege to individuals or groups favoured by the state.

4.6 KEY WORDS

- **Social Darwinism:** This refers to the social struggle for existence, the survival of the fittest.
- **Evolutionary Theory:** It is the process by which organisms change over time as a result of changes in heritable physical or behavioral traits
- **The Navigation Acts:** Also referred to as the Acts of Trade and Navigation were a long series of English laws that developed, promoted, and regulated English ships, shipping, trade, and commerce between other countries and with its own colonies.
- **Statism:** It refers to a political system in which the state has substantial centralized control over social and economic affairs.

4.7 SELF-ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Write a short note on Aristotle and Plato's views on population.
2. What was the opinion of the Roman thinkers on population?
3. 'Mercantilists viewed the economic system as a zero-sum game'. Discuss.
4. Enumerate Philipp Wilhelm van Horwick's nine-point program which is called the tenets of Mercantilism.

Long-Answer Questions

1. Explain the history and development of population theories.
2. Compare Mercantilist, Physiocrates and Malthusian theories on population.
3. Discuss the Mercantilist theory on population.

*Population Theories-I:
History and Mercantilist*

NOTES

4.8 FURTHER READINGS

- Bhende, Asha A. and Tara Kanitkar. 1994. *Principles of Population Studies, Sixth Edition*. Mumbai: Himalaya Publishing House.
- Heer, David M. 1987. *Society and Population, Second Edition*. Delhi: Prentice-Hall India.
- Raj, Hans. 1984. *Fundamentals of Demography (Population Studies with Special Reference to India), Third Edition*. Delhi: Surjeet Publications.
- Kumarasena, Harsha. 2004. *Population Education*. Delhi: Dominant Publishers and Distributors.

NOTES

UNIT 5 POPULATION THEORIES-II: MALTHUSIAN, MARXIST AND GROWTH THEORIES

Structure

- 5.0 Introduction
- 5.1 Objectives
- 5.2 Theories of Malthus and his Immediate Predecessors
- 5.3 Malthusianism and Neo-Malthusianism
- 5.4 Socialist and Marxist Writings
- 5.5 Growth Theory
- 5.6 Answers to Check Your Progress Questions
- 5.7 Summary
- 5.8 Key Words
- 5.9 Self Assessment Questions and Exercises
- 5.10 Further Readings

5.0 INTRODUCTION

In the previous unit, we discussed the history and development of population theories along with the Mercantile theory of population. In this unit, we will discuss three other distinct types of population theories: Malthusian, Marxist and Growth theories.

During the eighteenth century, a very less importance was given to understand the relationship between the increase in the population and the food supply. The first contribution in this field was given by Thomas Malthus, who in his work 'Essay on the principle of population' stated that population tends to outrun the subsistence. He further concluded that if the population would continue to rise, then cases such as famine would be more prevalent in the concerned state or nation. The concept of Malthusian catastrophe and the notions of the Neo-Malthusians have been explained. Malthus theory has been severely criticized too and the criticisms have been highlighted in this unit.

We will also discuss Marxist's perspective on population wherein he believed that the society consists of certain types of classes and the relationship of the growing population should be linked with the social relations rather than the supply of the food. He introduced the concept of relative surplus population and he also raised his arguments against Malthus's theory of population.

Lastly, we will discuss some of the major categories under the growth theory of population.

5.1 OBJECTIVES

After going through this unit, you will be able to:

- Discuss the theories of Malthus and his immediate predecessors
- Describe the socialist and Marxist writings on population
- Explain the growth theories on population

5.2 THEORIES OF MALTHUS AND HIS IMMEDIATE PREDECESSORS

Thomas Robert Malthus was born on 14 February 1766 and lived upto 1834. His parents had liberal views and gave him good education. It was after completing his studies at Cambridge that he studied religion. He had quite a happy married life. He gave his ideas in his 'Economics of Geography' in 1798, when he was working as a priest. His views come to be widely known to the society through 'An Essay on the Principles of Population as it affects the Future Improvement of Society with Remarks on the speculations of Mr. Godwin, M. Condorcet and other writers.' He gave his ideas as a reaction to the views of Ricardo and Smith. They had come to the conclusion that the poor were responsible for this poverty. In 1805 he wrote his famous essay titled, 'An Essay on the Principle of population or a view of its past and present effects on Human Happiness.' Unlike the previous essay, in this essay he also gave his name.

Background of Malthus Theory

Malthus in his young age was a priest and thereafter he become professor of History and Economics in Hertfordshire, where officers of East Indian Company used to get their training. It was a time when it was believed that the pressure of population on earth was increasing. The society was sharply being divided between the rich and the poor and the latter were being ruthlessly exploited by the former. In Europe, both wars and diseases had created many horrors. Though the population was increasing there was no increase in production. It was also a time when Industrial Revolution took place and with that many new problems confronted society. Prof. Malthus saw with his own eyes that Industrial Revolution was making the rich richer, and the poor poorer. Prof. Green at that time said about English Society that, 'Poverty was added to the cause of mis-government and deepened with rapid growth of the native population till famine turned the country into a hell.'

While situation on the economic field was such, Malthus was influenced by the thinkers of his times. Willian Godwin wrote *Political Justice* in which he tried to establish that population growth could benefit society and in no way harmed it. He felt that government alone was responsible for the poverty of the

*Population Theories-II:
Malthusian, Marxist and
Growth Theories*

NOTES

NOTES

people. In France this view was supported by Condorcet who believed that it was a fallacy to think that population growth in any way could harm any society. He said that, 'Man doubtless will never become immortal, but it is possible that span of human life may be indefinitely prolonged.' In France, Button and Montesquieu also supported this view that growth of population in no way could harm in society.

Malthus however analytically viewed the whole problem. According to him, both the government as well as propertied class were supporting population growth because both had their own interests. The government gets soldiers for the army whereas the propertied class got labourers at cheap rates. He felt that growing population was alone responsible for growing poverty. Unemployment and weak health of the people resulted in the spread of diseases. He, therefore, decided to find a theory of population.

He found nearness of his views in the ideas of Sir Walter Raleigh, Sir Mathew Hale, Robert Wallace and Joseph Townsend. Sir Walter Raleigh believed that, 'The surplus population died not of old age, or went out of the world, by the ordinary ways of nature, but famines and contagious distempers the sword, they halter and a thousand mischiefs have consumed them.' Sir Mathew Hales also pointed out that at that rate population could very quickly double itself, provided that was not checked by natural calamities and diseases. Both Townsend and Robert Wallace also contributed to this idea. Malthus was very much influenced in his ideas by Hume, Smith and Price. According to some thinkers Malthus's essay on population was not original. Prof. Gide is rightly of the view that, 'Even after the lapse of a century, the echo of the controversy which it aroused has not altogether passed away. "The Essay" might be, considered as a reply to Adam Smith.'

Malthus was the first to state a systematic principle of population in 1798 in his famous work titled, 'Essay on The Principle of Population as it Affects the Future Improvement of Society'. He modified some of his conclusions in the next edition in 1803. The rapidly increasing population of England, encouraged by a misguided poor law, distressed him most. He apprehended that England was heading for a disaster and he considered it his solemn duty to warn his countrymen. He pointed out that the accelerated increase in population was undesirable and it was essential to keep it in check. His views are collectively known as the Malthusian Theory of Population.

Assumptions: The Malthusian theory of population is based on the following assumptions:

- (i) Food is necessary to the existence of man.
- (ii) Passion between the sexes is necessary and will remain nearly in its present state.

- (iii) There is a direct relation between standard of living and child bearing.
- (iv) The Law of Diminishing Returns operates in agriculture.

*Population Theories-II:
Malthusian, Marxist and
Growth Theories*

Statement of Theory

Malthus states that 'Population, when unchecked increases in a geometrical ratio. Subsistence increases only in an arithmetic ratio.'

According to him, the power of population is indefinitely greater than the power in the earth to produce subsistence for man. A slight acquaintance with numbers will show the immensity of the first power in comparison to the second.

NOTES

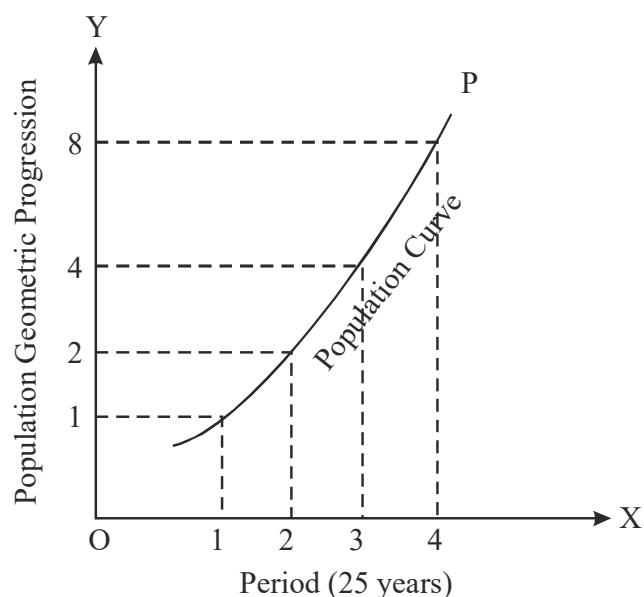


Fig. 5.1 Increase of Population in Geometric Progression

(i) Increase of Population in Geometric Progression

Malthus first took the observation of Benjamin Franklin that in American colonies where resources were abundant, population tended to double every 25 years or so. Thus, starting from 1, population in successive periods of 25 years will be 1, 2, 4, 8, 16, 32, 64, 128, 256 etc. The increase becomes so large that there will not be enough space in the world for all the people to stand.

In the Fig. 5.1 OX axis depicts the period in years and OY axis shows population increases. The population curve rises from left to right as indicated in the diagram through P curve. Malthus did not say that population would increase at these rates. This was only a tendency if allowed to go unchecked.

The geometric progression is a sequence of terms (g_1, g_2, g_3, \dots) in which each term is same multiple of its predecessor $g_2/g_1 = g_3/g_2 = g_4/g_3 = \dots = r$. If $r = 1 + i > 1$, the term grows like compound interest.

NOTES

(ii) Increase of food supply in Arithmetical Progression

Food supply increases in a slow arithmetical progression due to the operation of the law of diminishing returns. Thus, the supply in successive periods will be 1, 2, 3, 4, 5, 6, 7, 8, 9 (after 200 years).

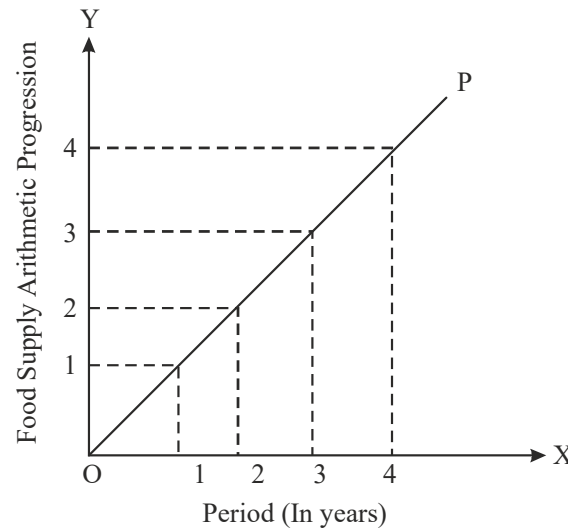


Fig. 5.2 Increase of Food Supply in Arithmetical Progression

Food supply is presented on OY axis and period of time in years on the OX axis. The 45° angle (OP) line shows the directly proportionate relation between food supply and the period of time. An arithmetic progression is a sequence ($A_1, a_2, a_3, a_4, \dots, a_n$) in which the difference between each term and its predecessor is the same constant ($a_2 - a_1 = a_3 - a_2 = \dots = X$).

(iii) Disequilibrium between Population and Food Supply

Since population increases in geometrical progression and the food supply in arithmetical progression, population tends to outrun food supply. As Malthus wrote 'A perfectly happy and virtuous community will double every twenty-five years, but there can be no similar increases in their food. The best lands are taken up first. Then the next best, then the inferior, at last the worst; at each stage the amount of food increases in a slow arithmetical ratio, man himself increases in a quick geometrical ratio, unless want and vice stop him.'

Thus, an imbalance is created which leads to over population. This is depicted in figure below: (Fig. 5.3)

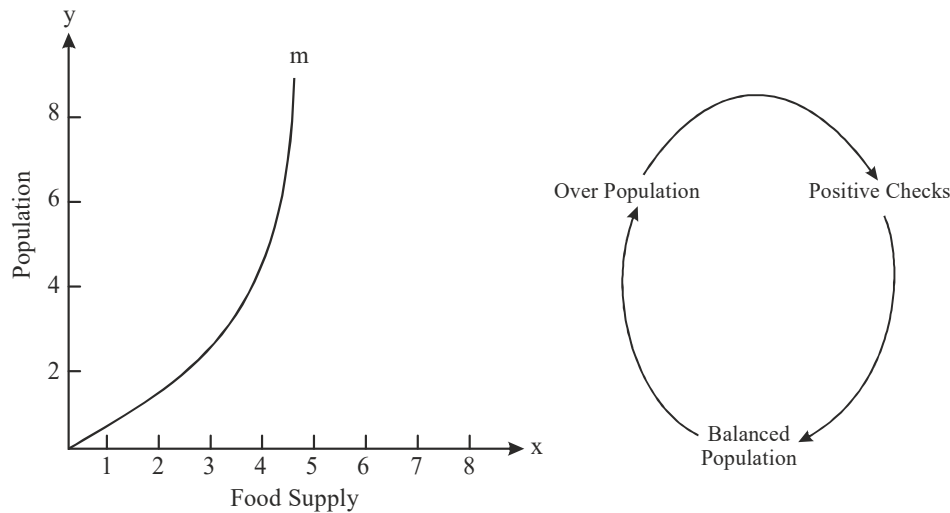


Fig. 5.3 *Disequilibrium between Population and Food Supply*

NOTES

(iv) Control of population

Malthus pointed out that there are two kinds of checks to correct the imbalance between population and food supply. He suggested the positive and preventive checks.

- (i) **Positive checks:** In his first edition, Malthus put emphasis on positive checks that acts to increase the death rate, pestilence, famine, disease, war, natural calamities, vicious customs with regard to women, great cities, unwholesome manufactures, luxury etc. Malthus felt that 'The table of nature is laid for limited number of guests and those who come uninvited must starve.' He believed that the positive checks resulted basically from the pressure of population on subsistence. Positive checks bring in its train extreme misery. It brings about a short period equilibrium between population and food supply which is disturbed sooner or later leading to the Malthusian cycle as is shown in Fig 5.4.
- (ii) **Preventive Checks:** The second kind of checks to the growth of population Malthus called the preventive or prudential check, because it operated to bring down the birth rate. In Malthus' words, 'The preventive checks include late marriages, chastity and other similar measures aimed at checking population growth deliberately.' Preventive checks fall into two parts:
 - (a) **Moral restraint:** Malthus being a clergyman advocated moral restraint with postponement of early marriage until a family could be supported. According to Malthus, the struggle for existence is an illustration of the wisdom of nature, which keeps poor people from becoming soft and lazy. He felt that celibacy is the only way out to escape the fury of positive checks. He advised women to remain unmarried till the age of 28.

NOTES

- (b) **Artificial Restraints:** It includes all modern devices of birth control. Neo-Malthusians emphasized its use on a wide scale, while Malthus treated them as vice or sin.

According to Malthus, the two checks are the true causes of the slow increase of population in all the states of modern Europe. According to him, preventive checks are always in operation in a civilized society, for positive checks are crude. He believed that preventive checks would never be sufficiently strong to eliminate the operation of the positive checks arising mainly from the pressure of population on subsistence. Man's sexual passions and his material needs were in essential conflict.

Malthus concluded from his examination that 'The perpetual tendency in the race of man to increase beyond the means of subsistence, as one of the general laws of animated nature, which we have no reason to expect will change. Yet, discouraging as the contemplation of this difficulty must be, no possible good can arise from any endeavours to slur it over the most baleful mischief may be expected from the unmanly conduct of not daring to force the truth because it is unpleasing.' It is not surprising that because of his pessimistic conclusions, Malthus was regarded on a prophet of gloom.

The Malthusian Theory of population is illustrated with the help of the following Figure 5.4.

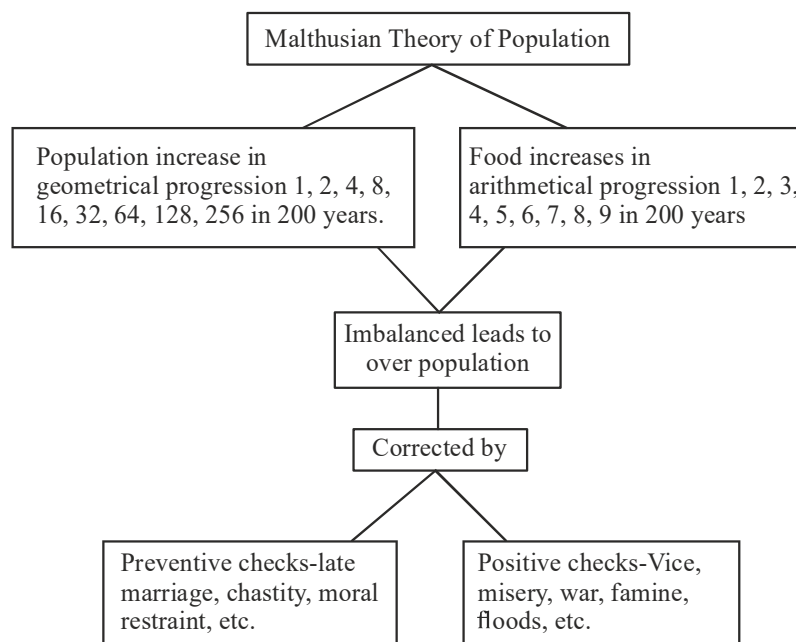


Fig. 5.4 Malthusian Theory of Population

Criticism of the Malthusian Theory

The Malthusian thesis was an unwarranted hasty generalization which was logically unsound. Naturally, Malthus has been the target of scathing criticism by both friends

and foes. Among those who joined the fray, the names of Godwin, Cannan, Nicholson, etc., figure prominently. Godwin described it as ‘The black and terrible demon which is always ready to stifle the hopes of humanity.’ Malthus himself regarded his first essay as unsatisfactory statement of the principle of population. Therefore, he revised and rewrote the first edition. It seems strange that many of his critics have written as though they were unaware that the first edition of the essay had ever been revised, expanded and modified. Despite the statistics covering many countries incorporated in his later editions, it is felt that his views were ever simplifications. The theory is criticized on the following grounds:

- (1) The basic assumptions of the Malthusian theory are not correct:
 - (a) The operations of the law of diminishing returns can be postponed indefinitely: Malthusian notion on food supply is based on a static economic law, i.e., the law of diminishing returns. Malthus could not foresee the miracles of technical progress over a period of time which have stayed the law of diminishing returns. As a result of which food supply had increased much faster than the arithmetic progression.
 - (b) There is no direct relationship between sexual instinct and childbearing. In fact, the desire to have children is a noble objective based on social, religious and geographical condition while the sex instinct is a base natural desire.
 - (c) The postulation that an improvement in the standard of living leads to an increase in population is not borne out by facts: The choice before an educated couple is to have a 'body' or a baby-Austin, and very often it is the car that wins. The greater the malnutrition the more the fecundity and frenzy for breeding.
 - (d) It is not correct to presume that sexual urge remains the same in human beings: It changes according to circumstances and the spread of education, nutrition, entertainment, etc. Improved standard of living has, in reality, resulted in a decline in sexual instinct.
- (2) The mathematical form of the theory is not correct: Empirical evidences do not corroborate the rate of increase in food supply and population in 25 years as visualized by Malthus. Rather, the food supply has increased more than in the arithmetical progression. This criticism loses much of its sting as Malthus used it in the first edition to make his principle clear and deleted it in its second edition.
- (3) Malthus could not foresee the opening up of new area: He failed to perceive the opening up of new areas of America, New Zealand, Australia, Argentina, etc., where extensive farming of virgin lands led to increased production of food. Consequently, countries like England, France, etc., have been provided with plenty of supply of cheap food. Rapid improvement in the means of transport acted as a catalyst in this process; a factor overlooked by Malthus. No wonder the specter of famine has become a thing of the past.

NOTES

NOTES

- (4) History does not support the fears of Malthus: Malthus has proved to be a false prophet as his worst predictions were belied by subsequent events. In some countries like France the rate of increase in population was very slow. In other countries the increase in population was not a problem because growth in population was accompanied by increased national income. His pessimistic prophesy that misery will stalk these countries if they fail to check the growth of population through preventive checks was proved wrong.
- (5) Positive checks are not due to over population: National calamities are not peculiar to over populated countries. They visit even thinly populated countries such as France, Japan, etc.
- (6) Every increase in population is not harmful: Malthus' belief that every increase in population is harmful is not correct. Upto the optimum level, an increase in population should be welcomed as it will benefit the country to increase its per capita income rapidly.
- (7) Population is not related to food supply but to total wealth: Malthusian theory is based on a weak relationship between population and food supply. As a matter of fact, the right relationship is between population and total wealth. If a country is materially rich it can feed its millions well by importing food stuffs in exchange for its products or money. Britain is a typical example as it imports all its food requirement from Holland, Denmark, Belgium and Argentina in exchange for its products.
- (8) Increase in population is the result of a decline in birth: The Malthusian theory is one-sided. It has taken the increase in population as the result of a rising birth rate, whereas population has grown considerably the world over due to decline in death rate. Malthus could not foresee the tremendous advancement of medical sciences which have controlled total diseases and made human life longer. This is true more particularly in the case of India where Malthusian theory is said to operate.
- (9) Preventive checks do not mean moral restraint: Malthus suggested moral restraint, celibacy, etc., to contain population. He could not imagine the modern devices of contraceptives which are being extensively employed in checking population. Moral restraint alone cannot help control, the increase in population which Malthus suggested.
- (10) Malthus failed to recognize the manpower aspect in population: Malthus thought that every baby coming to the world is a burden on society. According to Cannon, 'A baby comes to the world not only with a mouth and a stomach but also with a pair of hands.' It means that an increase in population means an increase in manpower which may tend to augment production. Population should be viewed in relation to production. As pointed out by Seligman, 'The problem of population is not merely one of mere size but of efficient production and equitable distribution.'

NOTES

- (11) Malthus held the poor people responsible for their misery: Malthus felt that the poor people tried to increase their number faster. Malthus said that, 'The poor are themselves the cause of their poverty.' Karl Marx and other socialist writers took strong exception to this view and held exploitation of labour, unequal distribution, defective government policies, etc., responsible for the poverty of the masses.
- (12) Malthus adopted the inductive method in his principle: Malthus extensively employed statistical data pertaining to few countries to evolve his thesis. The inductive method which he has used cannot be of universal application.
- (13) Malthus theory is static and pessimistic: It considers every child born is a social curse and as such is the cause for pessimism in the society.
- (14) Malthus has taken one point of time into consideration: Malthus has forgotten that times can change when improvements in agriculture through new techniques will help raise food production.
- (15) In expounding his theory Malthus was influenced by the prevailing surrounding: According to Haivey, 'He knew what had happened, he saw what was happening, but influenced by his surroundings his vision as to what was to happen was unduly obscured.'
- (16) Malthus took for granted that human beings are invariably vegetarians: The reality is that large number of people are non-vegetarians who subsist on fish, meat, etc.
- (17) Accusation of Malthus as being a plagiarist by profession: Marx observed, 'He borrowed nonsense from earlier writers (Theory of population) from Rev. Townsend. His geometric and arithmetic progressions were purely chimerical hypotheses. He copied and para-phrased Townsend like a slavish plagiarist.'
- (18) Rise of population in geometric progression not always valid: Winston Churchill and Henry Villard were of the view that a stage is bound to come when growth of population will automatically be checked and will not follow the geometric progression.
- (19) Malthus thought that every child born in a family will survive: It was wrongly thought by him. In fact, in communities where birth rate is high, death rate is also very high. Professor Gide said, 'Germs are extra-ordinarily prolific, but their undue multiplication is pitilessly retarded by a law which demands the death of certain proportion so that the life like a well-regulated reservoir always remains at a mean level, the terrible gaps made by death is being replenished by a new flow.'

Evaluation

According to Samuelson, 'Nevertheless the germs of truth of his doctrines are still important for understanding the population behaviour of India, Haiti, China and other parts of the globe.' Malthusian doctrine may not be applicable to West

NOTES

European countries, but it is useful in understanding the population problems of underdeveloped countries including Asia, Africa and South America. Besides, the people of Europe were made wiser by Malthus who warned them about the evils of over population and they used measures to check it.

The widespread use of contraceptive is an indication of its vitality. Samuelson viewed 'Going through several editions, the book influences the thinking of the people of all over the world.' It is still a living influence today. The Malthusian view depends directly on the law of diminishing returns and to that extent continues to have relevance.

J.B. Clark also said that, 'The Malthusian theory of population has been so often refused as to prove its vitality.' Marshall and Pigou incorporated his views in their theories. Keynes was forced to write about some economic consequences of the doctrine of population. The Malthusian thesis was the main factor behind the problem of declining population in France. The conclusion of Malthus was used so widely by the conservatives in the political controversy over the poor laws. In short, the Malthusian truth can be summarized as below:

- (1) The forecast of Malthus in an approximation to truth in the less development countries. The rising population of India is a concrete proof of his influence. India's population increased at the rate of 1.33 per cent per year in the sixties and 2.48 per cent in the seventies.
- (2) Opinions also bolstered the argument that trade unions could not improve the welfare of workers.
- (3) In affluent countries like England, France and America, the extensive use of method of birth control and abortion indicates influenced of Malthus. Even today the computer makes headlines when it spells out the limits of growth by a more elaborate simulation of his geometric and arithmetic progressions.
- (4) Edward East in his book Mankind at The Cross-roads, expressed the view that if the present trend in population continued the available arable land throughout the world will be insufficient to meet the food requirements of the teeming millions.

Walkar wrote that, 'The Malthusian theory is applicable to all communists without consideration of colour and place. Malthusianism has stood un-shattered impregnable amid all the controversy that has raged around it.'

According to Thompson and Lewis, 'Malthus deserves great credit for bringing these problems to the attention of people as well as for the calm and objective manner in which he analysed the facts available to him and thus increased our understanding of an extremely important element affecting human welfare.'

Malthusian Theory and Its Application in India

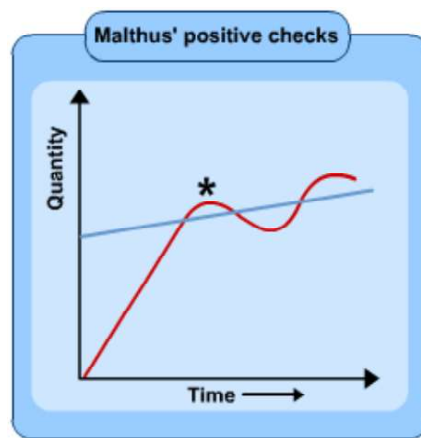
Population increase rate in outstripping the growth of food supply in India. Every year a new Australia is added to our country i.e., 1.30 crore more people are added to the existing population. Population is increasing at a rate of 2.42 per cent a year while food production was 8 crore tonnes in 1960-61, 10 crore tonnes in 1973-74 and 12 crore tonnes in 1979-80 and 13 crore tonnes in 1982-83.

NOTES

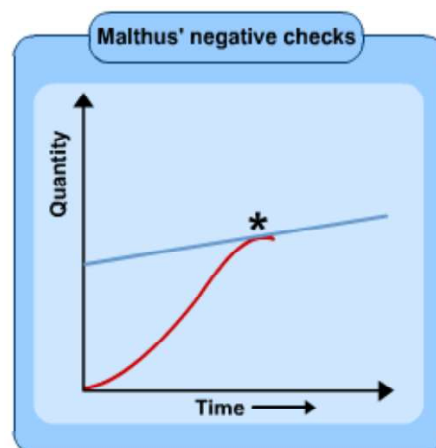
A brief study at food production during the last few years reveals the position is not too rosy. We have been forced on several occasions in the past to depend on food imports. Though at present we could built up sufficient buffer stock. However, the disequilibrium between food supply and birth rate alone does not prove the operation of Malthus doctrine but the recurring floods, pestilence, etc., also lend credence to his thesis. Even under the family planning schemes, intense efforts are made to popularize the methods of birth control. This is positive proof of the influence of Malthusian doctrine.

Enactment of Laws: Statutory provision of minimum age of marriage and family size is an acceptance of the need to keep the Malthusian ghost at bay.

The Traditional way of cultivation and the operation of the law of diminishing returns in many parts of the country are supporting the operation of Malthusian devil in India. Rising tide of unemployment, low standard of living, high incidence of birth and death rates prove the validity of Malthus in India.



- * Population exceeds food supply and is kept in check by war, famine, or disease. It then drops below the food supply. As the population recovers, so the cycle continues.



- * Here, as population starts to approach the limits of the food supply, so growth slows. Malthus says this slowing is caused by delayed marriage.

NOTES

Value of The Theory

Though Malthus has been much criticized for his theory, yet it is wrong to think that he was without any basis. In fact, there are many elements of truth in that. The very fact that his theory has been so seriously studied all over the world and has drawn the attention of almost every important thinker of his time, proves that the theory is of great significant. In the words of Prof. Walker, 'Malthusians has stood unshattered, impregnable amid all the controversy that has raged around it'. Then it has been pointed out that the critics have tried to discuss the theory keeping in view conditions of only one country at a time. It cannot be denied that if production of all the countries of the world on the one hand and that of the food supplies on the other is taken into account then it will have to be accepted that for unlimited population there is always limited food supply. Then another value of the theory is what Malthus said during his own times holds good even today in respect of developing and underdeveloped nations. In these countries rate of population growth is definitely much faster than that of the food. Russells once said, '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 nation.'

Then it has been pointed out that even today fundamentals of Malthus theory remain unchanged and these have not been refuted in any manner. As Prof. Walker has pointed out that the fact remains that in every society every person is trying to increase his requirements of life which puts additional burden on available food resources. Moreover, there are only very few people who can check their family size according to their food resources. Normally, family grows in the hope that efforts will be made to procure food, once the child has been born. But actually, once family size begins to increase then there is no end to it.

5.3 MALTHUSIANISM AND NEO-MALTHUSIANISM

Recently Neo-Malthusianisms has come to the front. These thinkers have a faith that whatever Malthus said about population growth was absolutely correct. Neo-Malthusians believe that without any effect on the sexual pleasure of the couple, the growth of population should be checked. This should be done with the help of recent devices and methods. Neo-Malthusianism found its origin as early as in 1884 when Dr. Drysdale brought out his famous book titled Elements of Social Science. In neo-Malthusianism doctors, social scientists, political scientists and economists to all showed keen interest. All of them distinguished between desire for sex and that of producing children. In 1897, some of them found Malthusian league. They propagated that use of contraceptives was very useful for checking population growth and that there was no harm in that. main points of difference between the two may briefly be discussed as under.

Differences Between Malthusianism and Neo-Malthusianism

*Population Theories-II:
Malthusian, Marxist and
Growth Theories*

1. **Malthusianism:** Malthusians do not see any difference between desire for sex and also the desire for having children. In their opinion both are one and the same. In other words, whenever a couple engage in sexual intercourse, it is always with a desire to have a child.

Neo-Malthusianism: They make a distinction between the two. According to them, sex desire is something natural, whereas desire to produce children is based on religious, social and cultural considerations. In the words of Prof. Gide, 'The first is more animal instinct which arouses the more impetuous of passions and is common to all men. The second is frequently social and religious in origin assuming different forms according to exigencies of time and place.'

The Hindus want to have children on religious ground because according to them a childless parent is likely to go to hell. The Muslims want to increase their tribe whereas the poor want children in the hope that they might get more earning hands, etc. Neo-Malthusians point out that in our modern society the number of such persons who want to enjoy sexual life but do not wish to have any children is considerably increasing. In fact, these days due to materialism, sex desire is far more than what it was in the past. The people do not want children because responsibilities towards them are very rapidly increasing and there is also a desire to save from deterioration of health which is bound to be there due to delivery and so on.

2. **Malthusians:** Malthusians believed that all human beings have sexual urge that should be restrained by self-control and moral restraints.

Neo-Malthusians: Neo-Malthusians believe that no one should suppress sexual urge because that is natural. In case any attempt is made to do so that is bound to create mental agony in the minds of the people. There is then every possibility that the people may live to follow evil practices.

In every society those who do not find natural methods of satisfying sex desire, follow illegal and unnatural methods. Thereby creating many social and law and order problems.

3. **Malthusians:** According to Malthus, all those methods which led to checking of birth of children by artificial means were wrong and accordingly a sin. He, therefore, suggested self-restraint. In his own words, 'The restraints which I have recommended are quite of a different character. They are not only pointed out by religion but tend in the most marked manner to stimulate industry.'

Neo-Malthusians: They believe that there is no harm in using contraceptives because with their use human beings can satisfy their sexual urge without producing children. They also believe that birth control is most essential for all the sections of the society.

NOTES

NOTES

Malthusians argue that birth of children by the un-married mothers should be checked because society will be saved from its evil consequences. A married woman can save herself from spoiling her health, which is bound to happen when she gives birth to children quite frequently. Population growth rate, if checked rationally, can help in finding solution to many economic problems and thus nation can go on the path of progress and prosperity. Prof. Gide has gone to the extent of saying that, 'There is reason to believe that were Malthus now alive he would not be a Neo-Malthusian. He would not have willingly pardoned his disciples for the perpetuation of sexual frauds which enable man to be freed from the responsibilities which nature intended him to bear.'

4. **Malthusians:** They believed that population grows more rapidly than food supplies. According to him, it was almost impossible to check population growth.

Neo-Malthusians: They believe that with the help of modern, scientific means and methods it is possible to check population growth and increase food production as compared with population growth.

As we know that with the help of scientific means and methods, better fertilizers and seeds, by bringing more barren land under cultivation human society has found it possible to increase food production. At the same time education about family control and similar other matters has so much increased that it has become possible to decrease the size of the family and bring down population.

Criticism of Neo-Malthusians

Neo-Malthusians have been criticized on many accounts as well. It is said that if use of contraceptives or similar other methods for checking of population are followed then women-folk will suffer mentally, morally and physically. Their health as well as physique and mental outlook will receive a serious setback. The use of these things can result in many diseases among the woman. In case these are extensively used then there is a danger that even a race might wipe out altogether. Bertraund Resseli, while discussing the whole issue has said that, 'What is regrettable at present is not the decline of the birth rate in itself, but the fact the decline is the greatest in the best elements of the population.'

After Malthus, many other theories about population have been fully well expounded and seriously studied but even now Malthus occupies a very important and unique position. Though criticized, yet he is very seriously studied throughout the world, even today. His basic principle that population growth should be checked, is very much championed today by the propagators of family planning programme. Today no nation in the world can say that it wants to have unlimited population because each nation has limited economic resources.

In the light of the above facts it can be concluded that the Malthusian theory applies to India to a great extent. During the last few years especially after 1975 as a result of the adoption of Smt. Indira Gandhi's 20-Point Programme, substantial improvement has taken place in production, distribution, wage rates, land distributions, etc. If the trend continues the Malthusian specter of excess population could be held in check.

NOTES

Check Your Progress

1. Name the thinkers, as a reaction to whom, Malthus wrote his essay on the principles of population.
2. Who were the thinkers to whom Malthus found nearness of his views?
3. Which theorists consider artificial restraints for population control a sin?

5.4 SOCIALIST AND MARXIST WRITINGS

Karl Marx (1818-1883) was a German social philosopher, who became founder of modern communism. Marx did not believe that all hardships with which the people were suffering were due to man's tendency to grow in numbers faster than his production of subsistence would permit. On the other hand, he believed that man's tendency to press on the means of subsistence was due to evils of capitalism which would disappear with the emergence of communism. He related population growth with present economic system and for him both were inseparable. To quote him:

It is the working population which, while effecting the accumulation of capital, also produces the means where by it is itself rendered relatively superfluous. is turned into a relatively surplus population and it does so to an increasing extent. This is a law of population peculiar to capitalist method of production, and in fact, every method of production that arises in the course of history has its own peculiar, historically valid law of population. It is only for plants and animals that there is law of population in the abstract and that only in so far as man does not interfere with them.

He believed that poverty and unemployment were not due to increased population, but on account of capitalist system which failed to provide jobs. It was this system which was responsible for real production and uneven distribution of wealth and for providing jobs to only few persons.

Marx did not agree with Malthus's Theory of Population. According to him, Malthus was plagiarist and poured ridicule over him. According to him, the work of Malthus was that of school children. According to Marx, 'His work in the first term was nothing than a school boyish, superficial and parsonic, declamatory with plagiarism from Defoe., Sir James Stuart, Townsend, Franklin Wallace and others, and did not contain single sentence thought out lay Malthus himself.'

NOTES

According to Marx, in no country of the world does population increase on account of fertility but increases only on account of capitalist policies. The capitalists make labour part of their production and steal something out of that. By installing new machines, a capitalist wants to have maximum surplus value and also spread unemployment out of that as well. In this way he creates an army of unemployed persons and thus labour wages go on decreasing. The poor population cannot nourish their children due to limited financial means and as such the question of surplus population arises. He thus came to the conclusion that main cause of surplus population was nothing else but wrong policies of the capitalists. There is less production of food supplies from the lands on account of Zamindari system where there is uncertainty about ownership of land. According to him, 'it is working population which, while effecting the accumulation of capital, also provides means whereby it is itself rendered relatively superfluous, is turned into a relative surplus population, and it does so to an ever increasing extent. This is law of population peculiar to the capitalist method of population.'

Marx also believed that in every period of production there is a separate law of population. That law suits that condition alone. Thus, a law of population prevailing in a capitalist society cannot be made applicable to the socialist society and so on.

The socialists, who closely follow Marx include Urianis, Boyarski, Shusharin, Malisher, Riabouekin and Raichko. They all believe that in socialist system there will be full opportunity of employment and as such there will be no section of population which in any way will be surplus. In socialist countries, there is no need to reduce birth rate and that in these countries production is increased by controlling nature and exploiting natural resources. There is no need to check birth rate because the whole system of distribution is rational and to the advantage of the society as a whole. They, therefore, believe that present system of unemployment which prevails in a capitalist society is responsible for increased or over-population.

Marx was of the view that one important cause of population growth was food deficiency, which was due to evils of capitalism. He supported his argument by saying that in communist countries where all were getting proper food, there was no population problems. In none of the communist countries was there compulsory family planning. He was convinced that fertility differentials were due to economic inequalities.

The socialists believe that population in a socialist society will increase slowly than in a capitalist society because of the superior status of women under socialism. Marx was of the view that in a socialist society reproductive behaviour would develop a complete harmony between the individual and the society. The socialists today believe that birth control contributes to the emancipation of women. Modern socialists believe not only in birth control but allow abortion as well.

Critical Evaluations of Theory

It is to a great extent true that in capitalist societies there is surplus population on account of unemployment, but it is not very true to believe that under socialist system there will be no need to check population growth at any stage. Even in socialist countries population growth is checked on the plea that no mother should have more children so that her health does not deteriorate. Even in erstwhile U.S.S.R. population was decreasing. Whereas in 1917, birth rate in that country was 40 per thousand, in 1960, it came down to 23. Factory workers were provided contraceptives in their factories so that birth rate was kept low.

Not only this but in all socialist countries, economic inequalities have come to an end. A question which, therefore, needs consideration is as to why even socialist countries have different birth rates. If economic inequality is main cause of birth rate, then in these countries these rates should not differ. The fact, however, remains that the need and necessity of family planning is felt in these countries as well and if there is full employment in these countries, main cause for that is that sufficient manpower is engaged in defence establishments and in active military service.

In his theory of population Marx has criticized Malthus but his criticism does not appear to be very reasonable. In the words of Lewis and Thompson, there can be no question of sincerity of Marx's belief in the evils of capitalism as the sole basis of poverty, but he should not have confined his efforts to discredit Malthus's views to personal ridicule and vilification. Apparently, Marx must have had deep-seeded doubts that Malthus's views could be sufficiently disposed of by an appeal to facts and reason.

Check Your Progress

4. Which was the element inseparable from population growth as per Marx?
5. Name some of the socialists who closely followed Marx's ideology.
6. Why did Marx think that population in a socialist society increases slowly in comparison to capitalist country?

5.5 GROWTH THEORY

Growth theories attempt to explain the conditions that are necessary for development to occur and weigh up the relative importance of particular conditions. Growth theories offers two plausible explanation of growth. One stresses the supply of productive ideas and holds that the individual evolution had to wait until we had thought up enough inventions to lift us into the era of modern growth. It says roughly, that the growth of the living standards depends on the growth of science.

*Population Theories-II:
Malthusian, Marxist and
Growth Theories*

NOTES

NOTES

The other explanation stresses incentives: Growth could begin only when hard work and business enterprise were free of heavy taxation, of social stigma and of other interference by the government. The first branch of theory is well developed. It is the second that now challenges the growth economist to explain not just growth but the evolution of political and religious initiatives and social attitudes as well. Early theories focussed an understanding economic growth and attempted to find general determinants of growth that could be applied to any instance under consideration. By looking at patterns of growth the hope was to discover some of the laws or principles which govern growth at all times and in all countries. Modern theories tend to accept the conditions growth change overtime and are often more critical of the attempts to generate one-size-fits all growth theories.

There are several broad categories of growth theories including:

- Linear growth theory
- Structural change theory
- Dependency theory
- New-classical theory
- New-growth theory
- Property rights

Let's have a look at these theories in a detail:

- (1) **Linear Growth Theory**-One of the first growth theories was that proposed by American economics historian Walt Rostow in the early 1960. As a vigorous advocate of the free market capitalism, Rostow argued that economies must go through a number of developmental stages towards greater economic growth. He argued that these stages followed a logical sequence, each stage could only be reached through the completion of previous stage.

Stages-

- o Traditional society, deviated by agriculture and better exchange, and where science and technology are not understood or exploited.
- o Pre-take off stage, with the development of education and an understanding of science, the application of science to technology and transport, and the emergence of enterprises and a simple banking system and hence using savings.
- o Take off stage with positive growth rates in particular sectors and where organized system of production and reward replace traditional methods and license.
- o The desire to maturity, with an ongoing moment towards a diverse economy, with growth in many sectors.
- o The stage of mass consumption, where citizens enjoy high and using consumption per head, and where rewards are made distributed more evenly.

Rostow's work points to the significance of the accumulation of saving to advice take-off-in this case as a necessary condition for the movement from traditional to developed societies.

The theory of Rostow considers savings to be sufficient condition for growth and development. In other words, if an economy saves, it will grow and if it grows, it must develop. Aggregate savings are largely determined by national income so if income is low, savings will not be accumulated. According to Rostow's theory, saving between 15% to 20% of income would be enough to provide the basis for growth. If this level of savings is maintained, growth would also be sustained.

Major criticism of this approach includes:

- o Although saving is regarded as highly significant, modern growth theory takes into account a broad set of growth factors.
- o Other criticism of stage theory point to general weakness in terms of the unrealistic assumptions of these models, such as perfect knowledge, stable exchange rates, and constant terms of trade.
- o Most analysis was based on the reconstruction of Europe after world war II, but most developing countries do not have Europe's institutions, attitudes, financial markets, level of education, and desire to succeed as found in Europe.
- o Modern theory tends to see savings as a necessary but not sufficient condition for growth.

- (2) **Structural Change Theory**-In economics, structured change is a shift or change in the basic ways a market or economy functions or operates. The structural changes that move countries through the development process are often viewed in terms of shifts from primary, to secondary and finally, to tertiary production.

The Lewis model presented in 1955, dominated development theory between the 1960s and 1970s. It is also known as to two sector model and the surplus Labour model. It focused on the need for countries to transform the structures, away from agriculture with low productivity of labour, towards industrial activity, with a high productivity of labour.

In the Lewis model the arguments are:

- o An economy starts with two sectors; a rural agricultural sector and an urban industrial sector. Agriculture generally under-employs workers and the marginal productivity of agricultural labour is virtually zero.
- o Therefore, transforming workers out of agriculture does not reduce productivity in the whole economy.
- o Labour is then released for work in the more productive, urban, industrial sector.

NOTES

NOTES

- o Industrialisation is now possible, given the increase in the supply of workers who have moved from the land.
- o Industrial firms start to make profits which can be re-invested into even more industrialisation and capital starts to accumulate.
- o As soon as a capital accumulates, further economic development can sustain itself.

Evaluation of the Lewis Model

Though highly influential at the time and despite the considerable logic of the Lewis approach, the benefits of industrialisation may be limited because:

- o Profits may leak out of the developing economy and find their way to developed economies through a process called capital flight.
- o Capital accumulation may reduce the need for labour in the urban industrial sector.
- o The model assumes Competitive Labour and product markets, which may not exist in reality.
- o Urbanization may create problems, such as poverty, squalor and shanty-towns with unemployment replacing underemployment.
- o The financial benefits from industrialisation might not trickle down to the majority of the population.

Structural Changes Model

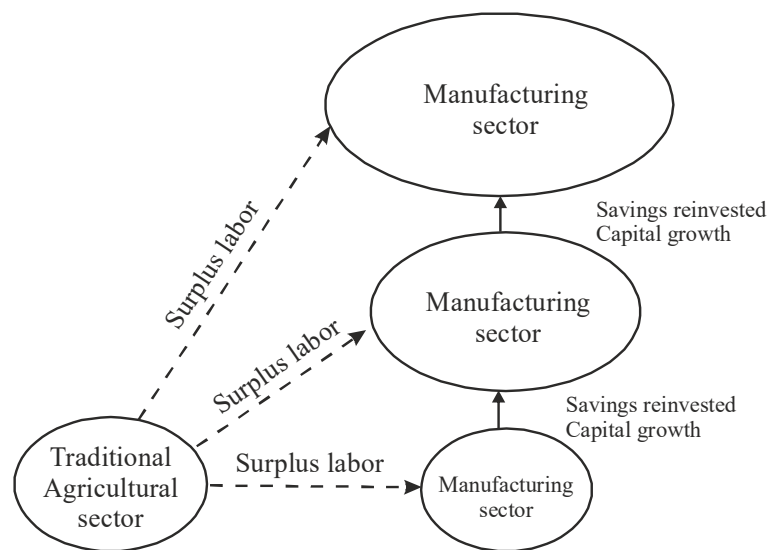


Fig. 5.7 Lewis' Structural Change Model of Growth

Structural change model focusses on the mechanism by which underdeveloped economies transform their domestic economic structures from a heavy emphasis on traditional subsistence agriculture to a more

modern, more urbanized and more industrially diverse manufacturing and service economy.

*Population Theories-II:
Malthusian, Marxist and
Growth Theories*

- (3) **Dependency Theory**-Dependency theory is the notion that resources flow from a 'periphery' of poor and underdeveloped states to a 'core' of wealthy states, enriching the latter at the expenses of the former. It is a central contention of dependency theory that poor states are impoverished and rich are enriched by the way poor states are integrated into the 'world system'.

NOTES

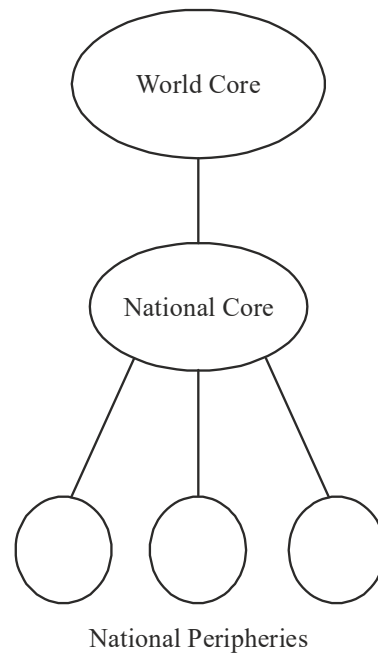


Fig. 5.8 *Dependency Theory*

The theory arose as a reaction to the modernization theory, an earlier theory of development, which held that all societies progress through similar stages of development that today's underdeveloped areas are thus in a similar situation to that of today's developed areas at some time in the past, and that therefore, the task of helping the underdeveloped areas out of poverty is to accelerate them along with this supposed common path of development by various means such as investment technology transfers and close integration into the world market. Dependency theory rejected this view arguing that underdeveloped countries are not merely primitive versions of developed countries but have unique features and structures of their own, and importantly are in the situation of being the weaker members in a world market economy.

Dependency theory no longer has many proponents as an overall theory, but some writers have argued for its continuing relevance as a conceptual orientation to the global division of wealth.

NOTES

(4) **New classical theory**- During 1980s, mainstream economic theory rejected Keynesian-ism and returned to its classical market roots, with its emphasis on market freedom and a limited role for the state. Both the IMF and World Bank quickly began to adopt his New-classical perspective.

Three different New-classical approaches emerged:

- o The free-market approach where markets alone are assumed to be sufficient to generate maximum welfare.
- o The Public-choice approach which is an extreme new classical model which emphasizes that all governments are 'bad' and lead to corruption and the gradual confiscation of private property.
- o The market-friendly approach, which suggests that while markets work, they sometimes fail to work, and governments have an important role in compensating for three main market failures: Missing markets, imperfect knowledge and externalities.

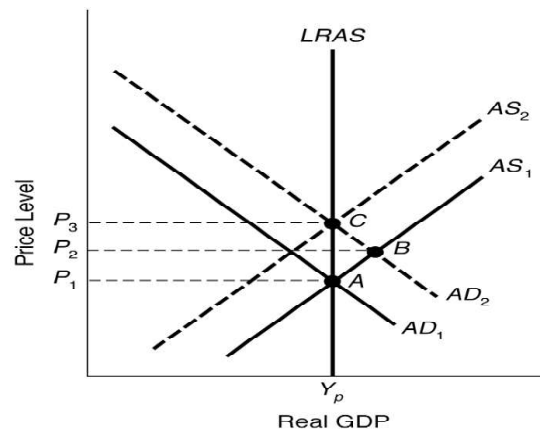


Fig. 5.9 New Classical Theory

New classical economists believe that to develop, countries must liberate their markets, encourage entrepreneurship, privatize state owned industries, and reform labour markets, such as reducing the power of trade unions.

5. New-growth theory-New growth theory or Endogenous growth theory was developed in the 1980s by Paul Romer and others. In the Neo-classical theory, model-technological progress is an exogenous variable. The neo-classical growth model makes no attempt to explain how, when and why technological progress takes place.

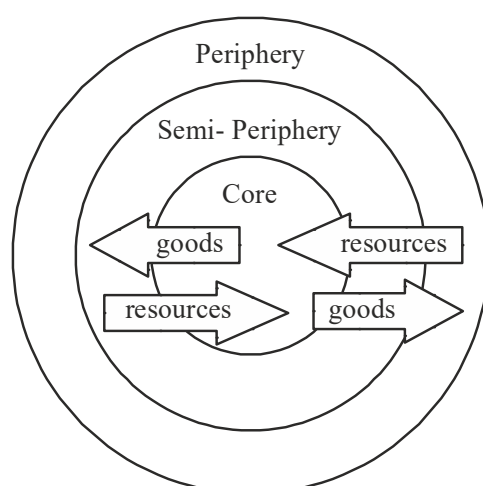


Fig. 5.10 New Growth Theory

The main objective of the new-growth theory is to make the technological progress an endogenous variable to be explained within the model, hence the name endogenous growth theory.

There are many different explanations for technological progress. Most of them, however, have a lot of common characteristics:

- o They are based on constant return to scale for capital.
- o They consider technological development as a public good.
- o They focus more on human capital.
- o It is possible for the government to affect the growth rate. Higher savings also leads to higher growth, not just higher GDP per capita.
- o They predict convergence of GDP per capita between countries in the long run. This is a consequence of the public good property of the technological advancements.

(6) Property Rights-Property rights are theoretically and socially enforced constructs in economics for determining how a resource or economic good is used and owned. Resources can be owned by individuals, associations or government. Property rights can be defined as a right to specific property whether tangible or intangible. Property rights refer to the theoretical and legal ownership of specific property by individuals and the ability to determine how much property is used. In many countries, including the United States, individuals generally exercise private property rights (the rights of private persons to accumulate, hold, delegate, rent or sell their property). In economics, property rights form the basis for all market exchange, and the allocation of property rights in a society affects the efficiency of resource use.

NOTES

NOTES

Property rights can be viewed as an attribute of an economic good. This attribute has four broad components and is often referred to as a bundle of rights:

- o the right to use the good
- o the right to earn income from the good
- o the right to transfer the good to other
- o the right to enforce property rights

In economics, property is usually considered to be ownership and control over a resource or good. Many economists effectively argue that property rights need to be fixed and need to portray the relationships among other parties to be more effective.

Separation of Growth and fluctuation

It is often useful to separate the evolution of a variable that grows over time into a trend. The graphs below show such a separation for real GDP.

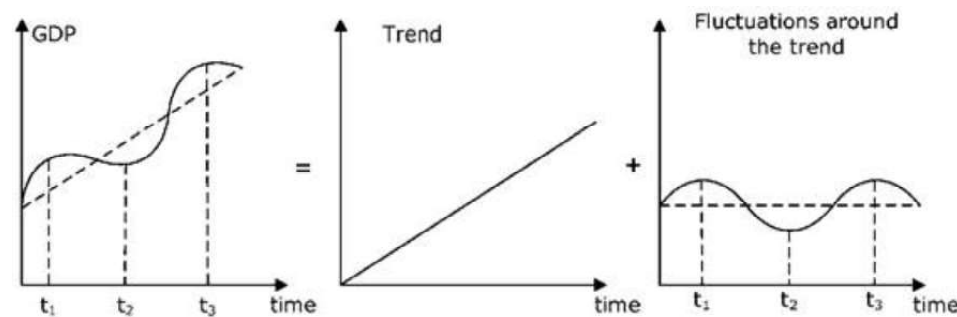


Fig. 5.11 Separation for Real GDP

The left diagram shows a stylized graph of real GDP over time. It demonstrates the two imported characteristics in real GDP. GDP fluctuates overtime and GDP grows over time at least over a larger period of time. The left graph is the sum of the middle graph and the right graph.

The middle graph shows the trend in GDP. The trend represents the second characteristic of GDP the fact that GDP grows overtime. The right graph shows the fluctuations around the trend of GDP. These fluctuations around the trend represent the first property of GDP.

The purpose of growth theory is to investigate the trend while most of macroeconomics apart from growth theory is about the cycles. The trend is about the very long run perspective of the economy while cycles are about the short and medium run. The rest of this is all about cycles and not at all about trends.

Check Your Progress

7. What is the last stage of the linear growth theory?
8. State the central contention of dependency theory.
9. What should be done by countries to develop themselves as per new classical economists?

NOTES

5.6 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Malthus wrote his essay on principles of population as a reaction to the views of Ricardo and Smith.
2. Malthus found nearness of his views in the ideas of Sir Walter Raleigh, Sir Mathew Hale, Robert Wallace and Joseph Townsend.
3. Malthus treated artificial restraints for population control as a vice or sin.
4. Marx related population growth with present economic system and for him both were inseparable.
5. The socialists, who closely follow Marx include Urianis, Boyarski, Shusharin, Malisher, Riabouekin and Raichko.
6. The socialists believe that population in a socialist society will increase slowly than in a capitalist society because of the superior status of women under socialism.
7. The final stage of linear growth theory is the stage of mass consumption, where citizens enjoy high and using consumption per head, and where rewards are made distributed more evenly.
8. It is a central contention of dependency theory that poor states are impoverished and rich are enriched by the way poor states are integrated into the 'world system'.
9. New classical economists believe that to develop, countries must liberate their markets, encourage entrepreneurship, privatize state owned industries, and reform labour markets, such as reducing the power of trade unions.

5.7 SUMMARY

- Thomas Robert Malthus was born on 14 February 1766 and lived upto 1834. His parents had liberal views and gave him good education. His views come to be widely known to the society through 'An Essay on the Principles of Population as it affects the Future Improvement of Society'

NOTES

with Remarks on the speculations of Mr. Godwin, M. Condorcet and other writers.’ He gave his ideas as a reaction to the views of Ricardo and Smith.

- According to Malthus, both the government as well as propertied class were supporting population growth because both had their own interests.
- Malthus was the first to state a systematic principle of population in 1798 in his famous work titled, ‘Essay on The Principle of Population as it Affects the Future Improvement of Society’. He modified some of his conclusions in the next edition in 1803.
- Malthus states that ‘Population, when unchecked increases in a geometrical ratio. Subsistence increases only in an arithmetic ratio.’
- The Malthusian thesis was an unwarranted hasty generalization which was logically unsound. Naturally, Malthus has been the target of scathing criticism by both friends and foes.
- The Traditional way of cultivation and the operation of the law of diminishing returns in many parts of the country are supporting the operation of Malthusian devil in India. Rising tide of unemployment, low standard of living, high incidence of birth and death rates prove the validity of Malthus in India.
- Recently Neo-Malthusianisms has come to the front. These thinkers have a faith that whatever Malthus said about population growth was absolutely correct. Neo-Malthusians believe that without any effect on the sexual pleasure of the couple, the growth of population should be checked. This should be done with the help of recent devices and methods
- Karl Marx (1818-1883) was a German social philosopher, who became founder of modern communism. Marx did not believe that all hardships with which the people were suffering were due to man’s tendency to grow in numbers faster than his production of subsistence would permit.
- Marx did not agree with Malthus’s Theory of Population. According to him, Malthus was plagiarist and poured ridicule over him.
- According to Marx, in no country of the world does population increases on account of fertility but increases only on account of capitalist policies.
- In his theory of population Marx has criticized Malthus but his criticism does not appear to be very reasonable. In the words of Lewis and Thompson, there can be no question of sincerity of Marx’s belief in the evils of capitalism as the sole basis of poverty, but he should not have confined his efforts to discredit Malthus’s views to personal ridicule and vilification.
- Growth theories attempt to explain the conditions that are necessary for development to occur and weigh up the relative importance of particular conditions.

- There are several broad categories of growth theories including:
 - o Linear growth theory
 - o Structural change theory
 - o Dependency theory
 - o New-classical theory
 - o New-growth theory
 - o Property rights

*Population Theories-II:
Malthusian, Marxist and
Growth Theories*

NOTES

5.8 KEY WORDS

- **Arithmetic Progression:** It is a sequence of numbers such that the difference between the consecutive terms is constant.
- **Communism:** It refers to a theory or system of social organization in which all property is owned by the community and each person contributes and receives according to their ability and needs.
- **Zamindari System:** It refers to the system under which zamindars held land.

5.9 SELF-ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Give a brief background of the Malthusian theory of population.
2. Differentiate between Malthusian and Neo-Malthusian theories.
3. Briefly discuss the criticism of Neo-Malthusians.
4. Discuss the socialist and Marxist writings on the theories of population.
5. Why is the new growth theory also known as endogenous growth theory?
6. Write a short note on the Linear model of growth.

Long-Answer Questions

1. Explain the Malthusian theory of population.
2. Critically evaluate the Malthusian theory of population.
3. Discuss the applicability of Malthusian theory of population on India.
4. Describe Lewis' structural change model of growth theory.
5. Write short notes on neoclassical and property rights growth theories.

NOTES

5.10 FURTHER READINGS

- Bhende, Asha A. and Tara Kanitkar. 1994. *Principles of Population Studies, Sixth Edition*. Mumbai: Himalaya Publishing House.
- Heer, David M. 1987. *Society and Population, Second Edition*. Delhi: Prentice-Hall India.
- Raj, Hans. 1984. *Fundamentals of Demography (Population Studies with Special Reference to India), Third Edition*. Delhi: Surjeet Publications.
- Kumarasena, Harsha. 2004. *Population Education*. Delhi: Dominant Publishers and Distributors.

UNIT 6 SOCIAL THEORY OF POPULATION CHANGE

*Social Theory of
Population Change*

NOTES

Structure

- 6.0 Introduction
- 6.1 Objectives
- 6.2 Theory of Demographic Transition
 - 6.2.1 Opinion About the Four Stages of Population Growth
 - 6.2.2 Analysis and Criticism of Views
- 6.3 Theory of Ester Boserup
 - 6.3.1 Gender Studies
 - 6.3.2 Boserup's Theories on Agriculture: 'The Conditions of 'Agricultural Growth'
- 6.4 Julian Simon's Theory
 - 6.4.1 Population Growth Spurs Economic Development
 - 6.4.2 Views on Simon's Theories
- 6.5 India's Population: Size and Growth Trends
- 6.6 Trends in World Population
- 6.7 Answers to Check Your Progress Questions
- 6.8 Summary
- 6.9 Key Words
- 6.10 Self Assessment Questions and Exercises
- 6.11 Further Readings

6.0 INTRODUCTION

Theory is important both because of its essential role as a part of the scientific process and because it provides a framework within which policies and programmes are formulated, or on which the development of a nation depends. This dual role provides an essential anxiety which is a source of the social sciences. It is rare that social scientists are able to formulate and test social theories in such a way as to leave all observers persuaded as to the correctness of a given position and the corollary implications for the policy. The much more common situation nowhere better illustrated than in the area of social studies, is that several or many theories co-exist, with none being dominant. This situation encourages extended debate about the policy alternatives, where both alternative value structures and alternative theoretical perspectives with empirical evidence in the complex process of deciding research priorities and policy options. This reality heightens our need for an understanding of the role of the social theory and its specific theoretical alternatives which are needed for the social development.

Population studies primarily draws its matter from the important subjects namely biology, economics, sociology and geography. In fact, the credit of making population studies an independent subject goes to sociologists, though in practice,

NOTES

now-a-days economists are making its maximum utilization. Social theory is not limited to how the children are born but also goes beyond it by finding out how in civilized or less civilized societies there is increase of population, both qualitative and quantitative. It is social theory which makes it clear that death and birth rate in a society is influenced by social standards of the society. A sociologist is always concerned with and wants to know as to how women are treated in society because that influences that birth rate of the society. In societies, where women are considered as child producing machines, the birth rate will ultimately go up, but then they are treated as equal partner in family, the birth rate tends to come down. Similar what type of freedom women enjoy in a society and to which extent that freedom is available is another area of theory.

The systems of early or late marriages, ban on widow remarriage or encouragement of such a system of marriage, monogamy or polygamy are social problems and each society is the best judge to decide as to how to solve these, but social theory is essentially concerned with the problems because they are themselves concerned with death and birth rates on the one hand and marriage, divorce etc. on the other.

Social theories cannot ignore the social values of a society namely, educational standard of living of the people, status of women in today's society etc., because these influences the birth rate. It is accepted that it is social consciousness which encourages and produces family planning.

Areas of social theory deals with composition, organization and distribution of population in human society. Sociologists find that death rate in a society is influenced and affected by social conditions e.g. social habits, environment, living conditions of the people. They also will have to study as to what is the scientific advancement of the society and how far that has checked death rate.

This unit critically reviews major progress in the theoretical considerations as population change from the standpoint of sociology. The following theories will be discussed in the fact:

1. Demographic Transition Theory
2. Theory of Ester Boserup
3. Theory of Julian Simon

We will also discuss the trends in population growth at the national and world level.

6.1 OBJECTIVES

After going through this unit, you will be able to:

- Examine the theory of demographic transition
- Describe the theory of Ester Boserup
- Explain the theory of Julian Simon
- Discuss the trends in population growth-Indian, World and states

6.2 THEORY OF DEMOGRAPHIC TRANSITION

It has been suggested that there are number of district stages in demographic growth through which population passes, the stage being collectively known as the population cycle or the theory of 'demographic transition'. The demographic transition is the relationship between fertility and mortality, i.e., between the birth rate and the death rate. This theory pinpoints the changes in these rates which occur as a consequence of economic development, sex had identified four stages involved in this demographic transition that has historically accompanied modern economic development:

The First Stage: Sometimes called the high fluctuating stage, is marked by high fertility and mortality rates (about 35 per thousand) and by slow or intermittent productivity, low standard first phase occurs in those economies which are characterized by low productivity, low standard of living, heavy agricultural dependence, primitive means of production and underdeveloped means of transport. In such economies, death rates are high on account of poor nutrition, primitive sanitation and absence of effective medical aid. Similarly, birth rates are also high due to wide-spread prevalence of illiteracy, universality of marriage, early marriage, absence of desire to plan families, and last or a consequence of deep-rooted social beliefs and customs about the size of the family, attitude towards women, etc. Moreover, in a primitive society, there are economic advantages of large family in the form of low cost of raising children and their contribution in the form of earnings. 'Children contribute ever since an early age and are the traditional security of parents in the old age. The prevalent high death rates, especially in infancy, imply that such security can be attained only when many children are born.'

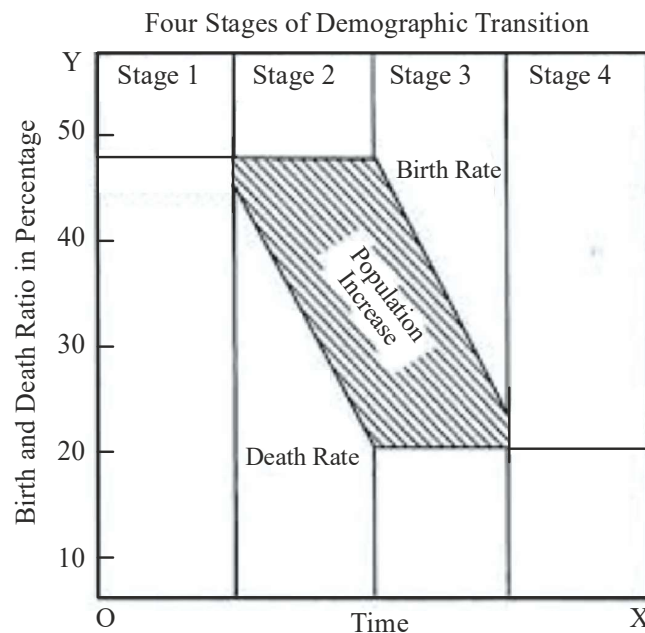


Fig. 6.1 Stages of Demographic Transition

NOTES

NOTES

In such a society, since the high birth rate is balanced by the high death rate, regular increase in population is very low. This stage is usually referred to as the stage of 'high potential growth' but of low actual growth. This term is a tacit acknowledgement of the variability of the death rate and of its susceptibility to control or reduction, under modern conditions.

Britain passed through this stage prior to the industrial revolution. Countries of Central, Western and Eastern Africa and South-East Asia are included in this stage where the increase in population is conditioned by the frequent occurrences of famines, pestilence, floods and droughts.

The Second Stage: This stage is also known as the early expanding or youthful demographic stage, where death rate begins to decline but birth rate lags considerably behind in the high actual growth in the second stage as a consequence of decline in death rate. In countries belonging to this phase, agriculture techniques are improved by various scientific devices so that food supply becomes more abundant. The improvement in transport makes the supply of food regular. Increasing industrialisation brings about all-round improvement. Rise in income levels enables the people to improve their diet and better medical facilities are provided. All these factors tend to increase birth rate but reduce death rate; the wide gap between the two keeps the net rate of growth at very high levels and this marks the stage of 'population explosion.' This stage is the most hazardous period for a developing economy. The decline in death rate in the second stage creates an imbalance which requires a period of transition for adjustment. Thus, the theory is termed as the theory of demographic transition.

Britain passed through this stage from about 1750 to 1880, in the latter period the birth rate was about 33 and death rate about 20. Many countries of Northern South America and Central America as well as China and parts of South East Asia belong to this stage. Abrupt declines in death and birth rate of over 40 per thousand have produced some startling natural increase; Costa Rica (1962) 42.0, Brunei (1960) 38.3, and Malaya (1960) 31.4. A number of countries with birth rate of 30-40 per thousand and natural increase rates of 20-30 per thousand should also be included in this stage: Mauritius (1961) 29.9, Hong Kong (1961) 28.3, Singapore (1961) 28.2, Ceylon (1960) 28.0, India 24.7, Trinidad and Tobago (1961) 24.3 and Chile (1961) 22.8.

It may be noted here that if it was appropriate to call the demographic change in Europe over the last two centuries 'the Demographic transition', it is certainly not appropriate to use the same term for what is happening in the developing countries today. The reason is that the condition in the developing countries since World War II definitely is not similar to the experiences of the European countries on which the transition theory was based. Where it took European countries 150 to 200 years to reduce their death rate below 15, this is being done in developing countries now in 15 or 20 years. There has been on an average a one per cent rate of increase in developing countries. What is happening in the developing countries is not a 'Transition', it is as Kingsley Davis has said, an 'Explosion'.

NOTES

The Third Stage: Also known as the late expanding stage of population, this stage is characterized by declining fertility (about 28 per thousand) and with mortality declining more rapidly (to about 12 per thousand). Natural increase rates tend to lie between 10 and 20 per thousand. Spain and Yugoslavia, the Netherlands and the United States, Australia, Portugal, U.S.S.R., Canada, Argentina, Israel and New Zealand belong to this phase. The economy of these countries is based relatively on advanced agriculture and modern industry with the growth of industrialisation, population tends to shift away from rural areas towards industrial and commercial centres.

The Fourth Stage: The stage also known as low fluctuating stage is characterized by low fertility (birth rates between 10 and 20 per thousand) balanced casually by low mortality rates (death rates of 8 to 13 per thousand.) The result is very low natural increase of population. Many European countries and one Asian country, Japan, may be classified in a fourth stage of population growth. The countries coming under this phase are Hungary, Sweden, Belgium, Luxembourg, Czechoslovakia, Austria, England and Wales, Denmark, Scotland, France, West Germany, Norway, Finland, Romania, Switzerland, Italy, Bulgaria, and Japan. The economy of these countries is characterized by highly developed industries, mechanized agriculture and the excess of urban population and with the development of economic opportunities for women working outside the home tends to increase the possibility of economic mobility that can better be achieved with small families and tends to decrease the economic mobility that can be advantages of a large family. One of the features of economic development is typically increasing urbanization, and children are usually more of a burden and less of an asset in an urban than in a rural setting. Thus, the fourth stage is characterized by low birth rate, small family size and by low growth rate of population. This is the stage of incipient decline of population.

Thus, these stages reveal the transformation of a primitive high birth and high death rate and low-income economy into a low birth and low death rate and accumulation of capital. We saw that the Figure 6.1 depicts the four stages involved in this demographic transition which are set out above. On the average nearly cancel out. In the second stage, death rates start declining, birth declining while birth rates remain high, stages two and three are the periods of explosion, when there is a large differential between birth and death rates due to declining death rates and constant birth rates. Finally, in stage four, death rates and birth rates are both again near balance, but this time at lower rates than in stage one.

In most European Countries a decline in fertility did not begin until the second half of the nineteenth century. It has continued with minor interruptions, until the present. In the mid-1700 European countries, birth rates were high (35-40 per thousand in most countries) but not as high as in many of today's developing countries (often 40-50). The sharpest declines in fertility occurred between 1870 and 1930 when they levelled out at around 20, and most European countries

NOTES

today have rates between 15 and 20 prior to World War II, the developing countries also were characterized by high birth and death rates, and thus had low rates of natural increase. The demographic transition began with a rapid post-war decline in death rates unaccompanied by a corresponding decline in birth rates. Growth rates began to increase. Today, the average is 2.8%, with the levels in some countries as high as 3% and even 4%.

There are wide variations, of course and different developing countries are at different points along the path of the demographic transition. In some both fertility and mortality remain high. In others, mostly in Asia and Africa, fertility is high and death rate is falling. In still others, notably in countries with two fifths of Latin-America's population, fertility is high and death rates are already low. In a few countries of temperate South America, East Asia and parts of Oceania, death rates are low, and fertility is declining.

Population Cycle in India

India has just begun her population cycle. Prior to 1921, India was in the first stage of population cycle and her population rose to a very slow rate due to high death and birth rates. From 1921 onwards, it has entered in to the second stage of demographic transition which is characterized by a decline in the death rates, but high birth rates and the high growth potential of the population is being realized as a high actual growth of population. Since 1921 we have had an uninterrupted rising rate in the growth of our population and since 1951 its acceleration has acquired a momentum which is rightly called an explosion. The fact of the stupendous population growth now in progress in this country has to be known as a stark reality which has to be squarely faced.

6.2.1 Opinion About the Four Stages of Population Growth

In this section, we will have a look at the different viewpoints about demographic transition.

1. Prof. O.P. Walker's Views about Classification

Prof. Walker has classified stages into five:

First Stage: It is high stationary stage. During this stage birth as well as death rate is very high, but the former exceeds the latter and as such population does not very much increases. Before 1920, China and India were at this stage. This stage is usually found in countries which depend on agriculture which is main source of income of their people. Countries like Nigeria, Ethiopia, Tanzania, Angola etc. fall under this country.

Second Stage: It is early expanding stage. During this stage birth rate does not come down but death rate very much declines, and population very rapidly increases. This happens because it becomes possible for the nation to provide better public health services, though at a slow rate.

NOTES

Third Stage: It is called late expanding stage. During it both birth as well as death rates decrease. But birth rate does not exceed to the extent of death rate. This happens when the country has attained certain level of agricultural development and is stepping towards urbanization. There is also some sort of industrial Japan, Chili, Canada, and erstwhile USSR, etc. fall under this category.

Fourth Stage: It is low stationary stage. During this stage death rate is at the lowest stage and at the same time birth rate also slowly decreases. There is no growth rate in population of both fertility and mortality rates are low. In such a growth rate in population and both fertility and mortality rates are low. In such a society per capital income is high and there is higher industrial growth rate. In the economy there is no unemployment and the masses have considerably high real income. The people now being more educated very much care for the education and good quality food for their children. The countries like the U.S.A, Germany, Britain and Australia fall under this category.

It is declining stage, when death rate, as compared with birth rate is high. France is at this stage. In some cases, such a stage reaches when there are unforeseen calamities.

2. Thompson and Notestein Views About These Stages

According to them first and fifth stages are unusual. Neither the population is at high stationary stage nor it is at declining stage. According to them, rapid growth of population during the past three centuries was mainly due to decline in death rate, because of modernization. Throughout Modern West, birth rates reached very low levels by the middle of 1930s because of widespread use of contraceptives and desire to have small family size. According to them, there are as such only three intermediary stages namely when:

- (a) Birth rate is high but on account of reduction in death rate, population rapidly increases.
- (b) Both the death and birth rates are decreasing but death rate has decreased more as compared with birth rate and population increases but slowly and steadily.
- (c) Both birth and death rates have equally come down and population remains almost unchanged.

Thus, according to them stages are: (a) pre-transition stage. (b) transition stage and (c) Post-transition stage. In the first stage, there is little control over mortality and fertility rates and fertility is stationary. In the second stage both birth and death rates are at a very low level. At this stage living standard of the people is also very high. The people like quality and small family sides. There is optimum utilization of resources.

NOTES

3. Views of Donald Olen Cowgill

He has given the five stages of population as growth cycle. According to him:

First Stage: At this stage birth rate is high and to begin with death rate is also high and thereafter it begins to reduce itself. After some time, it again begins to increase in this way due to increase and decrease in death rate. There are fluctuations in population. When there are good food crops death rate comes down and when there are famines, pressure of death rate begins to increase. This type of cycle is found in agrarian societies and is dependent on food supplies. It is even found today in such societies which are industrially backward and have an agricultural economy.

Second Stage: At this stage, there is reduction both in death and birth rates but death rate, as compared with birth rate, comes down very quickly. But gradually both death and birth rates try to come at equal level. The people now start getting employment and there are visible changes both in food habits as well as in family size. Per capita income now begins to increase, and diseases are brought under control. Traditional views start yielding to new values and there is more use of contraceptives. There is stability in population.

Third Stage: During this stage death rate is very low but birth rate is very high and there is baby boom.

Fourth Stage: It is a stage during which both the birth and death rates are on the increase but as compared with death rate, birth rate increases more rapidly. The result is that there is higher growth rate of population, but this, it is believed very rarely happens.

Fifth Stage: This is a stage during which there is high fertility and low mortality. During this stage, growth rate of population is very slow because of low fall in mortality rate in the beginning. There are increased in social health services due to which birth rate declines and growth rate becomes slower.

4. Laudry's Views

This view is based on Cantillan's views about population. He establishes relationship between food and population. According to this point of view, there are three regimes in the development of a country. First is a primitive regime during which availability of food very much depends on the population growth rate. In other words, food supply and population are directly linked with each other. Then comes intermediate stage. During this stage, role of food in population somewhat gets reduced and now economics begins to play its role. The people now wish to maintain their living standard.

5. Ausley J. Coale and Edger M. Hoover's Views about Demographic

Transition: According to them, everywhere in agrarian economy there is high birth and death rate which varies in harvests and incidents of epidemics. The reasons

NOTES

for high death and birth rates are poor diet, poor sanitary conditions, lack of preventive and creative medical and public health programmes, etc. As the agricultural economy becomes inter-dependent on other economies, nation gradually becomes highly industrialized with, market-oriented urbanized economy. When this happens, death rate considerably comes down because of supply of adequate food and medical facilities.

6. Karl Sax Views about Demographic Transition

Karl Sax is of the view that population growth comes in stages. First stage is found in societies where development is yet to start. In these societies, both mortality and birth rates are bound to be high. In the second stage, there is higher mortality rate, whereas there is no change in the fertility rate. Thus, there is increase in population. There is slow economic development in the society. In the third stage, death rate reaches minimum level, whereas birth rate starts declining. Then comes last stage of equilibrium. Where, second and third stages are known as those of population explosion, the remaining two stages are called those of stationary population.

7. U.N. Views about Demographic Transition

On the basis of population U.N. has classified societies as follows:

- (a) Societies which have high birth and death rate
- (b) Societies which have high death rates but there is declining high death rate
- (c) Societies which have high birth rate but fairly low death rate
- (d) Societies which have declining birth rate but low death rate
- (e) Societies with fluctuating birth and death rate

6.2.2 Analysis and Criticism of Views

Of course, these thinkers have given their own viewpoints about population growth, but one thing is clear that every country must pass through different stages. First stage is applicable to backward countries where both death and birth rates are high. In these countries agriculture is the main service of income. The people live in the rural areas and either there is no industrialization and if there is any, that is very insignificant. Per capita income is very low, and children are considered more as a source of income rather than anything else. The children of all ages find work in agriculture and thus even a small child becomes source of income.

During the second stage, economy begins to proceed toward development. Along with this agriculture industry also begins to play its own role. In other words, industrialization takes place. Along with industrialization, urbanization starts, and many transport facilities are provided to the society. Education, food, health and similar other facilities are provided to the society. In social life, hold of orthodoxy begins to relax itself. At this stage there is almost population explosion.

NOTES

At third stage, living standard improves and along with that there is improvement in the physical standard of the people. The women also begin to get educated and so employment also increases. They wish to have less number of children and look to find time to play their role in other walks of life. On the other hand, aspirations in the economic field go very high. The parents wish to give very high education to their children. There is definite trend towards urbanization and industrialization and birth rates definitely falls down.

According to this theory, all the countries of the world are passing through these stages. Broadly speaking, some African countries are in the first stage. Asian in the second and European in the third stages. Thus, these three stages are unavoidable for the country as a whole.

Criticism of theory of Demographic Transition

There is no doubt that this theory is quite useful in describing demographic history. But at the same time, it has its own limitations. It has been said that it is not a theory in the strict sense of the term because it is only a broad generalization and does not encompass the experience of all the western countries. It does not even fully explain the phenomenon of 'Baby Boom' which came in western countries after economic recovery and second World War. It is also pointed out by the critics that the theory does not provide a theoretical explanation of fertility which is necessary for any demographic study. It is not a theory in the sense that it does not extract fundamental processes from a phenomenon and identify crucial variables. Because of this it does not have any predictive value. A serious limitation of this theory is that it cannot be applied with confidence in the developing countries. In brief, it can be said that though this theory provides good framework for wider empirical generalizations, yet it cannot really be considered a theory.

Check Your Progress

1. What is the third stage of demographic transition?
2. Whose theory of demographic transition has only three stages?
3. Which stages of demographic transition are called population explosion as per Karl Sax?

6.3 THEORY OF ESTER BOSERUP

Ester Boserup is known for her theory of agriculture intensification, also known as Qay's theory, which posits that population change derives the intensity of agricultural production. Her position countered the Malthusian theory that agricultural methods determine population via limits on food supply.

Ester Boserup (18 May 1910-24 September 1999) was a Danish and French economist. She studied economic and agricultural development, worked

at the United Nations as well as other international organizations, and wrote seminal books on agrarian change and role of women in development.

*Social Theory of
Population Change*



Born	: 18 May 1910 in Copenhagen, Denmark
Died	: 24 September 1999 (aged 89)
Nationality	: Danish

Ester Boserup is one of the many researchers to develop a theory about human population growth. She's a 20th century Danish economist. She studied economics and agricultural development at the University of Copenhagen. In 1935, she graduated with her degree in theoretical economics but not before marrying Mogens Boserup. After graduation, Ester Boserup worked for the Danish government studying trade economics. She actually held their position throughout World War II, during which Denmark was occupied by the Nazis in 1947, she and her family moved to Geneva to work with the newly formed United Nations and later consulted an economics issues around the world.

It was her great belief that humanity would always find a way and was quoted in saying 'The power of ingenuity would always outmatch that of demand.' She also influenced the debate on women in workforce and human-development and the possibility of better opportunities of work and education of women. Her best known book on this subject, *The Conditions of Agricultural Growth*, presents a dynamic analysis embracing all types of primitive agriculture. A major point of her book is that necessity is the mother of invention. Her other major work *Women's Role in Economic Development*, really helped to shape up her career and advanced the view that women's role in economic development was insufficiently valued.

According to Malthusian theory, the size and growth of the population depends as the food supply and agricultural methods. In Boserup's theory, agricultural methods depend on the size of the population. In the Malthusian view, when food is not sufficient for everyone, the excess population will die. However, Boserup argued that in those times of pressure, people will find ways to increase the production of food by increasing work force, machinery and fertilizer, etc.

NOTES

NOTES

Although Boserup is widely regarded as being anti-Malthusian, both her insights and those of Malthus can be comfortably combined within the same general theoretical framework.

Boserup argued that when population density is low enough to allow it, land tends to be used intermittently, with heavy reliance on fire to clear fields, and fallowing to restore fertility. Numerous studies have been shown such methods to be favorable in total workload and also efficiently. In Boserup's theory, it is only when rising population density curtails the use of fallowing, that fields are moved towards annual cultivation contending with insufficiently fallowed and less fertile plots, covered with grass or bushes rather than forest, mandates explained efforts of fertilizing, field preparation, weed control and irrigation. These changes often induce agricultural innovations but increase marginal labour cost to the farmer as well. The higher the rural population density, the more hours the farmer must work for the same amount of produce. Therefore, workloads tend to rise while efficiency drops. This process of raising production at the cost of more at lower efficiency is what Boserup describes as 'agricultural intensification'.

Although Boserup's original theory was highly simplified and generalized, it proved instrumental in understanding agricultural patterns in developing countries. By 1978, the theory of agricultural change began to be reframed as a more generalized theory. The field continued to mature in relation to population and environmental studies in developing countries. Neo-Boserupian theory continues to generate controversy with regards to population density and sustainable agriculture.

6.3.1 Gender Studies

Ester Boserup also contributed to the discourse surrounding gender and development practices with her 1970 work *Women's Role in Economic Development*. The work is the first investigation ever undertaken into what happens to women in process of economic and social growth throughout the 'Third World'. According to the foreword in the 1989 edition by Swati Mitter, it is Boserup's commitment and scholarly work that inspired the 'UN Decade For Women' between 1975 and 1985 and that has encouraged aid agencies to question the assumption of gender neutrality in the costs as well as in the benefits of development.

Boserup's text evaluated how work was divided between men and women, the types of education women needed to enhance development. This text marked a shift in the women in development debates, because it is argued that women's contributions, both domestic and in the paid workforce, contributed to the national economies. Many liberal feminists took Boserup's analysis further to argue that the costs of modern economic development were shouldered by women.

Boserup worked for the United Nations and her experience working in low and middle-income countries such as India helped to shape her theory of the relationship between human population growth and food production.

6.3.2 Boserup's Theories on Agriculture: 'The Conditions of Agricultural Growth'

The economics of agrarian change under population pressure 1965. Boserup challenged Malthus' conclusion that the size of the human population is limited by the amount of food it can produce. She suggested that food production can and will increase to match the needs of the population.

Drawing on her knowledge of farming in the developing world, where populations were growing quickly, Boserup argued that the threat of starvation and the challenge of feeding more mouths motivates people to improve their farming methods and invent new technologies in order to produce more quantity and good quality of food.

Boserup developed this change as 'agricultural intensification'. She supported it with an example: A farmer who has four fields to produce food for his family might grow crops in three of the fields but leaves the fourth field empty as the ground is dry and his crop will not grow there. However, if the farmer has two more children to take care of, the pressure to produce more food might drive him to build irrigation canals to bring water to the fourth field or to buy in different type of seed that will grow in drier ground. He would change the strategy to make sure that he has enough food to support a large family.

As modern environmentalists, scientists and politicians debate the future of the world's climate and resources, we must hope that Boserup was right to believe that human beings are capable of remarkable intensity in the face of a problem.

Ester Boserup, in *Women's Role in Economic development* (1970), emphasizes that women do not benefit from development opportunities as much as men and technologies provided by development programs deteriorate women's status. The main issue of women in development is their incorporation into the existing economic development plans, programs and projects. If women are fully integrated into development plans and projects and take active roles, they will benefit more from the opportunities of the development. In this context, as suggested by Neo-classical view, it is considered that women may equally benefit from the economic development with certain state interventions and policy practices rather than assuming that the case of women could be improved with economic development.

Ester Boserup's challenging counter-Malthusian theory of growth of primitive agriculture is formalized in a very systematic manner. Ester Boserup's (1965) provocative monograph 'The Conditions of Agricultural Growth', offers an intriguing look at primitive agrarian societies. Boserup (1970-1975) provides more compact

NOTES

NOTES

version of same vision. The received wisdom generally characterized such communities as being technologically ignorant when they were observed failing to make use of such tools as the plough or to brought animals or fertilizers. Boserup, on the other hand, argues that such methods of producing foodstuffs were highly widely known and understood by atleast the fourteenth century. According to her, communists that did not use such methods were not ignorant of their possibilities but did not use them as a matter of choice.

In Boserup's view, a primitive agrarian community had a fixed territory and an array of discrete technologies or approaches of land use to choose between. These approaches ranged over a typology consisting of five different categories:

- Forest fallow
- Bush fallow
- Short fallow
- Annual fallow
- Multicropping

Each suggestive category represents an 'intensification', in a special Boserupian's sense, of the use of land. Each suggestive category requires new and more elaborate technologies requiring in them greater social investment for assigning a greater position of the labour force to tasks, indirectly to the production of foodstuffs—greater 'roundaboutness' and different tools.

The special Boserupian concept of 'intensification' of land use merits elaboration. It means as more of the total territory is placed under cultivation, production is shortened. That is why observation of large tracts of sparsely-populated lands is not inconsistent with the assumption that African communities had fixed territories at the time of contact with the West. Those empty lands might as well have been part of long fallow system.

In the short run, the tradition to the new technique can mean a fall in output per man-hour but that, presumably, is a temporary effect. It costs until the community markests the new approach.

Boserup's view from older perspectives are as follows:

- She is casually running from population to agricultural intensification rather than vice-versa. The progress is indicated by tensions population growth might generate for the community's ability to meet its prevailing relative subsistence standard. Boserup's causal path responds to commination.
- Since population growth can lead to the use of more intensive techniques of production. Boserup's perspective represents a clear repudiation of Malthusian population pessimism.

NOTES

- As noted above she depicts peasant societies as having knowledge, at least potentially, of a variety of techniques, but they choose the one that most easily permits them to meet a subsistence threshold. This inverts the conventional view that changes in intensity of land use were due to one autonomous technical change.
- Boserup's view can be interpreted as a theory of Agricultural Revolution—an event taken as historical given i.e., precondition for capitalism in nineteenth century economic analysis and in much of contemporary economic thought as well. Boserup's model offers a potential answer to the questions of why some peasant's societies achieved agricultural revolutions and others did not.

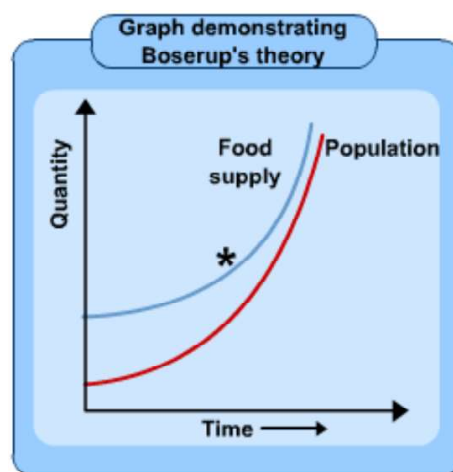


Fig. 6.2 Graphical Presentation of Boserup's Theory

- (A) This graph shows how the rate of food supply may vary but never reaches its carrying capacity because every time it is getting new, there is an invention or development that causes the food supply to increase.

These changes often induce agricultural innovation but increase marginal labour cost to the farmer as well, the higher the rural population density, the more hours the farmer must work for the same amount to produce. Therefore, workloads tend to rise while efficiency drops. This process is, what Boserup describes as 'agricultural intensification'.

- (B) Boserup's Flowchart of Population Growth

Ester Boserup stated that population pressure is a stimulus to technological change in agriculture, not a cause of disaster. In her view people will alter the way they farm to support a larger population—necessity is the matter of invention.

NOTES

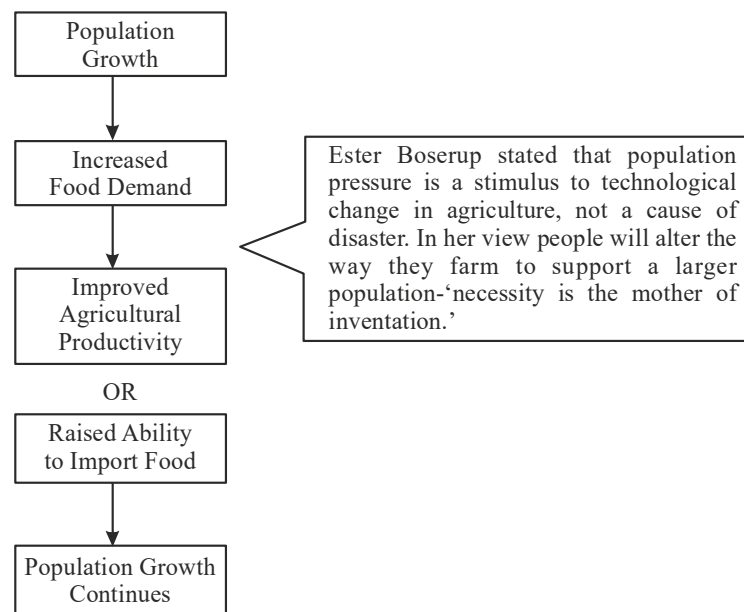


Fig. 6.3 Boserup's Flowchart of Population Growth

The denser the population is, the more intensive cultivation becomes. She argued that when population density is low enough to allow it, land tends to be used intermittently when heavy reliance as fire to clear fields and following to restore fertility. Numerous studies have shown such methods to be favourable in total workload and also efficiency.

The theory has been instrumental in understanding agricultural patterns in developing countries, although it is highly simplified and generalized.

In Boserup's theory, it is only when population density curtails the use of fallowing that fields are moved towards annual cultivation—as learnt earlier, she suggests this happen in two ways:

- (i) **First Way** - Change fallow times or stages—Forest fallow, Bush fallow, Short fallow, Annual cropping, Multicroping. Contending with insufficiently fallowed, less fertile plots, covered with grass or bushes rather than forest, mandates expanded efforts at fertilizing, field preparation, weed carted and irrigation.
- (ii) **Second way**- New farming methods% These changes often induce agricultural innovation, but in LDCs these changes also increase marginal labour costs to the farmer as well. The higher the rural population density, the more hours the farmer must work for the same amount of produce. These workloads tend to rise while efficiency drops. New farming methods can include:
 - (a) New Techniques—Hydroponics, weather control, improve irrigation, fertilization, pesticides, weedicides machines, Green Revolution (Hybrid seeds), GMO's, Green Houses Desalination, Stop Desertification, etc.

- (b) New Organizations—Co-operatives, Agribusiness, vertical integration, communes, kibbutz, etc.
- (c) Land Reform—Gavelkind laws, plantations.
- (d) Development of Marginal Lands—Greenhouses, fertilization, irrigation, global warming, etc.
- (e) Cultivations of the sea—Aquaculture
- (f) Synthetic Foods—Chemicals to stimulate, replicate food, etc.

Ester Boserup argued that changes and improvements occur from within agricultural communities and those improvements are governed by not only outside interference, but by those communities themselves.

She believed that people have the resources of knowledge and technology to increase food supplies she suggested that population growth has enabled agriculture development to occur. Her theory assumes people knew of the techniques required for more intensive systems and used them when the population grew. For example, demographic pressure (Increase in population density) provides innovation and higher productivity in use of land (irrigation, weeding, crop intensification, better seeds) and labour (tools, better techniques).

Strengths and Weaknesses

Strengths

As mentioned earlier, although Boserup is widely regarded as being anti-Malthusian, both her insights and those of Malthus can be comfortably combined within the same general theoretical framework.

Boserup argued that the changes in technology allow for improved crop strains and increased yields, which was supported by evidence of GM crops and the 'Green Revolution.'

Boserup accepts that overpopulation can lead to unsuitable farming practices which may degrade the land e.g., population pressure as one of the reasons for desertification in the Sahara region (fragile environments at risk).

Weaknesses

The theory has been based on the assumption of 'closed' society—which is not the case in reality e.g. migration.

It is less convincing as an explanation of short-term trends, and in this case the 'short' term can last for decades. One may speculate that she was more interested in developed countries than in advanced countries. 'Boserup seems to neglect the different value of modern technology or the new role of capital. Her world is a two factor world—labour and land.'

'Unfortunately, the places with the food shortages tend to have low-tech agriculture and the high-tech parts of the world tend to "have high living standards and plenty of food".'

NOTES

NOTES

At some point, the population may get so huge that they cannot be fed no matter how inventive they are. Indeed, to feed more mouths people have to dig deeper into the environment, to divert more biological productivity for themselves, to demand more from the soil, to use more water, more fertilizers, etc.

Arguments

‘The model has its own weaknesses. It is surely as an account of long-term growth. It is less convincing as an explanation of short-term trends, and in the case the “short” term can last for decades.’

‘In her words, intensification is possible up to a point but sooner or later, it has to reach limit. Boserup’s theory seems to provide a model for continuous population growth, but there are those who argue that Malthus was right and that there is a limit to the amount of the humans the planet can support.

Boserup assumes that population growth is exogenous, following a standard practice among economists in pre-Beckerian time. Today, however, most consider population growth to be endogenous and largely affected by economic calculation. People could reduce population increase by delaying marriages, Controlling births, migrations and the like.

Summary

The Boserup theory formalized offers an attempt to understand prospects for growth in pre-industrial agrarian economies. With only one direct factor production (labour) and technical change driven by a response to adversity, the Boserup system offers framework for exploring real growth laden with possibilities. Initial conditions and parameter restrictions influence the predicted outcomes for a given community. Subsistence communities will either flourish or die in the long run rather than reach more conventional steady-state growth paths.

Such a theory offers insight into the process of structural transformation and corresponding possibility of the alteration of the prevailing population growth strategy. As modern environmentalists, scientists and politicians debate the future of the world’s climate and resources, we must hope that Boserup was right to believe that human beings are capable of remarkable ingenuity in the face of a problem.

Check Your Progress

4. What is the difference in Malthus’ and Boserup’s view about agricultural methods and the size of the population?
5. Name the 1970 book by Boserup which is considered to have inspired UN declaring 1975-85 as the ‘Decade for Women’.

6.4 JULIAN SIMON'S THEORY

Human population growth is an issue that has attracted lots of attention. Population explosion is growing at very fast pace. Many researches thought that we were doomed, that the population was growing too fast and that we would eventually all starve to death. But Julian Simon took that bet.

Literally, this professor of business administration proposed an alternate theory about human population. He approached this question of human population growth from an economic perspective. While many were concerned that population growth would eventually mean a scarcity of resources. Simon arrived at conclusion that in reality, there was nothing to worry about. Simon argued that population is the solution to resource scarcities and environmental problems, since people and market innovate. His ideas were praised by Nobel Laureate economist Friedrich Hayek and Milton Friedman, the latter in 1998 foreword to the *Ultimate Resource-II*, put they have also attracted critics such as Paul R. Enrich, Albert Allen Bartlett and Herman Daly.

Julian Lincoln Simon (12 February 1932- 8 February 1998) was an American professor of business administration at the University of Maryland and a senior fellow at the Cato Institute at the time of his death, after previously serving as a laytime economics and business professor at the University of Illinois at Urbana Champaign.

Julian Lincoln Simon

Born	: February 12, 1932, New York, New Jersey
Died	: February 8, 1998 (aged 65) Chevy Chase Maryland
Nationality	: United States
Institution:	University of Maryland, Cato Institute University of Illinois at Urbana-Champaign
Field	: Environmental economics
School or	: Chicago School of Economics Tradition

6.4.1 Population Growth Spurs Economic Development

The Ultimate Resource is a 1981 book written by Julian Lincoln Simon challenging the notion that humanity was running out of natural resources. It was revised in 1996 as *The Ultimate Resource 2*.

Overview

The overarching thesis on why there is no resource crisis is that as a particular resource becomes more scarce, its price rises. This price rise creates an incentive

NOTES

NOTES

for people to discover more of the resource, ration and recycle it, and eventually, develop substitutes. The “ultimate resource” is not any particular physical object but the capacity for humans to invent and adapt.

Scarcity

The work opens with an explanation of scarcity, noting its relation to price; high prices denote relative scarcity and low prices indicate abundance. Simon usually measures prices in wage-adjusted terms, since this is a measure of how much labor is required to purchase a fixed amount of a particular resource. Since prices for most raw materials (e.g., copper) have fallen between 1800 and 1990 (adjusting for wages and adjusting for inflation), Simon argues that this indicates that those materials have become less scarce.

Simon contends that resources, such as copper, become less scarce as demand for them drives recycling, development of alternatives, and new extraction techniques, which are all reflected in the drop in their wage-adjusted prices.

Forecasting

Simon makes a distinction between “engineering” and “economic” forecasting. Engineering forecasting consists of estimating the amount of known physical amount of resources, extrapolates the rate of use from current use and subtracts one from the other. Simon argues that these simple analyses are often wrong. While focusing only on proven resources is helpful in a business context, it is not appropriate for economy-wide forecasting. There exist undiscovered sources, sources not yet economically feasible to extract, sources not yet technologically feasible to extract, and ignored resources that could prove useful but are not yet worth trying to discover.

To counter the problems of engineering forecasting, Simon proposes economic forecasting, which proceeds in three steps in order to capture, in part, the unknowns the engineering method leaves out (p 27):

Ask whether there is any convincing reason to think that the period for which you are forecasting will be different from the past, going back as far as the data will allow.

If there is no good reason to reject the past trend as representative of the future as well, ask whether there is a reasonable explanation for the observed trend.

If there is no reason to believe that the future will be different from the past, and if you have solid explanation for the trend—or even if you lack a solid theory, but the data are overwhelming—project the trend into the future.

Infinite resources

Perhaps the most controversial claim in the book is that natural resources are infinite. Simon argues not that there is an infinite physical amount of, say, copper,

but for human purposes that amount should be treated as infinite because it is not bounded or limited in any economic sense, because: known reserves are of uncertain quantity new reserves may become available, either through discovery or via the development of new extraction techniques recycling more efficient utilization of existing reserves (e.g., “It takes much less copper now to pass a given message than a hundred years ago.” [The Ultimate Resource 2, 1996, footnote, page 62]) development of economic equivalents, e.g., optic fibre in the case of copper for telecommunications.

The ever-decreasing prices, in wage-adjusted terms, indicate decreasing scarcity, in that it takes less time for the average worker to earn the money required to purchase a set amount of some commodity. This suggests, Simon claims, an enduring trend of increased availability that will not cease in the foreseeable future, despite continued population growth.

Evidence

A plurality of the book consists of chapters showcasing the economics of one resource or another and proposing why this resource is, for human purposes, infinite.

Historical precedent

Simon argues that for thousands of years, people have always worried about the end of civilization brought on by a crisis of resources. Simon lists several past unfounded environmental fears in order to back his claim that modern fears are nothing new and will also be disproven.

Some of the “crises” he notes are a shortage of tin in the 13th century BCE; disappearing forests in Greece in 550 BCE and in England in the 16th century to 18th century CE; food in 1798; coal in Great Britain in the 19th century; oil since the 1850s; and various metals since the 1970s.

Simon–Ehrlich wager

Based on preliminary research for *The Ultimate Resource*, Simon and Paul Ehrlich made a famous wager in 1980, betting on a mutually agreed upon measure of resource scarcity over the decade leading up to 1990.

Ehrlich was the author of a popular book, *The Population Bomb*, which argued that mankind was facing a demographic catastrophe with the rate of population growth quickly outstripping growth in the supply of food and resources. Simon was highly skeptical of such claims.

Simon had Ehrlich choose five of several commodity metals. Ehrlich chose five metals: copper, chromium, nickel, tin, and tungsten. Simon bet that their prices would go down. Ehrlich bet they would go up.

The basket of goods, costing US\$1,000 in 1980, fell in price by over 57 percent over the following decade. As a result, in October 1990, Paul Ehrlich

NOTES

NOTES

mailed Julian Simon a check for US\$576.07 to settle the wager in Simon's favor.

Population

A large section of the book is dedicated to showing how population growth ultimately creates more resources. The basic argument echoes the overarching thesis: as resources become more scarce, the price rises, creating an incentive to adapt. It suggests that the more a society has to invent and innovate, *ceteris paribus*, the more easily the society will raise its living standards and lower resource scarcity.

Simon claims that from an economic perspective, resource scarcity increases the cost of a product thus creating incentives to find alternative materials. Basically, if resources become scarce, then it becomes expensive and people begin looking for a new material. Once a new material replaces it, then the resource becomes dramatically cheaper. Simon said that humans will just keep developing new resources, recycling old ones and discovering new innovative solutions.

So, Simon again argued that even though certain materials will become physically less available, resources are economically indefinite. Human population has been growing for a long time and people have been worried about that for a long time, but we have yet to run out of resources. Humans just keep inventing and discovering and creating, and since that's worked for more than 40,000 years, there is no reason to believe in stopping solving human beings' problems.

6.4.2 Views on Simon's Theories

Many theorists have labelled Simon's theory as: Cornucopian, which describes a belief that humanity has unlimited growth potential through technology. Simon himself actively opposed the Malthusian model of population growth which was a late 18th century theory that population growth would inevitably outpace resource production and result in massive starvation, warfare and a reduction of the population to sustainable levels. His work covers Cornucopian views of lasting economic benefits from natural resources and continuous population growth, even despite limited or finite physical resources empowered by human ingenuity, substitutes and technological progress. His works are also cited by libertarians against government regulation.

He is also known for the famous Simon-Ehrlich wager, a bet he made with ecologist Paul R. Ehrlich. Ehrlich bet that the prices for five metals would increase over a decade, while Simon took the opposite stance. Simon won the bet, as the prices for the metals sharply declined during that decade.

Simon wrote many books and articles, mostly on economic subjects. He is best known for his work on population, natural resources and immigration.

Simon was skeptical, in 1994, of the claim that human activity caused global environmental damage, notably in relation to CFCs, ozone depletion and climate change, the latter primarily because of the perceived rapid switch from fears of

global cooling and a new ice age (In the mid-1970s) to the later fears of global warming. Simon also listed numerous claims about alleged environmental damage and health damages from pollution as ‘definitely disproved’. These include claim about lead pollutions 8 IQ, DDT, PCBs, malathion, Agent orange, asbestos and other chemical disturbances.

Simon’s book (*The Ultimate Resource*; 1981) is a criticism of what was then the conventional wisdom on resource scarcity, published within the context of the cultural background created by the best-selling and highly influential book. *The Ultimate Resource* challenged the conventional wisdom as population growth, raw material scarcity and resource consumption. Simon argues that our nations of increasing resource scarcity ignore the long term declines in wage-adjusted raw material prices. Viewed economically, he argues increasing wealth and technology makes more resources available, although supplies may be limited physically they may be regarded as economically indefinite as old resources are recycled and new alternative are assumed to be developed by the market.

From the aforementioned discussion, two main conclusion comes forward:

- (i) Human should be seen as fundamentally creators rather than destroyers. This propensity towards creative adaptation is spontaneous and intrinsic to humans as social beings. Humans continuous after the fabric of the universe and of nature, bringing to life new combinations of elements and new things. Our whole evolution shows that human groups spontaneously evolve patterns of behaviour, as well as pattern training people for the behaviour, which tends a balance to lead people to create rather than destroyers. In short, humankind has evolved into creators and problem solvers.
- (ii) The second conclusion is a corollary of the theory is emphasizing what a distinct and special ontological realm human society is. The complex social order involving language and institutions is the background condition of human creativity and growth of knowledge is the ultimate new thing created by humankind. Social exchange creates, maintains and extends this order. Identifying social exchange as a central principle was a relatively easy task, since that conceptual territory had already been charted by F.A. Hayek (1978) and Simon fully acknowledged him debt and incorporated Hayek’s language.

As a social philosophy, Simon’s perspective emphasizes the dynamic and creative nature of social order seen as a complex set of problem-solving institutional and social devices growing as an intricate system of social exchange relationships. As a part of anthropology, it rebuts the view of the average human as destroyers and emphasizes the intrinsic creativity of the human species. Finally, as a social theory it explains why the ‘constructive patterns of behaviour must have been the dormant part of our individual-cum-social nature in order for us to have survived to this point.

NOTES

NOTES

Check Your Progress

6. Name the book by Simon which challenges the notion that humanity was running out of natural resources.
7. What was the Simon-Ehrlich wager?

6.5 INDIA'S POPULATION: SIZE AND GROWTH TRENDS

In this section, we will study the different aspects of the trends in population growth in India.

Size of Population: As far as the size of population is concerned, India ranks second in the world next only to China. India's landscape is just 2.4 per cent of the total world area, whereas its population is nearly 16.85 per cent of the world population. India accounted for 19.96 per cent of the estimated population of developing countries in 2001 (5.18 billion). These facts clearly indicate that the pressure of population on the land in this country is very high. How alarming is the situation in this country can be easily followed from the fact the national income of India is presently even less than 1.2 per cent of the total world income.

India's population according to the census of 2001 was 1,210 crore. According to the census of 1901, the population of the country was 23.83 crore. This, if viewed in the context of a relatively slow economic growth is really an alarming situation. However, the population has not increased in the country at a uniform rate. This is obvious from the population figures given in table given below. The population of the country as per the provisional figures of Census 2011 is 1210.19 million of which 623.72 million (51.54%) are males and 586.46 million (48.46%) are females.

Table 6.1 India's Population (1901-2006)

Census Year	Population in Crore (Per cent)	Average Annual Growth Rate	Density of Population (Per Sq. Km.)
1	2	3	4
1901	23.83	8.18	77
1951	36.10	1.25	117
1961	43.91	1.96	142
1971	54.82	2.22	178
1981	68.33	2.20	216
1991	84.63	2.14	274
2001	102.90	1.93	324
2006*	111.20	1.60	351
2017	-	-	-

Rate of Population Growth

Since Independence there has been a rapid decline in the mortality rate, particularly due to control of epidemics and improved medical facilities. The magnitude of fall in the mortality rate is far greater than what was expected in the early 1950. The planning commission and the census commissioner had envisaged a continuation of the 1941-51 trend in 1951-61. Therefore, when the actual rate of population growth turned out to be about 1.96 per cent in 1951-61. The planners were taken by surprise. This unexpected development caused great anxiety to the government. The rate of population growth was 2.2 per cent per annum during 1961-71 which was still higher than that in the preceding decade.

The 1981 census indicated that the rate of population growth during the 1970s remained more or less the same as it was during the 1960s. Even the 1991 census indicated that the rate of population growth would decline significantly in response to the family planning programme of the government did not come true. Registrar general's population projections for 1996-2016 had suggested that the rate of population growth would decline to 1.84 per cent per annum during the 1990s. However, these projections turned out to be incorrect. The census of 2001 has shown that the rate of population growth remained as high as 1.93 per cent per annum during the 1990s. Hence this country even now remains in the second stage of Demographic Transition and is encountering of the country explosion. It is both a cause and a consequence of underdevelopment of the country. India's population projections show that soon rate of population growth will decline and the country might enter the third stage of demographic transition.

As per the Census 2011:

- The population of India has increased by more than 181 million during the decade 2001-2011.
- Percentage growth in 2001-2011 is 17.64; males 17.19 and females 18.12.
- 2001-2011 is the first decade (with the exception of 1911-1921) which has actually added lesser population compared to the previous decade.

Table 6.2 India's Population Projections

Year	2001	2006	2011	2016	2021	2026
Total	102.9	112.2	119.3	126.9	134.0	140.0
Below 15 Years	36.5	35.7	34.7	34.0	33.7	32.7
15 to 65 Years	61.9	69.9	78.0	85.1	90.8	95.7
Above 65 Years	4.5	5.6	6.6	7.8	9.5	11.6

Religion in India

According to 2011 Census Data, almost 80% (more than 1 billion people) of the population in India adhere to Hinduism. This is about 94% of all Hindus living in

NOTES

the World. Another 14.2% are Muslims, 2.3% are Christians, 1.7% adheres to Sikhism and less than 1% are Buddhists.

Table 6.3 Population Growth Rate as per Religion (1952-2016)

NOTES

Religion	Number of followers	Percentage of total population
Hinduism	1,089,648,977	79.8%
Islam	193,897,437	14.2%
Christianity	31,405,923	2.3%
Sikhism	23,213,073	1.7%
Buddhism	9,558,324	0.7%
Others	17,751,174	1.3%

Life expectancy

Life expectancy at birth is one of the most important demographic indicators. It shows the number of years a newborn infant would live assuming that birth and death rates will remain at the same level during the whole lifetime.

Total life expectancy (both sexes) at birth for India is 66.8 years.

This is below the average life expectancy at birth of the global population which is about 71 years (according to Population Division of the Department of Economic and Social Affairs of the United Nations).

Male life expectancy at birth is 65.8 years.

Female life expectancy at birth is 68 years.

As per the Sample Registration System's report containing life tables for the periods 2011-15, the life expectancy at birth for the country has undergone a significant change from 49.7 in 1970-75 to 68.3 in 2011-15, registering an increase of 18.6 years in the last four decades. In 2011-15, the female life expectancy (70.0) is higher than that of male (66.9) by about three years

Literacy of population

According to our estimates 686,446,576 persons or 72.14% of adult population (aged 15 years and above) in India are able to read and write. Accordingly, about 265,087,645 adults are illiterate.

Literacy rate for adult male population is 80.95% (395,644,897 persons). 93,131,444 are illiterate.

Literacy rate for adult female population is 62.84% (290,801,679 persons). 171,956,201 are illiterate.

Youth literacy rates are 91.83% and 87.24% for males and females accordingly. The overall youth literacy rate is 89.65%. Youth literacy rate definition covers the population between the ages of 15 to 24 years.

As per Census 2011,

- Literacy rate has gone up from 64.83 per cent in 2001 to 74.04 per cent in 2011 showing an increase of 9.21 percentage points.
- Percentage growth in literacy during 2001-2011 is 38.82; males : 31.98% & females : 49.10%.
- Literates constitute 74 per cent of the total population aged seven and above and illiterates form 26 per cent.

*Social Theory of
Population Change*

NOTES

Table 6.4 *India Population History*

Year	Population	Growth Rate
1951	379,278,124	N/A%
1952	385,373,400	1.61%
1953	391,826,727	1.67%
1954	398,601,806	1.73%
1955	405,673,056	1.77%
1956	413,025,849	1.81%
1957	420,656,508	1.85%
1958	428,571,375	1.88%
1959	436,784,957	1.92%
1960	445,315,276	1.95%
1961	454,176,666	1.99%
1962	463,372,801	2.02%
1963	472,892,052	2.05%
1964	487,110,036	2.08%
1965	492,805,192	2.09%
1966	503,161,589	2.10%
1967	513,782,489	2.11%
1968	524,718,399	2.13%
1969	536,059,789	2.16%
1970	547,894,037	2.21%
1971	560,274,314	2.26%
1972	573,203,017	2.31%
1973	586,626,261	2.34%
1974	600,449,204	2.36%
1975	614,575,080	2.35%
1976	628,943,226	2.34%
1977	643,545,185	2.32%
1978	658,421,997	2.31%
1979	673,647,494	2.31%
1980	689,294,149	2.32%
1981	705,395,576	2.34%

NOTES

1982	721,932,434	2.34%
1983	738,839,159	2.34%
1984	756,019,567	2.33%
1985	773,374,703	2.30%
1986	790,846,181	2.26%
1987	808,419,738	2.22%
1988	826,088,319	2.19%
1989	843,840,279	2.15%
1990	861,668,968	2.11%
1991	879,557,823	2.08%
1992	897,487,614	2.04%
1993	915,468,496	2.00%
1994	933,539,922	1.97%
1995	951,739,597	1.95%
1996	970,082,707	1.93%
1997	988,553,841	1.90%
1998	1,007,110,079	1.88%
1999	1,025,689,767	1.84%
2000	1,044,228,849	1.81%
2001	1,062,684,631	1.77%
2002	1,081,038,774	1.73%
2003	1,099,279,468	1.69%
2004	1,117,394,449	1.65%
2005	1,135,372,807	1.61%
2006	1,153,207,299	1.57%
2007	1,170,886,968	1.53%
2008	1,188,377,870	1.49%
2009	1,205,626,146	1.45%
2010	1,222,583,343	1.41%
2011	1,239,215,258	1.36%
2012	1,255,517,825	1.32%
2013	1,271,544,257	1.28%
2014	1,287,395,209	1.25%
2015	1,303,171,035	1.23%
2016	1,319,577,958	1.26%
2017	1,336,191,444	1.26%
2018	1,353,014,094	1.26%

Birth and Death Rates

Population trends are a function of not only birth and death rates but also of the level and direction of migration. Since in the Indian context migration is not a significant factor, we shall not consider it. To understand India's existing population

problem, it will suffice to examine the trends in birth and death rates during the past few decades.

A mere perusal of the Table 6.4 makes it clear that from 1951 to 2017 there has been some decline in the birth rate. In the same period, the death rate has however, declined significantly. In 2013 it was just 7.3 per thousand as against 27.4 during the 1950s. The birth and death rates were almost equal between 1901 and 1921 and this explains why population did not rise in this period. Thereafter in spite of widespread poverty, some medical facilities improved, and epidemics were checked. This brought down the death rate considerable. For the last fifty years, there has been a steady fall in the infant mortality. In the 2017 infant mortality rate was 39.1 per 1,000 live births. Small pox which took a heavy toll of lives, has been completely eradicated. Other child diseases have also been checked and thus the infant mortality rate has come down. Over the years maternal mortality has also declined in spite of lack of adequate hospital facilities and high incidence of poverty.

Table 6.5 Crude Birth and Death Rates (1951-2017)

Year	Birth Rate Per 1,000 Persons	Death Rate Per 1,000 Persons
1951	39.9	27.4
1961	40.9	22.8
1971	41.1	18.9
1981	33.9	12.5
1991	29.5	9.8
2005	23.8	7.8
2017	19.0	7.3

During the last five decades there has been some decline in the birth rate at the all India level. In the states of Kerala, Tamil Nadu and Goa the decline in birth rate is significant. In other states birth rate still remains quite high. In fact, it is not easy to bring down the birth rate. Particularly when the socio-economic conditions favour a larger family. Conscious efforts are to be made over a long period persistently, and yet family planning may not become a way of life for many people. One thing that is absolutely clear about the population increase is that as long as people do not develop a scientific attitude towards the family and the family planning does not become a part of their instinct, birth rate will not come down significantly. People's attitudes towards marriage, family and birth of a child must change before we can hope to achieve a substantial decline in the birth rate. But it is doubtful whether these attitudes will change in an otherwise unchanging society. According to group on population projection, the rate of population growth is likely to decline to 0.9 by 2026 and this population is projected to increase to 140.0 crore by 2026.

NOTES

India's Population Growth and selected Demographic Indicators

NOTES

• India's Population in 2017	1,281,935,911
• Annual growth rate during 1990s	1.93 Per cent
• Crude birth rate per 1000 persons in 2017	19.0
• Crude death rate per 1000 persons in 2017	7.3
• Total fertility rate in 2017	2.43
• Maternal mortality rate per lakhs live births in 2017	130
• Infant mortality rate per 1000 live births in 2017	39.1
• Life expectancy at birth (2017)	
– Male	67.6
– Female	70.1

On the eve of the departure of the British about 60 years ago, on 14 August 1947 Jawaharlal Nehru had declared that Independence has opened opportunity to the great triumphs and achievements that await us. However, the tasks identified by Nehru after we got the opportunity to develop remain unaccomplished in many respects. Among these, gender equity is the foremost. Even more than half a century since Independence the girl child is being discriminated so much so that female-male ratio is appallingly low. According to some demographers India's age structure now offers a onetime window of opportunity. However, the state of women in this country might prevent us from capitalizing on this opportunity. Slow urbanization and the process of migration from rural areas to cities have failed to make impact on the development of the country's economy.

The Sex Composition of Population in India

Let us now discuss the sex composition in India.

The Missing Women

The female-male ratio in India is adverse in the sense that in 2001 there were 933 females per 1000 males. In other words, the sex ratio in this country was 0.933. Jean Dreze and Amartya Sen have calculated FMR for many parts of the world. They found that in 1986 the ratio of female to male population (FMR) was a picture of remarkable variation. Dreze and Sen argue, 'no matter what female-male ratio we use as a bench mark (whether the FMR in contemporary Europe, or in Sub-Saharan Africa, or one based on the historical experience of parts of Europe) we would find that there are many million missing women in India. The Sub-Saharan African ratio had yielded the colossal number of 37 million missing women in India in 1986.'

Table 6.6 presents values of FMR for different regions of the world while the FMR in India was as low as 0.933, it was around 1.05 in the developed economies of North America and Europe.

Table 6.6 Female-Male Ratio (FMR) and Missing Women, 1986

Region	FMR	Missing Women in relation to Sub-Saharan African FMR	
		Number (Millions)	Proportion (Per cent)
1	2	3	4
Europe	1.050	-	-
Northern America	1.047	-	-
Sub-Saharan Africa	1.022	-	-
South-East Asia	1.010	2.4	1.2
Latin America	1.000	4.4	2.2
North Africa	0.984	2.4	3.9
West Asia	0.948	4.3	7.8
China	0.941	44.0	8.6
Bangladesh	0.940	3.7	8.7
India	0.933	36.9	9.5
Pakistan	0.905	5.2	12.9

NOTES

This table shows that since 1901 over the 50 years of pre independence period Sex ratio (FMR) registered a significant decline from 0.972 to 0.946 in India. The situation did not improve after Independence, as the FMR was as low as 0.923 in 1991. However, during the 1990s there has been some improvement in it. In 2001, this FMR had risen to 0.933. It is too early to say that reversal of declining trend in the sex ratio will continue in coming years. Preference for sons has been widespread in India. Particularly in the North. This is probably the most important factor that explains the existing sex composition of population. Since over the years nothing has happened to change the attitude of the people in respect of their preference for sons, there is little possibility of a sustained rise in the FMR in this country.

Table 6.7 Female-Male Ratio (FMR) in India

Year	Female-Male Ratio (FMR)
1901	0.972
1911	0.964
1921	0.955
1931	0.950
1941	0.945
1951	0.946
1961	0.941
1971	0.934
1981	0.927
1991	0.923
2001	0.933
2011	0.943

NOTES

Adverse sex-ratio (FMR) is further deteriorating on account of neglect of female children, Leela Visaria states emphatically: 'Many studies have shown that behavioural factors, including care seeking practices operate against young female children. Girls are less likely to receive medical attention than boys and if they do get treatment then it tends to be at a later stage of illness and to be provided by less qualified personnel. Many of the discriminatory practices involved are subtle and lie deep within intimate family behaviour.'

Leela Visaria further argues that there is mounting evidence of female specific abortions in some parts of the country. In her opinion, 'The sharp rise in masculinity of child population aged 0–6 years in the states of Haryana, Punjab, Gujarat and Maharashtra indicated by the results of the 2001 census is strongly suggestive of sex selective abortions.'

Tim Dyson's assertion about sex-selective abortion is in the same vein as we find in Leela Visaria's observation in this regard. Dyson states. There is strong evidence of sex selective abortions in much of northern India. The practice of aborting female fetuses probably increased during the 1990s due to the spread of scanning and amniocentesis techniques. 'Dyson is not sure of the scale on which this anti-female child action is being practiced. He further opines, in the short run this attitude of the people may not change and this sex ratio at birth may continue to become more masculine in some states. Over the longer run, However, one might anticipate that a reaction may set in, for example, if with changes in the labour market or shortages of women in the marriageable ages daughters become more highly valued.'

Table 6.8 Sex Ratio (FMR) in Major States of India

State	Sex Ratio-Females Per 1000 Males				
	2011	2001	1991	1981	1961
Kerala	1084	1,058	1,040	1,032	1,022
Tamil Nadu	996	986	972	977	992
Andhra Pradesh	993	978	972	975	981
Odisha	979	972	972	981	1,001
Himachal Pradesh	972	970	996	973	938
Karnataka	973	964	960	963	959
West Bengal	950	934	917	911	878
India	943	933	927	934	941
Assam	958	932	925	910	869
Maharashtra	929	922	936	942	940
Rajasthan	928	922	913	919	908
Gujarat	919	921	936	942	940
Bihar	918	921	912	946	994
Madhya Pradesh	931	920	932	941	953
Uttar Pradesh	912	898	882	805	909
Punjab	895	871	888	879	854
Haryana	879	861	874	870	868

Sex ratio in India's different states differs significantly from the all India sex ratio. Only in Kerala it was favourable in 2011 in the sense that there were 1,084 females per 1000 males.

This is probably on account of two reasons. First, Kerala had matriarchal society which did not allow discrimination between a daughter and a son. Second, in Kerala since women received education and proper healthcare, their survival chances were as good as those of males. Sex selective abortions were not possible in a matriarchal society and thus sex ratio (FMR) in Kerala has been by large determined by the biological strength of the females. In contrast, prosperous states of the North India, particularly Punjab and Haryana reflect adverse sex ratio. In fact, in these two states predominance of agriculture easily explains the preference for sons because when they grow they provide labour for farm operations.

During the post-Independence period, it was hoped that in all the states sex ratio will improve due to better appreciation of the role of women in the society. However, against these expectations, sex-ratio actually declined in Maharashtra, Gujarat, Bihar, Uttar Pradesh, Madhya Pradesh, Punjab and Haryana. Sex ratio is relatively higher in South India states while Kerala is the only state where it has distinctly risen since 1961. Odisha, Chhattisgarh, Himachal Pradesh and West Bengal are other states where sex-ratio was higher than the sex ratio for the country as a whole in 2001. It is noteworthy that none of the districts in southern part of the country in Kerala, Tamil Nadu, Karnataka, Andhra Pradesh and Puducherry have recorded a low sex ratio of less than 900 females per 1000 males. A similar pattern emerges in districts of Odisha, Chhattisgarh and north-eastern states of Manipur, Mizoram, Tripura and Meghalaya. Strangely the four states where economic growth has been higher during the post-Independence period have not cared to empower the women, and thus sex ratio remained distinctly lower in these states in 2001 as compared to all India sex ratio. From this point of view Punjab and Haryana proved to be far more worse than Gujarat and Maharashtra. BIMARU States also registered lower sex ratio in 2001. The reason for adverse sex ratio in these states is widespread poverty which makes a girl child a liability for the family. The belief that son will bring income for the house hold has been the reason why he has been preferred over the years. Among poor states Odisha remained an exception in the sense that its FMR is higher than the FMR at all India level. But even in this state a girl child is being considered a liability and is thus discriminated. Obviously, this is the principal reason why in Odisha female-male ratio continues to fall.

The UN Population Fund (UNFPA) in its state of World Population Report, 2005 has emphasized the need for investing in women education and healthcare in order to empower them and drastically reduce the incidence of gender violence. But a particular kind of violence against women, inflicted. On unborn children (foeticide) and new-borns (infanticide), almost always belonging to the fair sex has a bizarre aspect in India.

The more affluent or less 'backward' a section of society, the lower is its child sex ratio (CSR) which indicates the number of girls per 1000 boys in the 0-

NOTES

NOTES

6 age group. As Hendrik van der Pol, UNFPA representative in India points out, ‘affluence has meant that people aided with modern technology are now in a position to buy gender of their child like any other commodity.’

Table 6.9 *CSR in India (2001)*
(Number of girls per 1000 boys in the 0-6 age group)

Social Group	CSR (Girls per 1000 boys in the age group 0-6)
Scheduled Tribes (ST)	973
Scheduled Castes (SC)	938
Non SC/ST	919
Backward districts	947
Rural	921
Urban	934
Overall (in 2001)	906
(in 1991)	927
	945

As indicated in above table, CSR in India declined from 945 in 1991 to 927 in 2001. Significantly the most prosperous states of India, Punjab (783), Haryana (820) and Gujarat (878) have the worst child sex ratios. Looking it another way the scheduled tribes (STs) in India have the highest CSR of 973. However, for scheduled castes CSR is quite low at 938. The high caste social elites (non STs/SCs) Population does even worse at CSR of 919. Moreover, rural population with CSR of 934 does better than the urban population with CSR of 906. Similarly, in most states the districts with the lowest literacy rate have a higher CSR compared to their most literate counterparts.

Age composition of population and its demographic dividend

Lately some economists have been talking of ‘demographic dividend’ that India may derive from the age structure of the population.

Table 6.10 *Structure of India's Population by Age Groups (1961-2001)*

Ag Group	Total	Male	Female	Year
0-14 Year	27.34%	186,087,665	164,398,204	2016
15-24 Year	17.9%	121,879,786	107,583,437	2016
25-54 Year	41.08%	271,744,709	254,834,569	2016
55-64 Year	7.45%	47,846,122	47,632,532	2016
65 Year and above	6.24%	37,837,801	42,091,086	2016

A third of India's existing population is likely to be below 14 years of age. ‘In 2020, the average India will be only 29 years old, compared with 37 in China and the United States, 45 in western Europe and 48 in Japan.’ This implies that by the end of the second decade of the present century, India would manage to

create a large and growing labour force which may deliver unexpected spin offs in terms of growth and prosperity.

Exponents of the 'demographic dividend' approach argue that since both size and age structure of population change over time due to the nature of the demographic transition, demographic dividend that accrues to a country automatically generates capital resources that the country may need for investment purpose. The size of surplus available for investment after current consumption would depend on the ratio of actual work force to those who are outside the work force. In other words, other things remaining the same, the higher the share of workers to non-workers in the population of a country, larger would be the surplus available for investment. Thus, periods characterized by a low dependency ratio would be characterized by a higher growth, provided inducement to invest new capital is available. In contrast, periods characterized by high dependency ratio would be characterized by lower generation of surplus for investment resulting in lower rate of growth. Goldman Sachs has in his famous book *Dreaming with BRICS: The Path to 2050* confidently argued that among the BRIC countries (Brazil, Russia, India and China), India would be amongst the top three economies in term of GDP in the years nearing 2050. The reason for India's advantage in the coming years would be on account of large working age population. C.P. Chandrasekhar also states, India is in the midst of a process where it faces the window of opportunity created by demographic.

By 2025 since age based dependency is expected to fall to 48, work force ratio to non-work force will bulge and will offer the window of opportunity. However, considering the jobless growth in the liberalization phase, it has not been easy to utilize the population bulge. It is likely to result in more and more unemployment. Results of the NSS relating to 1999-2000 and the 2001 census reveal a decrease in the rate of employment generation across both rural and urban areas. The declaration of employment growth suggests that in India the advantage offered by a young labour force is not being exploited. C.P. Chandrasekhar thus concludes his analysis by asserting that 'the demographic dividend argument ignores the fact that available workers are not automatically absorbed to deliver growth.' Strategies to exploit the opportunities offered by country's demographic transition must be adopted.

Causes of the Rapid Growth of Population

Broadly speaking there are only three possible causes of an increase in the population of a country: (i) a high birth rate (ii) a relatively lower death rate and (iii) immigration. India's population has not increased much due to immigration. In India the population has rapidly increased singularly due to steady decline in the death rate, while the birth rate remained high. Therefore, to understand the nature of India's population problem, we must examine first the factors which brought down the mortality rate in the country and second, the reasons why the birth rate continues to be high.

NOTES

NOTES

1. Causes of the Decline in the Mortality Rate

- Elimination of famines
- Control of epidemics and decline in the incidence of malaria and tuberculosis.
- Other Factors

2. Causes of the High Birth Rate

The birth rate is still high in India and the expectations that it would decline significantly as a result of family planning programme have been believed. Excepting in the states of Kerala, Tamil Nadu and Goa, birth rate has not declined significantly in this country during the last five decades because a number of economic and social factors continue to favour high fertility.

- **Economic Factors:**

- (i) Predominance of agriculture
- (ii) Slow Urbanization Process and Predominance of Villages
- (iii) Poverty

- **Social Factors:** Near universality of marriage

- (i) Lower age at the time of marriage
- (ii) Religious and social superstitions
- (iii) Joint family system:
- (iv) Lack of education

To conclude, none of the above mentioned factors contributing to a high birth rate in India are of permanent nature. Once the process of industrialization gathers momentum and with it urban population increases, birth rate will decline steeply. With the expansion of education in the country, it is hoped that the idea of family planning will catch the imagination of the people and they will certainly develop a preference for a smaller family. This has actually happened in several Asian Countries such as China, Thailand and Sri Lanka where contraceptive prevalence rate reached high levels of 72.66 and per cent respectively by 1990 and, as a result, birth rate dropped to 19-20. Hence education should receive overriding priority. Success on this front will improve the performance of the family planning programme.

However, the theory of demographic dividend has raised doubt about the merit of education in the rate of population growth. China has lowered down the rate of population growth to 0.6 per cent per annum. In contrast, India's rate of population growth still remains as high as 1.6 per cent per annum. As a result, China's population has started ageing and, in near future China may feel scarcity of labour force. As against this, with higher rate of population growth in India the labour force as a percentage of population is likely to rise from 62.9 per cent in 2006 to 68.4 per cent in 2026. According to lobbyists of demographic dividend

theory, India will have an advantage vis-a-vis China and other countries which have succeeded in reducing the rate of population growth. According to Economic survey 2006-2007, 'The actual tapping of this demographic dividend will, however, depend a lot on ensuring proper healthcare and other human resource development such as education.'

India's Population: The Future

Population in India was 102.9 crore in 2001. The census of 2001 has shown that contrary to Registrar General's Population Projections for 1996-2016 the rate of population growth was as high as 1.93 per cent per annum during the 1990s. Now population projections for 2006, 2011 and 2016 given in Table 8.4 present an extremely rosy picture.

Table 6.11 Population Projections

Year	Population	Period in Crore	Average annual growth rate (per cent)
2001	102.70	-	-
2006	111.37	2002-07	1.63
2011	119.44	2007-12	1.41
2016	126.75	2012-17	1.20

These population projections assume sharp decline in the rate of population growth for 15 year period from 2002 to 2017. In under developed countries like Sri Lanka and China annual rate of population growth has already been brought down to 1.2 per cent. Therefore, if the planning commission assumes that by 2012-17, the rate of population growth would decline in India to 1.2 per cent per annum, it seems a fairly realistic assumption. However, India still does not satisfy the conditions which China and Sri Lanka have created to bring down the rate of population growth. In both China and Sri Lanka adult literacy rate was over 84 per cent in 2000. Against this, adult literacy rate was 57 per cent in India. Given the neglect of education in India, we may not accomplish literacy levels of China and Sri Lanka even by 2017. Moreover, in India's conservative society contraceptive prevalence is 41 per cent against 85 per cent in China and 62 per cent in Sri Lanka. Thus, a sharp decline in the rate of population growth in India during the next 14-15 year does not seem to be realizable and population projection assuming low rates of population growth seem to be unrealistic. However, as discussed above if population continues to grow, India may enjoy advantage of demographic dividend provided it manages to ensure proper development of its human resources.

Remedies for Population Explosion

Notwithstanding the logic of the theory of demographic dividend that India is likely to benefit from rapid population growth in the near future, population explosion is one of the major impediments to development. Therefore, it is not something to be

NOTES

NOTES

welcomed and eulogized. Hence attempts must be made to control it. To deal with the present population problem, broadly speaking, threefold measures would be required: (1) Economic measures, (2) Social measures; and (3) The family planning programme.

1. Economic Measures

The size of population in India is large and it is neither desirable nor possible to reduce it. Under these circumstances vigorous efforts are needed on the economic front. As a matter of fact, only economic measures can ensure a permanent solution to the problem. But the implementation of economic measures is not an easy task; it takes rather a long time to carry out economic programmes of the various measures which are being suggested by the economists the following are the more important ones:

- **Expansion of the Industrial sector.** The family size of the people employed in the industrial sector is smaller than that of the people who are employed in the agricultural sector. In the countryside any number of people can work on the family farm, though some of them will hardly make any contribution to the output. Most of the operational holdings in India are not economic and can thus provide only subsistence living. This situation demands that some working force should be transferred from agriculture to some other sectors. However, most peasants in India have more children either because they have no stakes in the size of their families due to their poverty or as Mamdani has argued, they think that the benefit from an additional child is greater than the cost of this upbringing. In contrast, industrial workers are aware of the difficulties in getting employment and are interested in restricting the size of their family. Moreover, higher productivity in the industrial sector makes industrial workers conscious of their standard of living. They realize that in order to raise their standard of living they must restrict the size of their family. However, in this country in the context of the need to lower down the rate of population growth it does not seem a feasible proposition to adopt conscious policies to promote urbanization.
- **Equitable distribution of income and removal of poverty.** Poor people have virtually no interest in limiting the size of the family. They have little stakes in their lives and are thus unconcerned about their families. While living in poverty conditions, at times they get alienated even from themselves. This is undoubtedly a sad affair, at the same time it is a stark reality. Therefore, as long as their human virtues are not restored, no one should expect them to become conscious towards family welfare. So far most of the poor people have not benefited from economic growth in their country. They should not be denied gains of economic development any more. Sooner they are freed from their existing subhuman living conditions the better for the society. Once the poor people start getting basic amenities of life, they will have no economic compulsion to have more children and their attitude towards the

size of their families will undergo a change. In the changed situation not only will they become conscious of the number of children they should have but will also undertake every possible effort to make the life of their children as comfortable as they can. In order to realize this objective a drastic change is required in the system of income distribution. However, this may not be possible in the existing social framework. But the minimum that the state can do is to guarantee the right to work and ensure a living wage to everyone.

NOTES

2. Social Measures

Population explosion is as much a social problem as it is an economic problem. Many of its causes are deep rooted in the social life of the country. Illiteracy, superstitions, orthodox, obscurantism and deplorable condition of the women are social maladies and they all have contributed to population explosion in this country. In order to bring down the birth rate, which is still very high, all these social evils must be removed.

- **Education:** Contribution of education in bringing down the birth rate is significant education often changes the attitude of a person towards family, marriage and the number of children he should have. Most educated people delay their marriage and prefer to have a small family. Education, by making a frontal attack on orthodoxy and superstitions, induces people to practice family planning.

In this country where family planning programme is not much of a success, the experience of the government is that educated people are more responsive to the idea of family planning.

There is an added reason why education proves to be an effective instrument of population control. When education is widespread both boys and girls are sent to schools and colleges. This automatically delays marriages and thus reduces reproductive span of women. T.N. Krishnan's study of demographic transition in Kerala clearly lends support to this view. He has stated, 'whatever may be the nature of relationship between age at marriage and levels of education in different states in India, the relationship is very straight forward and clear in the case of Kerala. The age of effective marriage rises from 17.68 for illiterates to 18.68 for literates (below primary) and stays more or less at the same level till it rises further with secondary education. At secondary level, it is 20.16. If these relationships are valid, then one can explain the decline in birth rates in Kerala as largely due to the change in nuptial rates and consequent rise in the age at effective marriage brought about by continuous and sharply higher rates of female literacy.'

For other states there are no reasons to believe that the relationship between education and average age at marriage would be otherwise. However, education of girls, particularly in the rural areas has not received the required

NOTES

attention. The 2001 census has shown that the female literacy rate was as low as 54.2 per cent and was only 71 per cent of the male literacy rate of 75.9 per cent. Further there are inter state differences. In the four large North Indian states of Uttar Pradesh, Bihar, Rajasthan and Jharkhand female literacy rate was below 45 per cent. With so much neglect of education among the women it is not easy to bring down the birth rate. Jean Dreze and Amartya Sen contend, 'The link between female literacy and fertility is particularly clear. This connection has been widely observed in other countries, and it is not surprising that it should emerge in India too. The unwillingness of educated women to be shackled to continuous child rearing clearly plays a role in bringing about this change. Education also makes the horizon to vision wider, and at a more mundane level, helps to disseminate the knowledge of family planning.' Hence education of girls in both urban and rural areas should receive overriding priority for arresting the rapid growth of population.

- **Improving the status of women:** Although the constitution of India has guaranteed equality between men and women, there is a discrimination in social life and the position of women is considered to inferior to that of men both socially and economically. This is perhaps the most important reason why education is less among women and, in its absence, they are quite indifferent of family planning moreover. The discrimination between men and women in the society leads to the growth of family size. For many people, a son enhances the prestige of the family, performs useful religious rites and provides security in old age. These wrong notions are based on false values and are hardly relevant in a modern society. But people milieu women are not generally allowed to exercise their discretion in respect of the number of children they should have. Due to backward consciousness they may not even resent denial of this right to them. This is certainly a deplorable condition and should not be allowed to persist indefinitely.
- **Raising the minimum age of marriage:** Since fertility depends to a great extent on the age of women at the time of marriage, it is necessary that every possible social, legal and educative measure is undertaken to raise it, in India, due to various factors, including backward social consciousness and lack of education, average age at marriage has been very low. Even under the Child Marriage Restraint Act, 1903, the minimum age was 18 years for men and 15 years for women. In 1978, the Child Marriage Restraint Act was amended to raise the minimum age of marriage to 21 years for men and 18 years for women with a view to restrict the rate of population growth, but the legal measure turned out to be rather ineffective due to difficulties in its implementation. According to Pravin Visaria and Leela Visaria, an effective implementation of such legal enactments is virtually impossible because of fears in rural areas about the safety of an unmarried

daughter, widespread illiteracy, lack of awareness about legal prescriptions, the inadequate coverage of the vital registration system which can generate evidence on age, etc. These difficulties notwithstanding, India should try to draw some lesson from the experiences of China, Malaysia and Sri Lanka where fertility decline has occurred largely through an increase in age at marriage.

In India, unfortunately, none of the economic and social measures discussed above has been included in the government programme to deal with the situation created by population explosion. As a matter of fact, there has been complete reliance on family planning. In a country like India, where overall illiteracy rate is as high as 34.62 per cent and the female illiteracy rate still higher at 45.84 per cent, exclusive reliance on family planning may not prove to be very effective. Moreover, it is rather difficult to implement family planning programme both due to poverty and low level of consciousness.

Family planning nonetheless has been incorporated in the population policy of the government. In pursuance of this policy the government conducted some surveys in order to find out the reactions of the people to family planning programmes during the first decade of economic planning. The findings of these surveys were not very encouraging. In most cases though people were not hostile to family planning, they had little interest in observing small family norm. Even now situation is not radically different from that in the early 1950s. The preference for son is common in this country. Moreover, it is considered very normal to have three or four children in urban areas, whereas villagers prefer to have still more. Normally women having four or more children take interest in family planning programme.

Pravin Visaria has observed, 'The acceptance of contraception (particularly sterilization) is delayed to an age when a couple has already crossed the age of thirty. In 1988-89 the average age of acceptors of sterilization was above thirty. By the time women cross that age. They have completed a major part of their child bearing. The demographic effect of their sterilization is small.' Various surveys conducted in recent years in different parts of the country have revealed that only 30 to 40 per cent women in the contraceptive prevalence rate in India was as low as 41 per cent in 1990-98 as against China's 85 per cent during the same period. The only section of the Indian society which has responded to family planning programme is the intelligent workers generally expect free distribution of contraceptives. The housing problem in metropolitan and other big cities sometimes induces people to adopt small family norm.

Despite various limitations, the fact remains that family planning programme has helped in keeping growth of population under check. Pravin Visaria has pertinently remarked: 'But for the family planning programme the rate of growth of India's population could have risen sharply, as has happened in several countries of Africa.'

NOTES

NOTES

Check Your Progress

8. Name the state which has favourable sex ratio in India.
9. What is the projection of the average Indian age in 2020?

6.6 TRENDS IN WORLD POPULATION

In spite of the fact that many nations have been trying to control their own population, the fact remains that since the last about three centuries the world population has been steadily going up. There is no information about world population before 1650 A.D. from scanty available source it appears that Rome's population in about 1400 A.D. ranged from 450 to 800 lakhs and that of China in about 150 A.D. was 600 lakhs. During Ashoka's time India's population was about 10 crores. The thinkers have, however, estimated population in their own way. According to Carr Saunder, it was 545 millions in that year, whereas Wilcox has put it at 470 millions. Lewis and Thompson believed that at the time the rate of population growth was 40 to 50 per thousand and that the system of polygamy prevailed in many parts of the world. According to Walford from A.D. 1600 to A.D. 1850, there were 310 famines including those in India and China and in these famines crores of people died. There was also no control our diseases which took lots of lives.

World Population Between 1650 A.D. to 1800 A.D.

Some information about this period is available but information in respect of some centuries is still lacking. It, however, appears that during this period birth rate was 35-55 per thousand and also system of agriculture improved, and machines began to be used in many walks of economic life. Total world population at the end of 17th century has been estimated at 550 crores. At that time growth rate was not uniform. Population of China alone during this period has been put at 11.5 crores. It appears that the population of Egypt, Italy, Spain and France was coming down and was not even the same as it was in the past. According to M.R Bonnett total world population in the 1000A.D. was 2750 lakhs which rose to 4860 lakhs in 1600A.D. According to his account population of some countries and continents was as under.

Table 6.12 Estimated Population Between 1000 A.D. to 1600 A.D. (in lakhs)

Name of the country continent						
Year	World	Europe	Asia	India	Africa	America
1000	2750	420	320	480	500	130
1300	3480	730	330	990	670	280
1600	4860	890	300	1400	900	150

World Population from 1800 Onwards

Between 1800-1850, population increased by 0.5% annually. In Europe rate of growth was 0.75%. Food position was somewhat satisfactory and so was the case in health area. Means of transportation and communication also considerably improved. The system of vaccination had also started. Treatment of many diseases had also been found out. At places death rate was 16-18 per thousand. Between 1900-1930, death rates in many parts of the world had come down and in developed countries this rate still further went down to 10-13 per thousand. In some countries where death and birth rate both had come down included the U.S.A., Germany, Australia, UK and France. 1/5 of the total world population lived in these countries where population growth rate was slow. In some countries which can be placed in second category death rate has been controlled but not the birth rate and as such rate of population growth in these countries was very high. In this category were countries like Spain, Greece, Poland, Bulgaria, etc. About 21% of the total world population lived in these countries.

Table 6.13 Current World Population (2018)

7,652,042,747

Top 20 largest Countries by Population	
Countries	Population
China	1,416,336,457
India	1,357,338,647
U.S.A	327,306,392
Indonesia	267,452,111
Brazil	211,237,518
Pakistan	201,708,675
Nigeria	197,055,591
Japan	127,115,778
Ethiopia	108,144,115
Phillippines	106,886,724
Egypt	99,805,029
Vietnam	96,713,804
D.R. Congo	84,638,012
Germany	82,335,251
Bangladesh	166,766,159
Iran	82,210,699
Russia	143,958,878
Turkey	82,192,189
Mexico	131,133,506
Thailand	69,217,137

At the dawn of agriculture, about 8000 B.C., the population of the world

NOTES

NOTES

was approximately 5 million. Over the 8,000-year period up to 1 A.D. it grew to 200 million (some estimate 300 million or even 600, suggesting how imprecise population estimates of early historical periods can be), with a growth rate of under 0.05% per year.

A tremendous change occurred with the industrial revolution, whereas, it had taken all of human history until around 1800 for world population to reach one billion, the second billion was achieved in only 130 years (1930), the third billion in 30 years (1960), the fourth billion in 15 years (1974), and the fifth billion in only 13 years (1987). In 2001 it was sixth billion and expected to reach a total of 9 billion in 2050.

- During the 20th century alone, the population in the world has grown from 1.65 billion to 6 billion.
- In 1970, there were roughly half as many people in the world as there are now.
- Because of declining growth rates, it will now take over 200 years to double again.

Growth Rate

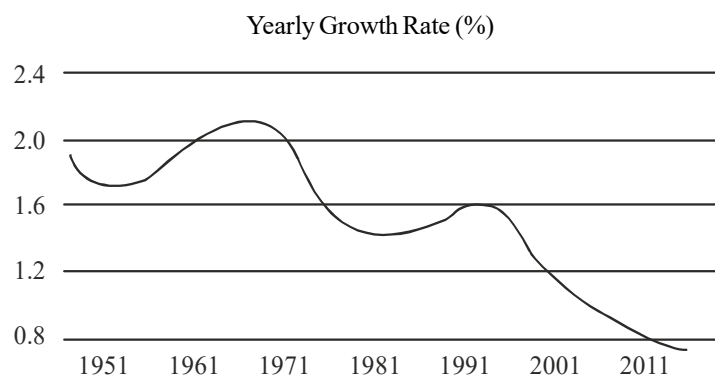


Fig. 6.4 Growth Rate of World Population (1951-2011)

Population in the world is currently (2018) growing at a rate or around 1.09% per year (down from 1.12% in 2017 and 1.14% in 2016). The current average population increase is estimated at 83 million people per year.

Annual growth rate reached its peak in the late 1960s, when it was at around 2%. The rate of increase has nearly halved since then and will continue to decline in the coming years. It is estimated to reach 1% by 2023, less than 0.5% by 2052, and 0.25% in 2076 (a yearly addition of 27 million people to a population of 10.7 billion). In 2100, it should be only 0.09%, or an addition of 27 million people to a population of 10.7 billion). In 2100, it should be only 0.09%, or an addition of only 10 million people to a total population of 11.2 billion. World population will therefore continue to grow in the 21st century, but at a much slower rate compared

to the recent past. World population has doubled (100% increase) in 40 years from 1959 (3 billion) to 1999 (6 billion). It is now estimated that it will take another nearly 40 years to increase by another 50% to become a billion by 2037.

It was then expected that at the present growth rate the population of less developed regions would be three time more than the developed regions. Maximum population was then likely to be in South Asia, India, Pakistan and Bangladesh and these countries was likely to contribute maximum population growth.

NOTES

Table 6.14 *Estimated Population of Less and More Developed Regions*

(1965-85)					
Regions	1965	1970	1975	1980	1985
Less Developed Regions :					
East Asia excluding Japan	754	826	901	979	1,060
South Asia	981	1,126	1,296	1,486	1,693
Africa	981	1,126	116	133	155
Western Africa	90	101	112	129	142
Eastern Africa	86	98	101	119	149
Northern Africa	75	87	40	46	52
Middle Africa	32	36	26	-	-
Tropical South Middle	20	23	175	29	34
Japan	130	151	175	204	236
Europe	57	67	80	95	112
Australia and New Zealand	23	26	29	32	36
World Total	98	103	110	116	121
Less Developed Region	445	462	479	497	515
More Developed Region	14	1.5	17	19	21
World Total	3,289	3,635	4,022	4,457	4,934
Less Developed Region	2,552	2,545	2,875	3,247	3,965
More Developed Region	1,037	1,090	1,147	1,210	1,275

In less developed countries children constitute 42% of the total population whereas in more developed countries the population is 28%. Whereas 63% of the total population constitutes working population in more developed countries, in less developed countries it is only 55%. Some of the important demographic characteristics of less developed and more developed countries as brought out by U.N.O. in, 'World Population Prospects: 1965-85' as assessed in 1968; (December, 1969) were as under:

Table 6.15 World Population Prospects (1965-85)

NOTES

Characteristics	World Total	More Developed Regions	Less Developed Regions
1	2	3	4
Annual Rate of Population Growth			
1965-70	2.00	1.00	2.40
1970-75	2.00	1.00	2.50
1975-80	2.10	1.10	2.40
1980-85	2.00	1.10	2.40
Crude Birth Rate			
1965-70	33.8	18.6	40.6
1970-75	33.2	18.9	39.0
1975-80	32.1	19.5	37.0
1980-85	30.8	19.5	34.9
Crude Death Rate			
1965-70	14.0	9.1	16.1
1970-75	12.7	9.2	14.2
1975-80	11.6	9.3	12.5
1980-85	10.5	9.4	10.9
Expectation of life at Birth			
1965-70	53.1	70.4	49.5
1970-75	55.5	71.2	52.4
1975-80	58.1	71.9	55.3
1980-85	60.4	72.2	58.0
Percentage Age Distribution of Population Age	1965-1985	1965-85	1965-85
0-14	37.4-36.3	28.1-26.2	41.6-39.8
15-64	57.6 58.2	63.0-63.4	55.1-56.4
65 and above	5.0 5.5	8.9-10.4	3.3-3.8

World Population by Religion

According to a recent study (based on the 2010 world population of 6.9 billion) by the Pew Forum there are:

- **2,173,180,000 Christians (31% of world population)**, of which 50% are catholic, 37% Protestant, 12% orthodox, and 1% other.

NOTES

- **1,598,510,000 Muslims (23%)** of which 87-90% are Sunnis, 10-13% Shia.
- **1,126,500,000 No Religion affiliation (16%)** atheists, agnostics & People who do not identify with any particular religion. One-in-five people (120%) in the United States are religiously unaffiliated.
- **1,033,080,000 Hindus (15%)** the overwhelming majority (94%) of which live in India.
- **487,540,000 Buddhists (7%)** of which half live in China.
- **405,120,000 Folk Religionists (6%)** faiths that are closely associated with a particular group of people, ethnicity or tribe.
- **58,110,000 other Religions (1%)** Baha'i Faith, Taoism, Jainism, Shintoism, Sikhism, Tenrikyo, Wicca, Zoroastrianism and many others.
- **13,850,000 Jews (0.2%)** four-fifths of which live in two countries: United States (41%) and Israel (41%)

Table 6.16 World Population by Country

Country (for dependency)	Population	Yearly Change	Net Change
China	1,416,045,028	0.39%	5,528
India	1,354,051,854	1.11%	14,871
U.S.	326,766,748	0.71%	2,307
Indonesia	266,766,748	1.06%	2,803
Brazil	210,867,954	0.75%	1,579
Pakistan	200,813,818	1.93%	3,797
Nigeria	195,875,237	2.61%	4,988
Bangladesh	166,368,149	1.03%	1,698
Russia	143,964,709	-0.02%	-25
Mexico	130,759,074	1.24	1,595

It was also estimated that about 404 million people would add to world population by 1980 only and absolute increase in school going children would be 182 million during the same period. In the developed regions increase in population would be by several million. U.N.O. in its 'World Population,' 1965-85 as assessed in 1968, working Paper No. 30, December 1969', provided information about expected changes in the main functional age groups 1970-80 as follows: (figures are in millions and medium variant)

Table 6.17 *Expectation of Changes in World Population (1970-80)*

NOTES

	World	More Developed Regions	Less Developed Regions
Total Population			
1970	3,632	1,090	2,542
1980	4,457	1,210	3,247
Increase	825	120	705
% age increase	22.7	11.0	27.8
		Pre School group	(0-4 yrs)
1970	508	96	412
1980	612	113	500
Increase	104	17	88
% age increase	20.5	17.0	21.3
		School age group	(5-14 yrs)
1970	836	196	640
1980	1,021	199	822
Increase	185	3.0	182
% age increase	22.2	1.5	28.5
		Old age group	(65 yrs and over)
1970	189	105	84
1980	246	130	117
Increase	57	25	33
% age increase	30.2	23.7	38.2

Thus, there is no aspect of human life which will not be influenced or affected by growing population. The only healthy sign and ray of hope is that every nation in this world of today is quite conscious of the problems being created by population growth and is trying to check that.

According to Donald J. Bogue during 1985-1990 annual then expected population rates of growth for the developed regions was 0.60 whereas for developing regions it was 1.94. According to the then U.N. estimates by 1990 world population was should be 5292 million out of which 1207 millions were to live in developed regions (22.80%) and remaining 4085 million in developing regions (77.2%).

World Population Distribution

In the past the world was not very densely populated. By the beginning of Christian end, the greatest concentration of population was in the India continent, followed by China and Roman empire. By about 1650, about 55% of the total population was concentrated in eastern and Southern Asia. It has been said that, "The early concentration of earth population in Eastern and Southern Asia and the enduring character of this concentration through two millenniums of time

NOTES

is one of the primary features of the earth's population geography". During 17th century areas of population concentration were Northern and Eastern China, India, Sub-continent, western and central Europe and Mediterranean region. About half of the world population lived in Asia, about 11.25% in Africa, 13.8% in America, 10.5% in Europe, 0.5% in Oceania, the rest in the USSR. As regards density of population it was the highest in Asia ie., 101 persons per km; followed by 99 persons in Europe, 18 in Africa, 16 in America, 12 in USSR and 3 in Oceania.

According to a UN report world population in 1990 was 5292 million. In this population on the whole there was 1.7% increase in 1980's but as compared with 1960's it was less by 0.3%. It is hoped that by the year 2000 this rate will further come down by 0.1%. By that time world population will be 6.3 billion an increase of one billion from the total population of 1990. Today world population is very unevenly distributed. Whereas Europe and Asia are most densely populated regions. Japan is most densely populated country of the world. The population of % went it to 58.7%. Population of African countries constitutes 12.42% whereas that of European countries is only 9.42% as is shown in the Table given below :

Table 6.18 World Population on Growth (Select Regions)

Region	Population in Millions			Surface Area	Density	Birth Rate Sq. km	Death Rate
	1980	1985	1990				
Total	4450	4854	5321	135818	38	27	10
World							
Africa	481	557	661	30305	21	45	15
South Africa	32	36	45	2675	15	33	10
Asia	2583	2834	3116	27582	111	28	9
Europe	484	492	501	4933	101	13	11
Oceania	228	246	27	8536	3	20	8
U.S.S.R.	266	277	291	22402	13	18	11

It has been found that during the period 1985-90 population in Africa increased by 3%. Whereas in Latin America increase was 2.1% but in Europe it was as low as 0.2%. Developed countries have birth rates below 20 per thousand and death rate below 15 per thousand population. These countries have natural increase below 1.0%. On the other hand most countries in Asia, Africa and Latin America have birth rate above 37 per thousand that these countries which have low birth rates of growth have high expectation of life more urban population, high per capita GNP and vice versa. It has also been found that by 1990, 3/4 of the total world population was concentrated in economically less developed countries.

NOTES

Check Your Progress

10. List the countries where death and birth rate both had come down between 1900-1930.
11. How much did the world population grow in the 20th century alone?

6.7 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. The characterized by declining fertility (about 28 per thousand) and with mortality declining more rapidly (to about 12 per thousand).
2. According to Thompson and Notestein, demographic transition has three stages: a) pre-transition stage. (b) transition stage and (c) Post-transition stage.
3. As per Karl Sax, where second and third stages are known as those of population explosion, the remaining two stages are called those of stationary population.
4. According to Malthusian theory, the size and growth of the population depends as the food supply and agricultural methods. In Boserup's theory, agricultural methods depend on the size of the population.
5. It was Boserup's 1970 work *Women's Role in Economic Development* and her commitment and scholarly work that inspired the 'UN Decade For Women' between 1975 and 1985.
6. *The Ultimate Resource* is a 1981 book written by Julian Lincoln Simon challenging the notion that humanity was running out of natural resources.
7. The famous Simon-Ehrlich wager was a bet Julian Simon made with ecologist Paul R. Ehrlich. Ehrlich bet that the prices for five metals would increase over a decade, while Simon took the opposite stance. Simon won the bet, as the prices for the metals sharply declined during that decade.
8. Sex ratio in India's different states differs significantly from the all India sex ratio. Only in Kerala it was favourable in 2011 in the sense that there were 1,084 females per 1000 males.
9. In 2020, the average India will be only 29 years old, compared with 37 in China and the United States, 45 in western Europe and 48 in Japan.
10. Between 1900-1930, the countries where death and birth rate both had come down included the U.S.A., Germany, Australia, UK and France.
11. During the 20th century alone, the population in the world has grown from 1.65 billion to 6 billion.

6.8 SUMMARY

- Areas of social theory deals with composition, organization and distribution of population in human society. Sociologists find that death rate in a society is influenced and affected by social conditions e.g. social habits, environment, living conditions of the people.
- It has been suggested that there are number of district stages in demographic growth through which population passes, the stage being collectively known as the population cycle or the theory of ‘demographic transition’.
- The demographic transition theory pinpoints the changes in these rates which occur as a consequence of economic development, sex had identified four stages involved in this demographic transition that has historically accompanied modern economic development including the high fluctuating stage, the early expanding or youthful demographic stage, late expanding stage of population, and the low fluctuating stage.
- There have been varied theories on the demographic transition from the likes of Prof. O.P. Walker, Thompson and Notestein, Donald Olen Cowgill, Laudry, Ausley J. Coale and Edger M. Hoover, Karl Sax and the UN classification.
- There is no doubt that this theory is quite useful in describing demographic history. But at the same time, it has its own limitations. It has been said that it is not a theory in the strict sense of the term because it is only a broad generalization and does not encompass the experience of all the western countries.
- A criticism against the demographic transition is that the theory does not provide a theoretical explanation of fertility which is necessary for any demographic study. It also cannot be applied with confidence in the developing countries.
- Ester Boserup is known for her theory of agriculture intensification, also known as Qay’s theory, which posits that population change derives the intensity of agricultural production. Her position countered the Malthusian theory that agricultural methods determine population via limits on food supply.
- Ester Boserup also contributed to the discourse surrounding gender and development practices with her 1970 work *Women’s Role in Economic Development*. The work is the first investigation ever undertaken into what happen to women in process of economic and social growth throughout the ‘Third World’.
- Simon argued that population is the solution to resource scarcities and environmental problems, since people and market innovate. His ideas were

NOTES

NOTES

praised by Nobel Laureate economist Friedrich Hayek and Milton Friedman, the latter in 1998 foreword to the *Ultimate Resource-II*, put they have also attracted critics such as Paul R. Enrlich, Albert Allen Bartlett and Herman Daly.

- The population of the country as per the provisional figures of Census 2011 is 1210.19 million of which 623.72 million (51.54%) are males and 586.46 million (48.46%) are females.
- The population of India has increased by more than 181 million during the decade 2001-2011. Percentage growth in 2001-2011 is 17.64; males 17.19 and females 18.12. 2001-2011 is the first decade (with the exception of 1911-1921) which has actually added lesser population compared to the previous decade.
- Broadly speaking there are only possible causes of an increase in the population of a country: (i) a high birth rate (ii) a relatively lower death rate and (iii) immigration. To deal with the present population problem, broadly speaking, threefold measures would be required: (1) Economic measures, (2) Social measures; and (3) The family planning programme.
- Some information about the population between 1650 A.D. to 1800 A.D. is available but information in respect of some centuries is still lacking. It, however, appears that during this period birth rate was 35-55 per thousand and also system of agriculture improved, and machines began to be used in many walks of economic life. Total world population at the end of 17th century has been estimated at 550 crores.
- Between 1800-1850, population increased by 0.5% annually. In Europe rate of growth was 0.75%. Food position was somewhat satisfactory and so was the case in health area. Means of transportation and communication also considerably improved. The system of vaccination had also started. Treatment of many diseases had also been found out. At places death rate was 16-18 per thousand.
- World population has doubled (100% increase) in 40 years from 1959 (3 billion) to 1999 (6 billion). It is now estimated that it will take another nearly 40 years to increase by another 50% to become a billion by 2037.

6.9 KEY WORDS

- **Demographic Transition:** It refers to the relationship between fertility and mortality, i.e., between the birth rate and the death rate.
- **Fallow:** It refers to a land which ploughed and harrowed but left for a period without being sown in order to restore its fertility or to avoid surplus production.

- **Cornucopian:** It is a philosophy which describes a belief that humanity has unlimited growth potential through technology.
- **Demographic Dividend:** It refers to the economic growth potential that can result from shifts in a population's age structure, mainly when the share of the working-age population.

NOTES

6.10 SELF-ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. What was Donald Olen Cowgill's views on the theory of demographic transition?
2. Briefly explain Boserup's contribution to gender studies.
3. What are the strengths and weakness of Boserup's theory on population change?
4. How did Simon criticize the Neo-Malthusianism viewpoints on population change?
5. Write a short note on world population trends before the 1800s.
6. Give a brief overview of population growth in world population 1800 onwards.

Long-Answer Questions

1. Examine the four stages of demographic transition.
2. Explain the analysis and criticism against the stages of demographic transition.
3. Discuss Prof O.P Walker's views on the classification of demographic transition.
4. What is the essence of Ester Boserup's theory of population transition and how is it different from Malthus' views?
5. Explain Julian Simon's theory of population change.
6. Give an overview of the trends of population growth in India.
7. Explain some of the remedies to control population explosion.

6.11 FURTHER READINGS

Bhende, Asha A. and Tara Kanitkar. 1994. *Principles of Population Studies, Sixth Edition*. Mumbai: Himalaya Publishing House.

NOTES

Heer, David M. 1987. *Society and Population, Second Edition*. Delhi: Prentice-Hall India.

Raj, Hans. 1984. *Fundamentals of Demography (Population Studies with Special Reference to India), Third Edition*. Delhi: Surjeet Publications.

Kumarasena, Harsha. 2004. *Population Education*. Delhi: Dominant Publishers and Distributors.

Website

www.mercatus.org/system/files/Julian_Simon_and_the_Limits_to_Growth_Neo-Malthusianism_Working_Paper_by_Aligica.

BLOCK - III
THEORIES OF FERTILITY AND FECUNDITY
AND CONCEPTS

Fertility and Fecundity

NOTES

UNIT 7 FERTILITY AND
FECUNDITY

Structure

- 7.0 Introduction
- 7.1 Objectives
- 7.2 Concepts of Fertility and Fecundity
 - 7.2.1 Thoughts of Various Authors about Fertility
 - 7.2.2 Determinants of Fertility
 - 7.2.3 Need for Fertility Rate
- 7.3 Theory of Marriage and Family
 - 7.3.1 Social Structure and Fertility
- 7.4 Answers to Check Your Progress Questions
- 7.5 Summary
- 7.6 Key Words
- 7.7 Self Assessment Questions and Exercises
- 7.8 Further Readings

7.0 INTRODUCTION

Fertility is the natural capability to produce offspring. As a measure, fertility rate is the number of offspring born per mating pair, individual or population.

India is a nation of poor and crowded people. In every nation, it is very essential to find out the birth and death rates and the factors that influence them. In fact, the birth or death of a child in a family influences the whole family and the society as well. It gives a negative impact on the parent's health, and their attitude. Hauser and Duncan have very rightly said, 'A disturbance of the rate of production of new members portends for the population successive modifications in the number of consumers in each higher age group, the demands imposed on the educational structure, the flow of young adults into the labour force, the housing requirement of the newlyweds and so on, as throughout the life span to the ages beyond retirement when the old seek to derive financial if not psychological security from their savings, their pregnancy and their government. In fact today each aspect of society is being influenced by fertility and population growth. So it is the dynamic issue of study for policymakers. In the words of Thompson and Lewis, 'The fertility of women has always been a matter of vital concern to the all people.'

NOTES

The fertility of women has always assumed importance in all societies. It was always believed that a woman who had no fertility was unfortunate because she could not keep the family going as. Later on, it was realised that prayers were not effective for changing barrenness into fertility, then scientific means and methods were adopted. Widow remarriages and polygamy were also encouraged to take advantage of fertility. There was no period of human history in the past when a deliberate attempt was made to check human fertility. However, during the 20th century, fertility was discouraged through different ways, that is, through late marriage, by avoiding children for long periods, by limited family size.

But it cannot be denied that every society replenishes itself only with the help of fertility. It is thus a positive force. But excessive replenishing of human numbers may create many social, economic and political problems for the nation. Therefore, there a need for the study of fertility in a broader perspective was felt. It was thereafter that more and more intent was shown by social scientists and demographers in the study of fertility. Along with this, policy-makers, administrators, medical doctors and many others concerned with population studies began to show interest in it. Methodological developments were also responsible for increased intent in studies on fertility.

7.1 OBJECTIVES

After going through this unit, you will be able to:

- Discuss the concept of fertility and fecundity
 - Explain the theory of marriage and family
 - Illustrate how to calculate the various measures of fertility
-

7.2 CONCEPTS OF FERTILITY AND FECUNDITY

Let us begin by examining some of the definitions of fertility,

Definition of Fertility

Some of the definitions of fertility include:

- According to Lewis and Thomson, fertility is generally used to indicate the actual reproductive performance of a woman or groups of women. The crude birth rate is only one measure of fertility.
- According to Barnard Benjamin, fertility measures the rate at which a population adds to itself by births and is normally assessed by equating the number of births to the size of same section of population, such as the number of married couples to the numbers of the women of child bearing age, which is an appropriate yardstick of potential fertility.

- Medically defined, fertility is the ability to conceive and bear children, the ability to become pregnant through normal sexual activity.
- Barclay stated that fertility is an actual level of performance in a population, based on the number of live births that occur. Fertility can be ascertained from statistics of birth. The study of fertility does not indicate the level of fecundity for which there is no direct measurement.

As a measure, fertility rate is the number of offspring born per mating pair, individual or population. Fertility differs from fecundity, which is defined as the potential for reproduction. A lack of fertility is infertility, while a lack of fecundity would be called sterility.

In demographic a context, fertility refers to the actual production of offspring, rather than the physical capability to produce, which is termed fecundity. Demographers measure the fertility rate in a variety of ways, which can be broadly broken into 'period' measure and 'cohort' measures.

Table 7.1 Measures of Fertility

I. Period Measure	II. Cohort Measure
1. Crude birth Rate (CBR)	1. Total fertility Rate (TFR)
2. General fertility Rate (GFR)	2. Cross Reproduction Rate (GPR)
3. Child-woman Ratio (CWR)	3. Net Reproduction Rate (NRR)
4. Coale's Index of Fertility (CIF)	Net Reproduction Rate (NRR)

I. Period Measures

1. **Crude birth rate (CBR):** It means the number of live births in a given per year per 1,000 people alive at the middle of the year. One disadvantage of this indicator is that it is influenced by the age structure of the population.
2. **General fertility Rate (GFR):** The number of births in a year divided by the number of women aged 15-44 per 1000. It focuses on the potential mother only and takes the age distribution into account.
3. **Child-woman ratio (CWR):** The ratio of the number of children under 5 to the number of women aged 15-49 per 1000. It is especially useful in historical data as it does not require counting births. This measure is actually a hybrid, because it involves deaths as well as births. This is because of infant mortality same of the birth are not included and because of adult mortality, same of the women who gave birth, are not counted either.
4. **Coale's Index of Fertility (CIF):** This is a special device used in historical research.

II. Cohort Measures

1. **Total fertility rate (TFR):** The total number of children a woman would bear during her lifetime if she were to experience the prevailing age specific

NOTES

NOTES

fertility rates of women. TFR equals the sum of all age groups of times each ASFR rate.

2. Gross Reproduction Rate (GRR): The number of girl babies a synthetic cohort will have. It assumes that all of the baby girls will grow up and live to at least age 50.

3. Net Reproduction Rate (NRR): The NRR starts with the GRR and adds the realistic assumption that some of the women will die before the age of 49, therefore, they will not be alive to bear some of the potential babies that are now counted in the GRR. NRR is always lower than GRR, but in countries where mortality is very low, almost all the baby girls grow up to be potential mothers, and the NRR is practically the same as GRR. In countries with high mortality, NRR can be as low as 70% of GRR. When $NRR = 1.0$, each generation of 1000 baby girls grows up and gives birth to exactly 1000 girls. When NRR is less than one, each generation is smaller than the previous one. When NRR is greater than one, each generation is larger than the one before. NRR is a measure of the long term future potential for growth, but it usually is different from the current population growth rate.

Fecundity

According to Thompson and Lewis, fecundity is a biological potential and the physiological capacity to participate in reproduction. The absence of this potential is known as infecundity or sterility. It is the capacity to conceive or bear children. In every society, a very large proportion of infertile women are also infecund. In the near past, it was believed that an involuntarily childless marriage was almost always due to infecundity of wife, but it is not so the case today.

However, Thompson and Lewis state that childlessness is not proof of infecundity of the wife but may be due to the sterility of either of the wife or the husband and may arise from the fact that the spermatozoa of a particular male cannot fertilise the ova of a particular female to the mutual incapability of the individual's germs cells.

Barcklay has defined fecundity as the potential level of performance of physical capacity for bearing children of the population.

Problems in the study of fecundity

There are some problems that arise in the study of fecundity. One such problem is with what time period should fecundity be linked, namely, should it be linked with the whole lifetime or with the reproduction age or with some other period. Another problem is with which type of population should it be linked, namely with total population, total married population, and so on.

Factors Affecting Fertility

Human fertility depends on factors such as nutrition, sexual behaviour, consanguinity, culture, instinct, endocrinology timings, economics, way of life and emotion, and so on.

A parent’s number of children strangely correlates with the number of children that each person in the next generation will eventually have. In a vast majority of cases both men and women have fertility and capacity to produce offspring. There are, however, many factors which influence fertility. In the past there was no check or control in so far as child producing was concerned. But today fertility is being checked in the sense that most of the people in the urban areas or elite sector of the society have a limited family size. People are increasingly using family planning devices and also abortions to lower the fertility rate. A family of two children is concerned as a normal family. There are also people who do not like to have children, though they are leading a married life and have the capacity to produce children. In fact, the whole programme of limiting the size of the family has become more necessary from the social point of view rather than any other view point. In the words of Prof. Burton Benedict, if there is one thing which experience with family planning has shown, it is that people are not motivated to limit their families by population statistics or even by the ease or availability of contraceptives, but a whole set of social factors inspiring their personal lives and changing their life cycles. In the vast majority of the society of the world these factors serve to promote human fertility. In a few societies or parts of societies they serve to limit fertility. Some of the important factors which effect fertility may be discussed as under:

Table 7.2 Factors Effecting Fertility

Biological factors	Indirect Social factors	Direct factors	Other Social factors
Disease	Age of marriage	Oral Pills	Food Supply
Food habits	Polygamy	Condom	Economic Conditions
	Separation & Divorce	Abortion	Family System
		Infanticide	Social Status of women
	Widowhood		Political System
	Post Partner Abstinence		Attitude towards Children
	Abstinence and Menstruation		Death rate
	Celibacy		Intellectual Freedom
	Frequency of Coitus		Role of Science
			Desire to maintain Status

NOTES

NOTES**Biological Factors affecting Fertility**

In fertility, biological factors play a very leading role. Under biological factors, the most important health and related factors are diseases, food habits etc. As health conditions and standard go on improving, fecundity also increases and death rate comes down. During the last few years, death rate has considerably decreased because health facilities have been sufficiently provided and utilised by the people, more particularly in developing and under-developed countries. Though there are biological limits for human reproduction, but a number of social cultural and psychological factors influence the level of fertility in every society. As such, in the study of fertility, it is necessary not only to understand biological aspects of fertility only but also the effects of various social norms and customs which are linked with the process involved in child bearing. Biological limits imposed on child bearing because of age and sex can be easily recognised because a woman can become biologically fecund during menopause. The reproductive period of a woman is on an average between 30-35 years, whereas that of a man is considerably longer. It may however be pointed out that fecundity of female is not uniform throughout this span of 30-35 years. It is at the low level during early puberty stage. A woman's capacity to bear children reaches the highest level at 20-25 years, after which it starts declining gradually and reaches zero level at about 50 years.

Physiological factors affecting fertility

It has been found that when the age at cohabitation is lower, the interval between consummation of the marriage and the birth of the child is more and therefore early female marriages in India do not necessarily result in large families. During the reproductive span of women, there are certain periods of sterility. After the birth of a child the woman is generally sterile, and possibility of occurrence of conception is very rare. The period of temporary sterility is known as post partner sterile period. The natural fertility of every population is affected by the extent of primary and secondary sterility among women or couples. The average number of children per woman depends upon the percentage of women or couples who suffer from primary sterility—that is couple who have been had a child. The extent of primary sterility varies with the female age at the time of marriage. Another physiological factor which affects fertility of any population is the magnitude of secondary fertility, i.e., fecundity impairment. It is the inability of women, who do not practice contraception, to participate in reproduction after the birth of one or more children. Secondary sterility can be due to certain pathological conditions or infection or due to accident during child birth. Its study is essential for estimating future growth of families.

In the physiological factors affecting fertility, abortion and still births also contribute a lot which varies not only country to country but also from place to place. It has been estimated that 30% of conceptions result in foetal deaths and if these are taken into account reproduction age may increase by 15%.

Due to social and other restraining factor there is always a gap between biologically maximum fertility and actual level of fertility. It has been found that in India in spite of the fact that there is lower female age at marriage and the fact that they hardly make use of any contraception, fertility is lower than what it is in many Eastern and Western societies. The main reason for this being social customs, adolescent sterility and longer sterility between two births because of breast feeding of the child for a large duration.

Indirect Social Factors Affecting Fertility

There are many factors which are influenced by social customs and in turn affect fertility. Usually these factors make an indirect impact on fertility. These are as follows:

(a) Age at Marriage

It appears that fertility goes down when marriage takes place at a late stage. In European nations, people marry at a very late stage and sometimes they do not get married at all. It is well known fact that fertility rate is higher in countries where marriages take place at comparatively early stage, as compared to the people who marry at late age.

As regard to marriage, some of the factors which influence fertility include nature of relationship in marriage, caste, customs, rituals and economic status of the spouse, etc. It is believed that those females who conceive at an early age experience more miscarriages and still births than those who conceive at matrix age. In the words of Dandekar, 'our study found that the fertility of the wives of migrant workers who were absent for a larger part of the year was not adversely affected, in fact in the younger age group it was enhanced.'

A human couple generally gives birth to only one child at once. The child is very tender and needs care and consideration. In families where that care is not possible, death rate goes up. When marriage takes place at an early age, the probability of more children increase simultaneously.

(b) Polygamy

Another indirect social factors which influences infertility is polygamy. It is a system under which a husband can have more than one wife. This system is not very popular nowadays. If polygamy is compared with a system where the husband has only one wife, then some thinkers have tried to establish that there is possibility of less fertility of women. But the facts have not supported their belief. When a husband begins to maintain more than one wife then their first wives get more opportunities of meeting the husband and thus having high fertility as compared to those who are married at late stage and due to old age of the husband the sexual meetings between the husband and the wife are very less. As such, chances of such wives producing children are considerably reduced. Since the husband himself

NOTES

is old and the wife is not permitted to have sexual exposures with other young men, the result is that birth of children considerably goes down.

(c) Separation and Divorce

NOTES

It is not certain that after marriage, both the husband and the wife will always have cordial relations. There can be unhealthy and strained relations between the two as well, which result either in separation or divorce. But divorce or separation always does not mean low fertility. It is related to many factors like frequency of separation, period of separation, age of children when the parents opt for separate, age of the parents at the time of separation or divorce, the interval between the separation and remarriage etc. In the case divorce takes place when the couple is young and still in reproductive age group then divorce may affect fertility, but not otherwise. In addition, it also depends on the health of the couple and their desire to produce offspring.

(d) Widowhood

Widowhood influences fertility. It is because without her husband, a wife cannot produce legal offspring. But the effect of widowhood on fertility depends on how soon she decides to remarry and at what age she became a widow. If a widow decides to remarry immediately then fertility will not be effected, but if she decides to remarry at a very late stage or not to remarry at all, obviously fertility will be effected. Whether a widow remarriage system is good or bad it should be or should not be encouraged depends on social conditions and attitude of the people and difference from country to country. In India, widow remarriage is not always encouraged, through the situation has changed now. In Myanmar, widow remarriages is still not encouraged. It is also influenced by the economic conditions of the family as well. In India and China, those widows who belong to rich families are usually not encouraged to remarry, as compared to the widows belonging to poor families.

(e) Post Partner Abstinence

Fertility is also influenced by restrictions imposed by society or otherwise on reunion or sexual exposure of husband and wife, after the birth of a child. Obviously when this period is long, fertility will be less, but when the period is short, husband and wife will get an opportunity to meet and probability of fertility is high.

(f) Abstinence and Menstruation

Almost all over the world it is accepted that husband and wife should remain separate during menstruation. In some societies it is very strictly observed and women during menstruation are not allowed to attend social functions and religious ceremonies, while in other societies, their practice is not observed with great rigidity. Since the period of menstruation is practically that of separation, therefore fertility is affected. It is however, difficult to ascertain the extent of effect, because during

this short period, it is even not possible to find out how many times husband and wife even otherwise would have met for the purpose of producing children.

Fertility and Fecundity

(g) Celibacy

Fertility is also affected by social and self-imposed controls about marriages. In many societies, it is believed that the ideal age of marriage is 25 years for boys and 20 years for girls. In India and many European countries priests and nuns are expected to lead self-controlled lives. Thus, when self or social imposed restrictions are effective, fertility is also likely to be affected.

NOTES

Direct Factors Affecting Fertility

Along with indirect factors there are direct factors as well which influence fertility. In every society there is a tendency that family size should be limited and population explosion should be checked. Otherwise many economic, social and political problems are bound to arise. Thus, the most important direct factor which affects fertility is the family planning drive in every society. Today, there is no country that does not have policies intended to check fertility. Every attempt is made to educate as well as to convince people about checking fertility. Some people believe that youth in school should not be provided population and sex education. But these days this idea is not much accepted. Population education is now being provided at school level, so that from a young age they become aware of the need and necessity of a small family size. Some methods through which fertility is checked is as follows:

(a) The use of contraceptives

The widespread use of pills or a condom are the easiest ways to decrease fertility rate in a society. In case of oral pills, it is believed that a fertile woman, if she uses these oral pills for 20 days in a month, then the chances of pregnancy are reduced to the minimum. On the other hand, a condom is used by males and is the easiest way for checking the fertility and child birth. In India, condoms are supplied to the married couples at very concessional rates. These are now being commonly used and is providing very useful method for controlling family size.

(b) Abortion

Quite often a woman conceives at a time when she does not wish to have a baby. In many societies, it may be permissible for her to abort the baby. The laws on abortion vary from society to society. How far abortion influences fertility is difficult to assess because in many cases people are not willing to supply information due to legal or social reasons and in many cases it is difficult to distinguish between voluntary abortion and a miscarriage. In many societies, like in the island of Yap in Micronesia, abortion is quite common. Whether abortions should be legally allowed or not is a problem on which opinions can differ, but the fact is that today in many advanced societies of the world, there is

no hesitation in following it and as such, it is a method which is used for checking fertility and influences birth rate of children.

(c) Infanticide

NOTES

Another factor which directly affects fertility is the practice of infanticide. It is a practice which had been followed in Arabian countries in the past. In some cases when children taken birth with some disability, they are killed immediately. In Eskimo Society, children are killed because there is a shortage of food. The Turkish anthropologist Asen Balikci, in his studies has also come to the conclusion that food shortage is responsible for infanticide in many societies. In such societies, a female baby is killed intentionally because they cannot go out for hunting or are not economically self-sufficient. As a result of female infanticide and foeticide practices, the sex ratio is always skewed towards males.

From the aforesaid factors (Direct or indirect) it will be seen that some are really effective, whereas other very marginally influence birth rate or fertility. In the words of Harrison and Boyce, 'The brief survey of direct and indirect factors affecting fertility has shown that for the vast majority of societies there are few social mechanism for controlling fertility and that those that exist except in a very few societies, do not appear to be very effective. The fact is that people in most societies do not wish to restrict fertility. On the contrary, they desire to produce the maximum number of children.' It is however difficult to agree with the learned authors that even today people desire to produce the maximum number of children. The norm today is to have smaller families and thus many measures to check fertility are being adopted.

Other Social Factors

So far some direct and indirect factors which fertility have been discussed. There are some other social factors as well which influence fertility which are as follow:

Food Supply: It is usually believed that in societies where there is a shortage of food supply, there is less fertility. Malthus in his theory tried to establish that nature maintains a balance between food supplies and growth of population and there is a link between the two. But it is difficult to establish this relationship in actual practice logically and scientifically. In fact it is difficult to argue that shortage of food supplies checks fertility in any society. Prof. Wynne and Edwards are of the view that in non-human animal societies the growth rate is much higher than food supplies, but animals are not seen dying of starvation. Authors are of the opinion that what is true of animal society, should be true of human society as well. Slot in a study conducted in 1962 has also supported the viewpoint of Wynne and Edwards. Prof. Douglas has, however, not contributed to this view point, because unlike animal population, human population is effected by many cultural factors like local customs, social prestige, superstition, and so on. Harisson and Boyce say, 'The Chinese killed girl babies not because there was shortage of food but because the status and prestige of the family is manifested in the dowry given to a

daughter on marriage and because the Lineage can only be perpetuated by males.’ It however, cannot be denied that food supplies if not directly, than to a considerable extent indirectly, check fertility. We all are aware that in many countries where there is shortage of food supplies, young couples are advised to restrict family size so that it becomes easy to solve the food problem of the country.

Urbanisation: It is said that fertility and size of the town are very closely linked with each other. It is because in the cities there is high cost of living which is unaffordable for a big size family. Then there are social classes in which family with too many members is not welcome. By and large people with high income in the cities do not favour large families and the women are both educated and employed and thus psychologically and otherwise not prepared to accept big family and fragment fertility.

Economic Conditions: Then another factor which affects fertility is economic conditions of the people. Economic conditions are directly linked with fertility. Usually in agricultural settings and Zamindar families, fertility is very high because they follow joint family system and where the husband and wife always live together. On the other hand, in urban areas, people are mostly salaried ones and they have their own limitations. They have a shortage of accommodation and with their limited income they find it difficult to bear expenses of bringing up many children. It is for this primary reason that among salaried people an attempt is made to keep the fertility low. Prof. Seppilli is of view that the birth rate in Italy came down by 50% for the reason Italy industrialised from an agricultural country.

In some societies, however, the poor section of the society, no matter whether they belong to agriculture or industry, have high fertility. According to Harisson and Boyce, ‘The very poor in industrial societies can often see no advantage in limiting their children. At the lowest level, ten children are more of a handicap than nine..... If a man does not have dependent, or whom he will be dependent when he is old and ill.’

Role of Religion: Fertility is also affected by the preaching of religion. In societies where the religion does not preach against polygamy or the high number of children have higher fertility rates.

Occupation: Another important factors which influences fertility is the occupation of the couple. It is usually seen that those involved in mental work have less number of children as compared to those who do some sort of physical job.

Social Status of woman: Fertility also depends on the social status of the women. In societies where women are confined only to household jobs, they are considered suitable only for producing children and as such those women who can produce good number of children are held in high esteem. Obviously in such societies, fertility is high as compared to the societies where women are expected to participate in all spheres of life along with men. That is the reason women in these societies want to limit their family. Similarly educated and employed women also avoid having large families.

NOTES

NOTES

Political factor: In a developing country like India where there is population explosion, every political party in power gives incentives for checking population. Each environment provides incentives to check fertility and birth rate. Facilities are provided to those who go for sterilisation or similar for other measures adopted to check fertility.

Attitude towards Children: In many societies it is believed that children are real possessions of family and society. They are a source of strength, power and can stand with parents at the time of difficulty. In such societies every effort is made to have male children and when girls are born to a couple, they continue to give birth to children till a male baby is born.

Death Rate: Another factor which influence fertility is death rate. In the past the rate of child mortality was very high. It used to be almost sure and certain that at least one or two children will die. Accordingly, the fertility was high so that a care was provided for the children who would die at a later stage. Today, society has controlled many disease which used to kill children which has resulted in the lowering of infant mortality. Accordingly, parents now wish to have only as many as children as they wish to have. This has considerably influenced fertility.

Intellectual Freedom: According to Thompson and Lewis, the growth of intellectual freedom in other fields of life during the 19th and 20th century has also considerably influenced fertility. They stated that 'we believe, however, that this gradual emancipation of the human mind from tradition and dogma was a very important factor in changing the attitudes of many towards western people towards reproduction in the 18th and 19th centuries. To ignore the change in the general intellectual atmosphere which made women demand right as person to overlook the underlying casual factors in the decline in the birth rate.'

Education among Women: Education and fertility have started showing a close relationship. It is because of the following reasons:

- (a) Educated women are quite conscious of having a limited family size.
- (b) At an early age when there are bright chances of having good fertility, girls are in colleges and thus are not producing children unlike illiterate women.
- (c) In many cases educated women get employed therefore they cannot afford to have more children.
- (d) Span of child producing period is much less for literate women as compared to illiterate women.

Role of Science and Technology: Science and technology have a significant role in influencing fertility. Thompson and Lewis make us believe that without proper appreciation of value of science, the use of contraception would not have developed as fast as it has developed today. They say that, 'Had there not been a rapidly growing appreciation of the value of science in making good health possible and of the importance of economic minimum for maintaining a healthy family, the voluntary control of the size of the family by the use of contraception almost certainly

could not have developed as rapidly as it did from about 1850 to the present time.’

Fertility and Fecundity

7.2.1 Thoughts of Various Authors about Fertility

Let us the views of different authors on fertility.

Prof. Donald J. Bogue’s views about fertility

Prof. Donald J. Bogue has also discussed some of the important factors which influence fertility. Among others, he mentioned marital status, i.e., the age at which marriages takes place, after the marriage whether the couple lives a happy or unhappy life, whether the couple wishes to enjoy life or their relations are stained or they live a separated or divorced life and so as. Then another factor about which attention has been drawn is the level of educational attainment of the society, on the one hand, and that of the particular family as the other.

Fertility also depends on social settings. In a country like India where a vast majority lives in rural areas, fertility is bound to be different as compared with fertility of population living in the urban communities.

Bogus is also of the view that region in which the people live also affects fertility. The people of hot region are more fertile than those of cold region. He has proved this by saying that cold region of world are less populated than hot ones.

Then he believes that fertility is influenced by the occupation of the head of the family. The people with good occupations are likely to check fertility, whereas those with menial occupations are likely to have more children. He has related this to family income too. According to him, where income is low, fertility goes up, but if income is not very high then the fertility is the lowest, but when income considerably increases, fertility goes up. He is of the opinion that it is wrong to think that when a family is rich the number of children will be less.

He has also linked fertility with the occupation of the women. On the whole, employed women are likely to produce less children as compared with unemployed ones. Even those who are employed among them, social scientists, accountants, auditors, designers, professors, etc., are likely to have less fertility than women involved in other professions.

Another factor which according to him affects fertility is the extent of the use of contraceptives. Nowadays, people are quite aware of using contraceptives. The use of contraceptives checks fertility and helps in adjusting the period between the birth of two children.

Views of Kingsley Davis and Judith Blake

Kingsley Davis and Judith Blake in *Social Structure and Fertility* have analysed fertility in detail. They have provided an analytical framework and have broadly classified factors influencing fertility into three main categories. According to them, a child is born only when there is meeting of husband and wife, conception and

NOTES

NOTES

termination of pregnancy at the proper time. According to them, all the three stages are intermediate variables which include:

(A) Intermediate factors which effect fertility, that is, factors governing the formation and dissolution of unions in the reproductive period:

- Age of entry into sexual union.
- Permanent celibacy of women who never enter into sexual unions.
- Amount of reproduction period spent after or between unions-
 - (i) When unions are broken by divorce, separation or desertion
 - (ii) When unions are broken by death of husband

(B) Those intermediate factors governing exposure to intercourse within unions:

- Voluntary abstinence
- Involuntary abstinence from impotence, illness, unavoidable but temporary separation
- Coital frequency

(C) Factors affecting exposure to conception:

- Fecundity or infecundity, as affected by involuntary causes
- Use and non-use of contraception by mechanical or chemical means or other means.
- Fecundity or infecundity is affected by voluntary causes, sterilisation, sub-incision medical treatment.

(D) Factors affecting gestation and successful partition etc.

- Postal mortality from involuntary causes.

It is worth noting that any social or cultural factor which affects fertility must be through one or more above mentioned intermediate variables which can have either a positive or negative effect on fertility. Fertility level in a society is determined by the continued efforts. Some of the important variables are briefly discussed below:

Intercourse Variables

Through premarital sexual practice can be included in it, but they mainly includes those variables which are related to the formation and dissolution of families through marriages. Since sexual intercourse is permitted in all societies to legally married couples therefore, it is of great significance in the study of fertility. The variables include age at marriage, extent of widow remarriage, position of widows, proportion of females and proportion of those who never married in the reproductive age group. These play a big role in determining fertility level and differentials.

Voluntary Abstinence: It is one factor which keeps fertility level low in India. It is because of one custom that women are segregated after child birth. There is

also a custom of sending the girl to her parents for her first delivery, taboo of sex relations when the child is young and on certain religious days.

Foetal Mortality: When it is voluntary, it is mostly in the form of abortion. Acceptance of this practice at a large scale is only a recent phenomenon. In many countries induced abortion are allowed under certain condition which are being made easy. The latest data of birth rates in East European countries reveal that wherever induced abortion are legalised the birth rates are low. The use of contraceptives has now become the most important intermediate variable responsible for the decline of fertility in various European countries. As early as in 1970 it was found that nearly 70% of the women in reproduction age group in the USA were using same kind of contraception. It is because of use of this device that birth rates are low in developed nation. In fact its effective use is most important variable affecting the fertility of any society.

It is because of the contraception that reduced abortions and late marriages have lost much significance. Though, the effectiveness of a particular birth control method is an important factor, effectiveness with which a method is used is also considered important.

In every society, there are certain social norms and customs relating to sexual practices and marriages that these are blindly followed. In India, there is high fertility, because of desire for continuation of family life on one hand and sense of social security on the other hand. It may, however, be mentioned that fertility has been strongly supported by religious and social institutions everywhere so as to breed and multiply. But even in societies which generally favour high fertility, social norms and customs do not always support high fertility. There are certain social constraints which influence child birth. In brief it can be said that social, physiological, economic and cultural factors combined together affect fertility either positively or negatively.

The 'Three-step Analysis' of the fertility process was introduced by Kingsley Davis and Judith Blake in 1956 and makes use of three proximate determinants. The economic analysis of fertility is a part of household economics, a field that has grown out of the new home economics.

Bongaarts Model of Components of Fertility

Bongaarts proposed a model where the total fertility rate of a population can be calculated from four proximate determinants and the total fecundity (TF). The Index of marriage (Cm), the Index of contraception (Cc), the Index of induced abortion (Ca) and the Index of post-partum infecundability (Ci). These Indices range from 0 to 1. The higher the Index, the higher it will make the TFR. For example, a population where there are no induced abortion would have a Ca of 1, but a country where everybody used infallible contraception would have a Cc to 0.

$$TFR = Tf \times Cm \times Ci \times Ca \times Cc$$

NOTES

These four indices can also be used to calculate the total marital fertility (Tmfr) and the total natural fertility (Tn)

$$TFR = TMFR \times Cm$$

$$TMFR = Tn \times Cc \times Ca$$

$$TN = Tf \times Ci$$

NOTES

Intercourse: The first step is sexual intercourse and examination of the average age at first intercourse, the average frequency outside marriage and the average frequency inside.

Conception: Certain physical conditions may make it impossible for a women to conceive. This is called 'Involuntary infecundity'. If the woman has a condition making it possible, but unlikely to conceive, this is termed 'subfecundity. Venereal diseases (especially gonorrhoea, Syphilis and Chlamydia) are common causes. Nutrition is a factor as well. Women with less than 20% body fat may be subfecund, a factor of concern for athletes and people susceptible to anorexia. The Demographer Ruth Frisch has agreed that 'it takes 50,000 calories to make a baby.' There is also subfecundity in the weeks following child birth, and this can be prolonged for a year or more through breastfeeding. Numerous industries have developed to deal with subfecundity in women and men. An equally large industry has emerged to provide contraception devices designed to prevent contraception. Their effectiveness in use varies. On an average, 85% of married couples using no contraception will have a pregnancy in the year. The rate drops to the 20% range when using withdrawal vaginal sponges or spermicider. The rate drops to only 2 or 3%. when using the pill or an IUDI and drops to near 0% for implants and 0% for total ligation on (sterilization) of the woman or a vasectomy for the man.

Gestation: After a foetus is conceived, it may or may not survive to birth. Involuntary foetal mortality involves natural abortion, miscarriages and still birth (a foetus born dead). Human intervention intentionally causing abortion of the foetus is called therapeutic abortion.

Causes of Differential Fertility in Developed Countries

In developed countries usually the birth rate is not very high and is gradually coming down. The question is why in these countries birth rate is low compared to developing countries. It is incorrect to think that developed countries had low birth rate from the very beginning. During the 18th century even in these countries the birth rate was 40 to 1000. It was during the 18th century that this rate began to come down after initiatives were taken in Europe and East America. Some of the important reasons for this are as under:

Desire for planned family: It is usually believed that in developed countries, fertility is low because of late marriages or divorces. But in practice it has been found that the position is not so. In the USA and France marriages take place at a young age. Divorce also does not affect fertility because the system of remarriage

is quite common. The only factor which influences fertility is the development of voluntary habit of family planning among people. There is the valid reason which help in low fertility rate.

High Living Standard: Another reason is that the people in these countries have high standard of living, whereas in the countries like India and Pakistan it is not so. Where there is high living standard, fertility is likely to come:

- (a) According to scholars, people with high living standard use proteins in good quantity which reduces fertility rate.
- (b) Social capillarity theory of Dumont suggests that since those people who once attain high social of living do not wish to bring that down and as such these people keep fertility rate very low.
- (c) Then another reason which has been advanced is that fertility rate is always high among the people where death rate is high. But death rate among those people who enjoy high standard of living is always low. Accordingly, the fertility is always low among these people.
- (d) Leibenstein theory suggests that fertility rate is always kept low by the people with very high living standard because cost of their bringing up children, their education, their requirements and demands is always high. Not only this, but the social security exist to take care of people in their old age thus the importance of the children considerably comes down.

Urbanisation: Then another reason is that in developed countries most of the people live in the cities where people wish to have small families, because values of life are different. In addition accommodation is less and cost of living, education and bringing up is very prohibitive, which discourages high fertility. Of course there are countries where fertility rate is higher in cities as compared with villages, yet on the whole this rate is low in urban areas as compared to rural areas.

Education among Women: Usually it is observed that fertility among educated women is lower as compared with illiterate women. In developed countries, percentage of educated women is always higher, as compared with undeveloped countries. Since women and men are quite enlightened, they do not allow fertility rate to go up, as long as that is considered absolutely, necessary by the couple. Usually educated women get married at late age and also because in concept of small family.

Self-dependence: In developed nations, women are independent. They have their own social and political rights. Similarly economically they are self-sufficient. In the absence of dependence men cannot compel women to increase fertility. This has resulted in low fertility.

Decreasing influence of Religion: One important reason responsible for low fertility in urban area is decreasing hold of religion. In the rural areas religion still plays a very powerful role. It is believed that those who try to limit family size or plan their families are standing as the way of the wishes of God. The children are

NOTES

NOTES

the blessings of God and they should not be denied. But in urban area, the hold of religion and grip of orthodoxy is not very much accepted. Accordingly, family planning devices are adopted without much hesitation. This lower down fertility in urban areas.

Emotional needs of Children: In urban areas, parents are usually quite conscious that emotional needs of the children should be met to the extent possible. It is very well understood that these needs can only be met when number of children is less, which can only be possible with low fertility. According to some scholars, with the increasing orientation of parents to the concern and welfare of their children, the family is increasingly becoming child centred. With less children and more leisure, parents devote more time to the emotional needs of the children.”

Status Symbol: In urban areas, small and planned family has become a status symbol. In these areas, families with many children is seen with some contempt and disregard. This in itself has proved a big check as fertility. In the words of Smulerich, ‘Family limitation began among the upper bourgeoisie, spread away the lower classes as they were absorbed into the spreading capitalist economic system and thus began the proletarianization of family limitation.’

Factors Responsible For Higher Fertility in Developing Countries

Some of the factors responsible for higher fertility in developing countries are as follows:

Early and Child Marriage: It has been observed that in developing countries due to climatic and other reason girls reach puberty at an early age and as such the period of reproduction of girls is lengthy. Not only this, but after marriage, women are considered to take care of the household, settle there and produce children. Since chances of employment and educational facilities are limited, therefore, woman always live at home and feel pleasure in bringing up and playing with their children. Thus, fertility goes up.

Religious and Social Values: In underdeveloped countries people are usually orthodox and religious minded. They believe that family planning is antireligious. In India, it is believed that every family must have a male child and for this couple go on producing children, no matter what may be the size of the family.

Lack of Female Literacy: Another reason responsible for increased fertility is that in such countries, on the whole literacy rate is low, but literacy among women is still lower. Illiteracy of women becomes a very important contributing factor for high fertility. These women feel very hesitant to use contraceptives to control family size and go as accepting even unnecessary motherhood responsibilities imposed on them.

Less Social Awakening: Social awakening among developing and underdeveloped countries is very limited. The couple does not know the all required social responsibilities which will fall upon them with increase in the size of the

family. Therefore they go as adding to the number of children thereby increasing fertility.

No desire for High Living Standard: People in these countries are usually contented with what they have. In some countries like India, they care more for future generation rather than their present life. Moreover, they feel that what God has given to them is what was in their fate. Under the circumstances they do not care much for high living standard. They are also not careful or mindful even if their living standard somewhat goes down believing that as the will of God. Under such circumstances, the birth of more children does not worry them. But this increases fertility in these countries.

Agriculture as main Occupation: In these countries, agriculture is the main occupation of the people. In fact, 80% of the population directly or indirectly depends on agriculture. In this occupation, additional manpower is always a welcome. Thus, the addition of a child in a family is considered a matter of joy rather than that of sorrow. When child birth is a matter of pleasure, obviously fertility rate will considerably increases.

High Death Rate: It is a matter of fact that in countries, where there is high death rate, birth rate is bound to be very high. In under-developed countries, death rate is always high. In a country like Nigeria almost 50% children die before the age of only one year, whereas 90% children die before reaching 15 years of age. Under this circumstances in these countries, no family takes the risk of limiting their family size in the fear that they can become childless at any time. Thus they go on producing children, thereby adding to fertility.

Difficulties in Family Planning Programme: In developing and under-developed countries, it is difficult to introduce as well as propagate family planning programmes. Many sections of the society vehemently oppose it on the plea that it is creating interference in their personal life. Not only this, but due to poverty, and social restrictions in some cases, people cannot go for abortion even if they want to. Some cannot even afford the cost of a contraceptive. Even if the people manage to have these, due to shortage of accommodation they cannot use them properly. Thus, due to lack of knowledge as well as social restrictions, family planning methods are not properly being used and accordingly fertility rate goes up.

Less Urbanisation: In underdeveloped countries, the rate of increasing urbanisation is very slow. Usually 30% of the population resides in cities whereas the remaining population lives in rural areas. Villages in less developed countries are known for their backwardness, illiteracy, poverty, indifference to many things in life, orthodoxy, etc. In such a society, there is a tendency of increased fertility.

Less Expensive to bring up children: The cost to bringing up children in less developed countries is very low. Children are not provided with nutritive diets. It is not necessary that they should be provided higher education or even elementary education. Thus a child costs the family barest living or rather existence cost. Thus he is not a liability on the family. On the other hand, when he grows up a little, he

NOTES

becomes an earning member of the family, adding to the family income which is always a welcome. With this perception of the people, fertility keeps on increasing.

7.2.2 Determinants of Fertility

NOTES

As discussed earlier, the factors which influence fertility are social, religious and economic. These factors are responsible for high as well as low fertility in every society both in developed and under-developed nations.

Social determinants of fertility: Among social factors, mention may be made particularly of the following:

- Whether society respect both the sexes or only one sex, i.e., either men or women?
- Whether it is socially believed that small size of the family is a blessing or a curse?
- Whether a female is considered a co-partner in a family affairs or her consent is essential. Is she assigned with the responsibility of motherhood or whatever and is considered only a method of sex-satisfaction of a man?
- Whether women are literate or illiterate?
- How far women are socially allowed to decide family affairs?
- How far a society has been in a position to provide-facilities like those of schooling health, employment for the children?
- How far the society recognises that it is responsible for proper bringing up of children?
- Whether society prefers single or joint family system and if so by and large which pattern it is following?
- Whether marriage is considered only friendship or a permanent alliance to be dissolved only by God?
- The age at which boys and girls in the society are likely to get married.
- What is the divorce rate in the society?
- Whether society encourages widow remarriages or not?
- What is the climate of the country, thereby, what is the age of the girl in which she becomes capable of producing children (Puberty age)?

Religious Determination of Fertility: Like social determinants, there are religious determinants of fertility as well. Some such factors are:

- How far religion dominates society?
- What is the attitude of religious leaders towards family planning?
- How far religion and religious leaders are under the influence of politics and political leaders?
- Does religion oppose family planning system or simply adopts a neutral attitude?

Economic Determinants of Fertility: The economic determinants weigh considerable in so far as fertility is concerned. Some of the significant economic determinants are:

- What is the living standard of people and what living standard does the society wish to reach?
- Whether the country is over populated or the society wants to have manpower to improve economic condition of the people?
- Whether the population is content due to religious or other factors, what are its present economic condition?
- What are the chances of employment for the growing population?
- Whether each child is considered a source of income or economic burden on parents?
- Whether economically parents, by and large, can bear expenses involved in bringing up and development of children?
- What is the economy of the society, i.e., whether it has agricultural or industrial based economy?
- Whether the society is rural or urban based and the rate at which it is getting itself urbanised?
- Whether in the economy, women are earning partners along with men or not?
- Whether economically people can afford to have sources of recreation and for them women are the only source of recreation?
- The percentage of elite population in society as compared with the whole population.

For most parents, children are source of satisfaction, and in the economist's terminology, children would be considered a consumption good. Children may sometimes provide money income and are then a production good as well. Moreover, neither the outlays on children nor the income earned by them are fixed but vary in amount with the child's age, making children a dueable consumption and production good. It may seem strained, artificial and perhaps even immoral to classify children with cars, houses and machinery. This classification does not imply, however, that the satisfaction or cross associated with children are morally the same as those associated with other durables.

The family must determine the amount spent on children, whether they should be provided with best quality environment and education. Family should pay attention to quality rather than quantity. An increase in income also results in good quality environment to children.

Malthus concluded that an increase in income would lead to a relatively large increase in family size. His argument has two major components:

- An increase in income would cause a decline in child mortality, enabling more children to survive childhood. If a decrease in births did not offset the

NOTES

NOTES

decrease in child mortality, the number of children in the average family would increase.

- His second argument is less mechanical and takes greater amount of motivation. An increase in income increases fertility by inducing people to marry earlier and abstain less while married.

Every modern society is quite keen that fertility rate should not only be checked but be most appropriately assessed so that administrators and planners become quite conscious of the magnitude of the problem. While finding out fertility rate, child–women ratio, general fertility rate, total fertility rate, gross production rate, cumulative rate, etc. are taken into consideration.

7.2.3 Need for Fertility Rate

Fertility rate of a nation has all along been a matter of interest for the demographers all over the world. It is however unfortunate that whereas the people in the past studied animal, bird populations, events leading to wars, peace, marriages among the elite of the society, etc., they failed to pay due attention to this important aspect of human life, which so vitally influenced and affected both administrators and planners. It was primarily because in the past growth of human population did not very much strain economic resources of the nations. It was only after administration growth became serious, with that it was realised that the whole issue should be seriously studied. It was realised that unless nation knew of the birth rate, it would not fully plan its needs and requirements and might be taken unawares at any time.

There are three important types of measures of fertility. First is period measures, which of related to a particular period and it is based on the data which refers to that specific period. The second type of measure is linked with reproductive performance of women up to a certain point of time, whereas third type of measure of fertility aims to indirectly measure fertility on the basis of age and sex distribution.

Information about fertility rate can help in finding out child– woman ratio, the ratio of male and female born in a particular year, etc. Usually, while finding out fertility rate, figures registered with the authorities responsible for registering birth of children are depended upon, but demographers also take the aid and assistance of figures collected at the time of census as well. Some of the important methods for calculating fertility rate are as follows:

Birth Statistics

Fertility is closely related to birth. Before actually discussing various methods of finding out fertility rates, it is necessary to discuss as to what are the peculiar features of birth statistics. First such peculiarity is that whereas death of a person occurs once in a life time, there can be several births to a couple. The couple can give birth to any number of children as long as it has potentiality to give

birth. Then another feature is that more the children are born in a family, less shall be the affection for each child and less shall be desire of the parents to have children. Desire for children increases only when the couple finds it difficult to have children. Then another feature is that childbirth is linked with couple, though in calculating age specific birth rate either male or female population is taken into account.

Another characteristic is that child birth can take place only during a limited period, i.e., during the age when the couple has reproduction capacity. After that stage there can be net child birth, since there will be no fertility. Though still births are an important factor in birth statistics, yet by and large such calculations are made on the basis of children born alive.

Child Women Ratio

Child–woman ratio is a ratio which a population has between the women and children. A child is considered to be a baby between the ages of 1 to 5 years whereas under this only those women are covered which are under reproduction age group, which means women between the age group of 15–50. While finding out the ratio the formula usually adopted is:

$$= \frac{\text{Children of the age of less than 5 years}}{\text{Women of reproduction age group}} \times 1000$$

Barclay has suggested that this ratio can conveniently be computed by the following formula:

$$\frac{P_0 - 4}{f_{15-44}} K$$

where,

$P_0 - 4$ = Number of children, both sexes under 5 years of age.

f_{15-44} = Number of females between the 15–44 years age group (sometimes it is 18–49)

$K=1000$

It is used to measure incidence of child bearing in the population of adult women, specifically it is the number of children under 5 years of age per 1000 women of child bearing age. While finding out the ratio, figures from census as well as registration office are taken. In fact, registration figures play a very vital role in this regard because with the help of these figures it becomes easy to find out ratio without any bias. Though it is easy method of finding out ratio, yet it has its own problems. It has rather rightly been said that, ‘Though useful, the child–woman ratio is not very precise as an Index of fertility. Its evidence is indirectly derived from this group of survivors, rather than from the number of actual births, and thus it is affected by several other factors besides fertility alone’.

NOTES

7.2.4 Methods of Finding Fertility Ratio

There are seven important methods of finding out fertility ratio on the basis of information available through registration. These are:

NOTES

- (1) Crude birth rate (CBR)
- (2) General fertility Rate (GFR)
- (3) Age specific fertility rate (ASFR)
- (4) Total fertility rate (TFR)
- (5) Gross reproduction rate (GRR)
- (6) Cumulative fertility rate (CFR)
- (7) Standardised fertility rate (SFR)

According to Prof. Barclay, this system is good and ought to be preferred because:

- (a) It reveals the distribution of frequencies of births among women according to age.
- (b) It helps in analysis of the fertility performance of a calendar year.
- (c) It is difficult to distort them by variation of age composition.
- (d) This rate identifies a few stages in the reproductive careers of the different age groups of women.
- (e) These rates are utilised in calculating other important measurements.

1. Total Fertility Rate

Bogue has defined total fertility rate by saying that, 'it is an estimate of the number of children a cohort of 1000 women would bear if they all went through their reproductive years exposed to the age specific fertility rates in effect at a particular time.' It is total or age specific birth rate that can be obtained by summing up of birth rates at each age group throughout the child bearing age. This method also take into consideration the age of the father as well. This method is better than some other methods because it does not concern itself only to the women who are in fertility age group and is not influenced by the age groups. Prof. Barclay has given the following formula for finding out total fertility Rate. It is

$$i = 49$$

$$TFR = S \left(\frac{bi}{p.i} \right) K$$

$$i = 15$$

bi = Number of live births registered during the year to mother of age (i)

where (i) is an interval of one year.

P_i is the mid - year population of women of the same age.

K is sometimes 1000, sometimes 1

S = Summation

Prof. Bogue has said that ‘The age specific fertility rate is the number of births per year to 1000 women of a particular age. In other words, it is general fertility age group.’ We can say that:

$$\text{A.S.F.R} = \frac{\text{Specified age group of women}}{\text{Mid-year population of women of that group}} \times 1000$$

NOTES

While using this method certain basic things need be remembered. In this method each child born to a mother given the reproductive age group should be taken into consideration. In the case of children whose ages are not known, it is better that their number is equally divided among all age groups of women. Then it is always safe to calculate this rate on the basis of mid-year population. For this purpose usually interval is of 5 years. In the words of Thompson and Lewis, ‘In any event, this total fertility rate is a hypothetical rate for the women involved and would be the same as the completed fertility of those women if there were no change in any of the age specific birth rates during a generation.

This rate is preferred over other rates because of the following reasons:

- (i) In this system it is accepted that all the women in all the groups do not have the same reproductive capacity and that changes with the age.
- (ii) It is possible to study actual cohorts of women, e.g., whether the reproductive capacity of women decreased or increased with the growth of age and wisdom.
- (ii) With its help it is possible to calculate total fertility rate and cumulative fertility rate.
- (iv) It helps in formulating policies while determining marriage age and causes about sex crimes and knowing distributional patterns of child bearing in the country.

In fact, in fertility age group there are certain groups which vary in fertility e.g., age group 15–19 is likely to have different fertility as compared with the age group 19–30 or 31–44.

2. Age Specific Fertility Rate

This is an important basic refinement in the measurement of natality without which other refinements in many cases cannot be made. In the words of Thompson and Lewis ‘Age Specific Birth Rates for any year are obtained by dividing the number of births to the mothers of each age in that year by the number of women of this age in the population that date and multiplying this figure by 1000.’ In age specific birth rate, then, is the number of births per 1000 women of a given age per year. Under this system women of reproductive sub-age groups are divided and rate for each sub-group is separately found out. It is essential because fertility rate among men and women of different sub-age groups is always different and this must be taken into consideration while finding out fertility rate. If the rate is found

NOTES

out on the basis of fathers, it is called paternity rate, whereas if the basis is mother it is called maternity rate.

Usually the basis of the rate, however, is the mother. Prof. Barley has given the following formula for the calculation of this rate-

$$\text{A.S.F.R.} = \frac{b_i}{P_i} K$$

Where b_i = indicates the number of births registered during the year to women in the interval, usually such an interval being of five years.

P_i = indicates the mid - year population of women in the same age group.

$K = 1000$

In the proportion of all women who are between the ages of 15–44 or 15–49. Thompson and Lewis are also of the view that, 'The general fertility rate is usually four to five times as high as the crude rate in the same population because the women of these ages normally constitute from one-fifth to one-fourth of the total population.' Any significant change in the proportion of women population can take place when there are such violent events as war, spread of epidemics, fires or flood, etc. Such a significant change can also come when there is a rapid trend for urbanization and the people begin to migrate from villages to cities or when due to certain peculiar circumstances people begin to migrate from one part of the country to another part of the same other country. Then its other advantages is that it can be calculated in the absence of live births.

This rate can give very good results when people regularly register deaths and births and enumeration of population process is very satisfactory. But when at the time of registration of birth information about age of the parents is not collected then there can be many defects in the system. In some cases in this system women of the age group of 15–44 are taken into consideration, while in other cases age group 15–49 is taken into consideration and as such the figures cannot be comparable. Then another difficulty with this system is that in it all women of age group of 15–44 are accounted for but in actual practice there are widows, barren women or unmarried girls, who are not in the productive age group and as such these should be excluded. In general, in the fertility rate it is usually believed that all women in fertility age group give birth to children every year but that is not so in actual practice. There are only few women in fertility age group who give birth to children in a particular year and not all.

This becomes easy to understand with the help of following Table 7.3

Table 7.3 Example of Fertility Rate Calculation

Fertility and Fecundity

Age group	No. of women	No of Births Birth Rate	Age specified
1	2	3	4
15-19	40	100	25
20-24	36	7200	200
25-29	32	8000	250
30-34	28	4200	150
35-39	24	2400	100
40-44	20	1600	80
45-49	16	1120	70
Total	196	25,520	875

NOTES

$$\text{GFR} = \frac{B}{P_{15-49}} \times K$$

$$B = 25,520$$

$$P_{15-49} = 1,96,000$$

$$K = 1000$$

$$\text{GFR} = \frac{25,520}{1,96,000} \times 1000$$

i.e., about 400 per thousand women.

While discussing the importance of this, Thompson and Lewis have said, 'This rate is somewhat more refined than the crude rate because in that in addition to eliminating the influence of differences in size between population, it also eliminates the effect of certain compositional differences which might exist in the populations being compared.' It is with the help of this rate that it becomes possible to eliminate the influence of any differences in the proportions of males and females in the population. Again it is this rate which eliminates the effect of differences.

It is an improvement over crude birth rate because in it only population of reproductive age group is taken into consideration. Not only this, but general fertility rate does not take whole population of the country into consideration but female population of reproductive age group only becomes its basis. In the words of Bogue, 'The General Fertility Rate is the number of births that occur in a year per 1000 women of child bearing age.' Thompson and Lewis have said that the 'General Fertility Rate denotes the number of births per thousand women of child bearing age.' Benjamin has said that, 'General Fertility Rate is obtained by expressing the live births as a rate per thousand of women of child bearing age taken as either 15-44 or 15-49'. Prof. Barclay is of the view that the, 'General Fertility Rate or General Fertility Ratio is a ratio of total yearly registered births to the population of woman of child bearing age. The purpose is to restrict the denominator of the rate to potential mothers by excluding all men and large groups

of women not exposed to the risk of child bearing by reason of age.’ Such a rate could be found out with the help of following formula:

NOTES

$$\text{GFR} = \frac{\text{Total number of live births in a year}}{\text{Mid-year population of the women in reproduction age group}} \times 1000$$

This is also calculated with the help of following formula:

$$\text{GFR} = \frac{B}{P_{15-49}} \times K$$

B = Represents the total registered live birth in a year.

P --15 – 49 = Represents the mid-year female population in the age group 15 to 49 years in that year.

K= Represents constant, i. e., 1000.

3. Crude Birth Rate

The crude birth rate carries no implication as to why the birth rates are different in different years and between different population at the same date. Then another limitation is that it is not safe to determine the fertility rate on the basis of whole population because the whole population in no country can always be fertile. There can be no fertility among the children and the aged. Accordingly in finding out fertility rationally such population should be taken in consideration which is in the reproduction age group. Then another fact which ought to be taken into consideration is that the reproduction activity is related to women and as such only such population and not the whole population should be the basis for calculation. This rate can only be true and effective when the ratio between total population in the reproductive age group is stable, but such a ratio is always changing.

The position can be clarified with the help of following example. If in a specific area there are 180 live births in a particular period and total population in the mid of that year is 1000 and K=1000 then the crude birth rate will be

$\frac{B}{P} \times 1000 = \frac{180}{1000} \times 1000 = 180$ which means that crude birth rate in that area during that specific period was 180.

Crude birth rate is important in measuring fertility because it directly points to the contribute of fertility to the growth rate of population. It also requires minimum of data for computation and indicates level of fertility of society.

According to Barclay, the crude birth rate is a ratio of total registered live birth to the total population, also in some specific year, also multiplied by 1,000. For crude birth rate the formula applied is:

$$\frac{\text{Total number of children who took birth in a year}}{\text{Mid-year total population}} \times 1000$$

Barclay has given his formula by saying:

$$\text{CBR} = \frac{B}{P} \times K$$

where,

CBR = Crude Birth Rate.

B = Total number of births registered during the calendar year.

P = Total population at the middle of the year.

K = 1,000.

Thompson and Lewis have defined crude birth rate by saying that, 'The crude birth rate for any specified population is obtained by dividing the number of births recorded in that population during a specified year by its total numbers, which gives a fraction of birth per person. This rate is called crude because all differences in composition between population are ignored in calculating it.'

The crude birth rate is just opposed to the refined birth rate. The latter has been defined as the difference between population wherein certain characteristics have been taken into account in making refinement. For quite some time in the USA, the crude rate was distinguished from a corrected birth rate by increasing the number of births to allow for the fact that not all births are recorded.

It is easy to find the crude rate because figures which are needed for finding out it are easily available and these are also extensively used. Crude birth rate, however, has its own limitations. According to Thompson and Lewis, 'However, It is hypothetical rate that indicate the total number of children that would ever be born to a group of women, if the group passed through its reproductive span of life with these birth rates each year of age. It is based on the assumption that women in this hypothetical group would survive till they reach the end of reproductive period.'

In actual practice however, bi/pi means the same thing as was the case while finding out Age Specific Fertility Rate, with the only difference being that the ASFR rate is found out for a gap of 5 years whereas interval in this case is only of one year of birth. In other words, 'The total fertility Rate is also the same as the total number of children that would ever be born to a hypothetical group of women, if the group passed through its reproductive span of life with these birth rates at each year of age.'

4. General Fertility Rate

After crude birth rate comes the general fertility rate. This rate is the number of birth per 1,000 women of reproductive ages and uses the number of women of child bearing age in a population as a base for the calculation of a birth rate rather than the total population. It is an improvement over crude birth rate rather than total population.

NOTES

NOTES**5. Gross Reproduction Rate**

The gross reproduction rate is restricted to the number of female children. The value of the gross reproduction is about 1/2 of the total fertility rate. It indicates the number of daughters each woman can bear by the time her reproductive period is over, if she continues to have children according to a particular schedule of age specific fertility rates, throughout her reproductive period. According to Thompson and Lewis, 'Whereas total fertility includes all births both male and female, the gross reproduction rate shows how many girls babies - potential future mothers - would be born to 1000 women passing through their child bearing years, if the age specific birth rates of a given year remained constant and if no women, entering the child bearing period died before reaching menopause.' In this, all the girls are included no matter what is their year of birth with the presumption that all will enter reproductive age and will also become mothers and as well complete the whole of reproduction.

This rate can be found out by multiplying total fertility by the percentage of all births that are female births. If the product is 1000 or more, it means that 1000 or more daughters are being born by each 1000 women of child bearing age when not account is taken of the deaths of the women during their reproductive period.

It is an important measure in the study of replacement, which is concerned with the extent to which a group replaces its own numbers by the mutual process of fertility and mortality.

But this method of finding out rate also suffers from its own defects. It believes that both fertility as well death rates are stable and will not change. But in practice that is not so. The number of children who take birth in a decade can vary in another decade, and so is the case with deaths. Both deaths as well as birth rate can increase as well as decrease, both on account of increased opportunities of employment for women and so on. Death rate can be influenced on account of availability of more medical facilities nourishing food and so on. In the words of Thompson and Lewis, 'the chief defect in net reproduction lies in its assumption that the age specific birth rates and death rates of a particular year will remain constant during a generation. This is very serious defect and these rates should not be used in making a prognosis of probable future growth of population.'

6. Cumulative Fertility Rate

Cumulative fertility rate is just like total fertility rate with the only difference that this rate indicates the number of children produced by 1000 women during the whole fertility period. It is found out by first finding out the Age Specific Fertility Rate and then the rates are multiplied by age groups and then these are cumulated and the final result in the result of all. In the words of Thompson and Lewis, 'A cumulative cohort birth rate shows the actual number of birth per thousand women in a particular cohort when they have a specific age.'

7. Standardized Fertility Rate

In it differences between population in a given characteristic, e.g. demographic, social or economic, are taken into consideration. Each such characteristic is believed to have the same effect on natality. If one is interested in finding the effect of differences in age composition of two population on their fertility, then the age distribution of the women in some population either actual or hypothetical, is chosen as a standard distribution. In the words of Thompson and Lewis, 'when we are standardizing for age, the question to which we are seeking an answer is: if the women in populations ABC, were distributed by age in exactly the same populations as the women in the standard population, would their natality rates bear the same relation to one another and do their crude rates on their general fertility rates or their total fertility rates. This question is answered by multiplying the age specific birth rates of each of the populations A, B, C etc., by the number of women in age group of the standard population and summing these births for each population to secure the total number of births a standard would have if its women had the different age specific rates of population A, B, C etc.' While calculating, a standard million is fixed which implies a population of one million persons having the age composition of the same population. In it women belonging to different age groups are represented. Total number of births which this stand million would have in a specific year is obtained by multiplying age specific birth rates of these populations, by number of women of each age in standard population, which is then divided by one million and multiplied by one thousand to secure an age standardized birth rate per 1000 for each of the population being studied. The method of calculating standard birth rate per 1000 population being studied.

8. Completed Fertility Rate

Completed fertility is a measure showing total number of live births per woman or per 1000 women, who have passed through the child bearing period. In the olden days when medical facilities were not available and there were no clear distinction between live births and still births at that time, the actual number of live births per 1000 women of completed fertility aged 65 or over at the time the census was probably somewhat higher than the census figures.

This is based on the ratio of total birth legal or illegal and total mothers of any age, below 15 years or above 50 years. It may be mentioned that there is no consideration whether the women is separated or divorced or widowed. Similarly, there is no consideration whether the child born was legal or illegal. This can be found out with the help of following formula:

$$CFR = \frac{B}{M} \times K$$

where, B = Total births

M = Total mothers of all ages

K = Constant, i.e. 1000.

NOTES

NOTES**9. Cohort Fertility**

This includes all the cohort women born in a given year and follows the reproductive experience of the same women through their child bearing years, generally the years 15-49 or such of those years as they may have attained at a specified date. The minimum data needed for calculating cohort birth rates are the same as those needed to calculate the age specific birth rates. Once minimum data is collected two types of cohort birth rates can be age specific cohort rates and cumulative cohort rates. Age specific cohort rates are calculated in the same manner as age specific rates but which are applied to a cohort on January 1st of a specified year. On the other hand, cumulative cohort rates are obtained by adding the appropriate age specific cohort rates up to a given point in time, i.e., until the women of a given cohort have attained specific age on January 1 of a specific year. This cumulative cohort rate becomes a measure of the completed fertility of a cohort when that cohort reaches menopause at about the age of 45.

Interrelationship between the Measures

The steps taken for measuring fertility are not isolated from each other. Rather, they are inter-dependent and closely linked. In 1963, Bugue and Palmore made an attempt to find out this relationship. They collected information and studied population figures and registration figures of 50 such countries where figures available could be depended upon. They then tried to find out fertility by measuring and finding out coefficient of correlation. They also tried to find out the inter-relationship of all measures. Their research led them to the conclusion that the differences between different measures varied from 1,000 to 1982; some of these measures almost gave equal results and thus establishing a close relationship between all of them. If in one case one rate can be found out, then it can become easier to find out the other rates. While carrying out their researches they took into consideration women between the age group of 15–49. With the help of census data, both of them also tried to find out the child – women ratio. Median age at first marriage, age composition with the range 15–49 years, infant mortality rate and per cent of women marrying by ages 15 to 19, to 45 to 49.

In so far as fertility is concerned, Lee Jay Cho studied some of the countries with high and low fertility rates and came to the following conclusions:

1. In countries with low fertility rates average, the age of marriage is five years more, as compared with average of marriage of people of countries with high fertility rate. But postponement of marriage is responsible for lower fertility.
2. In countries with low fertility rate, fertility is confined to women between the ages of 20-29 years. At about age of 40, it becomes almost nil. On the other hand, fertility is found among women of all ages in countries with high fertility rate.

3. In countries with high fertility rate, the death rate of children is very high and this can be one reason even for high fertility rate.
4. In countries with high fertility, children in age group of 1-15 constitute 44% of total population.
5. In countries of high fertility, the educational standard of people is very low and the masses are economically poor and backward. Most of the people are agriculturists and live in rural rather than urban areas. They cannot have nutritive food and by and large people are physically poor.
6. It is wrong to believe that countries which are industrially advanced have low fertility, e.g., England, Norway and Scotland which are industrially very advanced but cannot be called as countries with low fertility.

NOTES

Demographic Transition

It is now fully well and clear that it is possible and within human control to check fertility. If fertility is 55% in Sudan, it is only 14% in Sweden. In the words of Prof. Bogue, 'The progress of a nation in making the transition from a high to low fertility may be measured by tracing its movement between these two extremes. In fact, by simple statistical manipulation we can construct an index showing the per cent of demographic transition that has already been completed by a population.' Prof. Bogue has also given method of measuring transition from one stage to the other, which is as follows:

Stage of Transition	TFR	GFR
Start	7500	235
Complete	2200	60
Total change during transition	(-) 5500	(-) 175

Percentage of demographic transition completed

$$\text{PCT} - \text{DEM} - \text{Trans} - \text{Comp} = \frac{1}{2} \left[\frac{234 - GFR}{175} \right] = X \frac{7500 - TFR}{5300}$$

With the help of this equation, it is possible to find out the rate of transition in fertility in a nation. Prof. Bogue tried to find out the demographic transitional index of continents of the world, which at the time of the study was 19.9% in Africa, 35.4% in South America, 39.3% in Asia and 80.90% in the former Soviet Union.

Methods of Conception Control

The use of contraceptives as a method of controlling fertility is becoming popular because of the desire of both the individual and society to control the population. It may be mentioned that the knowledge of contraceptives was known to the people in the past as well, but it has become popular only now. While several methods of conception control are available, yet none of these really satisfies the

NOTES

simple criteria for the ideal birth control method. Conception control methods are available for both men and women. One of the oldest methods which males have been using for long is called coitus interruptus which means interrupted sexual intercourse. This method is also called the withdrawal method. It is advantageous because it neither calls for any preparation nor costs anything. But the disadvantage is it is uncertain whether the male partner will be withdraw at the right moment.

Another conception control method available to males is a condom or *nirodh* in Hindi. It is very much in use all over the world because it is cheap, easily available, reliable and harmless and also can be used without any medical supervision. Another method is sterilization. It is almost a permanent method of conception control though it is possible to reverse this operation.

Female conception control includes the rhythm method, which is also known as safe period method which means restricting sexual intercourse to the infertile phase of a woman's menstrual cycle. The successful practice of this method depends on the accuracy with which the period during which conception is likely to occur is determined. There are two ways in which the safe period may be determined namely, (a) calendar method and (b) temperature method.

(a) Calendar Method: It is a method in which a record of the menstrual cycle for 12 months is kept which helps a woman in identifying shortest and longest cycles. It is useful for those women who menstruate fairly regularly but cannot be applied immediately after delivery or when a women is approaching her menopause.

(b) Temperature Method: The body temperature of woman is quite low after menstrual period and may fall still lower on the days of ovulation. Sexual intercourse should take place only during the post ovulatory phase, if pregnancy is not desired.

The rhythm method is advantageous because it does not call for doctors services and special equipment is not needed. But it needs a high degree of motivation. It is not suitable when menstrual cycle is not regular. Many couples find this method extremely restrictive.

Then another conception control method is the use of mechanical and chemical contraceptives. One is the use of diaphragm. It is quite harmless and does not interfere with the sex act. But it is cumbersome and needs the services of a doctor and some training for the women. There are several types of chemical contraceptives which can be used for conception control IUD (intrauterine device). These days these are much in use and are available in different shapes and sizes. The main advantages of an IUD is that it is reversible and can be removed when a pregnancy is required. Its use is unrelated to sex acts. It is also quite cheap and generally harmless, but quite effective. But its disadvantage is that it has many adverse side effects like excessive bleeding, pains, etc. It use also needs vigilance on the part of users.

Oral contraception include the use of pills. If taken regularly, the pill is the most reliable contraceptive available today. It is not only reliable but it is easy to take and its use is also unrelated to the sex act. It however, becomes unacceptable when it leads to side effects such as giddiness, headache, depression, weigh gain, etc. Many women find it difficult to regularly use it and there is also a feeling that its regular use may result in long term effects. It is, therefore, suggested that the women should use pills under medical supervision.

Another method of conception control is that of female sterilization. As compared with male sterilization, it is considered a major operation and for all practical purpose it is irreversible. After sterilization, a woman is not required to use any contraceptives. Though several conception control devices have come in the market, yet the search for the ideal contraceptive is still going on. What technique should be used for terminating a pregnancy depends on family size, duration of pregnancy, physical conditions of women, etc.

In spite of the fact that efforts are being made to check population growth all over the world, it is strange that population has all along, in all parts of the world, been increasing. Broadly speaking, according to available figures with us in African continents this rate is 2.7%, in Asia 2.3%, in North America 1.2%, in South America 2.9%, in Australia 2.2%, but in Europe it is as high as 9.8%. In some of the important countries increase in birth rate has also been quite visible. In the USA increase has been 1.1%, in Canada 1.7%, in China 1.8%, in Japan 2.5%, in Sweden and Denmark 0.5%, in Iraq 3.4%, in Kuwait 8.2%, in Pakistan 3.3%, in India 2.6%, in Brazil 2.5 and in Chile 2.3%.

Modern scientific means and methods have of course helped us in checking population growth; but human population has still been increasing. People are quite conscious about the advantages which a small size family brings with it, but still more and more awakening will have to be created among the people of underdeveloped and developing countries, if world population is to be brought within desired limits. Fertility rates can be brought down both by persuasion as well as the coercive method. Since developing countries do not fully appreciate the need of family planning programmes and checking the fertility rate, therefore, persuasion sometimes does not work. At the same time, there is a sharp reaction to the use of force in checking fertility. Therefore, problems in these countries is really serious and needs tactful thinking. In India, experiments of checking fertility by coercive means was carried for a short while and it proved to be a failure. It was very much resented by the electorates. It appears that one way to solve the problem could be to put certain disincentives to large family size to that the people limit their family with the temptation to get incentives which otherwise cannot become available to them.

NOTES

NOTES

Check Your Progress

1. Define fertility.
2. What is total fertility rate?
3. How does widowhood influences fertility?
4. List three methods of finding out the fertility ratio on the basis of information available through registration.

7.3 THEORY OF MARRIAGE AND FAMILY

Marriage and family are key structures in most societies. Marriage has been defined as a legally recognized social contract between two people, traditionally based on a sexual relationship and implying a permanence of the union.

Sociologists are interested in the relationship between the institution of marriage and the institution of family because, historically, marriages are what create a family, and families are the most basic social unit upon which society is built. Both marriage and family creates status roles that are sanctioned by the society. Social conservatives tend to define the family in terms of structure with each family member filling a certain role (like father, mother or child). Sociologists, on the other hand, tend to define a family more in the terms of the manner in which members relate to one another than or a strict configuration of status roles. Family is also defined as a socially recognised group (usually joined by blood, marriage or adoption) that forms an emotional connection and serves as an economic unit of society. Sociologists identify different types of families based on how they enter into them. A family of orientation refers to the family into which a person is born. A family of procreation describes one that is formed through marriage. These distinctions have cultural significance related to issues of lineage.

The sociological understanding of what constitutes a family can be explained by symbolic interactionism, critical sociology and functionalism. Symbolic interactionism theories indicate that families are a group in which participants view themselves as family members and act accordingly. In other words, families are groups in which people came together to form a stray primary group connection, maintaining emotional ties to one another over a lay period of time. Such families could potentially include groups of close friends as family. Critical sociology emphasizes that the forms that define the 'typical' family unit are not independent of historical changes in the economic structure and relations of power in society. The functionalist perspective views families as groups that perform vital roles for society — both internally (for the family itself) and externally (for society as a whole). Families provide for one another's physical, emotional and social wellbeing. Parents care for and socialize children, a function that prepare new members of society for their future roles. While interactionism helps to understand the subjective

experience of belonging to a ‘family’ and critical sociology theory focuses on how families configure themselves in response to political-economic pressure and changes, functionalism illuminates the many purposes of families and their role in the maintenance of a balanced society.

Many religious and social conservatives believe that marriage can only exist between man and a woman, citing religious scripture and the basics of human reproduction as support. Social liberals and progressives believe that marriage can exist between two consenting adults.

North Americans typically equate marriage with monogamy, when someone is married to only one person at a time. In many countries and cultures around the world, however, having one spouse is not the only form of marriage. In many cultures polygamy, or being married one person at a time, is accepted (Murelock 1967), with most polygamous societies existing in northern Africa and East Asia. (Altman and Crinat 1996). Instances of polygamy are almost exclusively in the form of polygamy. Polygamy refers to a man being married to more than one woman at the same time. The reverse when a woman is married to more than one man at the same time is called polyandry. It is far less common and only occurs in about 1 per cent of the world’s cultures. The reasons for the overwhelming prevalence of polygamous societies are varied but they often include the issues of population growth, religion ideologies and social status.

Sociologists study families on both the macro and micro levels to advise how families function. Sociologists may use a variety of theoretical perspectives to explain events that occur within and outside of the family.

Functionalism

When considering the role of family in society, functionalists uphold the notion that families are an important social institution and that they play a key role in stabilizing society. They also note that family members take on status roles in a marriage or family. The family and its members perform certain functions that facilitate the prosperity and development of society.

Sociologist George Murdock determined that there are four universal residual functions of the family:

- Sexual
- Educational
- Reproductive
- Economic

According to Murdock, the family regulates sexual relations between individuals. He does not deny the existence or impact of premarital or extramarital sex, but states that the family offers a socially legitimate sexual outlet for adults (Lee 1985). This outlet gives way to reproduction, which is a necessary part of emerging the survival of society.

NOTES

NOTES

Once children are produced, the family plays a vital role in training them for adult life. As the primary agent of socialization and enculturation, the family teaches young children the ways of thinking and behaving, as well as following social and cultural norms, values, beliefs and attitudes. Parents teach their children manners and civility. A well-mannered child reflects a well-mannered parent. Parents also teach their children gender roles. Gender roles are an important part of the economic function of a family. In each family, there is a division of labour that consists of instrumental and expressive roles. Men tend to assume the instrumental roles in the family, which typically involve work outside of the family that provides financial support and establishes family status. Women tend to assume the expressive roles, which typically involve work inside of the family which provides emotional support and physical care for children (Crano and Monoff 1978).

According to functionalists, the differentiation of the roles on the basis of sex ensures that families are well balanced and coordinated. When family members move outside of these roles, the family is thrown out of balance and must recalibrate in order to function properly. For example, if the father assumes an expressive role such as providing day time care for children, the mother must take on an instrumental role such as gaining paid employment outside of the home in order to maintain balance and function in the family.

Conflict Theory

Conflict theorists are quick to point out that U.S. families have been defined as private entities, the consequences of which has been to leave family matters to only those within the family. Many people in the United States are resistant to government intervention in the family. Parents do not want the government to tell them how to raise their children or to become involved in domestic issues. Conflict theory highlights the role of power in family life and contends that the family is often not a haven but rather an arena where power struggles can occur. This exercise of power offer entails the performance of family status roles. Conflict theorists may study conflicts as simple as the enforcement of rules from parents to child, or they may examine more serious issues such as domestic violence, sexual assault, marital rape and incest.

Researchers found that the person with the most access to value resources hold the most power. As money is one of the most valuable resources, men who worked in paid labour outside of the home hold more power than women who work inside the home. (Blood and Wolfe 1960). Conflict theorists find disputes over the division of household labour to be a common source of marital discord. Household labour offers no wages and therefore no power. Research indicates that when women do more housework, they experience satisfaction in their marriages, reducing the incidences of conflict (Coltrane 2000). In general conflict theorists tend to study areas of marriage and life that involve inequalities or discrepancies in power and authority, as they are reflective of the larger social structure.

Symbolic Interactionism

Fertility and Fecundity

Interactionists view the world in terms of symbols and meaning assigned to them (La Rossa and Reitzes 1993). The family itself is a symbol. To some, it is a father, mother and children, to others, it is any union that involves respect and compassion. Interactionists stress that a family is not an objective, concrete reality. Like other social phenomena, it is a social construct that is subject to the ebb and flow of social norms and ever changing meanings.

Consider the meaning of other elements of a family: A parent was a symbol of a biological and emotional connection to a child; with more parent–child relationships developing through adoption, remarriage or change in guardianship, the word parent today is less likely to be associated with a biological connection than with whoever is socially recognized as having the responsibility for a child’s upbringing. Similarly, the terms ‘mother’ and ‘father’ are no longer rigidly associated with the meanings of caregiver and breadwinner. These meanings are free-flowing through changing family roles.

Interactionists also recognize how the family status roles of each members are socially constructed, playing an important part in how people perceive and interpret social behaviour. Interactionists view the family as a group of role players or ‘actors’ that came together to act out their parts in an effort to construct a family. These roles are up for interpretation. In the late nineteenth and early twentieth century, a ‘good father’ was one who worked hard to provide financial security to his children. Today, a good father is one takes the time outside of work to promote his children’s emotional wellbeing, social skills and intellectual growth – in some ways a much more daunting task.

7.3.1 Social Structure and Fertility

In the social sciences, social structure is the patterned social arrangements in society that are both emergent form and determinant of the actions of the individuals. On the macro scale, social structure is the system of socio-economic stratification (class structure), social institutions or other patterned relation between large social groups. On the meso scale, it is the structure of social work, ties between individuals or organizations. On the micro scale, it can be the way norms shape the behaviour of the individuals within the social system.

- Social structure has been identified as the relationship of definite entities or groups to each other.
- Enduring patterns of behaviour by participants in a social system in relation to each other, and
- Institutionalised norms or cognitive frameworks that structure the actions of actors in the social system.

Social structure is seen as comprising the relationships themselves, understood as patterns of casual interconnection and interdependence among agents and their actions, as well as well as the positions that they occupy.

NOTES

NOTES

A striking feature of underdeveloped areas is that virtually all of them exhibit a much higher fertility than urban-industrial societies. This well documented but insufficiently analysed act is known to be connected with profound differences in social organisations as between the two types of society, and is therefore significant for the comparative sociology of reproduction. The clarity and importance of the contrast, however, should not be allowed to obscure the equally important fact that undeveloped areas themselves differ markedly in social organisation and that these differences appear to being about variations in fertility. Though the demographic statistics of backward regions have generally been so poor as to place in doubt the validity of the reported differences, there are class in which the evidence is reliable. Of equal interest are the cases in which societies with differing social organisation have the same level of fertility, for they may reach this common result by quite different institutional mechanisms. Ample opportunities exit for the study of social structure as it affects fertility. In view of the bearing of future population trends as social development the pursuit of such theory has a practical as well as theoretical significance.

Check Your Progress

5. What is a marriage?
6. What are the four universal residual functions of a family?

7.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. According to Lewis and Thomson, fertility is generally used to indicate the actual reproductive performance of a woman or groups of women. The crude birth rate is only one measure of fertility.
2. Total fertility rate is the total number of children a woman would bear during her lifetime if she were to experience the prevailing age specific fertility rates of women.
3. Widowhood influences fertility. It is because without her husband, a wife cannot produce legal offspring. But the effect of widowhood on fertility depends on how soon she decides to remarry and at what age she became a widow.
4. Three methods of finding out fertility ratio on the basis of information available through registration are as follows:
 - (i) Crude birth rate (CBR)
 - (ii) General fertility Rate (GFR)
 - (iii) Age specific fertility rate (ASFR)

5. Marriage has been defined as a legally recognized social contract between two people, traditionally based on a sexual relationship and implying a permanence of the union.
6. Sociologist George Murdock determined that there are four universal residual functions of the family:
 - Sexual
 - Educational
 - Reproductive
 - Economic

NOTES**7.5 SUMMARY**

- According to Lewis and Thomson, fertility is generally used to indicate the actual reproductive performance of a woman or groups of women. The crude birth rate is only one measure of fertility.
- Crude birth rate means the number of live births in a given per year per 1,000 people alive at the middle of the year.
- Total fertility rate means the total number of children a woman would bear during her lifetime if she were to experience the prevailing age specific fertility rates of women.
- According to Thompson and Lewis, fecundity is a biological potential and the physiological capacity to participate in reproduction.
- Human fertility depends on factors such as nutrition, sexual behaviour, consanguinity, culture, instinct, endocrinology timings, economics, way of life and emotion, and so on.
- There are many factors which are influenced by social customs and in turn affect fertility. Usually these factors make an indirect impact on fertility.
- In developed countries usually the birth rate is not very high and is gradually coming down. One reason is that the people in these countries have high standard of living, whereas in the countries like India and Pakistan it is not so.
- There are three important types of measures of fertility. First is period measures, which of related to a particular period and it is based on the data which refers to that specific period. The second type of measure is linked with reproductive performance of women up to a certain point of time, whereas third type of measure of fertility aims to indirectly measure fertility on the basis of age and sex distribution.
- There are seven important methods of finding out fertility ratio on the basis of information available through registration. These are:
 - (1) Crude birth rate (CBR)
 - (2) General fertility Rate (GFR)

NOTES

(3) Age specific fertility rate (ASFR)

(4) Total fertility rate (TFR)

(5) Gross reproduction rate (GRR)

(6) Cumulative fertility rate (CFR)

(7) Standardised fertility rate (SFR)

- The use of contraceptives as a method of controlling fertility is becoming popular because of the desire of both the individual and society to control the population.
- Sociologists are interested in the relationship between the institution of marriage and the institution of family because, historically, marriages are what create a family, and families are the most basic social unit upon which society is built.
- In the social sciences, social structure is the patterned social arrangements in society that are both emergent form and determinant of the actions of the individuals.

7.6 KEY WORDS

- **Fertility:** It is the natural capability to produce offspring.
- **Fecundity:** It is the potential for reproduction of an organism or population, measured by the number of gametes, seed set, or asexual propagules.
- **Birth Rate:** It is the total number of live births per 1,000 in a population in a year or period.
- **Infant Mortality Rate:** It is the number of deaths per 1,000 live births of children under one year of age.
- **Sterility:** It is the condition of being unable to produce young, or (in plants) the condition of being unable to produce plants or crops.

7.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. What are the indirect social factors that affect fertility?
2. What is the net production rate?
3. How is fertility affected by social and self-imposed controls about marriages?
4. What are the factors responsible for high fertility in developing countries?
5. What is conflict theory?

Long-Answer Questions

Fertility and Fecundity

1. Examine the factors that affect fertility.
2. Describe the categories that Kingsley Davis and Judith Blake believe influence fertility.
3. Examine the cause of differential fertility in developed countries.
4. Explain the economic determinants of fertility.
5. Discuss the theory of marriage and family.

NOTES

7.8 FURTHER READINGS

- Louise, Lassaonde. 1997. *Coping with Population Challenges*. London: Earthscan.
- Weeks, John R. 1977. *Population: An Introduction to Concepts and Issues*. Belmont, California: Wadsworth.
- Bhande Asha and Tara Kaitkar. 2015. *Principles of Population Studies*. New Delhi: Himalayan Publishing House.
- Heer, David M. 1975. *Society and Population*. New Jersey: Prentice Hall.
- Hawthorn, Geoffrey. *The Sociology of Fertility*. London: Macmillan.
- Gould William, Marshall Allan, Norman Paul, and Clare Holdsworth. 2013. *Population and Society*. London: Sage Publications.

NOTES

UNIT 8 FERTILITY: ECONOMIC, SOCIO-ECONOMY AND VARIATIONS

Structure

- 8.0 Introduction
- 8.1 Objectives
- 8.2 Economic Theory of Fertility (Becker)
- 8.3 Socio-Economic Theories of Fertility
 - 8.3.1 Leibenstein Population Law
 - 8.3.2 Easterlin's Theory of Fertility
- 8.4 Regional Variations in Fertility Levels in India and Concepts of Mortality
 - 8.4.1 Concepts of Mortality
- 8.5 Answers to Check Your Progress Questions
- 8.6 Summary
- 8.7 Key Words
- 8.8 Self Assessment Questions and Exercises
- 8.9 Further Readings

8.0 INTRODUCTION

Fertility theories, as we have learnt before, seeks to discuss the changes in the levels of fertility. This to say that fertility theories are concerned with examining the different levels of changes which occur in the birth rates. The varied fertility theories differ from each other on account of the factors they consider the source of change. They focus on the economic, social as well as other factors which become determinants of change in fertility levels. In the previous unit, we discussed Davis and Blake's fertility theory in relation to biological and proximate determinants. In this unit, we will focus on economic and socio-economic determinants of fertility. Economic theories of fertility seek to connect the theory of consumer behaviour affecting the fertility levels. Thereby, we will discuss Economic theory of fertility by Becker, and the socio-economic theory of fertility by Leibenstein and Easterlin. We will also discuss the regional variations in fertility levels in India along with briefly discussing the concepts of mortality.

8.1 OBJECTIVES

After going through this unit, you will be able to:

- Explain the economic theory of fertility by Becker
- Describe Leibenstein and Easterlin's socio economic theory of fertility
- Discuss regional variations in fertility levels in India
- Explain the concepts of mortality

8.2 Economic Theory of Fertility (Becker)

Fertility: Economic, Socio-Economy and Variations

The economic theories are based as the assumption that fertility behaviour of couples in a population is based as basically economic considerations. They are therefore, built within the micro-economic framework. The economic explanation of fertility was developed mostly during the second half of the twentieth century. These theories are propounded by Gary S. Becker, Harvey Liebenstein, Richard A. Easterlin. In this section, we will discuss Becker's theory.

According to Gary S. Becker, the inability of demographers to predict western birth rates accurately in the postwar period has had a salutary influence on demographic researchers. Most predictions had been based either on simple extrapolations of past trends or on extrapolations that adjusted for changes in the age-sex-marital composition of the population. Socio-economic considerations are entirely absent from the former and are primitive and largely implicit in the latter. As long as even crude extrapolations continued to give fairly reliable predictions, as they did during the previous half century, there was little call for complicated analysis of the interrelation between socio-economic variables and fertility. However, the sharp decline in birth rates during the thirties coupled with the sharp rise in rates during the postwar period swept away confidence in the view that future rates could be predicted from a secularly decline function of population composition.

Two considerations encouraged the analysis of family size decisions within an economic framework. The first is that Malthus's famous discussion was built upon a strongly economic framework. Becker's can be viewed as a generalization and development of Malthus theory. Second, although no children are morally the same as those associated with other durable goods. The satisfaction provided by housing a 'necessity' is often distinguished from that provided by 'cars' as 'luxury'. Yet both are treated as consumer durables in demand analysis. Abstracting from the kind of satisfaction provided by children makes it possible to relate the 'demand' for children to a well-developed body of economic theory. It is shown that theory of demand for consumer durables is a useful framework in analysing the demand for children. Following are the general considerations:

- **Tastes:** As consumer durables, children are assumed to provide 'utility'. The utility from children is compared with other goods. The shape of the indifference curves is determined by the relative preference for children or in other words by 'tastes'. These tastes may, in turn, be determined by a family's religion, race, age and the likers. This framework permits, although, it does not predict fertility differences that are unrelated to 'economic' factors.
- **Quality of Children:** A family must determine not only how many children it has but also the amount spent as there. He says 'more expensive' children mean 'higher quality' children. 'Higher quality' does not mean morally better. If more is voluntarily spent on one child than another, it is because the parents obtain additional utility from the additional expenditure and it is this additional utility which is called higher quality.

NOTES

NOTES

- **Income:** A rise in long-run income would increase the amount spent on children. If expenditures on children responded in a better way, most of the increased expenditures on children would count of an increase in quality of children.
- **Cost:** In principle the net cost of children can easily be computed. It equals the present value of expected outlays plus the imputed values of the parent's services, minus the present value of the expected money return plus the imputed value of the child's services. If net cost were positive, children would be on balance as consumer durables and it would be necessary to assume that psychic income or utility was received from them. Children of many qualities are usually available, and the quality selected by any family is determined by tastes, income and price.

Another factor to be considered is that in societies lacking knowledge of contraception, control over the number of births can be achieved either through abortions or abstinence, delayed marriage and reduced frequency of sexual intercourse during marriage. Since each person maintains some control over these variables, there is room for decision-making even in such societies. Couples desiring small families would make money later and have more knowledge of family planning methods. The growth of knowledge about contraception has greatly widened the scope of decision-making. He says that now child quality is identified with the lifetime well-being of the child. Child quality can be increased by investing more in the child's human capital or by the direct transfer of wealth to the child. Thus, we could think of child quality as the child's 'quality of life' as an adult as well as during his or her childhood.

When parents are altruistic towards children, the choices of fertility and consumption come from the maximization of a dynamic utility function. The maximization condition implies first, an arbitrage condition for consumption across generations, and second, the equation of the benefit from an extra child to the net cost of rearing that child. These conditions imply that fertility in open economies depends positively on the world interest rate as the degree of altruism, and on the growth of child survival probabilities, and negatively on the rate of technical progress and the growth rate of social security. The growth of consumption across generations depends on changes in the net cost of rearing children, but not on interest rates. Even when we include life-cycle elements, we can say that growth of aggregate consumption per capita depends in long run on the growth of consumption across generation. Thereby we show that real interest rates and growth rates of consumption per capita would be unrelated in long run.

In an almost identical way, Gary S. Becker, in his paper titled 'An Economic Analysis of Fertility', published in 1960, proposed that the micro consumption theory in economics is applicable to fertility also. According to him, variables in fertility can be understood within the framework used by economists in the analysis of demands of 'durable goods'. Just as a consumer with a given taste makes a

decision to purchase durable goods after a careful evaluation of its utilities and costs, the household choice of fertility is made after considering the utilities vis-a-vis monetary and opportunity cost of the additional child. Thus, according to Becker's theory, both children and household durable goods are identical.

Becker's economic theory of fertility was based on two traditional economic postulates:

- (i) the household behaviour is rational on the basis of changing taste, and
- (ii) the prices of commodities desired by the representative households remain indifferent to the household's consumption decision. According to Becker, knowledge about family planning measures is an important factor determining fertility behaviour.

He argued that with a uniform knowledge across different income groups there will be a positive association between income and fertility levels because higher income will enable couples to have more number of children. He attributed the observed inverse relationship between income and fertility levels to differential knowledge of family planning measures in different income groups. He stressed that once the knowledge of birth control measures is evenly spread, a positive association is bound to emerge between fertility and income.

Becker's economic explanations of fertility and income attracted severe criticism later. While some scholars argued that the 'consumer durable' model is not applicable to children and that it cannot predict fertility differentials by income, others, including Easterlin, have argued that tastes cannot be taken as immutable facts and insisted that tastes change systematically according to one's upbringing.

Gary Becker's work has pioneered the economic approach to explaining fertility behaviour, and his theory has been instrumental in elevating the economics of fertility from a special topic to an integral part of labour economics, the economics of education and human capital, and the theory of economic growth.

Check Your Progress

1. List the factors, as per Becker, on which fertility in open economies positively and negatively depend.
2. What was Easterlin's criticism against Becker's economic theory of fertility?

8.3 SOCIO-ECONOMIC THEORIES OF FERTILITY

In this section, we will discuss the socio economic theories of fertility, including Leibenstein's population law and Easterlin's theory of fertility.

NOTES

NOTES

8.3.1 Leibenstein Population Law

Leibenstein has given economic explanation of population law. According to his theory, in a country the more the population, the more it will have to make efforts to come out of their low living standard and poor economic rest. According to him, more fertility does not stand in the way of economic development of the nation. Development of a nation very much depends on natural resources of a country, types and qualities of minerals available, availability of capital and technical know-how. He said that in U.S.A., Red Indians had low fertility level due to poor knowledge they had very poor living standard.

He was of the view that as long as birth rate does not come down, there can be no possibility of development. According to him it should not be forgotten that birth rate falls when there is economic development. A programme of economic development must be started to bring down birth rate.

He said that in less developed countries birth rate is high because in these countries the people are less ambitious and also less conscious about births. They do not know how to control births and pregnancies. They, in fact, cannot distinguish between two important aspects of birth, namely sexual relationship and producing of children. They also do not take steps to check the birth of the children.

In less developed countries there is high death rate. This is because they are required to produce more children, or the people will be without a child in old age. In these countries, cost of bringing up children is also not very high. The children of the poor need at least the bare minimum to maintain their children, whereas the rich spend still more on education, health, etc. But the children of the poor earn at a very early stage and whatever is spent on them is earned by them as well.

According to Leibenstein, a child is useful in three ways. He is in a way, a consumption good because the child gives pleasure to the parents. He is also productive agent because he earns for his parents and in less developed countries, he begins to earn at a comparatively young age. A child is also a source of security for the old age because the parents depend on his earning when they themselves are not in a position to earn.

He believed that in developed countries the birth of a child is based on demand and supply. It also depends on the cost of bringing up of the child and the facilities which will be essentially provided for providing him proper education, health, sanitation, medical and similar other facilities. It is also believed that every child gives equal pleasure and that it has nothing to do with income he will earn. Further, it is thought that as the income of the parents or that of the family increases, the productive utility and security utility of the child also goes on decreasing. Therefore, Leibenstein came to the conclusion that in less developed countries only per capita income will help in the reduction of birth rate. He was thus sure that it was not possible to first reduce the birth rate and then per capita income.

Therefore, there should be first development and then reduction in birth rate. Minimum efforts will invariably be needed to have basic necessary development.

Fertility: Economic, Socio-Economy and Variations

Leibenstein has thus established the relationship between birth, death and increase in population rate. According to him, when majority of population has low per capita income, then death rate will go up and in order to have a particular size of the family, more children will be produced, because it is expected that some of the children will expire at infancy or at comparatively young age. In such societies all the three utilities of the children mentioned above are very much valued. In such a society although the birth rate is very high, the population does not increase rapidly, and the number of alive children is just sufficient to help the parents to maintain themselves at old age. When, however, per capita income is high then death rate begins to decrease, but not immediately, because most of the people realize it only at a later stage. Their production value increases, as compared to the average age and then their productive and security value is both realized as well as appreciated. Since the children have considerable utility, therefore, the temptation to reduce the number of children is not always there in all the families. When, however, income of the family goes very high, then the security value of the children goes down, because the parents feel that they have enough to sustain themselves in old age. The children of the rich also do not start earning at early age because the parents do not feel the need and necessity of such earning. The cost of bringing up of children also considerably goes up. When the cost of maintaining the children goes up as compared with the cost of their productive values, then there is always a desire to reduce the number of children because then each child is considered to be burden. Leibenstein has, therefore, come to the conclusion that there are four stages of population, namely (1) when both the death and birth rates are high, the population is stationary and living standard is low; (2) when one at which death rate is low, birth rate is high. Population increase; (3) death rate is low, birth rate too is low still higher than the death rate, there is slow increase in population growth and the country begins to march on the path of progress; (4) the birth rate is less, death rate too is low, there is increase in population and the country is in a position to have lasting development and progress.

Leibenstein was of the opinion that, 'The less the fertility lag, the less the critical minimum efforts necessary for growth. The point at which fertility decline sets in will determine the height of critical minimum levels.' He also stressed that in the beginning, population increases with income, but on reaching a particular point population begins to decrease with the increase in income. He also pointed out that critical minimum effort is needed only for less developed countries because in developed countries with every increase in income, birth rate considerably decreases. On this basis, threshold hypothesis of fertility declines operates, which says that as long as particular economic standard is not achieved, till that time it shall not be possible to bring down birth rate. All efforts made till then will not be productive and efforts made are likely to prove useless.

NOTES

NOTES

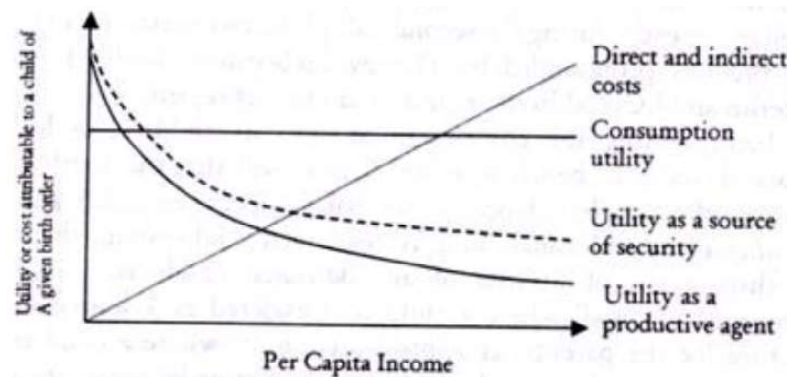


Fig. 8.1 Leibenstein's Model of Fertility Decline

Liebenstein mentioned that as economic conditions improve, the number of high parity children for the representative family has a tendency to decline. It may however, be noted that Liebenstein's theory has more of an explanatory value than predictive one.

8.3.2 Easterlin's Theory of Fertility

R.A. Easterlin provided a more comprehensive theory combining sociology and economics of fertility (Bhende and Kanitkar, 2001:321). He has explained the link between fertility transition and modernization. Easterlin has defined the process of modernization as "transformation in economic, social and political organization and in human personality" (Easterlin, 1983:563). He argues that although fertility transition has accompanied the process of modernization, the specific links between the two are not clear.

According to him, modernization influences fertility only indirectly. Bongaarts had earlier talked about a set of 'proximate determinants' through which 'modernization' acts upon fertility levels (Bongaarts, 1978:106). These proximate determinants include, for instance, deliberate fertility control, postpartum infecundability, waiting time to conception etc. among others. Easterlin has further added a set of 'intervening variables' between modernizations and 'proximate variables'.

These intervening variables are the demand of children, supply of children and costs involved in fertility regulations. While the demand of children refers to the number of surviving children a couple would want if fertility regulations were costless, supply of children is the number of surviving children a couple would have if fertility is not deliberately controlled. The costs of fertility regulations involve both objective and economic costs.

Thus, in Easterlin's opinion, the process of modernization directly influences demand, supply and regulation costs, which, in turn, determine the deliberate control. And finally, deliberate measures of fertility control in conjunction with other proximate determinants shape the observed fertility levels in a society.

In a pre-modern society the demand for children is greater because of the nature of the economy and adverse mortality conditions. The individual couples in such societies, however, cannot produce as many children as they want, and demand for children, thus, exceeds supply. In such circumstances, the couples tend to have as many children as possible. In other words, the observed fertility is identical to natural fertility. In due course of time, the process of modernization sets in and improving mortality conditions increase the potential supply of children. The regulation costs begin to decline along with a corresponding decline in the demand for children. Since the society lacks deliberate attempts to limit family size, the couples now have more children than they want.

Thus emerges the situation of an excess of supply over demand that generates motivation for family size limitation. The couples then weigh the disadvantages of excess supply against the regulation costs. In the initial stage, since fertility regulation costs are high, natural fertility continues to prevail. As modernization proceeds, the excess supply over demand further grows and motivation for fertility control becomes still stronger.

Since regulation costs have also undergone decline, the motivation for family size control is strong enough to offset the former. The couples begin to take deliberate actions to control fertility, and actual family size falls below potential supply though still exceeding demand. Eventually, in the subsequent stages, as motivation grows further stronger and regulation costs lower, a point is reached when actual family size corresponds to demand.

8.4 REGIONAL VARIATIONS IN FERTILITY LEVELS IN INDIA AND CONCEPTS OF MORTALITY

This section deals various aspects of regional fertility variations in India using nationally representative data from three rounds of National Family Health Surveys (NHSS) conducted in India (six regions).

The broad spatial contours of India's fertility pattern are well known, but the specifics about the spatial heterogeneity in fertility decline is not clear. Often, the near or below replacement fertility in much of South India is contrasted with high fertility in parts of north India. However, fertility heterogeneity is not restricted to the north-south dichotomy alone. There are differences within and between other regions in India. Despite of the differences in the correct level, fertility has been declining at a varying pace in almost all parts of country.

Population stabilization through fertility reduction has been a key policy objective since 1950s. The most recent articulation of this objective can be found in the National Population Policy, 2000, which states its medium term goal as reducing total fertility rate to replacement level by 2010 and achieving a stable population by 2045. As with ambitious objectives of the past population policies, the goal of replacement fertility has not been achieved. The formulation of optimistic

Fertility: Economic, Socio-Economy and Variations

NOTES

NOTES

and ambitious demographic goals has a long history, e.g., the population policy in the early 1960s called for achieving a CBR of 25 by 1972, a goal achieved only in 2002.

In this section, we will have a look at the regional variations in population through the information provided in the research paper ‘Regional Fertility Transition in India: An Analysis Using Synthetic Parity Progression Ratios’ by Thomas Spoorenberg and Premchand Dommaraaju.

Variations in the fertility levels is categorized in six regions:

- North
- Central
- East
- Northeast
- West
- South

Northern Regions: The northern region comprises the states of Haryana (known for its skewed sex ratios), Himachal Pradesh (a mountainous state nestled in the Himalayas), Jammu and Kashmir (the only muslim majority state in India), Punjab (a prosperous agricultural state), Rajasthan and Uttarakhand (the hilly-state carved out from Uttar Pradesh in 2000). In demographic terms, fertility rates varied from 2.7 children per woman in Rajasthan to a low of 1.7 in Himachal Pradesh in 2016. Census data 2011 shows a child (0.6) Sex ratio (female per 1000 males) of 830 in Haryana and 906 in Himachal Pradesh. All states in the region have sex ratios below the national average. The skewed sex ratios are a manifestation underlying preference for sons and such preference has important implications on fertility both in terms of number of children and in the decision to space births.

Central Regions: The central region comprises the states of Chhattisgarh (a state with about one-third of the population classified as scheduled tribes Madhya Pradesh and Uttar Pradesh (the most populous state) in India with population of 199 million in 2011. The fertility in these states varied 2.5 (Chhattisgarh) to 3.1 children per woman (Uttar Pradesh) in 2016. The three states in this region had the highest infant mortality rates in the country. In both Madhya Pradesh and Chhattisgarh (states with high proportion of tribal population), fertility is generally low mainly because of ‘delayed female marriage, relatively prolonged breast-feeding and longer intervals, greater gender equity and female autonomy’ among the tribal groups.

Eastern Region: The eastern region comprises the states of Bihar (a state which consistently ranks at the bottom on various human development indicators), Jharkhand a state that was bifurcated from Bihar in 2000), Odisha, and West Bengal (the only state in which power was held by the communist party interrupted from 1977 to 2011). Fertility in the last two states is considerably lower (around

2.0) children per woman compared to the former two States (2.6 and higher) in West Bengal, fertility began to decline beginning in the 1960s and, as norms diffused through all sections of the society despite government indifference to population policies.

Northeast Region: The eight states in the region are made up of numerous tribal and caste groups and in some states a significant number of migrant Bengal populations. The region is characterized by relatively late marriage, absence of son preference, and longer birth intervals. The fertility in the region varied from 1.2 in Sikkim to a high of 2.9 children per woman in Meghalaya.

Western Region: The three states in the region Goa, Gujarat and Maharashtra have fertility rates below the national average 1.5. Goa (with a large Christian minority population), Gujarat (a state known for its manufacturing and industrial sector) and Maharashtra (with large urban centers like Mumbai and Pune) have generally been in the forefront of human development. Also, in contrast with the neighbouring northern states, the status of women is higher. Jejeebhoy and Kulkarni note that in Maharashtra this relatively higher status of women meant that there were no significant differences in the fertility desires between men and women. This is a possible reason for relatively low fertility in the state.

Southern Region: The four states in the south—Andhra Pradesh, Karnataka, Kerala and Tamil Nadu—have fertility rates 1.7, 1.8, 1.8 and 1.7 respectively. Kerala was the first state to reach below replacement fertility and this has been attributed to high level of literacy, progressive social system, and low infant mortality rates. The fertility decline in South India has not followed a single pathway, while diffusion played a key role as Guilmoto has emphasized, the diffusion was endogenous and centered in several areas in South India. These appear to be several state specific factors from human development in Kerala to social capital in Andhra Pradesh which might explain fertility decline in South.

Following is the list of the states and union territories of India ranked in order of number of children born for each woman. Recent surveys depict that in majority of the Indian states, fertility rate has fallen well below the replacement level of 2.1 and the country is fast approaching the replacement level itself. The total fertility rate of India stands at 2.2 as of 2017.

Table 8.1 State-wise Fertility Levels in India in 1999, 2009 and 2016

Rank	State/UT	Fertility rate 1999	Fertility rate 2009	Fertility rate 2016
1.	Sikkim	2.5	2.1	1.2
2.	Manipur	2.4	1.5	1.4
3.	Andaman & Nicobar	1.9	1.5	1.5
4.	Goa	1.0	1.6	1.5
5.	Lakshadweep	2.8	2.1	1.5
6.	Chandigarh	-	1.8	1.6

NOTES

Fertility: Economic, Socio-Economy and Variations

NOTES

7.	Punjab	2.5	1.9	1.6
8.	West Bengal	2.4	1.9	1.6
9.	Puducherry	1.8	1.6	1.7
10.	Himachal Pradesh	2.4	1.9	1.7
11.	Andhra Pradesh	2.4	1.8	1.7
12.	Jammu & Kashmir	-	2.2	1.7
13.	Tamil Nadu	2.0	1.7	1.7
14.	Delhi	1.6	1.9	1.7
15.	Tripura	3.9	1.7	1.7
16.	Daman & Diu	2.5	1.9	1.7
17.	Kerala	1.7	1.7	1.8
18.	Telangana	2.4	1.8	1.8
19.	Karnataka	2.5	1.9	1.8
20.	Maharashtra	2.7	1.9	1.8
21.	Odisha	2.7	2.4	2.0
22.	Uttarakhand	-	2.6	1.9
23.	Arunachal Pradesh	-	2.7	2.1
24.	Gujarat	3.0	2.5	2.2
25.	Haryana	3.2	2.5	2.2
26.	Assam	3.2	2.6	2.3
27.	Dadar Nagar Haveli	3.5	3.3	2.3
28.	Mizoram	-	2.0	2.3
29.	Chhattisgarh	3.7	3.0	2.5
30.	Jharkhand	3.7	3.2	2.6
31.	Nagaland	1.5	2.0	2.6
32.	Madhya Pradesh	3.9	3.3	2.7
33.	Rajasthan	4.2	3.3	2.7
34.	Meghalaya	-	3.1	2.9
35.	Uttar Pradesh	4.7	3.7	3.1
36.	Bihar	4.5	3.9	3.3

Source: Population Reference Bureau.

It can be concluded that fertility level in India is governed by the prevailing, social and economic conditions as well as cultural and religious traditions. There is still a long way to control fertility rate in India.

8.4.1 Concepts of Mortality

Where fertility rates deal with the concept of number of children born to mothers in a specific age group, these are related to the crude birth rates, general fertility rates, age-specific fertility rates as well as total fertility rates. Of course, the fertility rates are not solely dependent on the birth rates, the mortality rates also affect the fertility rates significantly. Mortality pertains to the number of deaths per 1,000

population. This is also a very important factor which affects the manner in which life tables are made and population growth is tracked. There are different approaches to measuring mortality including specific time period as well as cohort approach. The varied measures of mortality are crude death rate, under-five mortality rate, infant mortality rate as well as life expectancy. We will discuss the components of mortality in detail in the next unit.

Fertility: Economic, Socio-Economy and Variations

NOTES

Check Your Progress

3. List the factors on which development of nation depends as per Leibenstein.
4. State the only solution for reducing fertility rates in less developed countries as per Leibenstein.
5. How does process of modernization affect the fertility levels, according to Easterlin?
6. Which region of India has the highest infant mortality rate?

8.5 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Fertility in open economies, as per Becker, depends positively on the world interest rate as the degree of altruism, and on the growth of child survival probabilities, and negatively on the rate of technical progress and the growth rate of social security.
2. Easterlin's criticism against Becker's economic theory of fertility is that tastes cannot be taken as immutable facts and insisted that tastes change systematically according to one's upbringing.
3. Development of a nation, as per Leibenstein, very much depends on natural resources of a country, types and qualities of minerals available, availability of capital and technical know-how.
4. Leibenstein argued that in less developed countries only per capita income will help in the reduction of birth rate.
5. In Easterlin's opinion, the process of modernization directly influences demand, supply and regulation costs, which, in turn, determine the deliberate control. And finally, deliberate measures of fertility control in conjunction with other proximate determinants shape the observed fertility levels in a society.
6. The central region of India comprising of the states of Chhattisgarh, Madhya Pradesh and Uttar Pradesh has the highest infant mortality rates in the country.

8.6 SUMMARY

NOTES

- The economic theories are based as the assumption that fertility behaviour of couples in a population is based as basically economic considerations. They are therefore, built within the micro-economic framework. The economic explanation of fertility was developed mostly during the second half of the twentieth century. These theories are propounded by Gary S. Becker, Harvey Liebenstein, Richard A. Easterlin.
- According to Gary S. Becker, the inability of demographers to predict western birth rates accurately in the postwar period has had a salutary influence on demographic researchers. Most predictions had been based either on simple extrapolations of past trends or on extrapolations that adjusted for changes in the age-sex-marital composition of the population. Socio-economic considerations are entirely absent from the former and are primitive and largely implicit in the latter.
- Two considerations encouraged the analysis of family size decisions within an economic framework. The first is that Malthus's famous discussion was built upon a strongly economic framework. Becker's can be viewed as a generalization and development of Malthus theory. Second, although no children are morally the same as those associated with other durable goods.
- Gary S. Becker, in his paper titled 'An Economic Analysis of Fertility', published in 1960, proposed that the micro consumption theory in economics is applicable to fertility also. According to him, variables in fertility can be understood within the framework used by economists in the analysis of demands of 'durable goods'.
- Becker argued that with a uniform knowledge across different income groups there will be a positive association between income and fertility levels because higher income will enable couples to have more number of children. He attributed the observed inverse relationship between income and fertility levels to differential knowledge of family planning measures in different income groups.
- Leibenstein has given economic explanation of population law. According to his theory, in a country the more the population, the more it will have to make efforts to come out of their low living standard and poor economic rest. According to him, more fertility does not stand in the way of economic development of the nation. Development of a nation very much depends on natural resources of a country, types and qualities of minerals available, availability of capital and technical know-how.
- Leibenstein said that in less developed countries birth rate is high because in these countries the people are less ambitious and also less conscious about births. They do not know how to control births and pregnancies.

They, in fact, cannot distinguish between two important aspects of birth, namely sexual relationship and producing of children. They also do not take steps to check the birth of the children.

Fertility: Economic, Socio-Economy and Variations

- R.A. Easterlin provided a more comprehensive theory combining sociology and economics of fertility (Bhende and Kanitkar, 2001:321). He has explained the link between fertility transition and modernization. According to him, modernization influences fertility only indirectly. Bongaarts had earlier talked about a set of 'prox-imate determinants' through which 'modernization' acts upon fertility levels (Bongaarts, 1978:106).
- R.A. Easterlin provided a more comprehensive theory combining sociology and economics of fertility (Bhende and Kanitkar, 2001:321). He has explained the link between fertility transition and modernization
- The broad spatial contours of India's fertility pattern are well known, but the specifics about the spatial heterogeneity in fertility decline is not clear. Often, the near or below replacement fertility in much of South India is contrasted with high fertility in parts of north India. However, fertility heterogeneity is not restricted to the north-south dichotomy alone. There are differences within and between other regions in India. Despite of the differences in the correct level, fertility has been declining at a varying pace in almost all parts of country.

NOTES

8.7 KEY WORDS

- **Altruistic:** It refers to showing a disinterested and selfless concern for the well-being of others
- **Cohorts:** It refers to a group of people with a common statistical characteristic

8.8 SELF-ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. What were the two considerations that encouraged the analysis family size decisions within an economic framework?
2. Mention the traditional economic postulates on which Becker's economic theory of fertility was based.
3. List the ways in which a child is useful as per Leibenstein.
4. What were the four stages of population growth as per Leibenstein?

NOTES

Long-Answer Questions

1. Explain the considerations involved in Becker's economic theory of fertility.
2. Examine Leibenstein's explanation on the relationship between birth, death and the increase in population rate.
3. Discuss pattern of fertility as postulated by Easterlin.
4. Give an overview of the regional variations in fertility levels in India.

8.9 FURTHER READINGS

Bhende, Asha A. and Tara Kanitkar. 1994. *Principles of Population Studies, Sixth Edition*. Mumbai: Himalaya Publishing House.

Heer, David M. 1987. *Society and Population, Second Edition*. Delhi: Prentice-Hall India.

Raj, Hans. 1984. *Fundamentals of Demography (Population Studies with Special Reference to India), Third Edition*. Delhi: Surjeet Publications.

Kumarasena, Harsha. 2004. *Population Education*. Delhi: Dominant Publishers and Distributors.

Website:

<https://www.hindawi.com/journals/ijpr/2012/358409/>

UNIT 9 LIFE EXPECTANCY AND MORTALITY

*Life Expectancy and
Mortality*

NOTES

Structure

- 9.0 Introduction
- 9.1 Objectives
- 9.2 Life Expectancy
- 9.3 Components of Mortality
 - 9.3.1 Infant and Child Mortality
- 9.4 Answers to Check Your Progress Questions
- 9.5 Summary
- 9.6 Key Words
- 9.7 Self Assessment Questions and Exercises
- 9.8 Further Readings

9.0 INTRODUCTION

In the previous unit, you learnt about the economic theory of fertility as well as regional variations in fertility levels in India. This unit discusses the concept of mortality. In population studies, the mortality rate, or the death rate, is a measure of the number of deaths in a particular population, scaled to the size of that population, per unit of time. The unit will begin with a brief discussion on life expectancy.

9.1 OBJECTIVES

After going through this unit, you will be able to:

- Discuss life expectancy
- Discuss the concept of mortality and how to calculate it
- Explain the environmental influences of mortality

9.2 LIFE EXPECTANCY

There are no two opinions that life expectancy of a nation indicates its development and growth. It has also been said that it also indicates the extent of its modernisation and living standard. Prof. Organski is of the view that, 'For an indication of its living standard look at the life expectancy, because there is no better measure than the years of life a civilisation gives each man.' Life expectancy also indicates the birth and death rate in a society. The problem can be divided with the help of life tables. Prof Donn is of the view that life expectancy is closely linked with biology. In his own words, 'The study of longevity per se is properly the province

NOTES

of biology rather than of demography. The demographers' interest in longevity arises in part from the interrelationship of longevity with the biological, social and economic characteristics of humans of as members of population groups.'

- (i) There are many thinkers in the world who believe that life is linked with heredity factors. Those parents who have longer life, their children too can be expected to lead a long life and live more years. According to them, a well-built body is expected to live longer, as compared with imbalanced and diseased bodies.
- (2) Then there is another school of thought which believes that longevity in life is very much linked with the constitution of the body. When there is proper physical and mental development, life expectancy is bound to be higher. Where however, there are imbalanced bodies, these are bound to catch many diseases as compared with balanced bodies. Thus, according to them, a well-built body is expected to live longer, as compared with imbalanced and diseases bodies.
- (3) Customs and traditions which a society follows also effect life expectancy. The people of a tradition ridden superstitious society are likely to live a short life, as compared with the people who live without any superstitions.

9.3 COMPONENTS OF MORTALITY

Mortality affects and influences both fertility as well as birth rate. It is one factor which is responsible for influencing the health of the mothers and puts a strain on the national medical and sanitary resources. There are in turn, many factors which influence the mortality rate. But how to find out mortality rate is a problem. For this there are many methods of analysis. Like the fertility rate, there are different methods of finding out mortality rate as well. In every society, it is always interesting to find out the cases of death, which of course cannot be the same all over the world.

In this past, the mortality rate used to be very high because the people were not much conscious about their health, and secondly, medical aid was not readily available. Moreover, medical science had not advanced much. These days the situation has changed and even in developing countries medical facilities have improved resulting in much better control over the mortality rate in society. Many fatal diseases that killed numerous people in the past have also been brought under control. This has increased the birth rate in all societies in modern times.

Brief Historical Background

In the beginning when, the practice of collecting data about death started, nothing could be said with certainly about the accuracy of data and the extent of its reliability. But it is almost certain that the practice is very old. In the past, the purpose of collecting such information partly would have been religious and partly economic.

It appears that the Romans used to collect such information in the third century. In ancient Italy this type of practice also prevailed as early as in the fourth century. Such information was collected by church fathers in the past. Gradually, the practice became quite common in whole of Europe. In England in 1558, Thomas Cromwell, under Henry VIII, ordered collection of data about deaths. When diseases spread, then also information was provided about the deceased, and this therefore, invariably led to the collection and sometimes publication of data.

The British demographer John Graunt can be called a pioneer in the field. He began to collect, analyse as well as classify information and data about death. He brought out a book in 1662, entitled, *Natural and political observation mentioned in the following index and made upon the Bills of Mortality*. In 1755-57, in Sweden, life tables began to be prepared. Such a table was prepared on the basis of information on death collected throughout the country; the data also included information on age and gender. In Sweden, a first of its kind law was passed in 1748, under which it was made obligatory for the people to register all cases of death.

Other countries of the world did not make much progress in this regard. Gradually and slowly, however, more and more attention began to be paid to mortality, when figures began to be collected about trade, commerce, diseases, living standard of the people and so on, and census operation started from time to time. In 1857, in England, William Farr was made responsible for the collection of vital statistics. He began collecting information about the causes of death. Commenting on the contribution of his work, Hauser and Duncan have said that, 'Most of our knowledge of differential mortality by occupation and social class has been obtained from this series of studies initiated by William Farr.' In so far as the USA is concerned, the work in this field started somewhat late. By the beginning of the 20th century, of the 48 states, the work regarding registration of death had started in 14 states only. It was only in 1902 that the Census Bureau was made a permanent organisation in the United States. It was however only in 1993 that information about deaths and births for the whole country began to be collected in that country.

What is Mortality?

Usually it is believed that the end of a life can be considered as death. But what is live birth is another problem. In some countries, including Spain and Cuba, a child who expires within 24 hours of his birth is not considered a live birth but is included in the abortion statistics. In other words, he is not included in the category of death either. In some countries only such children are considered as live ones who are alive on the day of their registration. In these countries registration of the children is permissible even many days after the birth of the child. According to World Health Organisation or WHO, a live birth may conveniently be defined by saying that, 'a live birth is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which after such

NOTES

NOTES

separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord had been cut or the placenta is attached; each product of such a birth is considered live born.' Based on this, the WHO has defined death by saying, 'All live born infants should be registered and counted as such irrespective of the period of gestation and if they die at any time following a birth they should also be registered and counted as deaths'. But all the countries of the world have not accepted this definition of death, due to one reason or the other. Hauser and Duncan have defined death by saying, 'Death prior to complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, the death is indicated by the fact that after such beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles.' The WHO is of the view that all such deaths where the child has remained in the womb of a mother for 28 weeks should also be registered. All deaths prior to a live birth are not considered as death. Thus, abortions and still births are not referred to as deaths but as foetal deaths.

Sources of Data

Deaths occur in every society and the registration of deaths everywhere is considered important. In developing countries, death data is incomplete because all death events are not registered and as such it cannot be used for any meaningful analysis of mortality. National censuses and demographic sample surveys provide useful data about mortality. National censuses and demographic sample surveys, the demographic year book of the UN, all give reliable statistics about the number of deaths, death rates, death by age and sex, of various countries of the world. Useful information about mortality is also provided by statistical reports of the WHO.

Limitations of Mortality Data

Although it is essential that mortality data be collected, unfortunately in many countries where the death rate is high, data about mortality is very undependable. Today there are many limitations in so far as mortality data in India. In many cases, there is no information about the age of the deceased, his caste occupation and cause of death, etc., available. From the U.N. Demographic Year Book, it appears that only 1/4th of the world is keeping a proper record on deaths. Not only this, but we find that there are no uniform definitions and in many cases those who supply information do not provide any correct and dependable information on the method of collecting and analysis data about deaths. Not only this, but we find that the whole system of data collection is very rigid and does not change with the changing situation. Many states do not quickly pass laws or amend the existing ones about death data collection.

In some areas, particularly in the rural areas, there are no arrangements for registering deaths on the spot and the near ones or the deceased do not take the

trouble of going to some distant place for getting the death registered, unless a death certificate is needed for settlement of property or any other dispute.

Still another difficulty is that many people do not at all know that registration of death is their legal obligation. Thus, even if they have a desire, they take things easy and sometime even forget it. Another limitation is that since those who do not get deaths registered are not punished any way and thus the others also do not take the trouble of going to the registration centre and complete formalities about registration of death.

Why Mortality Data?

A very pertinent question which arises is as to why at all mortality data should be collected? The UNO observed as early as in 1954 that, 'with 20% or more of all fertilisation lost before birth and 15 to 20% of the live births dying by the fifth year of age, it appears on a conservative estimate that 1/3 or more of each generation is wanted in the initial stage of its information.' This in itself indicates the need and necessity of collecting mortality data. Mortality data is today collected due to many reasons which affect our economic, social and political life. Some of the important causes responsible for this are as follows:

- (1) It is with the help of this data that it becomes possible to study the problems of widowhood and orphans and the extent to which such problems need the attention of the society.
- (2) These figures help in finding out how far the society is healthy and the causes of mortality reveal the direction in which society is moving e.g., how far social evils, economic strains, negligence, providing of adequate facilities, etc., been responsible for the occurrence of death.
- (3) Available data helps in finding out the extent to which medical facilities need are geared up to take on diseases which take the lives of the people.
- (4) The data helps in projecting future population of the country, which is very important these days.
- (5) It is with the help of available data that it becomes possible to have comparisons with the past and allows us to have a vision for the future.
- (6) In the words of Barclay, 'The most successful efforts of demographic measurement have been made in the study of mortality. This was the first subject brought under rigorous analysis and has found commercial applications in the field of insurance'.
- (7) In countries where the death rates are high, the people on the whole care more for their present rather than the future. They then do not wish to invest in saving schemes and for them investing in the education of their children, insurance policies, etc., have no attraction. Thus, the national economy is very much affected by this indifferent attitude.

NOTES

NOTES

Analysis of Mortality Statistics

In every country it is fully well realized that there is a dire need for the analysis of mortality statistics, which are collected with great labour. It is considered essential that all data should be classified keeping in view sex, age and place of death. The WHO has collected mortality data in respect of many countries of the world and has also classified them according to causes of death. The organization has also tried to lay down the broad principles for the classification of the data. The demographers have also prepared both life and death tables to analyse data collected about deaths. It is with the help of this data that it becomes possible to find out with some expected death rate in the near future and what can be possible number of widows and orphans. There are different methods of finding out the death rate. Some such rates are:

- (1) Crude death rate
- (2) Age specific death rate
- (3) Standard or adjusted death rate
- (4) Infant death rate

Crude Death Rate

David M Heer in his *Society and Population* has said that, 'Crude death rate may be defined as the ratio of the number of deaths which occur within a given population during a specified years, to the size of death population at mid year.' According to Thompson and Lewis, 'This is calculated in exactly the same manner as the crude birth rate.' The formula is,

$$\frac{\text{Death (300)}}{\text{Population (2000)}} = 0.025 \text{ deaths person;}$$
$$0.025 \times 1000 = 25 \text{ deaths per thousand}$$

Or the simple formula is

$$\frac{D}{P} \times K$$

Where, D = Deaths registered in a year

P = Population of an area in that year

K = Constant 1000

Obviously, it is the simplest method of finding out the death rate because what is required to be known is only the total population and number of deaths which occur in a particular period. This method of calculating death rate has its own advantages namely:

- It becomes possible to reduce the death rate into one figure only.
- It is very easy and as such can be understood easily even by a common man.

- In calculating it, not many figures or details are needed.
- The figures can be used both for the calculation and verification of conclusions.
- This can help in knowing the approximate life expectancy.

But this method has its disadvantages as well. These are:

- In it many population groups which have varied death rates are combined together and thus the results obtained are undependable.
- In this extreme cases are very adversely effected and influenced.
- Death figures for this data are collected from registration authorities, therefore, it is unscientific to use data in some equation collected from two different sources.

Standard or Adjusted Death Rate

Under direct standardization distribution pattern of population of an area or country is taken as standard one and therefore the standardized death rate is found out on the basis of following formula:

$$\text{Standardized death rate} = \frac{P_s \times D_1}{\sum EP}$$

Where P_s = Standard population of the age group.

D_1 = Age specific death rate of local population of the same group.

As against the direct standardization method, there is also an indirect standardization method. In this, statistics of actual population by age (mid-year population) are collected. Then information is also collected about the total number of deaths of all ages of actual population during the year, the complete schedule of age specific death rates of a standard population and the crude rate of standard population. The actual population multiplied by age specific death rate will give expected deaths.

Sex Differences in Mortality

Usually it is observed that mortality among both the sexes is not the same. It is higher among the men as compared with women. In other words, death pressure among the men is higher than the women. Though there are some countries of the world where the pressure on women is higher. The gap between the average expectation of life for females and males is wide in developed than in developing countries. In most countries of the world the crude death rate as well as age specific death rates are higher for males than for females. It has also been found that biological factors play the main role in the differential mortality of males and females. In several countries including the US, UK, Japan, Sri Lanka, etc., infant mortality rate have been lower for females than males.

Where pressure on women is high, it is primarily because women in those countries do not enjoy a very high social status, but are treated with contempt.

NOTES

NOTES

According to some demographers, nature has also made women in such a way that they can live a comparatively longer age as compared with men. Bogue has said, 'Under current condition the typical females in industrialized countries may look forward to several year of widowhood even if she marries a husband of her own age. Some demographers have pointed out that American girls marrying at the age of 18 would be forced to marry a boy only 12 year old in order to assure that she would not spend time as widow.' In fact, so far there are no solid reasons to prove as to why.

Infant Death Rate

In every society infants are the most victims of death, due to several reasons. Their death rate can be found out with the help of following formula:

$$\frac{D_0 - 1}{B} \times K$$

Where $D_0 - 1$ = Death in the age group 0-1

B = Total registered births

K = Constant (1000)

The following example will classify the position:

Total number of registered deaths among infants during a particular year = 7000

Total number of registered live births in that year = 84000

$$\text{Infant mortality rate for the year} = \frac{7000}{84000} \times 1000 = 83.3$$

But there are several problems with this method. Usually the people do not come forward for reporting still births, abortion and infant deaths. Then another limitation is that the child who had been born in the earlier year might have died in that particular year. In this formula such deaths are not calculated. Thus, this calculation is only possible when there is annual classification of birth and death rates.

Cause Specific Death Rate

Deaths can occur due to any reason e.g., on account of prolonged illness, brief illness, accident, malnutrition, food poisoning etc. Every society is quite keen that it should know the cause of death so that it can apply necessary checks. When shown by age and sex, the cause becomes still more important. This enables the society to find out at what age the deaths take place and what are the causes of death for male and female population. It also becomes possible to have comparative figures of causes of deaths of two areas, societies and even countries. Thus can be found out with the help of following formula:

$$\text{CSDR} = \frac{D_i}{P} \times K$$

Where,

CSDR = Cause specific death rate

D_i = Number of death due to a particular cause in a year.

P = Mid year population in that year.

K = Constant, i.e. 1000.

The following tables gives an idea about the average age adjusted death rates, by race and sex in the USA from 1933-1959

Table 9.1 Average Age Adjusted Death Rates by Sex and Race

Area and Year	Total			White			Non-White		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
USA									
1955-59	7.8	9.6	6.1	7.4	9.3	5.8	11.0	12.6	9.5
1950-54	8.1	9.8	6.6	7.8	9.5	6.2	11.8	13.2	10.4
1954-49	9.0	10.5	7.5	8.6	10.1	7.1	12.6	13.8	11.4
1939-44	10.3	11.7	8.9	9.8	11.2	8.3	15.1	16.3	13.9
1933-38	11.6	12.9	10.4	11.0	12.3	9.8	17.6	18.8	16.3

Source: Thompson and Lewis, *Population Problems* (Page 341)

But this type of death rate has its own problems. Death can occur due to more than one specific reason. Then another problem is that the apparent cause of death may not be real cause of death e.g. a person driving a scooter may have heart attack and in the process his scooter may meet an accident and he may die. Prima facie it may be said that death occurred due to accident. Whereas actual cause of death was a heart attack.

Causes of Death

Every individual is interested to live as long as he or she can, but still death occurs in every family and eventually all people will die. Some deaths are very premature and tragic and shake the family from the very foundations. But even these cannot be avoided. The deaths which occur can broadly be placed under two categories namely, indirect and direct causes of death. In every society, however, there are certain important causes of death and usually the people attribute that important or prevent cause of death, to every case of death which might occur, which in fact might not be there, thus, making the data defective. In some case a patient is not attended by the doctor before his death and then it becomes difficult to find out the cause of death. In a country like India where the people are illiterate, it becomes difficult to know the exact cause of death even from those who had been regularly attending on him. In many cases even qualified doctors also do not know the exact

NOTES

NOTES

cause of death. In case a patient is suffering from many diseases it becomes difficult to find out as to which disease actually proved the cause of death to the patient. Thus, even in most advanced countries of the world, the data about deaths, on the basis of causes of death is very defective and undependable.

The World Health Organization has tried to make an attempt to find out the causes of death. It has suggested that these cause may broadly be put under five different categories, namely:

1. Infectious, parasitic and respiratory diseases
2. Diseases of circulatory system
3. Cancer
4. Death from violence
5. Other including gastro, intestinal diseases, diabetes mellitus, birth injuries and diseases peculiar to the first few weeks of life.

In all the countries of the world many deaths take place due to disease specified under category 1. Prof. Bogue is of the view that, 'The rapid decline in mortality being witnessed around the world today in most of the developing countries is due to the fall in group 1 diseases'. We also find that in developed countries the pressure of deaths due to cancer is less, as compared with developing countries. As regards diseases falling in the third category, it is now realised that their influence can only be reduced or differed for some time but these can't be absolutely wiped out. Now coming to causes of deaths as enumerated in the fourth category, their influence is being reduced because crimes are being checked and efforts are being made to reduce the chances of accidents as far as possible. Due to advancement of medical science, number of deaths on account of diseases mentioned in the fifth category have considerably come down. But in spite of all medical advancement, surgery, control and awakening, etc., death rate in many countries of the world is still very high and data available about real and direct causes of deaths is very defective and undependable.

Differential Mortality

Death rate in all the countries of the world is not the same. In some countries, it is low, while in others it is medium; and still in others it is very high. Not only this, but in a country itself death rates among different sections of society are not the same. It is because some sections of society can enjoy better medical facilities as compared with the others. Some of the mortality differences are those discriminating between (a) the times of peace and war; (b) different social classes within a nation; (c) developed and less developed nations; and (d) current national levels compared to previous levels in those nations. Needless to say that wars very much influence mortality and death rate. In the words of David M. Heer, 'Nations usually exhibit important differences in mortality according to social class... Mortality differences among nations are still substantial despite to social range in mortality level among

the nations is considerably less now than it was prior to world War –II.’ The same authority is of the view that in the very recent part, mortality rates have apparently established in many countries.

Differences in mortality rates also occur due to socio-economic reasons. Those nations which are socio-economically advanced, their death rate is bound to be low, because the people in such societies are economically so well off that they can get properly engaged in different professions. Those who are engaged in vocations where no risks are involved, usually the chances of death are less as compared with other people who are employed in risky vocations. The demographers have also observed that the marital status also influences death rate. The difference is found not only in one age group but among the people of all the groups. One argument which can be advanced in this regard is that the married people can take better and more care of their health than the unmarried ones. In fact there are many environmental influences on the death rate and it is interesting to study each.

Environmental Influences on Death Rates

There are environmental influences which create mortality differential. Some brief reference has already been made about these but these need some detailed discussions. Some such influences are as follows:

- 1. Community or Residence:** Death rate is considerably influenced by urban or rural residence. If rural areas lack medical facilities, these have the advantage of natural air, open and wide accommodation, good and nutritive diet and so on. If the cities have medical care, and facilities and the people know about health care rules, there is a problem of air and water pollution, congestion, road accidents, etc. While discussing city conditions, Thompson and Lewis say, ‘The almost complete lack of sanitary measures in nearly all cities until near the end of the 19th century and the crowding of great majority of city dwellers in hovels with no windows, bordering on streets where one could almost touch the structures on both sides by stretching out his arms and where the sewages and drinking water ran down the same open gutters, ensured contagion and infection almost perfectly.’ But in spite of all this death rate in the village almost everywhere has always been higher as compared with the urban areas because in the rural areas there are superstitions and almost non-existent medical facilities.
- 2. Marital Status and Mortality:** As pointed out above, the marital status very much affects death rates and in it both men and women are equally involved. It has been observed that married couples live longer lives as compared with widowed women and men, as well as those whose decide to live a secluded or isolated life. Thompson and Lewis have given many reasons for this differential rate. According to them, ‘Marriage is selective as regards both physical constitution and social adaptability.’ According to them those who are either physically or mentally or otherwise unhealthy are

NOTES

NOTES

bound to avoid marriage and as such being sickly they are sure to live a shorter life. In addition, persons both male and female, who for various reasons have low social adaptability and who do not get on well with other people may be more likely to remain single.' According to them, 'The divorced very obviously have been unable to make a satisfactory adjustment in marriage and inability thus indicated may possibly be associated, both as cause and effect, with physical weakness.'

3. Occupation and Mortality: In a country or region the people belonging to different occupations do not have same but different mortality rates. This is because:

- (a) Type of an occupation may be detrimental to health e.g. underground mining work;
- (b) Physical surrounding may not be good e.g. there may be areas which are marshy and breed mosquitoes, spreading malaria.
- (c) There can be occupations which involve a lot of hard work but low wages. e.g., a labourer involved in construction work does really hard work but with less wages, thereby effecting his family standard.
- (d) Occupation may need to suit taste, temperament, etc., of the persons engaged in it, particularly in countries where there is no occupational mobility.

How the occupation influences mortality rate is evident from a study carried out by Lewis and Thompson about the United States in which persons from different occupations of the age group 25 to 59 years were covered.

Table 9.2 Death Rate by Occupation for Men Ages 25 to 59 years in United States 1960

Occupations	Standard Mortality Ratio	Death Rate in the Age Groups				
		22-29	30-34	35-44	45-54	55-59
All Occupations	100	194.3	239.2	436.7	1094.0	2004.7
1. Technical and Kindered Children	85	120.8	150.2	324.9	973.0	1900.6
2. Managers and officials	86	132.6	157.0	337.4	954.1	1900.0
3. Clerical	83	132.2	157.3	334.8	961.4	1821.1
4. Craftsmen	96	166.4	209.0	406.7	1033.4	2105.2
5. Sales Workers	94	110.9	170.0	366.2	1110.1	2177.4
6. Operatives	97	190.9	233.5	430.6	1058.1	1936.3
7. Private Household Worker	54	108.8	328.3	235.3	612.2	915.7
8. Service Worker	127	219.9	305.9	594.1	1471.8	2398.4
9. Labours	176	409.0	546.8	917.1	1093.6	2928.9
10. Farmers	96	286.9	312.0	5	995.5	1862.6

From the table given above it becomes clear that death rate in all the occupations is not the same and it varies from occupation in the same country over the same span of time.

- 4. Cleanliness and Mortality:** Cleanliness also results in differential mortality. For quite some time it was not realized that unhygienic conditions effect mortality, but today the effect of cleanliness is fully well realized and appreciated. Thus those who live in neat and clean environments and atmosphere are less prone to death as compared with those who habitually live in a dirty atmosphere. Several surveys conducted have established that those living in jhuggies and shanties under unhygienic conditions die earlier than their counterparts in cleaner environments.

NOTES

Indirect Standardisation

Earlier we have mentioned the direct standardisation of adjusted death rate or the standardised death rate. Then there are also indirect standardization death rates. For this first of all the standardized death rate is decided along with the population, then the population of a particular territory and also its death rate is accepted and thereafter an Index death rate for the local population is calculated with the help of following formula:

$$\text{Index death rate of local population: } E \frac{P_L \times DS}{\sum PL}$$

P_L = Local population for various age groups.

DS = Age specific death rates take as standard.

In this it is essential to find out crude death rate of standard population; which is done with the help of following formula:

$$\frac{\sum D}{\sum P} \times 1000.$$

This also needs correction factors.

$$\text{Correction factor} = \frac{\text{CDR of standard population}}{\text{Index death rate of local people}}$$

$$\text{Or } F = \frac{\sum (P_s \times D_s)}{\sum P_s} - \frac{\sum (PL \times DS)}{\sum PL}$$

$$\text{SDRL} = \text{CDRL} \times \text{correction factor.}$$

$$\text{CDR} = \frac{\sum (P_s \times D_s)}{\sum P_s}$$

NOTES

9.3.1 Infant and Child Mortality

Let us begin with a discussion on infant mortality.

Infant Mortality

One of the serious problems of our society is the problem of infant mortality, about which mention has already been made. How much a society has advanced depends on the extent to which infant mortality has been checked and controlled. In some societies, the rate of infant mortality is very high whereas in others it is low, but there is no society which is free from this. In fact, the pressure of death is maximum on infants. It decreases thereafter but again becomes very strong on the persons who attain the age of 55 or above. This rate can be found out with the help of the following formula:

$$\text{IMR} = \frac{d_o}{\text{Births}} \times 1000$$

d_o = number of children who die before completing early years of their life.

Birth = Number of live children in the same year.

Table 9.3 Ranking of 10 Countries with Lowest Infant mortality Rates

Country	Child deaths in the first year of Life per 1,000 Live births	Year
Monaco	1.8	2017
Japan	2.0	2017
Iceland	2.1	2017
Singapore	2.4	2017
Norway	2.5	2017
Finland	2.5	2017
Bermuda	2.5	2017
Sweden	2.6	2017
Czech Republic	2.6	2017
Hong Kong	2.7	2017

Infant mortality rates in the countries of the world very radically differ. Whereas in some countries this rate is very high in other it is very low as will be seen from the table given below:

Table 9.4 Table Showing Infant Mortality Rate for Various Countries

Name of the Country	Year	Death of infants per 1000
India	2016	34
Pakistan	2017	48.8
Singapore	2015	1.96
Sri Lanka	2015	7.45
USA	2017	5.8
France	2015	4.58
UK	2015	3.8
Japan	2018	1.96

Table 9.5: India State-wise Infant Mortality Rate IMR (Per 1000 Live births)*Life Expectancy and
Mortality*

S.No.	State/UT	2016	2011	2001
1.	Andhra Pradesh	34	43	66
2.	Arunachal Pradesh	36	23	7
3.	Assam	44	55	74
4.	Bihar	38	44	62
5.	Chhattisgarh	39	48	77
6.	Delhi	18	28	25
7.	Goa	8	11	14
8.	Gujarat	30	41	60
9.	Haryana	33	44	66
10.	Himachal Pradesh	25	38	43
11.	Jammu & Kashmir	24	41	48
12.	Jharkhand	29	37	62
13.	Kerala	10	12	11
14.	Madhya Pradesh	47	59	86
15.	Maharashtra	19	25	45
16.	Manipur	11	11	10
17.	Meghalaya	37	52	51
18.	Mizoram	27	34	18
19.	Nagaland	12	21	-
20.	Odisha	44	57	91
21.	Punjab	21	30	52
22.	Rajasthan	41	52	80
23.	Sikkim	16	26	29
24.	Tamil Nadu	17	22	49
25.	Telangana	31	-	-
26.	Tripura	24	29	35
27.	Uttar Pradesh	43	57	83
28.	Uttarakhand	38	36	48
29.	West Bengal	25	32	51
India		34	44	66

NOTES

Infant mortality rate in developed countries has been declining on an average between 14 to 16% per year.

There are several factors responsible for infant mortality, both biological and socio-economic. It has been found that low level of infant mortality is associated with low level of general mortality. The level of mortality is always high in the first few hours, days and weeks. The former is called neo-natal mortality whereas the latter as post neo-natal mortality.

Socio-economic and cultural factors also responsible for mortality rate especially during post neo-natal period. These include epidemics caused by

NOTES

diseases, faulty feeding system, poor hygiene, crowding and congestion, lack of sunshine, death of fresh air, etc. Illegitimacy is an important contributory factor in so far as infant mortality rates concerned. It has been found that in countries where infant mortality rates are very low, a higher preparation of infant deaths occur during the neo-natal stage, because being developed they have successfully eliminated environment factors responsible for such deaths.

Child Mortality

Child mortality refers to the death of children under the age of 14 and encompasses neonatal mortality, under-5 mortality, and mortality of children aged 5–14. Many child deaths go unreported for a variety of reasons, including lack of death registration and lack of data on child migrants. In recent times, the decrease of child mortality rates is reflected in several of the UN's Sustainable Development Goals. Rapid progress has resulted in a substantial decline in preventable child deaths since 1990, with the global under-5 mortality rate declining by over half between 1990 and 2016. While in 1990, 12.6 million children under age five died, in 2016 that number fell to 5.6 million children. However, despite advances, there are still 15,000 under-five deaths per day from largely preventable causes.

Check Your Progress

1. Define crude death rate.
2. How does marital status effect mortality?
3. What is child mortality?

9.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Crude death rate may be defined as the ratio of the number of deaths which occur within a given population during a specified years, to the size of death population at midyear.
2. Marital status very much effects death rates and in it both men and women are equally involved. It has been observed that married couples live longer lives as compared with widowed women and men, as well as those whose decide to live a secluded or isolated life.
3. Child mortality refers to the death of children under the age of 14 and encompasses neonatal mortality, under-5 mortality, and mortality of children aged 5–14.

9.5 SUMMARY

- Life expectancy of a nation indicates its development and growth. It has also been said that it also indicates the extent of its modernisation and living standard.
- Mortality affects and influences both fertility as well as birth rate. It is one factor which is responsible for influencing the health of the mothers and puts a strain on the national medical and sanitary resources.
- The British demographer John Graunt can be called a pioneer in the field. He began to collect, analyse as well as classify information and data about death. He brought out a book in 1662, entitled, *Natural and political observation mentioned in the following index and made upon the Bills of Mortality*.
- According to the WHO, 'All live born infants should be registered and counted as such irrespective of the period of gestation and if they die at any time following s birth they should also be registered and counted as deaths'.
- In every country it is fully well realized that there is a dire need for the analysis of mortality statistics, which are collected with great labour.
- In every society infants are the most victims of death, due to several reasons.
- Deaths can occur due to any reason e.g., on account of prolonged illness, brief illness, accident, malnutrition, food poisoning etc.
- Every society is quite keen that it should know the cause of death so that it can apply necessary checks.
- How much a society has advanced depends on the extent to which infant mortality has been checked and controlled.

NOTES

9.6 KEY WORDS

- **Mortality:** It refers to the number of deaths within a particular society and within a particular period of time
- **Infant Mortality:** It is simply the number of infant deaths in a single year out of every 1,000 live births that year.
- **Marital Status:** It refers to one's situation with regard to whether one is single, married, separated, divorced, or widowed.

9.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Write a short-note on life expectancy.
2. Illustrate how to calculate the crude death rate.
3. Discuss how to calculate the infant mortality rate.

NOTES

Long-Answer Questions

1. Discuss the history of collecting the data on deaths.
2. What are the sources of mortality data? What are its limitations?
3. Examine the environmental influences on the death rate.

9.8 FURTHER READINGS

Louise, Lassaonde. 1997. *Coping with Population Challenges*. London: Earthscan.

Weeks, John R. 1977. *Population: An Introduction to Concepts and Issues*. Belmont, California: Wadsworth.

Bhande Asha and Tara Kaitkar. 2015. *Principles of Population Studies*. New Delhi: Himalayan Publishing House.

Heer, David M. 1975. *Society and Population*. New Jersey: Prentice Hall.

Hawthorn, Geoffrey. *The Sociology of Fertility*. London: Macmillan.

Gould William, Marshall Allan, Norman Paul, and Clare Holdsworth. 2013. *Population and Society*. London: Sage Publications.

UNIT 10 CAUSES OF DEATHS, MORTALITY AND MORBIDITY

*Causes of Deaths, Mortality
and Morbidity*

NOTES

Structure

- 10.0 Introduction
- 10.1 Objectives
- 10.2 Causes of Death: Life and Working Years Lost
 - 10.2.1 Morbidity and Mortality
- 10.3 Answers to Check Your Progress Questions
- 10.4 Summary
- 10.5 Key Words
- 10.6 Self Assessment Questions and Exercises
- 10.7 Further Readings

10.0 INTRODUCTION

The previous unit introduced you to the concept of mortality, as well as infant mortality and child mortality. In this unit, the discussion on mortality will continue. The unit will discuss the causes of death in detail. The unit will then discuss morbidity. Morbidity refers to the rate of disease in a population. The final section will discuss the relationship between mortality and morbidity.

10.1 OBJECTIVES

After going through this unit, you will be able to:

- Discuss the various phases of death
- Explain the concept of morbidity

10.2 CAUSES OF DEATH: LIFE AND WORKING YEARS LOST

Medically, deaths can be divided into two phase namely, (i) neo-natal phase and (ii) post neo- natal phase. In the first phase only such deaths are covered that take place from the birth of the child till he has reached the age of 4 months. In the second phase, the period of 4-12 months is covered. It is this second phase which is more critical in the life of child. It is because during the first phase every care is taken for the same child from environmental pollution and the baby is dependent on breast feeding which is very healthy. The chances of catching

NOTES

diseases by the children are very remote. All attempts are being made, both in the developed and developing countries, to check post neo-natal deaths. The chances of death in neo-natal period, however, increase when there is premature or similar other type of birth. Neo-natal death rate in almost every country has remained the same. If there have been any changes there have taken place in respect of neo-natal deaths. But as has already been pointed out in previous unit, the data about infant mortality in respect of both the phases is incomplete. This is because:

- (a) In some societies it is considered undesirable to register the death of a child who has died soon after, or even after some time of the birth.
- (b) In some societies there is no system of registering birth of a child till the baby has reached a particular age. If the child dies during this period, there is no question of registration.
- (c) Cases of abortion, particularly illegal abortions, are not registered in almost all societies.
- (d) In some societies registration of death is not possible due to religious taboos.
- (e) In some cases there are no on the spot facilities to register infant deaths and thus the people, particularly in the rural areas, do not take the trouble of registering death of child.

Causes for High Infant Mortality

All over the world infant mortality is very high. Obviously a question which arises is as to why this rate remains so high. Some of the important reasons can be:

- (i) The cause can be related to birth, which includes lack of medical facilities; incompetence of nurse attending on the child/mother; congenital defects; mal-transformation; immature birth etc.
- (ii) The cause can also be related to outside factors, etc., exposure to cold or heat; illiteracy of parents resulting in the negligence of children; air or pollution; poverty and ill-nourishment and nutrition etc.
- (iii) The mothers can be ignorant and may not realize the need of medical care, after the birth of child.
- (iv) In some families where the number of children, particularly of the same sex, may be quite high and an additional child may not be much cared.

There were several causes responsible for high mortality rate in the past. These included:

- (i) There were frequent famines which resulted in serious food shortages. There were also no adequate storage facilities and even if food in one region was available it could not be timely transported to regions where there was food shortage. There used to be conditions of serious malnutrition and one could easily fall a prey to any infection.

- (ii) Epidemics and spread of communicable diseases used to take a heavy toll on life.
- (iii) One more cause responsible for high infant mortality used to be recurrent wars, which were responsible for high mortality rate in the past.
- (iv) Then another cause responsible for high mortality rate in the past was poor sanitation facilities. The houses were not properly well ventilated, environments were filthy, personal hygiene was very poor and there was serious lack of medical facilities.

Causes of Deaths, Mortality and Morbidity

NOTES

Maternal Mortality Rate

Before proceeding further, it is worthwhile to discuss in brief about maternal mortality rate. Many women die prematurely. This death rate differs according to age group. The rate of maternal mortality in so far as after the birth of the child is concerned can be found out by first finding out the number of deaths which occur among the females of child bearing age from child birth during a given year and pertaining to a given area and dividing that by the number of live births during a given year and pertaining to a given area and dividing that by the number of live births according among the female population of that area during the same period. Maternal mortality rate is considered to be high in the countries where:

- (i) The women are illiterate;
- (ii) The death of the women is not very much cared for;
- (iii) The orthodoxy has deep roots;
- (iv) Interval between the birth of two children is rather less;
- (v) There are no medical facilities or if at all there are there, there are quite inadequate;
- (vi) Pregnant women cannot be provided with nutritive food.
- (vii) There are no medical facilities or if at all there are there, there are quite inadequate.
- (viii) The system of child marriage prevails.

Since in some of the societies every death case is required to be reported to the local authorities, therefore, data available about deaths in this regard is quite dependable. But again it is difficult to find out the real causes of death, though prima facie the death might have occurred due to the birth of the child.

Crude Death Rates

Like crude birth rates figures have also been collected about crude death rates, as shown in the table given below.

These are based on the data collected by UNO:

Table 10.1 Table Showing Crude Death Rate

NOTES	Region	Crude Death Rate (Deaths per 1000 population)	
		1950-55	1985-90
	Total world	18.8	9.8
	More developed regions	10.1	9.8
	Less developed regions	23.3	9.8
	Africa	26.7	14.7
	Latin America	144.4	7.4
	North America	9.4	8.7
	East America	20.1	46.7
	South Asia	25.2	39.1
	Europe	10.9	10.7
	Oceania	12.4	8.1
	Australia and New Zealand	9.4	9.8
	Malasia	28.1	36.1
	U.S.S.R.	9.2	10.6
	Sri Lanka	12.0	5.8
	Singapore	11.0	6.6

10.2.1 Morbidity and Mortality

Mortality is a stage at which person ceases to live but in morbidity the person is actually alive but this state of mind is such that he is not in a position to perform any solid mental or physical work. If health is understood as state of complete physical, mental and social wellbeing, morbidity is a situation in which one of the above conditions must be essentially missing. In a state of morbidity a person can be deformed, deficient, mentally depressed and so on. Since, in some cases, the diseases or trouble can be diagnosed after a very long time, therefore, the whole affair becomes complex and complicated.

How to Find Morbidity?

A question now arises as to how morbidity should be found. Of course a simple method is to contact either such a person himself or his doctors or persons attending on him, who can speak on his behalf, but there are other methods as well. These include both survey and record methods. The survey method can be both a large survey as well as a small survey. In a survey, an area is picked up and in that efforts are made to find out the type of sickness, system of treatment, number of sick persons and other related information. In some cases, only the head of the family is contacted and from him all information about family is collected. When the surveyor visits the locality once and tries to get all information, this is called single visit survey. But when the some families are visited at periodical intervals and information is again collected and compared that is called periodical visit survey.

A survey can be conducted by the government, governmental financed bodies as well as private bodies. Since surveys are costly and time consuming, therefore, large scale surveys are conducted by government bodies whereas private agencies carry only small scale surveys. Many governmental maintain records about sick persons.

Life Tables

In finding out the mortality rate, life tables play a very big role. In the words of David M. Heer, these provide the most complete picture of mortality in a given population. Life tables help in finding out the average death or birth rate of a society and as such are extensively used by those who are engaged in life insurance. In the words of Thompson and Lewis, 'Such information could be used to calculate the premium any individual as a member of group would need to pay in order to make it possible to guarantee each member of this group a specified sum of money at a given age or his heirs a specified sum upon his death. Since with the help of life tables it becomes possible to know the expected age of a persons in society. It becomes easy for the insurance people to fix rates of premium. In the words of Bogue, 'The life tables is a mathematical model that portrays mortality conditions at a time among a population and provides a basis for measuring longevity.' Such a table is constructed on the basis rate of death. These tables also help in preparing and determining average life expectancy, based on age specific mortality trends. It is possible to compare national and international rates of mortality. These have proved useful for making hypothetical model of population and studying crude death and migration rates. In practice this was done by Lotka A.J. (1925), Coal A. J. and Glass DV. For marriage analysis, life tables were used by Graunt and Makeham.

There are two types of life tables that can be constructed. One of these is timed as period life tables, which according to David M. Heer, 'Summarizes the age sex specific mortality conditions pertaining in a given year or other short time period. The second type of life table is called a cohort or generation life table, which summaries the age sex specific mortality experience of a given birth cohort (a group of persons all born at the same time) for their lifetime and thus a time period of many calendar years.' The life tables help provide the following information:

- (a) The probability of death rate during the year for those persons entering and exact age, $x(q\ x)$;
- (b) The number of deaths occurring between exact age x and exact age $x + 1$ ($d\ x$);
- (c) The number of survivors to exact age x ($l\ x$);
- (d) The number of years of life lived by the Cohort between exact age x and exact age $x + 1$ (lx);

NOTES

NOTES

(e) The total years of life lived by the Cohort from age \times to the end of the human life span (Tx);

Col. 1. This column indicates the grouping of ages between the two dates of birth. In Col. 1 in this case of the age difference is of 5 yrs. In a good and very accurate life table the age difference should be only one year. In other words, the life table should start from zero (0) and end with maximum age which the people in that society attain.

Col. 2. This column indicates the number of deaths per thousand of those who were alive at the beginning of the age group but died by the end of that age group e.g., in the age 1-5 in Col. 2 the figure is 0.0042 which also means $0.0042 \times 1000 = 42$, which means that the number of bodies who were alive at the age of one but died before the age of 5 was 42.

Col. 3. Column III indicates the number of people who lived throughout the age group, out of the total population of 100,000 of that group. In this total in column III the figure given under age group 1-5 is 97,221, which means that, 97,221 lived whereas 2779 died in that period.

Col. 4. It indicates the number of persons who died under each age group from the Table we can conclude that in the age group 0 to 1, as many as 2779 persons died, whereas the number of dead in the age group 1 to 5 was 407.

Col. 5. This column is prepared on the basis that in a particular death rate, if the number of children increases by one lakh, then in a country in a particular group, what will be the number of persons e.g., according to this table in the age group 1 to 5, the number of such persons will be 387,914.

Col. 6. It helps in finding out the number of persons who live in a country belonging to a particular age group. According to the Table, the total number of persons, whether male or female who had completed the age of 5 years was 6,587, 486.

Col. 7. The figures in this column are obtained by dividing the figure in column 6 by those of the figure in column 3. In this column the figures indicate the age which the people belonging to particular age group are expected to live. Column 7 in the table in respect of children of age group 1-5 indicates 67.8, i.e., the children of this group can hope to live upto age of 67.8 years.

Table 10.2 Abridged Life Table for Male Population, United States: 1964

Causes of Deaths, Mortality
and Morbidity

Proportion dying of 100,000 to Born Alive				Stationery Population		Average Remaining Life Times
Age Internal (x to x+m)	Proportion of persons alive at the beginning of age internal dying during internal nqx	Number living at the begining of age internal (lx)	Number dying duing age internal (ndx)	In the age Internal (nlx)	In this and all othe rsub- sequent age intervals (Tx)	Average Number of years of life of remaining at the begining of age in levels (e.x)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
0-1	0.0278	100,000	2779	97,572	6,685,013	66.9
1-5	0.0042	97,221	407	3,87,914	6,587,486	67.8
5-10	0.0026	96,864	249	4,83,405	6,192,572	64.0
10-15	0.0026	96,565	254	4,82,268	5,716,167	59.2
15-20	0.0062	96,311	637	4,80,110	5,233,899	54.3
20-25	0.0092	95,674	877	4,76,205	4,753,789	49.7
25-30	0.0090	94,797	850	4,71,855	4,274,584	45.1
30-35	0.0107	93,497	1010	4,67,312	3,805,729	40.5
35-40	0.0149	92,937	1386	4,61,453	3,338,417	35.9

NOTES

Social Effects of Societal Differences in Mortality

Mortality everywhere effects and influences social systems. In the past, the mortality rate was very high but in most of the societies now it has been brought down. According to David M. Heer, ‘A seeming direct consequence of the reduction in frequency of bereavement is a decline in the institution of mourning.... However, at present, neither the bereaved nor the circles of his acquaintances know quite how to act towards the others, and in fact, a common reaction is to try to deny the very existence of the bereavement.’

Bringing down the rate of mortality has resulted in change in the character of religion. In a society where mortality rate is very high there is a desire on the part of the people to meet their near and dear ones after death and as such they have religion and have faith in that. On the other hand, when rate of mortality is high and the people can live for a long time with their friends and relatives in this world, their whole attitude towards religion very rapidly changes and becomes altogether different.

Mortality rate also effects the family structure. To quote David M. Heer again, ‘When there is a large probability of early widowhood and it is hazardous for a nuclear family, i.e., a married couple and its children to isolate itself too far from its kinship family group. This is because the death of either father or the

NOTES

mother would make it very difficult for the orphaned children to receive proper rearing or support. Thus, in high mortality societies we commonly see the nuclear family strongly dependent on some larger kin group.' But when mortality rate is very low, there may not be that much charm for living near relatives because there is no danger of either of the kin or of the friends soon meeting the end of their life.

Then another effect of mortality towards society is difference in orientation towards time. When mortality is high, by and large, the people have weaker orientation towards the future and stronger towards present than when mortality is low. Another factor worth considering is that when mortality rate is high, parents hesitate to make sacrifices for future development and growth of children, because they are not certain, if their labour will in any way be rewarded, as the chances of children living up to maturity age are remote.

Mortality also obviously effects and influences fertility. Where mortality rate is high, fertility is bound to be higher because families would like to compensate the future death of children by adding more so that there will be more surviving children in the family. In this way mortality influences every aspect of social life. It is very essential that mortality data should be very carefully collected so that the nation is fully well aware and conscious of the rate at which the society is progressing or deteriorating in so far as health conditions and living standards of the people are concerned.

Check Your Progress

1. What are the two phases of death?
2. Where is the maternal mortality rate high?

10.3 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Medically, deaths can be divided into two phase namely, (i) neo-natal phase and (ii) post neo- natal phase.
2. Maternal mortality rate is considered to be high in the countries where:
 - (i) The women are illiterate;
 - (ii) The death of the women is not very much cared for;
 - (iii) The orthodoxy has deep roots;
 - (iv) Interval between the birth of two children is rather less;

10.4 SUMMARY

- Medically, deaths can be divided into two phase namely, (i) neo-natal phase and (ii) post neo- natal phase.
- In the first phase only such deaths are covered that take place from the birth of the child till he has reached the age of 4 months. In the second phase, the period of 4-12 months is covered. It is this second phase which is more critical in the life of child.
- Mortality is a stage at which person ceases to live but in morbidity the person is actually alive but this state of mind is such that he is not in a position to perform any solid mental or physical work.
- If health is understood as state of complete physical, mental and social wellbeing, morbidity is a situation in which one of the above conditions must be essentially missing.
- In finding out the mortality rate, life tables play a very big role. In the words of David M. Heer, these provide the most complete picture of mortality in a given population.

Causes of Deaths, Mortality and Morbidity

NOTES

10.5 KEY WORDS

- **Morbidity:** It refers to having a disease or a symptom of disease, or to the amount of disease within a population.
- **Maternal Mortality Rate:** It is the number of maternal deaths (direct and indirect) in a given period per 100,000 women of reproductive age during the same time period.

10.6 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Write a short-note on the maternal mortality rate.
2. How does one find morbidity in a given area?
3. What are the social effects of societal differences in mortality?

Long-Answer Questions

1. Examine the causes of high infant mortality.
2. What are life tables? What is its importance?

10.7 FURTHER READINGS

Louise, Lassaonde. 1997. *Coping with Population Challenges*. London:

Weeks, John R. 1977. *Population: An Introduction to Concepts and Issues*. Belmont, California: Wadsworth.

NOTES

Bhande Asha and Tara Kaitkar. 2015. *Principles of Population Studies*. New Delhi: Himalayan Publishing House.

Heer, David M. 1975. *Society and Population*. New Jersey: Prentice Hall.

Hawthorn, Geoffrey. *The Sociology of Fertility*. London: Macmillan.

Gould William, Marshall Allan, Norman Paul, and Clare Holdsworth. 2013. *Population and Society*. London: Sage Publications.

BLOCK - IV

CONCEPTS OF MIGRATION, TYPES AND CAUSES OF MIGRATION

NOTES

UNIT 11 THE CONCEPT OF MIGRATION

Structure

- 11.0 Introduction
- 11.1 Objectives
- 11.2 Migration: An Overview
 - 11.2.1 Types of Migration
- 11.3 Consequences of Migration
 - 11.3.1 Political Consequences of Migration
 - 11.3.2 Economic Consequences of Migration
 - 11.3.3 Social Consequences of Migration
- 11.4 Answers to Check Your Progress Questions
- 11.5 Summary
- 11.6 Key Words
- 11.7 Self Assessment Questions and Exercises
- 11.8 Further Readings

11.0 INTRODUCTION

Migration of population is an international phenomenon. The people used to migrate in the past as well but these days there is an increasing trend of migration of people from under-developed to developed countries resulting in brain drain. Usually qualified, competent and healthy people migrate in search of jobs and for improving their life career. The age of migration is usually youth when there is over zealotness to work hard. Male migrants are always more in numbers than the females.

There are, however, certain factors which encourage migration, while many others do not. In migration, social, economic and political factors combined together put a lot of pressure. In every country there are always laws and institutions which deal with migration, because large scale migration very much affects in several ways both the countries from which population migrates and to which it is migrated. In this unit, we will discuss a brief history of migration along with studying the types of migration and the political, economic and social consequences of migration.

NOTES

11.1 OBJECTIVES

After going through this unit, you will be able to:

- Discuss the concept of migration
- Explain the types of migration

11.2 MIGRATION: AN OVERVIEW

In this section, we will discuss the concept of migration by learning about its historical background and motivations.

Historical Background

Since the records of pre-historic periods are not available therefore it cannot be said with authenticity what the pre-historic migratory movements were and whether migration was on a large or small scale. But it is sure and certain that the people even in the pre-historic days used to migrate from one part of the country to the other and even from one country to another. In the words of Lewis and Thompson, 'Three factors probably determined in large measure the pre-historic distribution of population in the world: (1) the nature of the physical environment, (2) the techniques and tools the had developed to make use of the resources found in its particular environment; and (3) the social organization of group'. Early migrations thus would have been influenced by climate, fertility of the soil and flora and fauna of environments. It can be conjectured that there must have been quite different types of migrations at different times and in different regions. It also appears that during pre-historic times since river valleys had better transport facilities, therefore, the people felt attracted to migrate to places which were near river or lake valleys.

War and Migration: It also appears that tribal and local wars were highly influential in determining the directions of population dispersion. Due to war, when potential migrants were killed, the process of migration became very slow and thus the settlements in new areas. In the ancient past, migration of Aryans to India was due to war. Similarly, the invasion of Attila into Central Europe by the middle of 5th century A.D. and that of Chinggis Khan in Europe proved very detrimental to the cause of migration because many potential migrants were killed in these wars. As regards Roman conquests, Thompson and Lewis say, 'Whether Roman settlement directly affected the wider distribution of population in Europe is not known. However, it seems more likely to have increased the density of population in the areas of settlement than to have led soon to the settlement of the new areas'. In the whole process of migration, the people moved as a member of small kinship group. It was very rarely that members of non-kinship moved from one place for settlement to another.

Motives for Migration

At all times, the most important factor which motivated people to migrate were economic factors. The people migrated and continue to migrate either to have

better living either for themselves or their families. The weaker groups in the past also their families. The weaker groups in the past also migrated in order to escape annihilation. Sometimes the people migrate due to their desire to escape persecution which could be either due to political or religious or any other reason. Some people migrate as they cannot tolerate a particular political or economic system or dictatorial regime of a dictator. But amongst all the most important reason that has been the economic one and that continues to be so even today. The number of person who migrates on account of political or other reasons is not very high. Quite a large number of people seek migration to affluent European countries and oil rich Arab countries in search of wealth and making money. They accept in some cases not very high and prestigious posts to have some entry in the country of their choice for migration.

NOTES

Peterson's Views about Migration

According to Peterson, migration can be primitive, when it is due to maladjustment e.g. due to change in environments of migrations which took place in the primitive societies when the people were nomads and did not lead a settled life. Then there are those migrants who leave the place due to compelling circumstance e.g. those who are in a position and authority do not tolerate a group of persons or section of society and create environments by which they are forced to leave e.g. the Jews under Hitler's regime. Then there is free migration, in which the people are free to migrate in the way they like. They leave the place of their original settlement on their own due to some motivation and try to settle down at some other place of their choice.

Characteristics of Modern Migration

Modern migration has its own characteristics. In the past, migration was simply on individualistic or family basis and nothing beyond that. The State then did not in any way assist the migrants. The people usually migrated for economic gains, sometimes due to their desire to visit and work in new land also prompted their migration.

But as the time passed, in some parts of the world, states also took interest in the migration process. These States were interested in setting up new colonies e.g. British colonies in North America, also often encouraged emigration by giving various forms of aid mainly large grants of land to those who decided to settle either as actual entrepreneurs or as actual emigrants. England deported many criminals in its settlements to get rid of them. The people gradually began to migrate to new areas where more opportunities were available provided cultural and climate conditions of the area did not hinder migration process. As regards present international migratory trends, Thompson and Lewis say, 'It is not misrepresenting the nature of modern international migration to say that never in the history of the world had a great migratory movement carried with it so little of adherence to traditions and customs, never had the individual found so easy a way to break the

NOTES

bonds, binding him to family and community by moving to a new land, leaving behind his past and embarking on a new career. The individual and family character of modern international migration prior to the rise of the recent authoritarian government is its most distinguishing feature’.

11.2.1 Types of Migration

The various kinds of migration depend on the flow and number of people often involved, the reasons for their movement, the time they spend in migration, and the nature of that migration. Here are a few forms:

- (1) **Intercontinental Migration:** It is when the movement is across continents, such as from Korea to Brazil. If the movement is on the same continent, is known as intracontinental migration. Sometimes, people migrate from one place to the other within the same region, continent or country. This is also known as regional migration or internal migration.
- (2) **Rural-Urban Migration:** This involves the movement of people from rural areas or countryside urban areas of the same country in search of new opportunities.
- (3) **Forced or Involuntary Migration:** This is when the government or authorities of a place force to migrate for a reason.
- (4) **Impelled Migration :** This is also known as reluctant or imposed migration. In this type of migration, no one is forced to migrate but due to some push factors such as war, hunger and other difficult conditions, people decide to leave.
- (5) **Seasonal Migration:** Sometimes people move during specific season such as crop harvesting and climate to work and then go back when season is over.
- (6) **Return Migration :** This involves the voluntary return of migrants to their original place after they outline the seasons for which they left. Often times, young people who move the cities to work return home when they retire to spend the rest of their lives in the quiet of their towns and with friends and family.
- (7) **Long and Short-Term Migration:** People may consider migrating for good if the condition of their home is over that is threatening. E.g. people move for better health care if they have same disease that requires same level of attention that can only be received at another place. On the other hand, it may be temporal in nature, e.g., a person may study at another place, but may decide to stay and work for many years before going back for food.
- (8) **Illegal Migration:** Every nation, country or colony often has rules and laws that control and regulate people who come in from other countries. Migration becomes illegal if people do not have the permission of the country or borders they are entering into.

- (9) **Undocumented Migration:** In this type of migration, there are people who live in a place without permission and the authorities have no record of them. It also includes people who visit a country for tourism or education or health purposes legally, but do not go back. This means that even though they went there legally, they become illegal immigrants because they have overstayed the time period they were provided. In a similar way, immigrants who have expired documents or who came in with fake documents all fall under undocumented migration.
- (10) **International Migration:** When movement of people happens to cross international borders then it is called international migration. Earlier people used to move freely across the borders because there was no demarcation. This demarcation became a restrictive force in free movement of people. Even then people have migrated from our country and settled permanently in other country.
- (11) **Inter-state Migration:** A phenomenon in which people migrate from one province to another is known as inter-state migration. This type of migration is very common throughout the world because of favourable laws. All countries in the world have allowed their citizens to move, work and settle from one state to another within the country. Inter-state migration is very common in India among Punjabis, Kashmiris and Rajasthanis.
- (12) **Local Migration:** When people move to a place within a short distance, it is called local migration. It is of various types i.e. inter-village, inter-district and intra-district. This type of migration is preferred by majority of people as they remain aware of the living conditions and job opportunities of the place of destination.
- (13) **Rural-rural Migration:** When people move from one rural area to another rural area, it is known as rural-rural migration. This type of migration usually occurs in developing countries because in these countries either most of the people live in rural area or there is unbalanced distribution of resources. People here prefer to move to places which are agriculturally more developed.
- (14) **Urban-urban Migration:** It can be defined as movement of people from one urban area to another urban area. Here people move from smaller urbanized towns to major urban centers. At times their drift is caused because of transfer and posting also.
- (15) **Urban-Rural Migration:** When people move from urban cities to rural areas then that phenomenon is known as Urban-rural migration. This is not common practice. This happens when people get disgusted with the industrial and very busy schedule of urban life and want to move in search of peace.
- (16) **Pendulum Migration:** When people move daily or weekly from place of residence to place of work study, it is known as pendulum type of migration.

NOTES

According to the above mentioned definition, it is clear that people who move daily from place of origin to place of destination, do not intend to settle for a very short period also. So, they can be referred as commuters rather than migrants.

NOTES

11.3 CONSEQUENCES OF MIGRATION

In this section, we will discuss the different consequences of migration with regards to its political, social and economic consequences.

11.3.1 Political Consequences of Migration

The political consequences of migration, can be understood through its effect on the country of origin and on the host country:

(A) On the Country of Origin

- Policies to encourage natural increase can be developed
- Policies to encourage immigration to counteract outflow
- Requests for International aid

(B) On the Host Country

- Discrimination against ethnic groups and minorities which can lead to civil unrest and extremism
- Calls for control on immigration
- Entrenchment of attitudes which may encourage fundamentalism or any other political belief which is contrary to the one prevalent in the country originally

11.3.2 Economic Consequences of Migration

The economic consequences of migration, can be understood through its effect on the country of origin and on the host country:

(A) On the Host Country

Positive

- Migrants take up less desirable, menial jobs which natives would not take but need filling
- The host country can gain skilled labour for cheap
- There is a labour surplus: those with skills and education fuel the economy
- The 'skill gap' in many host countries can be filled by migrants
- Costs of retirement can be transferred to the country of origin

Negatives

- Migrant children must be educated, they would not necessarily speak the native language of the host country
- There is an over dependency in some industries on migrant labour, leading to a lack of jobs for the people native to the host country
- Much of money earned by the migrants is not spent in the host country and is instead sent back to the country of origin
- More people increase the pressure on resources and services such as health care systems

NOTES**(B) On the Country of Origin****Positives**

- The area benefits from remittances sent home.
- Upon return, migrants bring new skills to country such as fluency in foreign languages. These new skills can help to improve the economy in the country of origin.
- There is less pressure on resources such as food and social services such as health care.

Negatives

- Loss of younger work force; those with skills and those with entrepreneurial talents move, slowing economic development.
- Loss of labour may reduce inward investment by private companies, increasing dependencies on government initiatives.

11.3.3 Social Consequences of Migration

The social consequences of migration, can be understood through its effect on the country of origin and on the host country:

(A) On the Host Country**Positives**

- The creation of multiethnic society increases understanding and tolerance of other cultures.
- There is an influx of new or revitalized services.
- People from other countries can encourage the learning of new languages, helping people develop skills for working internationally.

NOTES

Negatives

- The dominance of males is reinforced especially in cultures where women already have a low status.
- Aspects of cultural identity are lost, especially in second generation children.
- Segregated ethnic areas are created.

(B) On the Country of Origin

Positives

- Population density is reduced and birth rate falls as it is the younger population who migrates. This can help in easing out overpopulation.
- Remittances sent home by economic migrants can be used to finance improved education and health services.
- Returning migrants increase social expectancy for communities e.g. increasing demand for better leisure facilities.

Negatives

- Marriage rates fall and small structures break down as men migrate producing a generation of single mums.
- Lots of young people migrating out of the country can increase the dependency ratio.
- Returning retired migrants may increase social costs as the community as support mechanisms are not in place for them.
- Migration of men and young families can cause a loss of cultural leadership and tradition.

Check Your Progress

1. Give examples of migration in the ancient past which happened due to war.
2. Why does the rural-rural migration happen mostly in developing countries?
3. What are the political consequences of migration on the host country?

11.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Some examples of migration in the ancient past which happened due to war include migration of Aryans to India, the invasion of Attila into Central Europe by the middle of 5th century A.D. and that of Chinggis Khan in Europe.

2. The rural-rural type of migration usually occurs in developing countries because in these countries either most of the people live in rural area or there is unbalanced distribution of resources.
3. The political consequences of the migration on the host country include:
 - Discrimination against ethnic groups and minorities which can lead to civil unrest and extremism
 - Calls for control on immigration
 - Entrenchment of attitudes which may encourage fundamentalism or any other political belief which is contrary to the one prevalent in the country originally

NOTES

11.5 SUMMARY

- Migration of population is an international phenomenon. The people used to migrate in the past as well but these days there is an increasing trend of migration of people from under-developed to developed countries resulting in brain drain.
- Since the records of pre-historic periods are not available therefore it cannot be said with authenticity what the pre-historic migratory movements were and whether migration was on a large or small scale. But it is sure and certain that the people even in the pre-historic days used to migrate from one part of the country to the other and even from one country to another.
- Early migrations thus would have been influenced by climate, fertility of the soil and flora and fauna of environments. It also appears that there must have been quite different types of migrations at different times and in different regions. It also appears that during pre-historic times since river valleys had better transport facilities, therefore, the people felt attracted to migrate to places which were near river or lake valleys.
- It appears that tribal and local wars were highly influential in determining the directions of population dispersion. Due to war, when potential migrants were killed, the process of migration became very slow and thus the settlements in new areas.
- In the whole process of migration, the people moved as a member of small kinship group. It was very rarely that members of non-kinship moved from one place for settlement to another.
- At all times, the most important factor which motivated people to migrate were economic factors. The people migrated and continue to migrate either to have better living either for themselves or their families. The weaker groups in the past also their families.

NOTES

- The weaker groups in the past also migrated in order to escape annihilation. Sometimes the people migrate due to their desire to escape persecution which could be either due to political or religious or any other reason. Some people migrate as they cannot tolerate a particular political or economic system or dictatorial regime of a dictator. But amongst all the most important reason that has been the economic one and that continues to be so even today.
- According to Peterson, migration can be primitive, when it is due to maladjustment e.g. due to change in environments of migrations which took place in the primitive societies when the people were nomads and did not lead a settled life.
- The various kinds of migration depend on the flow and number of people often involved, the reasons for their movement, the time they spend in migration, and the nature of that migration. Some of the types of migrations are: impelled migration, rural to urban, political, forced, illegal, undocumented, pendulum, local migrations, etc.
- The political, social and economic factors have different consequences both positive and negative on the host country and the country of origin.

11.6 KEY WORDS

- **Impelled Migration:** This is also known as reluctant or imposed migration. In this type of migration, no one is forced to migrate but due to some push factors such as war, hunger and other difficult conditions, people decide to leave.
- **Pendulum Migration:** When people move daily or weekly from place of residence to place of work study, it is known as pendulum type of migration.
- **Return Migration:** This involves the voluntary return of migrants to their original place after they outline the seasons for which they left.

11.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. What are the factors which probably determined in large measure the pre-historic distribution of population in the world as per Lewis and Thompson?
2. Give a brief historical on the development of migration.
3. Write a short note on how war and migration are related.
4. What are the characteristics of modern migration?

5. List the political consequences of migration on the country of origin and the host country.

The Concept of Migration

Long-Answer Questions

1. Discuss the different types of migration.
2. Describe the economic consequence of migration.
3. What are the social consequences of migration on the host country and the country of origin? Mention both the positive and negative consequences.

NOTES

11.8 FURTHER READINGS

- Bhende, Asha A. and Tara Kanitkar. 1994. *Principles of Population Studies, Sixth Edition*. Mumbai: Himalaya Publishing House.
- Heer, David M. 1987. *Society and Population, Second Edition*. Delhi: Prentice-Hall India.
- Raj, Hans. 1984. *Fundamentals of Demography (Population Studies with Special Reference to India), Third Edition*. Delhi: Surjeet Publications.
- Kumarasena, Harsha. 2004. *Population Education*. Delhi: Dominant Publishers and Distributors.

NOTES

UNIT 12 MIGRATION CONCEPTS AND THEORIES

Structure

- 12.0 Introduction
- 12.1 Objectives
- 12.2 Basic Concepts of Migration
- 12.3 Theories of Migration
- 12.4 Answers to Check Your Progress Questions
- 12.5 Summary
- 12.6 Key Words
- 12.7 Self Assessment Questions and Exercises
- 12.8 Further Readings

12.0 INTRODUCTION

In the previous unit, you learnt about the concept of migration including the discussion on the meaning, types, causes and consequences. But the discussion about migration as a concept is taken even further, it is important that the basics of migration is clear. The most primary categorization within the idea of migration is in the form of immigration and emigration. The definition of these along with in-migration and out-migrations are discussed in this unit. Several authors and researchers have theorized on migration and it is crucial to study these theories to be updated with the different perspectives. In this unit, you will learn Ravenstein's laws of migration.

12.1 OBJECTIVES

After going through this unit, you will be able to:

- Discuss the migrant concepts
- Describe the theories of migration—Ravenstein's law of migration

12.2 BASIC CONCEPTS OF MIGRATION

India as a nation has seen a high migration rate in recent years. About 98 million people migrated from one place to another in the 1990s, the highest for any decade since independence according to the 2001 census details. However, in 1970, migration was slowing down. The number of migrants during 1991-2001 increased by about 22% over the previous decade on increase since 1951. As per Census 2011 data, the number of migrants going by the place of last residence in the

country was 314.5 million in 2001. The figure has gone up to 453.6 million in 2011 which shows an increase of 139 million. This is against the figure of 82 million migrants added during 1991-2001, implying that the decadal increase in migration has gone up from 35.5% during 1991-01 to 44.2% in 2001-11.

Apart from marriage, employment is the biggest reason the migration. The number of jobseekers among all migrants has increased.

Migrants have created pressure on others who are in some job market. While freedom to migrate within the country is an enshrined right; the uneven development, levels of desperation and other factors have created friction points. Most people migrate because of a combination of push and pull factors. Lack of rural employment, fragmentation of land holdings and declining public investment in agriculture create a crisis for rural Indians. Urban areas and some rural areas with industrial development or high agricultural production offer better prospects for jobs or self-employment.

1951-61	66
1961-71	68.2
1971-81	81
1981-91	80.9
1991-2001	98.3

A 2017 article on the World Economic Forum's website, 'India has 139 million internal migrants. They must not be forgotten' notes:

The Economic Survey of India 2017 estimates that the magnitude of inter-state migration in India was close to 9 million annually between 2011 and 2016, while Census 2011 pegs the total number of internal migrants in the country (accounting for inter- and intra-state movement) at a staggering 139 million. Uttar Pradesh and Bihar are the biggest source states, followed closely by Madhya Pradesh, Punjab, Rajasthan, Uttarakhand, Jammu and Kashmir and West Bengal; the major destination states are Delhi, Maharashtra, Tamil Nadu, Gujarat, Andhra Pradesh and Kerala.

It is important here to discuss two very crucial components of migration:

In-migration: In-migration is the process of people moving to a new area in their country to live there permanently. People in-migrate for better opportunities such as more job growth, better cost of living, warmer or cooler weather or lower taxes.

Out-migration: Out-migration is the process of people moving out of an area in their country to move to another area in their country permanently. Out-migration is the process to move or settle into a different part of one's country or home territory.

Related to these concepts are the terms immigrants and emigrants.

NOTES

Let's learn a little bit about them:

Immigrants

NOTES

Immigration is the international movement of people into a destination country of which they are not natives or where they do not possess citizenship in order to settle or reside there, especially as permanent residents or naturalized citizens, or to take up employment as a migrant worker or temporarily as a foreign worker.

Immigration is when people move from other places into a place to settle. Such migrants are called Immigrants.

Immigrants from India are becoming increasingly common at the U.S. borders. Additionally, Indians are becoming the fifth-largest group after immigrants from Mexico, Honduras, Guatemala and El Salvador. Worldwide, as per UN's 'International Migration Report 2017', 'India is now the country with the largest number of people living outside the country's borders ("diaspora")'.

India has been receiving large numbers of immigrants mostly from the neighbouring countries of South Asia and some from other parts of world, and hence it also needs to be seen as a major immigration country.

Emigrants

Emigration is the act of leaving a resident country or place of residence with the intent to settle elsewhere. Emigrant is the person who leaves their own country in order to settle permanently in another. Emigrant is used in reference to the country that has been left.

Emigration is the relocation of people from one country to another. People emigrate for many reasons including increasing one's chance of employment or improving quality of life. Emigration affects the economies of the countries involved in both positive and negative ways, depending on the current state of the respective countries' economies.

When people leave a country, they lower the nation's labour force and consumer spending. If the country they are leaving has an oversaturation of the labour force, this can result in the positive effect of reducing the unemployment rates or the other hand, the countries receiving the emigrant tend to benefit from more available workers, who will contribute to the economy by spending money. Most countries heavily regulate the number of people emigrating to the country and create strict rules and protocols for emigration.

When people emigrate to a new country, they pay taxes to the new country based on earnings and other factors. They also pay sales tax on purchases when applicable. Those people may also qualify for social services provided by that country, such as education for dependent children, universal health care and other services, depending on the country. Each country needs to ensure new tax revenues match the additional expenses for social services provided to the emigrants and their families.

When a large number of emigrants enter the job market in a new country, there is an effect on the available number of jobs and the amount of wages one can ask for a particular job. The new country must have enough job openings to support emigration without damaging the chances of the nature-born labour force finding employment. Additionally, if an emigrant takes a job for a lower wage than typically offered to the native labour force, it can lower wages for both emigrants and the native population.

The Immigration and Naturalization Act serves as the basis for emigration into the United States and allows for 675,000 permanent immigrants yearly. The country also provides emigration status to a certain number of refugees separate from this number. When choosing emigrants, the United States examines things such as family ties and unique job. Qualifications and creating diversification within the country. The goal of this Act is to protect the American-economy by making positive additions to the workforce and maintaining a healthy job market for American citizens.

In India, the Citizenship Act, 1955 regulates who may acquire Indian citizenship and on what grounds. A person may become an Indian citizen if they are born in India or have Indian parentage or have resided in the country over a period of time, etc. However, illegal migrants are prohibited from acquiring Indian citizenship. An illegal migrant is a foreigner who: (i) enters the country without valid travel documents, like a passport and visa, or (ii) enters with valid documents, but stays beyond the permitted time period. The 1955 Act allows a person to apply for citizenship by naturalisation if he meets certain qualifications. One of these is that the person must have resided in India or served the central government for a certain period of time: (i) for the 12 months immediately preceding the application for citizenship, and (ii) for 11 of the 14 years preceding the 12-month period. For people belonging to the same six religions and three countries, the Bill relaxes the 11-year requirement to six years. The Citizenship (Amendment) Bill, 2016 was introduced in Lok Sabha on July 19, 2016 to amend the Citizenship Act, 1955. It seeks to make illegal migrants belonging to the same six religions and three countries eligible for citizenship.

12.3 THEORIES OF MIGRATION

One of the most important aspect of social science is 'Human Migration'. It has maintained a close relation with mankind from its earliest stage. Although migration phenomena have been studied by social scientists, thinkers, reformers and other from the very beginning of human civilization, the theoretical and empirical knowledge of migration has not developed to a considerable extent. That is why, even today this study needs migration theories, laws and models taking into consideration as its spatial and temporal variations. Unlike physical laws, migration laws cannot be made rigid. Some hypothesis have been developed by social

NOTES

NOTES

scientists and scholars, they have formulated a few theories and laws and have also suggested migration models. It was in 19th century that theories concerning migration flow and other processes related appeared. There were three eminent scholars of population who made important contribution to population theory and analysis, they were: Robert Malthus (1756-1834), William Fair (1807-83) and Ernest George Ravenstein (1834-1931). Among these Malthus was the grand theorist, Fair was the statistical demographic and public health reformer and Ravenstein was inductive empiricist. In this unit, we will discuss Ravenstein's Laws of Migration.

Ravenstein's Laws of Migration

Ernst Georg Ravenstein was the empiricist who formulated laws concerning migration stream. According to him, 'the laws of population and economic laws generally have not be rigidly of physical laws.' Most important statements of Ravenstein that appeared as laws or hypothesis of migration as follows:

- Most of the migrants move only a short distance. Because of this drift, near by areas are only affected and not far off places. Long distance shift is characterized by a special case like a specialized job, technical education, etc.
- The direction of migration is from agricultural to industrial areas. Rural and Urban areas are specialized in different economic activities. Rural areas are dominated by the primary sectors whereas Urban areas are specialized in secondary and tertiary occupations and because of this reason these two areas have distinct socio-economic conditions.
- Most of the long distance migration is due to the major industrial and commercial centres. Because major industrial and commercial establishments need skilled labour and professionals, since they are not available locally, these persons travel from distant places.
- Migration occurs in a series of stages. A group of people residing very near to the developed area will enter into it and thus the gap created by them at rural area will be filled by people from more remote areas.
- Females are more migratory over short distances than males. There is predominance of males over long distance migration. Families rarely migrate over long distances.
- Internal migration is predominated by females whereas males dominate international migration.

Many scholars are of the view that Ravenstein's statements are not universally applicable. For example: He emphasized on predominance of short distance migration but now-a-days because of the development of the transport facilities, long distance migration is being encouraged. Again, he stressed upon the fact that migration increases with the development of industries and commerce, but this

relationship is not linear. Despite of all these criticisms, Ravenstein's laws of migration have proved to be of considerable stimulus because he has given simple statements about migration, the types of migrants, where they come from and where they go to.

Check Your Progress

1. State the biggest reason for migration apart from marriage.
2. Who is more migratory over short distances, as per Ravenstein?

NOTES

12.4 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Apart from marriage, employment is the biggest reason for migration.
2. As per Ravenstein, females are more migratory over short distances than males.

12.5 SUMMARY

- India as a nation has seen a high migration rate in recent years. Apart from marriage, employment is the biggest reason the migration.
- Migrants have created pressure on others who are in some job market. While freedom to migrate within the country is an enshrined right the uneven development, levels of desperation and other factors have created friction points. Most people migrate because of a combination of push and pull factors. Lack of rural employment, fragmentation of land holdings and declining public investment in agriculture create a crisis for rural Indians. Urban areas and some rural areas with industrial development or high agricultural production offer better prospects for jobs or self-employment.
- In-migration is the process of people moving to a new area in their country to live there permanently.
- Out-migration is the process of people moving out of an area in their country to move to another area in their country permanently.
- Immigration is the international movement of people into a destination country of which they are not natives or where they do not possess citizenship in order to settle or reside there, especially as permanent residents or naturalized citizens, or to take up employment as a migrant worker or temporarily as a foreign worker.
- Emigration is the act of leaving a resident country or place of residence with the intent to settle elsewhere.

NOTES

- One of the most important aspect of Social Science is ‘Human Migration’. It has maintained a close relation with mankind from its earliest stage. Although migration phenomena have been studied by social scientists, thinkers, reformers and other from the very beginning of human civilization, the theoretical and empirical knowledge of migration has not developed to a considerable extent. That is why, even today this study needs migration theories, laws and models taking into consideration as its spatial and temporal variations.
- There were three eminent scholars of population who made important contribution to population theory and analysis, they were: Robert Malthus (1756-1834), William Fair (1807-83) and Ernest George Ravenstein (1834-1931). Among these Malthus was the grand theorist, Fair was the statistical demographic and public health reformer and Ravenstein was inductive empiricist.
- According to Ravenstein, ‘the laws of population and economic laws generally have not be rigidly of physical laws.’ Many scholars are of the view that Ravenstein’s statements are not universally applicable.

12.6 KEY WORDS

- **Naturalized Citizens:** The admittance of a foreigner to the citizenship of a country is known as naturalized citizens.
- **Oversaturation of the Labour Force:** It refers to the situation where there is excess or over-availability of workers in a certain position or occupation.
- **Migration Stream:** It refers to a group of migrants having a common origin and destination.

12.7 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. What are the reasons for people in-migrating?
2. What are the factors which create a crisis for rural Indians and forces them to migrate?
3. What happens when a large number of emigrants enter the job market in a new country?

Long-Answer Questions

Migration Concepts and
Theories

1. Describe the concepts of in-migration, out-migration, immigrants and emigrants.
2. Discuss the main thrust of Ravenstein's theory of migration and its reception.

NOTES

12.8 FURTHER READINGS

Bhende, Asha A. and Tara Kanitkar. 1994. *Principles of Population Studies, Sixth Edition*. Mumbai: Himalaya Publishing House.

Heer, David M. 1987. *Society and Population, Second Edition*. Delhi: Prentice-Hall India.

Raj, Hans. 1984. *Fundamentals of Demography (Population Studies with Special Reference to India), Third Edition*. Delhi: Surjeet Publications.

Kumarasena, Harsha. 2004. *Population Education*. Delhi: Dominant Publishers and Distributors.

Website:

<https://www.weforum.org/agenda/2017/10/india-has-139-million-internal-migrants-we-must-not-forget-them/>

NOTES

UNIT 13 SOCIAL PROCESS OF MIGRATION AND INTERNATIONAL MIGRATION

Structure

- 13.0 Introduction
- 13.1 Objectives
- 13.2 Measurement and Factors Affecting Migration
 - 13.2.1 Internal Migration
- 13.3 Everett Lee's Perspectives Push-Pull Theory
- 13.4 Social Process of Migration and International Migration
 - 13.4.1 Social Process of Migration
 - 13.4.2 International Migration
- 13.5 Answers to Check Your Progress Questions
- 13.6 Summary
- 13.7 Key Words
- 13.8 Self Assessment Questions and Exercises
- 13.9 Further Readings

13.0 INTRODUCTION

In the previous unit, you learnt about the concept of migration. As discussed, migration refers to the movement of people to a new area or country in order to find work or better living conditions. Human migrations have been taking place since time immemorial. The first human migrations took place from Africa 60,000 years ago; since then, migrations have not stopped. Everett Lee is of the view that many a time decisions taken about migration are not rational and are based on emotions, though in a large number of cases such decisions are well thought out and planned. The migration process is linked and connected with several factors, for example, where a person lives at present, where he wants to migrate, what are the problems he will confront in between leaving the ancestral place and migrating to the place of final settlement, and what will be peculiar problems which the persons concerned anticipates in his own case, and so on. These problems will of course be different from one person to the other. Lee has formulated several hypotheses. One such hypotheses is related to the volume of migration. According to Lee, the volume of migration will change with the climate of area, diversity of people, intervening variables, economic conditions and changes which the territory witnesses and progress being made by that country. In his second phase, Lee discuss about the streams of migration. In Lee's views, there are well defined

streams of migration and for these streams there are counter streams as well. He believed, there is close relationship between streams and counter streams.

Lee is also of the view that the decision to migrate is never purely rational and all migrants do not migrate as a result of their own decision. When, in the migrating decision, the views of the family and children are weighed, he has called in sequential decision.

Lee's Hypotheses about Factors of Migration

According to Lee, one hypothesis is the volume of migration. According to him, in a given territory, migration varies with the degree of area included in that territory, diversity of the people, difficulties involved in intervening variables, fluctuations in the economy of that area and extent of progress being made by the area. His another hypothesis is that migration is usually contained to well defined streams and with every major stream some more counter streams also develops. Efficiency of both stream and counter stream tends to be low if the place of origin and destination are almost similar. This efficiency however, varies with the economic conditions of the destination. This unit will discuss the measurement of migration, the push pull theories of migration, the social process of migration, as well as international migration.

NOTES

13.1 OBJECTIVES

After going through this unit, you will be able to:

- Discuss the push and pull factors of migration
- Examine Everett Lee's views on migration
- Explain the phenomenon of international migration

13.2 MEASUREMENT AND FACTORS AFFECTING MIGRATION

Measurement of migration is not an easy problem because it involves definition and clear understanding of such terms as 'usual place of residence', 'the place of origin' and 'place of destination'. Then migration can be internal as well as external. Then another consideration is that while measuring migration, whether the total number of movers during a given time period should be measured or merely the change in the place of residence, if any, from the beginning till the end of the period should be measured.

Direct Measurement

Measurements of population can be both direct as well as indirect. Direct measurement relates to all measure which help in keeping an accounts of those

NOTES

who migrate. These can be both transit statistics as well as census statistics. Both these can be found out with the help of following measures:

- (1) **Territorial Scope:** A person can become a migrant when he leaves territorial jurisdictions of a state, district or even a village. In other words, migration is related to some boundary. Migration can be both within the country as well as out of it. It is, however, not essential that internal migration involves less whereas international migration involves more distance. It can be vice versa also.
- (2) **Gross and Net Numbers of Migrants:** Transit data is closely linked with time which tells about immigrants and emigrants. The difference between the two gives information about net migration. According to Barclay, 'The effects of mortality are always deducted in advance, the migrants recorded by the census are people who both entered the area and survived to these census data.'
- (3) **Duration of Stay:** All those people who cross the border cannot be called migrants but only those person can be called migrants who remain there for quite some time. So far, however, no period has been fixed in this regard but all that is believed is that the duration should be very long.
- (4) **Simple Move Migration:** When a person leaves his place for some destination and reaches there at one stage it is called single move migration. But sometimes people do not settle at single stage. It is then called migration by stages. When census operations are conducted usually there is no consideration whether it was single move migration or not.
- (5) **Indirect Measurement-**As against direct measurement, there is also indirect measurement of migration. It is done with the help of following formula :

$$M = (p_2 - p_1) - (B - D)$$

where,

M = Migration

p_2 = Population of the year after expected year

p_1 = Population of the year before expected year

B = Births in the expected year

D = Deaths in the expected year

There is another method of measuring migrations as well. Under this, age specific birth and death rates are found out and then the population is calculated. Then actual population in that year is also found out and difference is calculated. This difference is called the migration effect.

The Rates of Migration

There can be a crude rate of migration to a sub area which is found out by dividing the number of migrants during the year by the mid-year population of the total

area. Then comes the rate of out migration of a given place of origin during a given year. It is commonly found out by dividing the number of out migrants from that place by mid-year population of place of origin. Thereafter, comes the rate of in migration to a given place of destination. It is done by dividing the number of in migrants by the mid-year population of place of destination. Then comes 'Net Migration Rate'. It is the ratio of net number of migrants to and from the place, divided by its population at mid-year. With the help of requisite data it is possible to produce migration data for cohorts.

It is not easy to find out uniform trends in migration because migration vary from nation to nation. But in our recent times migration has been from the East to the West. It is because The West has become more industrialized and in the U.S.A. one of the most significant migration stream has been and still continues to be from the east to the west. Then another significant stream of net migration within the United States has northward and westward movement of African-Americans.

Migration and Population Pressure: There has been a population explosion in most of the underdeveloped and developing countries without much effective checks, in spite of the fact that these nations are encouraging family planning programmes. On the other hand, industrially advanced countries of the world have been in a position to considerably control their population growth process. A question which has widely been debated and discussed is whether international migration can help easing population pressure and if so to what extent.

Positive and Negative Value of Migration: Migration has both positive and negative values. The first positive value of course is the prospect of a better job. This has almost been the main cause and motivation of migration. Inter-migrations sometimes occurs for reasons of favourable climate and marriage and these have proved important inducements for migration.

Consequences of Migration

Each migration takes place with some expectations. In some cases these might not materialise while in others these may fully or partially materialise. When there is frustration in expectation, the result can be either moving back to the place of origin or migration to some other place.

David M. Heer is of the view that, 'Generally, areas of net in migration will have a rather high proportion of young adults. They will many times will also have a rather heterogeneous and unconforming population. Since in migrants often came from diverse cultural backgrounds. For all these reasons and more areas of net in migration often are more tolerant of new ideas than any other types of areas.'

Differential Migration

Differential migration is studied by comparing the characteristics of migration with those who do not migrate but continue to stay at the place of origin. Such a study is made in age-sex pattern of migrants, as the changes in the age-sex structure of

NOTES

NOTES

migrants and non-migrants can affect the crude death and birth rates labour force, etc. Similarly, it helps in studying adjustments and assimilation process of migrants.

It has also been found that the educational level of migrants is lower as compared to non-migrants at the place of destination. It has also been observed that educational attainment of women migrants who had urban background was slightly higher than that of non-migrant wives and also better than of migrant wives with a rural background.

Factors Affecting Migrations

No one will ordinarily like to leave the place of his birth, friends as well as kin unless that is absolutely necessary. Yet people from all parts of the world migrate from one place to the other. The only difference is that in some countries the rate of migration is high whereas in other it is low. What effects migration, for this not one but many causes are responsible. If at one place or at one point of time one cause becomes more important, at another point of time some other point assumes special significance. Sometimes many factors combined together also compel a person to migrate. Some of the important factors which are usually responsible for migration are briefly be discussed as follows:

- (1) **Economic factors:** Economic factors are the most important factors in so far as migration is concerned. People leave their place, district, state or even country of birth in search of having better economic opportunities. Usually people residing in hill areas migrate to plains only in search of livelihood. Similarly, people go from the East to the West to earn money for themselves and for their families. It is because the West is more industrialised and needs manpower of all kinds. In the wold of Thompson and Lewis, 'It is merely a recognition of the fact that far and away the most important cause of migration during the great emigration from Europe was the desire to improve economic status.' Another economic factor responsible for migration is low per acre yields from agriculture, which does not provide sufficient livelihood to the masses. This becomes more important in an agricultural society. Even in India, some states which have uncultivated surplus land invite people from states which have less land 'to come and settle' and cultivate the land. Of course the people who migrate for getting land always see to it that they are provided with sufficient water and other facilities for cultivated land. In areas where famines frequently occur, people will like to leave that and migrate to areas where they do not suffer from the pangs of famine.
- (2) **Geographical factors:** Geographical factors considerably help in the migration process. People migrate to places where there is better climate or where minerals are found in abundance. Similarly, people do not wish to live at places where the chances of floods, fires and earthquakes are quite frequent. People wish to settle or migrate to places which are comparatively safe and climatically attractive.

(3) Social factors: There are social factors responsible for migration as well.

The people leave the place or country of their origin where social barriers are very rigid and do not allow proper development. Similarly, when social restrictions are rather unbearable people leave the society. They also migrate to remain away from family friends and disputed family life or to end their unhappy married life.

In social life, adjustment also plays very big role. The educated and awakened raise their voice against social evil. They are resisted by the old orthodox community and when young people find that they are not adjusting to the orthodox atmosphere, they decide to migrate.

(4) Demographic factors: Demographic factors also a long way in deciding in favour of migration. The people from such areas where density of population is more, wish to migrate to areas where it is less. Similarly they wish to migrate to the areas where people of their standard and status live. Some people migrate to the areas where male specific birth rate is high and vice-versa. In countries where death rate is high as compared with the birth rate, obviously male population will be tempted to migrate as chances of employment are bound to be there.

(5) Political factors: Political issues are also important for migration. People migrate and seek asylum to other countries when they find that they are suffering persecution from the political institutions and systems of their country. Some people do not tolerate totalitarian regimes or dictatorships and leave their countries to raise protest against the system. In some cases, people leave their country when there is fear of war or disturbances breaking out at any point of time or when the government of the day has failed to check inflation, price rise or maintain security and law and order. Similarly, a government's policy of discrimination towards a particular community can also result in the migration of the people belonging to that community.

(6) Religious factors: The people migrate to new places where there is religious intolerance and those in position do not allow other than their own religions to function. Similarly in some cases the people migrate to religious places where they find the religion of their belief is being followed. In the words of Thompson and Lewis, 'the motive leading to migration have probably varied but little in general character from age to age. The economic motive has probably been dominant at all times, although not of equal importance in all particular movements.'

(7) Industrialisation: Industrialisation results both in local as well as outward migration. Regions which get industrialised receive many migrants who leave their native home to permanently settle down in newly rising industrial towns and cities. This happens also in the same country. For example, people migrated to Rourekela and Bokaro steel towns, when these come into existence. New industrial towns attract both skilled, semi-skilled workers

NOTES

and moneyed people for making investments. In many cases even agricultural workers leave their ancestral lands to find some employment in industrially advanced towns and cities.

NOTES

Determinants of Migration

Of course, the people have been migrating from one place to another since times past. There is no time in world history in which there was no migration. But there are many factors which stand in the way of people's migration from one place to other. Some such factors which create hurdles in the way of migration include:

- 1. Distance of destination:** If the distance of destination from the place of origin is long then the prospective migrants may not feel tempted to migrate. The fear always is that coming back will be costly and also there will be less chances of meeting kin and family members.
- 2. Religion, culture and social customs:** Usually the people do not wish to migrate to places where social customs, religion attitude and cultural heritage is so different that it is almost impossible to adjust. The preference, therefore, always is to migrate to a place of similar social religion and culture heritage.
- 3. Attachment to the nature and place of work:** Sometimes people become so much emotionally attached to their place and nature of work that they do not wish to migrate to any other place knowing fully well that such a migration is bound to result in many benefits to them. Such sentimental attachment also stands as a way of migration.
- 4. Travelling expenses:** It also becomes a hindrance on the way of migration. Some people may like to migrate but knowing the cost of travel they hesitate to incur expenditure and decide to remain where they are. Thus, less the travelling expenses more inducement for migration.
- 5. Migration laws:** One important factor in the way of migration is that in some countries the laws of migration are so strict that it becomes most impossible to migrate.
- 6. Maintaining double establishments:** This particularly happens when those who are migrating are not in a position to wind up their establishment. They may not be sure of their future at the new place or may not have sufficient accommodation for the whole family, which is considered as a great hindrance.
- 7. Social condemnation:** In a country like India a migrating person may be socially condemned for leaving behind aged and old parents or other dependents.
- 8. Discouragement by receiving country:** People from some countries may be willing to leave their country but the receiving country may not be willing to receive them due to their own problems.

13.2.1 Internal Migration

For various reasons the people migrate from one place to the other for one reason or the other and distance covered can be both long and short. When movement is causal it does involve permanent change of residence and is different from migration. In brief, it may be said that it is very difficult to measure mobility, particularly internal mobility about which scant data is only available.

Sources of Data: Efforts are always made to have sufficient information about internal migration. This can be had mainly from the sources. First such source is the national census, in which a question can be asked directly about migration by putting some question as place of birth, place of last residence, duration of residence at the present place, etc. In the 1971 census, a question was asked the place of last usual residence.

Methods of measuring Internal Migration

Let us discuss the different methods of measuring internal migration.

1. Place of Birth

As already said there are two techniques of measuring internal migration namely, (a) direct and (b) indirect techniques. In the first category data obtained from the direct questions put on the migrants during the census is analysed. For estimating migration questions are asked about person's place of birth and with the help of information obtained population is classified as life time migrants or migrants and non-migrants. Life time migrants are those persons who are enumerated at a place which is different from the place where they were born whereas non-migrants are those who enumerated in the place where they are born. The place of birth statistics can also be used for measuring rural-urban migration.

This method has obvious advantages. It is a question which is easily understandable and there is no need of explaining it. It can be answered without much hesitation and information obtained is accurate and complete. But the difficulty is that in the rural areas the information about place of birth is provided by the head of family about all family members. In some cases, the head may not be exactly remember the birth place of all and thus the provided information may be incorrect. There is also a tendency to tell better known place in that area rather than exact small village where the person was born. Working information can also be provided because of boundary changes and artificial biases. Then another limitation is that it assumes a single movement directly from the place of birth that of enumeration but in many cases many persons do not directly move from the place of birth to the place of enumeration but through some other place they migrate.

Then another drawback of this method is that in this method it is assumed that all persons enumerated at these places of birth are non-migrant but it is not necessarily true because the persons may have moved out of these places of birth identify the interviewing period but may not have moved back to their places of

NOTES

NOTES

birth in time of enumeration. Exclusion of such return migrations is a serious weakness of their method about estimating migration. Then another limitation is that statistics do not give any idea about the timing of the movement of the person from his birth place to the place of enumeration. Because of all these limitations their method is to be used consciously.

2. Duration of Residence

Another method of direct estimation of internal migration is that of duration of residence. Those who have lived throughout their life at the place of enumeration are called non-migrants whereas in the category of migrants are those who have ever migrated, those who were born outside the area of enumeration and were born in the area of enumeration but lived for some time out of it. Thus, the basis for finding out migration is the duration of residence.

This method of estimation of migration has been found to be useful. In this approach time or years of move is the differentiating variable in contrast to the distance of the political boundary used in the place of birth approach.

One of the benefit of this method is that it takes into account the number of return migrants which are categorised as migrants according to duration of migration. It also provides an idea about trend of past migration.

But the difficulty is that many do not know exactly the duration of residence particularly when the information about the whole family is to be provided by an illiterate head of family. It has been found that percentage of persons about whom information is sought is higher for the females than the males.

3. Place of Last Residence

This method emphasizes finding out the place of last residence. The information is collected and categorised about those migrants whose place of last residence and present residence differs and non-migrants who have now moved outside the place of their birth. The data of place of last residence identifies all migrants and covers all persons who had migrated any time during their life.

The collected data can be used for measuring migration in exactly the same ways as data or the place of birth are used. It is very useful for analysis of migration when cross classified with the data on the duration of residence. It also reflects a direct movement from the place of origin to the place of destination.

In some countries a question about the residence on a specific date is included in the census questionnaire. The response received has been found useful in the study of migration interval. Not only this, but migration status can also be determined by a comparison of residence at two definite points of time. The information is also useful in analysing current migration and for computing the migration rate during a particular period. Moreover, the measurement of migration on the basis of residence at a fixed period data is simple and specific and as such is considered a satisfactory and useful measure for migration analysis.

Indirect Measures for Estimating Internal Migration

*Social Process of Migration
and International Migration*

In addition to direct methods of measuring internal migration there is indirect methods for the same as well. The estimates of net migration can be arrived at by subtracting the natural increases from the total population change. This can be found out with the help of following formula:

$$M = (P_1 - P_0) - (B - D)$$

Where, M stands for net migration.

P_0 stands for population at the other earlier census.

P_1 stands for population at later census.

B. Stand for population number of births in that area during the two censuses.

D stands for number of deaths in that area during the same period.

NOTES

Internal Migration and International Migration

When the people of the one country migrate from one place to another, without crossing the boundary of the state itself, it is called internal migration or in-migration. On the other hand, when the people of the one country leave their country of origin and migrate to another independent country, this is known as international or out-migration. There are certain factors which tempt a person to leave his home and settle down at another place. These factors are:

1. Leaving the place for higher education, after completing school education.
2. Negligible chances of marriage at the place of residence.
3. Some people migrate with a view of purchasing property at another place.
4. Non-consumption of supply of goods produced, because they are outdated or too costly in the area of origin but they are highly demanded in the outside market.
5. Desire for having a luxurious city life, which the glamour of the city to be migrated may provide.
6. Glamour of urban areas, their hustle/bustle and outward shows and allurements particularly in the case of educated rural youth and enterprising young men.
7. A job which requires touring.
8. Leaving the place for search of employment or for finding employment opportunity.
9. Such type of education which can provide a job outside the place where a person is permanently settled.
10. Such laws which force a person to leave their place of origin.
11. Social boycott of the person concerned by his relatives or neighbours.

NOTES

12. Desire for the children to live with their kin, who have settled down somewhere else.
13. Desire to start a new business at place where candidates seem to be very favourable and suitable.
14. Strike or lockout at the place of work and desire to have some alternative source of livelihood which may not be available at the same place.
15. To attend work or getting succession of the property of somebody else, which is located somewhere else.
16. Dismissal, resignation or otherwise due to leaving service or employment, where one has been working.
17. Invasion by outside forces forcing the natives to leave their native place.
18. Death of a child or any other person of the family.
19. Famine, earthquakes, floods etc.
20. Non-availability of cultivable land in the area where one is permanently settled and there is no alternative job for livelihood.
21. Due to joining of military services or a transferable job.
22. Due to political, religious and other intolerant reasons.
23. In a bid to save oneself from the clutches of law.
24. To have better climate for good health.

But before selecting a place for migration, usually care is taken to see that the cost of moving is not heavy and that friends and relatives are not far away. It is also seen that desired employment is available and that climate and physical situation of the place is very alternative. Care is also taken about the availability of educational facilities, recreational and health facilities. Other factors which are usually taken into consideration are:

- (a) What is the normal profession of the people and also what is their income status?
- (b) What are the chances of expansion of business of the migrant?
- (c) How far is the migrant conversant with the place proposed to be migrated?
- (d) How far is he known to the people of the place?
- (e) What are the chances of employment, settlement and education of the children?
- (f) Availability of transport facilities?

13.3 EVERETT LEE'S PERSPECTIVES PUSH-PULL THEORY

Many researches in internal migration are empirically oriented and contain only factual information about migration flows. Migration data is defective and demographers have paid attention only to methodological problems is so far as problems of measurement of internal migrations are concerned. That is the reason

NOTES

as to why majority of the studies on internal migration lack generalisation. Those who have tested to generalize internal migration phenomena have adopted two approaches. The first one is the push and pull approach. It is situation oriented and attempts to study condition which compel a person to move out of his place of origin and studies conditions and situation outside which attract a person. It starts with the idea that the starting point of migration is the study of characteristics of two places, namely place of origin and place of destination. Push factors include population pressure on the existing resource, exhaustion of natural resources, droughts floods, natural calamities, famines, socio-economic and religious conflicts, etc. Whereas pull factors include setting up of new industries, rapid industrialisation process, facilities of higher education, chances of gainful employment, security, no service, socio economic, religious conflicts etc. It has been found that about 70% of migrants from rural to urban areas were those who wanted to have better employment opportunities. It has also been found that about 43% of male migrants migrated along with their earning members and their household.

The theory has proved to be of great utility in finding out factors which affect migratory movements and phenomenon. But it does not lead to the development of any theory. The theory has also been criticised because in most cases migration is not because of either pull or push factor but as a result of combination of both. It also explains as to why under the same circumstances, same persons migrate and others do not migrate.

It can be said that to reduce the outflow of migrants from their place of origin, there must be a continuous institutional support by the concerned authorities for the people in rural areas. Until and unless there is an improvement in the rural poor's economic status and resources and agriculture becomes profitable and viable, there can be no stopping of migration to other regions in search of employment.

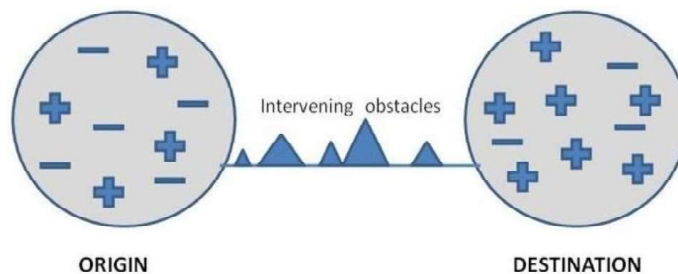


Fig. 13.1 Factors Affecting Spatial Mobility as per Everett Lee

Everett Lee proposed a comprehensive theory of migration in 1966. He begins his formulations with certain factors, which lead to spatial mobility of population in any area. These factors are:

1. Factors associated with place of destination,
2. Intervening obstacles, and
3. Personal factors.

NOTES

According to Lee, each place possesses a set of positive and negative factors. While positive factors are the circumstances that act to hold people within it, or attract people from other areas, negative factors tend to repel them. Negative factors are those that force the individual to move voluntarily, and in many cases, they are forced because the individual risks something if they stay. Push factors may include conflict, drought, famine or extreme religious activity.

Poor economic activity and lack of job opportunities are also push factors for migration. Other factors include race and discriminating cultures, Political intolerance and persecution of people who question the status quo.

Pull factors (Positive factors) are those factors in the destination country that attracts the individual or group to leave their home. Those factors are known as place utility, which is the desirability of a place that attracts people. Better economic opportunities, more jobs, and the promise of a better life often pull people into new locations.

In addition of these, there are factors which are neutral, and to which people are essentially indifferent. While some of these factors influence most of the people in the area, other tend to have differential effects. Migration in any area is the net result of the interplay between these factors.

Lee suggests that individuals involved in migration have near perfect assessment of factors in the place of origin due to their long association. However, the same is not necessarily true for that of the area of destination. There is always some element of ignorance and uncertainty with regard to reception of migrants in the new area.

Another important point is that the perceived difference between the areas of origin and destination is related to the stage of the lifecycle of an individual. A long association of an individual with a place may result in an over-evaluation of positive factors and under-evaluation of negative factors in the area of origin. At the same time, the perceived difficulties may lead to an inaccurate evaluation of positive and negative factors in the area of destination.

The final decision to move does not depend merely upon the balance of positive and negative factors at the places of origin and destination. The balance in favour of the move must be enough to overcome the natural inertia and intervening obstacles. Distance separating the places of origin and destination has been more frequently referred to in this context by authors, but according to Lee, distance while omnipresent, is by no means the most important factor. Furthermore, the effect of those intervening obstacles varies from individual to individual.

Apart from the factors associated with places of origin and destination, and the intervening obstacles, there are many personal factors, which promote or retard migration in any area. Some of these are more or less constant throughout the life span of an individual, while others tend to vary in effect with the stages in life cycle. It may be noted that the real situation prevailing at the places of origin and destination are not as important in affecting migration as individual's perception of these factors.

The process of perception depends on the personal factors like awareness, intelligence, contacts with the cultural milieu of the individual.

The decision to migrate is the next result of the interplay among all these factors. Lee pointed out that the decision to migrate is, however, never completely rational. It is also a matter of fact that not all persons who migrate do so on their own decision. Children and wives move with the family where their decision are not necessarily involved. After outlining the factors at origin and destination, and the intervening obstacles and personal factors, Lee moves on to formulate a set of hypotheses concerning the volume of migration, streams and counter streams, and the characteristics of migrants. With regard to the volume of migration, Lee proposed the following set of hypotheses:

- The volume of the migration within a given territory varies with the degree of diversity of the areas included in that territory.
- The volume of the migration varies with the diversity of the people in that territory.
- The volume of migration is related to the difficulty of surmounting the intervening obstacles. In other words, the more the intervening obstacles the less is the volume of migration.
- The volume of the migration varies with the fluctuation in the economy.
- Unless severe checks are imposed, both volume and rate of migration tend to increase over time.
- The rate and volume of migration vary with the state of progress in a country or area.

Likewise with respect to the development of streams and counter streams of migration, Lee suggested the following six hypotheses:

- Migration tends to take place largely within well-defined streams.
- For every major migration stream a counter stream develops.
- The efficiency of a stream is high if migration factors at the place of origin were more prominent in the development of stream.
- The efficiency of a stream and counter stream tend to be low if the origin and destination are similar.
- The efficiency of migration stream varies with the economic condition. In other words, it is high in the time of prosperity and vice-versa.

And finally, Lee outlined the following hypotheses relating to the characteristics of the migrants:

- Migration is selective in nature. Due to differences in personal factors, the conditions at the places of origin and destination, and intervening obstacles are responded differently by different individuals. The selection could be both positive and negative, it is positive when there is selection of migrants of high quality, and negative when the selection is of low quality.

NOTES

NOTES

- Migrants responding to positive factors at destination tend to be positively selected.
- Migrants responding to negative factors at origin tend to be negatively selected.
- Taking all migrants together selection tends to be bimodel.
- Degree of positive selection increases with the difficulty of intervening obstacles.
- The heightened prosperity to migrate at certain stages of life cycle is important in the selection of migration.
- The characteristics of migrants tend to be intermediate between the characteristics of populations at the places of origin and the place of the destination.

13.4 SOCIAL PROCESS OF MIGRATION AND INTERNATIONAL MIGRATION

In this section, we will first discuss the concept of the social process of migration and then discuss international migration as a concept.

13.4.1 Social Process of Migration

Social migration is the movement of people due to social reasons. Due to migration, multicultural societies have emerged as ethnic groups move into one country.

Generally people migrate for greater social opportunities and prosperity as their family members, friends and relative are already reside in that particular nation to take care of in any kind of trouble. The social problems of immigrants and migrants include:

- Poverty
- Acculturation
- Education
- Housing
- Employment
- Social functionality

Family problems of immigrants and migrants include:

- Leaving the support system of the extended family behind.
- Causing stress and financial difficulties if job search efforts are unsuccessful.
- Differing perceptions of the concepts of basic human rights, and
- Differing perceptions of the roles and responsibilities among family members.

Policy issue designed to address the needs of immigrants and migrants must be heavily weighted in favour of local control and administration. One approach of solving immigrants and migrants problems may be to provide direct services

through some form of education or intervention. Often the critical issues facing both the migrants and immigrants population to which one migrates are basic literacy and methods for achieving this goal in a constantly mobile population. Poverty among migrants and immigrants continuous to increase.

13.4.2 International Migration

International migration is a global phenomenon that is growing in scope, complexity and impact. Migration is both a cause and effect of broader development processes and an intrinsic feature of an ever globalizing world. While no substitute for development, migration can be a positive force for development when supported by the right set of policies. The rise in global mobility, the growing complexity of migratory patterns and its impact on countries, migrants families and communities house all contributed to the international community.

International migration refers to change of residence over national boundaries. An international migrants is someone who moves to a different country. International migrants are further classified as legal immigrants, illegal immigrants and refugees. Legal immigrants are those who move with the legal permission of the receiver nation, illegal immigrants are those who moved without legal permission and refugees are those who crossed an international boundary to escape persecution.

International migration occurs for many reasons. Many people leave their home countries in order to look for economic opportunities in another country. Others migrate to be with family members who have migrated or because of political conditions in their countries. Education is another reason for International migration as students prefer to ensure their studies abroad. While there are several different potential systems for categorising international migrants, one system organizes them into new group: temporary labour migrants, irregular, illegal or undocumented migrants; highly skilled and business migrants, refugees, asylum seekers, forced migration, family members, return migrants and long-term, low-skilled migrants. These migrants can also be divided into two large groups, permanent and temporary. Permanent migrants intend to establish these permanent residence in a new country and possibly obtain that country's citizenship. Temporary migrants intend only to stay for a limited period of time, perhaps until the end of a particular progress of study or for the duration of their work contract or a certain work season. Both types of migrants have a significant effect on the economies and societies of the chosen destination country and the country of origin.

Similarly, the countries which receive these migrants are often grouped into four categories:

- Traditional settlement countries
- European countries which encouraged labour migration after World War II.
- European countries which receive a significant portion of their immigrant populations from their former colonies, and

NOTES

NOTES

- Countries which formerly were points of emigration but have recently emerged immigrant destinations.

International migration is a universal phenomenon and in the past had an important bearing on population growth in several countries of the world including U.S.A., Canada, New Zealand, Australia and some Latin American countries. Unfortunately, there is a lack of information about the size and nature of such migration. Even now data about migrants is being maintained. It is however, well known that in past Indians migrated to Burma, Sri Lanka, Fiji, Mauritius and several other neighbouring countries. In 1947, in the wake of the partition of India, there was small migration of population from India to Pakistan and vice-versa. The most important phenomena of absorption of migrants in a short span of time is that of Israel, which is still unprecedented in world history.

Sources of finding International Migration

How to find out the extent of international migration is a problem. For the purpose different sources can be tackled. The need and necessity of collecting such data has considerably increased because the migrants have started influencing policies, programmes and activities of the government concerned. Some of the important sources for collecting information about international migration are as mentioned below:

- (a) **Text Statistics:** All the ports are expected to keep data and information about the persons who arrived or left the port. Thus, the information collected is very dependable, but the whole difficulty with the system is that while making entries no distinction is made whether the person is a migrant, a tourist or a scholar, etc. This creates many subsequent problems.
- (b) **Land Frontier Statistics:** Some of the migrants do not touch ports. They come either by way of boats or buses or use other mode and travel by road. Of course, in many cases an attempt is made to collect information at bus and ferry stops, but this system is also not free from defects. It is difficult to collect informations about who travels by road, came on foot or who crossed mountains and entered the boundaries of a country.
- (c) **Passport Statistics:** Passport authorities also keep a record of the persons who approach them for the issue of a passport. The information available should be dependable but that is not so. Firstly, because it is not essential that all those persons who get the passport issued will definitely avail the facility. Secondly, there are persons who cross-boundaries without getting the passport issued and there is no account of them entry in the passport offices.
- (d) **Population Registration Statistics:** The practice of maintaining this type of register was started in Holland as early as in 1849. In this register authorities are expected to keep a record of in-migrants, out or international migrants and even migrants from one continent to the other. But again the

data available is undependable. This is because all the nations who maintain such registers find it almost impossible to keep that up-to-date.

*Social Process of Migration
and International Migration*

- (e) **Transport Contract Statistics:** Transport authorities maintain an account of persons carried by them on different point to differentiate destinations. But again the data is not dependable because while giving information about persons no destination is maintained whether the person who travelled was a migrant or a national.

There are thus various methods for the collection of data about international migrants but in most of the cases the data collected is undependable. Therefore, different sources of data collection will have to be pooled together to reach an approximation. Obviously, the whole process is painstaking, but there is no escape available for the situation.

NOTES

Check Your Progress

1. What is direct measurement of migration related to?
2. How is differential migration studied?
3. What is social migration?

13.5 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Direct measurement relates to all measure which help in keeping an accounts of those who migrate.
2. Differential migration is studied by comparing the characteristics of migration with those who do not migrate but continue to stay at the place of origin.
3. Social migration is the movement of people due to social reasons.

13.6 SUMMARY

- Everett Lee is of the view that many a time decisions taken about migration are not rational and are based on emotions, though in a large number of cases such decisions are well thought out and planned.
- According to Lee, in a given territory, migration varies with the degree of area included in that territory, diversity of the people, difficulties involved in intervening variables, fluctuations in the economy of that area and extent of progress being made by the area.
- Measurements of population can be both direct as well as indirect. Direct measurement relates to all measure which help in keeping an accounts of those who migrate. These can be both transit statistics as well as census statistics.

NOTES

- Differential migration is studied by comparing the characteristics of migration with those who do not migrate but continue to stay at the place of origin.
- Economic factors are the most important factors in so far as migration is concerned. People leave their place, district, state or even country of birth in search of having better economic opportunities.
- When the people of the one country migrate from one place to another, without crossing the boundary of the state itself, it is called internal migration or in-migration. On the other hand, when the people of the one country leave their country of origin and migrate to another independent country, this is known as international or out-migration.
- International migration is a global phenomenon that is growing in scope, complexity and impact. Migration is both a cause and effect of broader development processes and an intrinsic feature of an ever globalizing world.

13.7 KEY WORDS

- **International Migration:** It refers to the type of migration that occurs when people cross state boundaries and stay in the host state for some minimum length of time.
- **Refugees:** They are people who have been forced to leave their country in order to escape war, persecution, or natural disaster.
- **Literacy:** It is traditionally defined as the ability to read and write.

13.8 SELF ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. Write a short-note on the different rates of migration.
2. What are the determinants of migration?
3. Discuss the push and pull factors of migration.
4. Write a short-note on the social process of migration.

Long-Answer Questions

1. Discuss Everett Lee's view on migration.
2. Describe the direct and indirect measurements of migration.
3. Examine the various factors affecting migration.
4. Describe the various methods of measuring internal migration.
5. What is international migration? Discuss the sources of international migration data.

13.9 FURTHER READINGS

*Social Process of Migration
and International Migration*

- Louise, Lassaonde. 1997. *Coping with Population Challenges*. London: Earthscan.
- Weeks, John R. 1977. *Population: An Introduction to Concepts and Issues*. Belmont, California: Wadsworth.
- Bhande Asha and Tara Kaitkar. 2015. *Principles of Population Studies*. New Delhi: Himalayan Publishing House.
- Heer, David M. 1975. *Society and Population*. New Jersey: Prentice Hall.
- Hawthorn, Geoffrey. *The Sociology of Fertility*. London: Macmillan.
- Gould William, Marshall Allan, Norman Paul, and Clare Holdsworth. 2013. *Population and Society*. London: Sage Publications.

NOTES

NOTES

BLOCK - V

INDIAN POPULATION POLICY

UNIT 14 POPULATION POLICY AND POPULATION EDUCATION

Structure

- 14.0 Introduction
- 14.1 Objectives
- 14.2 Indian Population Policy
- 14.3 Kinds of Population Policy: Fertility Influencing and Anti-Natalist
- 14.4 Population Education
 - 14.4.1 Objectives, Importance and Characteristics
 - 14.4.2 Problems of Population
 - 14.4.3 Interdisciplinary or integrated or infused approach
 - 14.4.4 Population Education Programme in India
- 14.5 Answers to Check Your Progress Questions
- 14.6 Summary
- 14.7 Key Words
- 14.8 Self Assessment Questions and Exercises
- 14.9 Further Readings

14.0 INTRODUCTION

Policy is a definite course or method of action selected from among alternatives and is supposed to guide and determine, in the light of given conditions, present and future decisions. It is said to be a set of objectives along with the measures and means to achieve them. Public policy is one that is pressed into the service of the community or nation. Public policy could, therefore be defined as the affirmation of the extent and scope of government intervention in societal affairs. Population policy should be viewed as a set of government actions—legislative and administrative—which intend to influence, alter or modify some aspect of population. Aspects of population, which could obviously be addressed by a population policy are the modifiable features of population stock and its vital processes and events. In this unit, you will learn about the major concepts related to population policy and population education.

14.1 OBJECTIVES

After going through this unit, you will be able to:

- Discuss the Indian population policies
- Describe the kinds of population policy: fertility influencing and anti-natalist
- Explain the concept of population education

NOTES

14.2 INDIAN POPULATION POLICY

According to author of *Principles of Population Studies*, Asha Bhende (1983, p. 34), population policy may include all interventions undertaken by governments to influence demographic variables, either directly or indirectly, in order to modify population phenomena. Some would take demographic variables only as intermediary. Population policies are said to be measures programmes designed to contribute to the achievement of economic, social, demographic, political and other collective goals, through affecting critical demographic variables—the size and growth of population, its geographical distribution (national and international) and its demographic variables, either directly or indirectly, in order to modify population phenomena. Some would take demographic variables only as intermediary.

The draft prepared by the group of Experts set up by the Government of India (1994) & headed by Swaminathan give an elaborate structure as to how the policy could be implemented and its implementation could be monitored.

Some scholars try to categorize the policy measure into five groups. (i) demographic (ii) economic (iii) political, (iv) ecological/environmental and (v) social/ethnic others categorize them as legislative and administrative. Still others put them as direct and indirect measure.

There could be many other ways. They could be cross-classified as well pure medical, including contraceptive and reproductive services as well as those save us from death would fall in demographic category. Monetary incentives/disincentives to acceptors/non-acceptors as well as other fiscal measures as illustrated above fall in the economic category. Incentives to states and village institutions would partly be political. But measures affecting one's rights to contest or vote and/or measures freezing of seats for representation to legislative bodies are definitely political in nature. These days pollution is said to be the case of environmental degradation—neither consumption style nor production technology. Measures to improve environment are called environmental measures which may have to do something with migration particularly to cities. Social/ethnic measures may include differential policy prescriptions for different communities or ethnic groups.

NOTES

Population policy can neither be universal nor can it be eternal. Two countries with same size of population and same rate of growth may find it prudent to pursue two different courses, one encouraging and the other discouraging further rise in growth rate, in the interest of their respective populations even though their cultural ethos may be same.

Comparing the two approaches, Sen (1991) says : ‘There is real disanology (here) between (1) arguments for compulsory birth control and other authoritarian means of influencing birth control population growth (varying from regulations for “One child family” to involuntary sterilization), & (2) the case for public intervention in procuring and other facilities that expand people’s capability to lead the kind of life they have reason to value. Liberty & freedom are threatened by the former programmes in a way they are not by the latter.”

There are two broad approaches. One is coercion approach, which in its extreme, recommends penalties to be imposed on parents who give birth to a child boy and a prescribed number or involuntary sterilization. For example, the Government of Maharashtra passed such a law in 1976, while the government of India adopted coercive measures including forced sterilization during the emergency.

Though it is not possible to decide as to what is the optimum size of population for India under the existing conditions, no one denies the fact that the existing population of the country is larger than that can be sustained at its current level of development. Furthermore, the population explosion during the past five decades has somewhat nullified the gains of economic growth. This situation demands a clear and straight forward population policy. Jacob Viner has, however, serious doubts about remedial measures that can be undertaken in any developing country. He states, ‘What is most discouraging is that there are no easy and certain remedies for the overpopulation problem; that the remedy, birth control, which to most social scientists appears to be the only promising one requires a fairly high level of education and of income to be widely available and effective.’ However, despite their low levels of income, China and Sri Lanka have managed to bring down the rate of population growth to 1.5 and 1.4 per cent per annum respectively perhaps high rates of literacy and small family norm consciousness in these countries have contributed most to decline in their birth rates.

Indian Experience in Policy Formulation: With over one billion population India is besieged by what the demographers have termed as ‘population explosion’. A very large and very fast growing population like India’s hampers the growth of economy through its harmful effects on such factors of production as natural resources, labour-supply and capital formation. To cope with such a situation, an appropriate policy to control the rapidly rising population is of paramount importance. The effect the population rise on natural resources may be assessed in two ways. One is when one takes into account only the land area of the country. Second is when one examines these resources in a broader sense to include, all that man has been endowed by Nature. While considering the land area in relation

to population, one takes into account the density of population—the number of persons per square kilometer. This is indeed very high in India and has been rising rapidly, from 216 in 1981 to 274 in 1991 it has risen to be pegged at 324 in 2001. In 1951, it was 117, which means that during the last 40 years it has almost tripled. As per the Census 2011, the density of population is 382 persons/sq.km. Not only that the land-man ratio in general also looks worse when we consider population in relation to agricultural land.

- (i) In the absence of improvement in agriculture, there has not been any large income in the amount of framework. As a result, we find widespread disguised unemployment and under-employment in the agricultural sector.
- (ii) It has hampered progress in agricultural. There has not been any large increase in the amount of farm-work. As a result, we find widespread disguised unemployment and under employment in the agricultural sector.
- (iii) It is associated with the widening gap between the fast rising demand for various food-articles on account of growing population and slower rise in the output of food articles, partly due to shrinking area under cultivation with the rise in population. In these circumstances the country has often been forced to import food on a large scale, causing serious defects in India's balance of payment.

It is often argued that one should not ignore this fact that countries like Japan and England have a higher population density than India, yet it has not blocked their development. However, one should also not ignore the fact that these are industrialized countries—where it is possible to accommodate a much larger population and ensure a higher standard of living, but India is predominantly an agricultural country with an economy, which can at best be put as laggard and poor.

Agriculture, in India, it is again argued has a great potential as it can produce enough food not only for the existing population but for a much bigger population. This, of course, is true. But it requires huge capital investment, robust and well connected infrastructure, technological back up, etc. for this potential to realize. Unfortunately, India lacks such resources and with the kind of population increase that India has witnessed makes it extremely difficult, if not impossible to mobilize resources on such a large scale.

At times, it is also argued that high density of population provides opportunities for large-scale production and specialization as it is presumed that a large population is an assurance for a large demand for products, which in turn provides a favourable climate for production to expand. In case of India this argument does not hold any water, for, India's existing population, though very large, is very poor. As such it has not much purchasing power to generate effective demand in the market. More increase in the number of persons, therefore, does not lead to an automatic rise in demand.

NOTES

NOTES

1. National Population Policy, 1976

The National Population Policy was announced on 16 April 1976. It was completely at variance with the earlier population policy of the government. In the past, the importance of development and education had been recognized for restricting the rate of population growth, though the government's own programme was confined singularly to family planning. Until the declaration of the population policy in 1976, family planning was entirely voluntary; the government's role was restricted to motivating the people to accept the family planning and to providing clinical facilities and other services to its acceptors. The government however, gave up this approach in 1976. Rejecting the view that development and family planning go hand in hand, it declared that rapid population growth was thwarting economic development and thus a more positive approach was needed to check it. This change in approach was clearly reflected in the policy statement of the government: 'to wait for education and economic development to bring about a drop in fertility is not a practical solution. The very increase in population makes economic development slow and more difficult of achievement. The time factor is so pressing and the population growth so formidable, that we have to get out of the vicious circle through a direct assault upon this problem as a national Commitment.'

The policy statement reaffirmed the government's commitment to bring down the birth rate to 25 per thousand by the sixth plan period. On the basis of the past experience, the government argued that this objective could not be attained by placing reliance entirely on voluntary family planning. Therefore, some more direct measures were conceived and announced. Raising the legal minimum age of marriage to 21 years for males and 18 years for females was a welcome measure, but its implementation was a doubtful proposition from the very beginning. Similarly, introducing population values in the education system and increasing the monetary incentive for sterilization were certainly desirable measures but in a conservative society like ours, these were not expected to contribute much to the success of family planning drive. The government thus decided to involve Zila Parishads and Panchayat Samitis, cooperatives teachers, workers' organizations and a number of voluntary agencies including women and youth organizations. The questionable measures were drawing of all government departments to motivate the 'Citizens to adopt responsible reproductive behaviour', and permission to state legislatures to pass legislation for compulsory sterilization.

In an authoritarian political system, the corrupt administrative machinery invariably misuses its powers if it is drawn into the implementation of some Social Programme. In India, this actually happened during the emergency when despite the impressive figures of the persons covered under the family planning programme, the use of coercive methods discredited the entire family planning programme. Thus, the experiment of the government to pursue the so-called bold measures for lowering down the birth rate in a relatively short period ended in a fiasco.

2. The Family Planning Programme

Importance of the family planning programme as a device to control population explosion is universally recognized, so much so that even the decision makers in communist countries have shed their bias against it and have become receptive to the idea of small family norm. In China, for example the state has approved of one child norm and has succeeded in bringing down the birth rate to 12 per thousand as against 21.8 per thousand in India as per Census 2011. The factor which has contributed most to China's success on this front is widespread use of contraception. Now about 85 per cent of married women of child bearing age use contraception in China. As per NFHS-4 in 2015–2016, the CPR among currently married women was 53.5% for any methods of contraception. Even Sri Lanka has done better than India in this regard where about 62 per cent women use contraceptives and as a result birth rate has come down to 17.4. It is thus clear that in India with the exception by the states of Kerala, Tamil Nadu and Goa, the masses are not presently aware of need of family planning. The decision-makers in the government however, recognize its importance at this critical juncture.

The following aspects of the family planning programme in this country deserve particular mention:

- 1. Public Information Programme:** Under public information programme, couples in the reproductive age explained the usefulness of family planning. This is considered necessary for raising the level of consciousness of the people without which they will not accept any family planning programme. Hence the government has decided to use all media of publicity, including cinema, radio, television, posters and newspapers to publicize the importance of family planning. Once the idea of family planning catches up the imagination of the people, they will themselves voluntarily start practicing it.
- 2. Incentives and disincentives:** The government has introduced various schemes under which incentives are being given to those who accept family planning. The system of cash prizes has given some inducement to the people to go in for sterilization since family planning is completely voluntary in this country. Coercive methods have been generally avoided. As mentioned earlier, during the emergency some excesses were committed, and forcible sterilizations were done. This caused widespread resentment among the people and there was a setback to voluntary family planning under the then situation, if small cash prizes fail to provide incentive to people to accept family planning, the government can take a policy decision that shows preference for employment will be given to the people who accept small family norm. Moreover, those who reject family planning may be denied certain facilities.
- 3. Family Planning Centres:** Establishment of Family Planning Centres is an integral part of any family planning programme. Some attention has been given to this aspect of the programmes in India. These centres provide

NOTES

NOTES

various clinical facilities needed for family planning. In addition to these clinical facilities, a large number of contraceptive distribution centres should also be located in both urban and rural areas.

- 4. Research:** Research in the field of demography, communication action, reproductive biology and fertility control has to be given a high priority in any family planning programme. Generally, this aspect is ignored in underdeveloped countries and under reliance is placed on family planning devices more suitable for developed countries. The Government of India, however, realizes the importance of research to obtain maximum results within the constraints of resources allocated to the family planning programme.

3. Family Planning Under Five Year Plans

In this section, you will study the family planning as order the five-year plans.

The Earlier Phase

During the first decade of economic planning, family planning programme was taken upon a modest scale with clinical approach. The emphasis was mainly on research in the field of demography, physiology of reproduction, motivation, communication and establishing central and state organizations in providing clinical services in pursuance of this policy, not only some family planning centres were opened in the urban and rural areas respectively but clinical facilities were provided in hospitals and health centres also. Although in this way a beginning was made in the field of family planning but considering the size of the country many demographers rightly believed that the family planning programme on this scale was of the little consequence.

An urgency with regards to family planning was felt after the publication of the 1961 census results which showed a higher rate of population growth than anticipated. The third plan stated clearly that the objective of stabilizing the growth of population should be the central feature of planning and the family planning programme has to be adopted as the principal measure to realize this objective. Experts thought that the clinical approach was not enough, and the government thus decided to supplement it by the extension approach. The allocation of funds to the family planning programme was also increased but looking at the dimension of the problem, the total outlay (₹ 24.86 crore) was also increased. In 1966, a separate department of family planning was created in the Ministry of Health. The administrative structure included the state family planning department which operated through a machinery at the district level. A series of service points aided by an extension system of male and female family planning workers was required to provide alternative contraceptive methods. Since family planning was voluntary the acceptors had the freedom to choose any of the contraceptive methods offered. This has been known as the 'Cafeteria approach'. To increase the motivational effect, mass media campaign was also organized. During the period 1966-69, the

family planning programme was made target oriented and more funds were allotted to it, yet the results were far from satisfactory.

The fourth five-year-plan provided a high priority to the family planning programme and allocated ₹ 330 crore to it. The programme aimed at reducing the birth rate from 39 per thousand to 25 per thousand population within the next 10-12 years. In order to attain this objective, a concrete programme was carried out for creating facilities for the couples in their reproductive period. The emphasis in the programme was on group acceptance of a small family norm, personal knowledge about family planning methods and ready availability of supplies and services. The basic approach of the government, however, did not change, as it continued to follow clinical approach aided with extension services.

There was a significant shift in the strategy of the government under the fifth five-year-plan. In the first place, the government decided to carry forward the family planning programme in an integrated manner along with health, maternity and child health care, and nutrition services at all levels. With this perspective, a decision was taken to convert vertical programmes, workers into multipurpose workers who were required to pay special attention to family planning work. Secondly, keeping in view the bold measures envisaged in the 1976 National Population Policy to restrict the rate of population growth, the fifth plan made a provision of 497.36 crore for the family planning programmes.

Family Planning during the 1980s

The experience during the emergency once again proved that the family planning programme cannot be a substitute for development any attempt to force its pace without ameliorating the economic condition of the poor and changing the consequences of the people by educating the poor will have little chance of success. The Planning Commission in the sixth plan admitted the fact that this programme did not inspire the confidence of the people who viewed it as a routine government activity. Therefore, the need for projecting family planning programme as a people's programme was felt.

On the recommendation of the Working Group on Population Policy set up by the Planning Commission, the long-term demographic goal of lowering down the net reproduction rate from the prevailing level of 1.67 to 1 by 1996 in the country as a whole and by 2001 in all the states was adopted. Keeping in view the goal, efforts were made to raise the proportion of eligible couples protected with family planning from 22 per cent at the beginning of the plan to 41.2 per cent in 1984-85. This was certainly an ambitious target and could not be realized. In 1984-85, out of an estimated 126.7 million couples, 45.1 million couples were protected from conception. They constituted 35.6 per cent of eligible couples. This failed to make any significant impact on crude birth rate which remained stuck at 33.5 per thousand. The government considered it necessary to develop national consensus on this subject. In order to bring about a fall in fertility rate, the plan, however did not envisage the use of coercive methods.

NOTES

NOTES

As explained above, nothing significant happened during the sixth plan period and the crude birth rate did not register any decline. But undaunted, the health policy fixed the target of the net reproduction rate of 1 by the year 2000. The Planning Commission, however, felt that this goal could be reached only by the period 2006-11. In order to make an advance towards this target at the desired rate during the seventh plan period, 42 per cent couples in the reproduction group should have accepted family planning methods, and this could have enabled crude birth rate to come down to 29.1 per thousand by the year 1990. Interestingly the seventh plan target of achieving couple protection rate of 24 per cent was achieved, but the crude birth rate remained marginally higher at 29.9 per thousand.

Under the seventh plan, the performance in terms of various methods of couple protection was not uniform, while the targets for sterilization fell short by about a quarter, the targets for Intra Uterine Device (IUD) were achieved and those for oral and conventional contraceptives were exceeded. State-wise analysis of the family planning programme reveals that Kerala, Tamil Nadu, Maharashtra and Punjab performed well in achieving the targets while Uttar Pradesh, Bihar, Rajasthan, Assam and some North- Eastern states performed poorly.

The New Strategy

Restricting population growth was not the most important objectives of the eighth plan. The plan had aimed at bringing down the birth rate from 29.9 per thousand in 1990 to 26 per thousand by 1997. This was a mode of target and was realizable provided the government succeeded in carrying out its strategy. Under the eighth plan, for population control there was stress on decentralized planning and implementation. The advantage of area specific strategy is that it allows scope for flexibility of approach.

Under the ninth plan the central government's role was limited to general policy planning and providing technological inputs. Thus, the approach of the government was to make family planning programme as one of 'people's operation with government cooperation.' Another important aspect of the strategy was to make the younger couples, who are reproductively most active, the focus of attention. This had become necessary because under the seventh plan while target of couple protection rate was achieved, it was not matched by a commensurate decline in the birth rate, possibly because of the lower coverage to the younger couples.

The younger couples will now have to be prepared to accept a small family norm as a social responsibility. In the future, targeted reduction in the birth rate will be basis of designing and implementing the family planning programme against the existing approach of couple protection rate. From this point of view, the out-reach and quality of family planning services will be improved so far the system of cash

incentives to adopters of sterilization programme has failed to make any impact on population growth. Therefore, the entire package of incentives and awards has to be restructured to make it more meaningful. The possibilities of introducing certain disincentives to the non-adopters of family planning programme, the role of education, information and communications is widely recognized. These are now being considered as critical inputs by the planners and will thus be strengthened and expanded in the coming years. The research and development of methods aimed at regulation of fertility both in males and females will also be given a new thrust.

National Population Policy, 2000

The National Population Policy, 2000 has outlined immediate medium-term and long-term objectives. The immediate objective is to meet needs of contraception, health, infrastructure, health personnel and to provide integrated service for basic reproductive and child health care. The medium-term objective is to lower down the total fertility rates to the replacement level by 2010. The long-term objective is to achieve a stable population by 2045.

In this broad framework the National Population Policy, 2000 aims at the following:

1. Reduce maternal mortality ratio to below 100 per one lakh live births.
2. Reduce infant mortality rate to below 30 per one thousand live births.
3. Achieve universal immunization of children against all vaccine preventable diseases.
4. Achieve universal access to information/counselling and services for fertility regularization and contraception with a wide basket of choices.
5. Promote delayed marriage for girls, not earlier than age 18 and preferably after 20 years of age.
6. Prevent and control communicable diseases.
7. Promote the small family norm to achieve replacement levels of total fertility rates.
8. Bring about convergence in implementation of related social sector programmes to make family welfare a people centered programme.

In pursuance of the National Population Policy, 2000, a National Commission of population was setup. The commission was review the implementation of the national population policy from time to time analogous to the national commission, state level commissions on population have been set up with the objective of ensuring the implementation of the population policy.

Following table summarizes the population policy of the government of India during the period of planning.

NOTES

Table 14.1 Summary of the Population Policy of the Government of India

NOTES

Population policy of the Government of India

- In India the government has not relied on economic and social measures to control the size of population.
- Its entire reliance is on family planning programme.
- Pravin Visaria, a noted Indian demographer has pertinently argued, but for family planning programme, the rate of growth of India's population could have risen sharply as has happened in several countries of Africa.
- In the earlier phase of economic planning, the government felt the need for family planning programme only after the publication of 1961 census results which showed a higher rate of population growth than anticipated.
- The government in the earlier phase pursued an ad hoc policy under which first it pursued clinical approach, then extension approach and finally the cafeteria approach.
- Since this policy did not show impressive results the government decided to pursue a bold national population policy in 1976.
- Under this bold policy, the government pursued questionable measures particularly involving government departments and motivating citizens to adopt responsible reproductive behaviour.
- In an authoritarian political system, the corrupt administrative machinery misused its powers during the emergency that was proclaimed by the government.
- The use of coercive methods discredited the entire family planning programme and the experiment of the government to pursue these called bold measures for lowering down the birth rate in a relatively short ended in a fiasco.
- Restricting population growth was one of the main objectives of the Eighth plan.
- Under the Eighth plan for population control there was stress on decentralized planning and implementation.
- The National Population Policy 2000 has outlined immediate, medium-term and long-term objectives.
 - (i) The immediate objective of this policy is to meet needs of health infrastructure and health personnel.
 - (ii) The medium-term objective is to lower down fertility rate to the replacement level by 2010.
 - (iii) The long-term objective is to achieve stable population by 2045.

It is worrying to note that India missed the 2010 and 2016 targets set for population control.

Recent Interventions under the Family Planning Programme

- Different scheme like Home delivery of contraceptives and ensuring spacing in births by ASHAs at doorstep of beneficiaries
- Boost to spacing methods by introduction of new method PPIUCD (Post-Partum Intra Uterine Contraceptives Device).
- Emphasis on Postpartum Family Planning (PPFP) services with introduction of PPIUCD and promotion of minilap as the main mode of providing sterilisation in the form of post-partum sterilisation to capitalise on the huge cases coming in for institutional delivery under JSY.
- Assured delivery of family planning services for both IUCD and sterilisation.
- RMNCH Counselors (Reproductive Maternal New Born and Child Health) availability at the high case facilities to ensure counseling of the clients visiting the facilities.
- FP 2020- Family Planning Division is working on the national and state wise action plans so as to achieve FP 2020 goals.
- Reducing the unmet need by an improved access to voluntary family planning services, supplies and information. In addition to above, Jansankhya Sthirata Kosh/National Population Stabilization Fund has adopted the following strategies as a population control measure:- Prerna Strategy, Santushti Strategy, National Helpline, Advocacy & IEC activities.

NOTES

Appraisal of the Population Policy

In the foregoing analysis, we have clearly underlined the need for an imaginative population policy to deal with the present population problem. Unfortunately, in this country the government has failed to formulate such a policy. Nowhere in the world, the rate of population growth has declined without the spread of education among the masses and substantial improvement in their standard of living, and yet in India these aspects have been very much ignored in the government's drive to bring about a fall in the fertility rate. Greater reliance on family planning programme to realize this objective in a social environment which is non-receptive to the programme, clearly betrays the understanding of the problem. To be more specific, three major defects in the approach of the government are as follows:

1. **Overemphasis on Contraceptives:** According to B.R. Sen, the population problem has not been correctly understood in India. The programmes which were formulated in the country to restrict the population growth from the time to time were invariably based on the assumption that by increasing the supply of contraceptive and popularizing their use, the problem could be solved. No one ever seriously thought of raising the standard of living of the mass of the people in the countryside to bring about a fall in the rate of

NOTES

population growth B.R. Sen rightly asserts that poverty of these people provides them an inducement to have more children and be solved in this country, frontal attack has to be made on poverty, particularly in rural areas. This will require extra developmental efforts in the countryside. Kerala, Tamil Nadu and Goa, among the states in India, have successfully brought down the birth rates from 35 to about per thousand in a period of 25 years. Attitudinal changes to health and family size in these states reducing the birth rates became possible largely due to spread of literacy, especially among women and their better health care. On the basis of Kerala-Goa demographic experience, T.N. Krishan has thus rightly stressed, 'Both in Kerala and Goa their demographic transitions were preceded by health and educational transitions.' The governments in most of the states have refused to draw any lessons from the experiences of these two states.

C. Gopalan has forcefully criticized the family planning policy of the government on account of its neglect of the total view. He argues, 'To the extent to which we pursue our family planning programmes as isolated vertical programmes, to the extent to which we look upon them as no more than programmes for the promotion of contraceptive technologies—backed by incentives, inducements and targets, to that extent we will continue to face failure and frustration on the socio-economic imperatives which underlie the current population growth among the poorer sections of our society, must be understood and adequately addressed.'

- 2. Inappropriateness of Coercive Methods:** No one disputes the urgency of restricting population growth in this country. In fact, people belonging to various strata of the society and subscribing to different ideologies now favour that on the question of population control, National consensus must be evolved. But there is less agreement on measures. There are many experts who still believe that development is the only effective measure to restrict population growth. Some others would like to continue family planning drive with developmental efforts. In India, most of the demographers and economists who favour pursuit of a vigorous family planning programme do not approve of the coercive methods which the government had adopted in 1976.

The experience in respect of forced sterilization clearly suggests that coercive methods hurt the dignity of people and are counter-productive. Writing during the emergency when opportunists and sycophants were riding the crest and administrators were trying to prove to those who were in the state power that there was all round euphoria for family planning programme, Pravin Visaria had taken a very balanced view of the problem on family planning measures, he wrote, 'It is premature to think of introducing compulsory sterilization persuasion supplemented by monetary compensation as well as group incentives and disincentives remains the best policy.' Despite the efficacy of sterilization for family limitation, the criterion for incentives

and disincentives should be the number of children and not evidence of sterilization. In other words, the individual couples must be free to choose the methods of family planning.

- 3. Adhocism and shifting family planning approach:** Analysis of the family planning programme during the past four decades reveals very clearly that the objective of bringing down the birth rate to a sustainable level remains as elusive as it was two decades before. This is particularly true because of the arbitrary, uninformed and unimaginative nature of the decision-making at level of organization. D. Banerji has rightly attributed the failures of the family planning programme to the lapses in the decision-making which 'got compounded by a succession of blunders by successive decision-makers.'

In the early 1950s, following the planned parenthood movement of the western countries the 'clinic approach' was adopted. This approach did not work as the conditions in India were quite different from those in European countries and the United States. On discovering that the clinic approach would not advance family planning movement, the decision-makers switched over to the 'extension approach.' The idea of extension approach was imported from the United States and like any other policy imported from the west was assumed to be an answer to the problem. Having discovered the failure of even this approach, the concern about human dignity and the individual's right to take decisions about one's own family got mellowed. At this stage, thinking in official circles started favouring introduction of an element of coercion in family planning programme. Naturally there was once again a change in approach.

The new policy was characterized as the camp approach, 'which in practice meant herding a large number of motivated persons into camps by offering them cash incentives or compensation.' Its ugliest form was seen in this country during the emergency when, backed by authoritarian methods, its implementation proved to be disastrous for the entire family planning movement. In India, the family planning programme in spite of all its limitations has made some impact in the urban areas. Total fertility has declined in all states since the early 1970s. By the late 1990s, total fertility rate had declined to 1.8 birth in Kerala and 2.0 births in Tamil Nadu. Moreover, the estimated total fertility rates were close to the replacement level in Andhra Pradesh, Karnataka, Maharashtra, Punjab and West Bengal. Similar success in the rural areas of Uttar Pradesh, Bihar, Rajasthan and Madhya Pradesh is not easy to realize. Pravin Visaria argues, 'To motivate the millions of dispersed in India's village to think about the consequences of their individual behavior for the abstract aggregate called the community or the country is an extremely difficult task. As and when they see a limitation of their family size to be in the interest of their family and/or their own children, they are unlikely to lay behind the better educated with respect to the adoption of contraception'.

The recent developments in India, however, put a question mark on Visaria's optimism. Visaria overlooks the facts that in India's sick society there is a deep-rooted sex bias against women. As a result, pre-natal tests like amniocentesis

NOTES

NOTES

which were meant to detect genetic disorders only, are now being used in this country for sex determination and female foeticide.

In India, while positive approach to family planning does not inspire people in general, the idea of sex determination tests and aborting female foetuses has caught the imagination of not only the so-called educated people in cities, but also the illiterate people in the countryside. No doubt some saner elements in the society have raised their voice against this uncivilized way of family planning.

Kerala and Tamil Nadu with total fertility rates of 1.8 births and 1.6 births in 2016 respectively (as per the Sample Registration System) illustrate the alternative ways of arresting population growth. However, 'replication of the experience of Kerala and Tamil Nadu elsewhere in the country, particularly in the four states in North India, is a formidable task.'

According to Pravin Visaria, for lowering down the total fertility rates in the country, policy shifts are essential. He particularly suggests the following measures:

1. A well designed programme of increasing the efficacy of the large body of health workers for the difficult task of persuading their clientele to modify their reproductive behaviour.
2. A shift from family planning method specific targets to an emphasis on the evaluation of the change in the birth rate and mortality rates.
3. The adoption of scheme of incentives and disincentives to delay marriage and to limit the number of children after marriage.

These measures if adopted earnestly will change the reproductive behaviour of the people. The people will learn the advantages of a small family and for limiting the number of children will voluntarily use one method or the other of family planning. This strategy in the turn will lower down the family rate. But until this strategy to arrest population growth shows results, India's population will continue to increase, and nothing can be done about it.

Check Your Progress

1. Why is it said that population policy can neither be universal nor can it be eternal?
2. What are the ways in which the effect of population rise on natural resources are assessed?
3. Name the five-year plan under which younger couples were made the focus of the attention.

14.3 KINDS OF POPULATION POLICY: FERTILITY INFLUENCING AND ANTI-NATALIST

As far as fertility as an element in population policy is concerned, two distinct approaches—pro-natalist (fertility influencing) and anti-natalist can easily be

distinguished. The low-fertility level countries, in general, adopt pre-natalist approach in order to stimulate growth in population. As against this, for the high-fertility countries, it becomes imperative to adopt anti-natalist approach in order to restrain growth in their population.

Pro-natalist policy has been adopted throughout much of the past in order to cope with high death rates. Presently, most of the European countries, marked with a very slow growth and even decline in their populations, provide example of pro-natalist population policy. Sweden, France, Romania and Hungary are prominent among them.

Sweden has a highly developed population policy that is geared around sustaining growth in population. Remarkably, however, the consideration of individual welfare and personal freedom has often taken preferences over the national expansionist policy in the event of any conflict between the two. On the basis of recommendations of Population Commission set up in 1935 and 1941, the Swedish government has provisions for various welfare measures aimed at voluntary parenthood and child welfare.

In order to ensure voluntary parenthood, contraceptives are made available to the people, and laws against induced abortion have been relaxed. Sex Education has been made a regular part of teaching in school. Thus, the Swedish policy is truly a welfare policy designed to improve the quality of population rather than being an 'expansionist' in the true sense of the term.

France offers another example of pro-natalist approach policy in the modern times encouraging family formation and child bearing in order to overcome the problems of ageing and decline in population. Government actions in this regard include financial aid for marriage and child bearing and at the same time measures restricting contraception and induced abortions. Although the distribution of contraceptions was later legalized in 1967, restrictions against advertisement of the same continued to exist.

Families get monthly allowance at an increasing rate depending upon the number of children under 15 years of age. Similarly, also families having single bread earner are also entitled for a monthly allowance, the rate of, which varies depending upon the number of children. In France, prenatal and maternity allowances are available to all the women. Further, additional allowances and incentives are provided to married couples in terms of government loans for various purposes, tax reductions and certain rebates on the public services, etc. Immigration of able-bodied persons has always been encouraged in France.

In Asia, Japan is perhaps the only country with a pro-natalist policy, Japan's fertility affecting policy has been unique in the world. During the intervening periods of the two wars, Japan had adopted intensive populationist policy under the influence of 'Eugenic movement' designed for encouraging the growth of racially 'pure' populations. Soon after the end of the Second World War, the country switched over to anti-natalist population policy, which continued up to 1960s.

NOTES

NOTES

Towards the end of 1960s, it was being realized that a sustained low birth rate was resulting in the ageing of population and a resultant decline in young labour force. Therefore, in 1969, the population problem Advisory Council recommended a moderate populationist approach. The emerging demographic trends compelled the country once again to revert back to pro-natalist policy. Family planning programmes came to be identified as measures enabling as married couples to have as many children they desired. The pro-natalist drives were further intensified with the introduction of child allowances scheme, although presented in the form of a welfare scheme rather than pro-natalist measure.

As against the low fertility countries, the high fertility countries are invariable marked with anti-natalist population policies. Anti-natalist population policies in such countries were necessitated by a phenomenal growth in population during the recent part. It will, however, be not correct to suggest that the anti-natalist policy is a phenomenon of the twentieth century. Even during the ancient period some Greek thinkers had advocated limits to family size with a view to obtain the ideal population size of the nation-state.

The concern regarding the adverse effects of a large population size was reinforced with much vigour and force through the publication of Malthus' essay on population, towards the end of the eighteenth century. Although many of Malthus arguments were criticized and discarded later, the essence of Malthusian thesis was further popularized by the classical and neo-classical economists in the form of law of diminishing returns. The onset of a phenomenal growth in the population of the less developed countries, in the second half of the twentieth century, further reinforced the need to the anti-natalist population policies. Most of the less developed countries, including India have therefore incorporated a series of measure to control birth rate.

These anti-natalist policies generally include both direct and indirect measures for fertility control. While the direct measures include provision of a contraceptives, liberalization of laws regulating abortions, increase in age at marriage etc. The indirect measures tend to reduce fertility level indirectly through some other social and economic variables. They include measures aimed at improving the status of women, strengthening health care services for mothers, infants and children; providing social security, popularizing population education at school and college levels, etc. They are included in various developmental programmes undertaken by the government. In addition to these measures, various incentives and disincentives aimed at controlling birth rate also figure among the indirect anti-natalist measures.

Check Your Progress

4. Name some of the countries who follow the pro-natalist population policy.
5. Which is perhaps the only Asian country with a pro-natalist policy?

14.4 POPULATION EDUCATION

One of the formidable problems which stare us in the faces, is our rapid increasing population, which offsets every endeavour for development. A need is being felt for imparting factual knowledge about the population dynamic, so that the younger generation may understand the nature and magnitude of the burden imposed by rapid population growth.

Our population is increasing annually at a rapid rate of 1.6 per cent as per the Census 2011. India is next to China, has little less than three times the population of Japan. With the present growth rate, the country's population may reach the incredible figure of one-billion before the end of this century.

What is population education?

- An exploration of knowledge and attitudes about population, family and sex.
- Is all about the integration between Individual, Family, and society.
- Includes population awareness, family living, Reproduction, Education, Basic values.

Let's have a detailed look at the different definitions of the term population education:

- According to UNESCO, 'Population education is an educational programme which provides for a study of population situation of the family, the community, Nation and world, with the purpose of developing in the students rational and responsible attitudes and behaviour towards that situation'.
- The National Seminar on Population Education held in Bombay gives a comprehensive definition of population education. 'It is essentially related to human resource development. It is not only concerned with population awareness but also with the developing values and attitudes which take care of the quality and quantity of population. It must explain to the students cause and effect relationship, so as to enable them to make rational decision on their own behaviour on population matters'.
- R.C. Sharma states, 'Population Education is the study of the human population in relation to his environment with a view to improve his quality of life without adversely affecting the environment.'
- According to International Study of the Conceptualization and Methodology of Population Education, 'Population education is an educational activity which is a part of a total social learning process; is problem centred; derives its content from population studies; is concerned primarily with population-related interactions of individuals, is aimed specifically at improving the present and future quality of human life.'

NOTES

NOTES

- Revised National Policy on Education, 1992-Para (8.16): ‘Population Education must be viewed as an important part of the nation’s strategy to contain the growth of population starting at the primary and secondary school levels with inculcation of consciousness about the looming crisis due to expansion of population. Educational programmes should actively motivate and inform youth and adults about family planning and responsible parenthood.’

14.4.1 Objectives, Importance and Characteristics

The following are the objectives of population education:

To develop an understanding of:

- Relevant demographic concepts and processes
- The rapid growth of population and its causes
- The influence of population trends on various aspects of human life
- The Close interaction of population growth and developmental programmes for raising the standard of living
- The evil effects of overpopulation on environment
- The scientific and medical advancement resulting in the imbalance between death and birth rate
- The biological factors and the phenomenon of reproduction responsible for continuation of species.
- To develop an attitude of responsibility and mutual help cooperation in all aspects of personal and family living.
- To provide students with a basic demographic vocabulary so that they are able to read and interpret demographic material with some understanding.

To develop an appreciation of:

- The small family norms as proper and desirable
- The relation between population size and the quality of life
- The fact that the family size is a matter of deliberate choice and human regulation
- The relationship between the preservation of the health of the mother, the welfare of the children and the small size of the family
- The fact that the actions of each individual affects others and also that the personal and national decisions concerning family size and population have long ranging consequences for the whole world.
- To develop an awareness of population of population policies and programmes of the country.

Importance

- Today's children are tomorrow's citizens.
- They must know the population and its consequences.
- Education is an effective way to sensitize people of the need for accepting 'small family norm.'
- Students play a major role in spreading this message

Hence it is necessary to include population education in the school curriculum.

NOTES

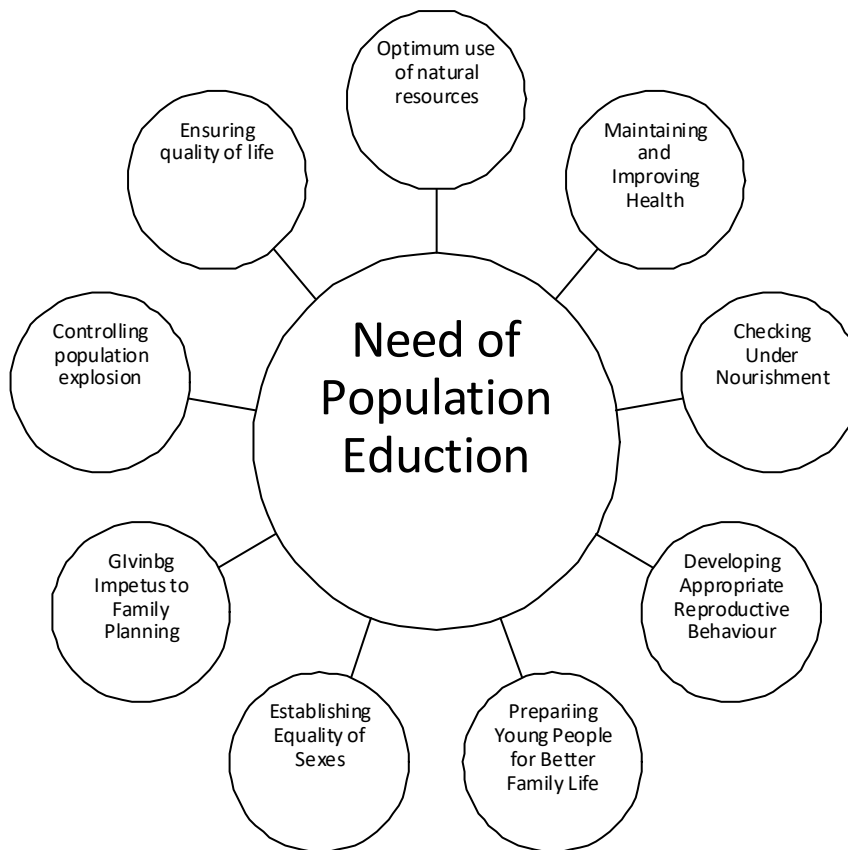


Fig. 14.1 Need of Population Education

Characteristics of Population Education

- It is a new branch of study in the field of education
- Studies the impact of the increase in population of different age groups
- Studying the impact helps the students to investigate and explore the interaction between population and environment. Of the total population on the economic development of a country.
- Helps the students to be aware of the process and consequences of the population growth on the quality of our lives

- Enables the students to describe the causes and consequences of population growth at the local, national and global levels
- Provides solutions to population problems and makes human life happy

NOTES

14.4.2 Problems of Population

Let's have a look at some of the problems of population.

1. Food problem

Due to tremendous increase in population, the food problem continues in spite of the spectacular achievement of the green revolution. The quality of food consumed is also below nutritional level. The scientific and technological advancements are being neutralized by the increase in numbers.

2. Economical problem

There has been remarkable progress in both the industrial and agricultural sectors during the last five decades. But there is no increase in the per-capita consumptions. The increased facilities in various sectors of life do not keep pace with the needs of the growing population.

3. Younger generation problem

The growing population is usually a problem relating to younger population. Almost half of the population of our country is less than sixteen years of age. This young population requires a proportionately larger outlay for supporting the social services needed for it, like education, health, transport housing and other facilities. It is impossible for a developing country for providing all these amenities in requisite adequacy.

4. Environmental problem

Increasing number cannot subsist only on agriculture. They migrate to urban areas, big cities and industrial centres. Such a situation is creating problems like water and air pollution, transportation, shortage of housing, overcrowding schools, growth of slums. Growing population defies all efforts in planning for development and the country remains as backward as ever.

5. Educational problem

There are also some educational problems and difficulties due to over population.

These are:

- (a) Too many pupils at all levels
- (b) Poor building, furniture and equipment
- (c) Wastage and stagnation
- (d) Poor - staff
- (e) Unemployment
- (f) Poor quality of education
- (g) Student indiscipline and other allied problems at various stages of education

Hence, population education needs to be given top priority. The situation is so grim that something needs to be done quick at grassroots level. The younger generation needs to be informed. They need to be properly educated for leading a planned adult life.

Role of Education in Population Control

Education has a great motivational force to perform for controlling over population. Suitable educational measures need to be adopted to promote desirable changes:

1. Community forums and voluntary organizations should discuss the drawback of large families and the merits of small families.
2. Children in the elementary stage should also be taught through their courses of study, the merits of small family and demerits of large family and should develop favourable attitude and appreciation for having a small family when they become adults.
3. Boy and girls at the secondary stage should be given the knowledge in a scientific way about the reproductive biology system and the sex-hygiene.
4. Parent-teacher associations can also take the responsibility of educating the families.
5. Schools should assume the responsibility of educating the community and the families and should collaborate with other agencies for the education of the masses for having small families.

14.4.3 Interdisciplinary or integrated or infused approach

Let's see how population education is treated under the inter-disciplinary approach:

- A distinctive population education unit, course or module is created by selecting, presenting and dwelling upon the relevant components of various disciplines.
- A series of related topics of population education are interwoven into an instructional scheme.
- The approach is likely to provide a comprehensive view of various dimensions of population education and hence would be more effective.
- Population education should be treated as a integrated subject with other subjects.

How population education is integrated with other subjects?

- **Languages:** Learning about the effects of population growth, family planning, health related matters in the form of stories, essays and poems in the mother tongue, regional and national language.
- **Social Studies:** Statistics on population and impact of population on socio-economic development can be discussed.

NOTES

NOTES

- **Science and health education:** Problems of fertility reproduction, family planning and hygienic problems due to overpopulation can be taught.
- **Mathematics:** With help of percentage and graphical representations students can be made aware of population growth.
- **Arts:** Cartoons, pictures, etc. can be used for teaching population education.

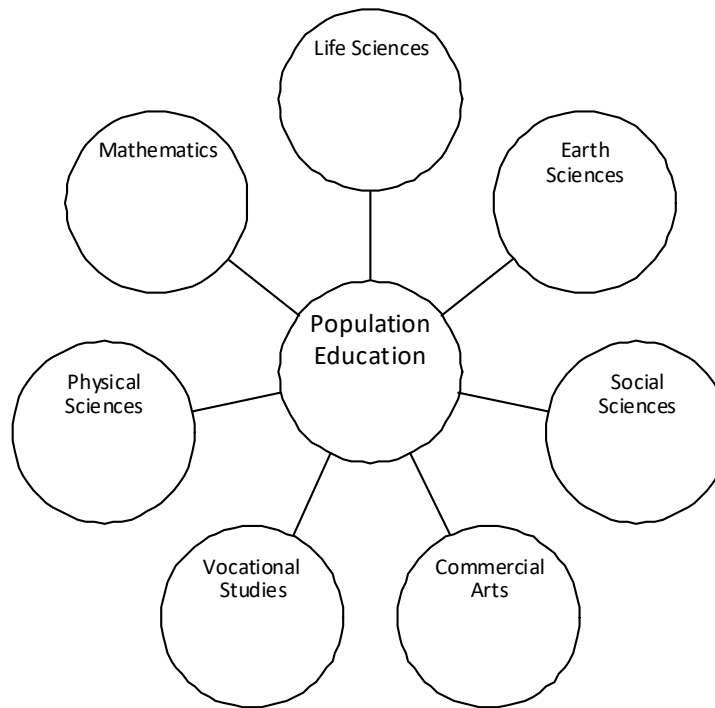


Fig. 14.2 Interdisciplinary or integrated or infused approach of Population Education

Major areas of Population Education

The following are the six major areas of population education:

1. Population Growth
2. Economic development and Population Growth
3. Social development and Population growth
4. Health, nutrition and population
5. Biological factor—family life and population
6. Population Programmes—national and international

Source : NCERT workshop on Population Education at New Delhi in July 1970

How Population Education be Taught in schools?

Different levels in the schools demand different topics to be taught, the concepts to be taught at different levels correspond to the general ability of the students to

learn at the particular stage. Let's have a look of some of the topics that can be taken up while integrating population education at different levels of school education.

Elementary level

- Growth of population in cities
- Overcrowded situation
- Economic development and population
- Social development and population growth
- Importance of good health
- Factors responsible for personal hygiene
- Life in slums
- Control of diseases

Lower Secondary Level

- Population Growth
- Economic development and population
- Social development and population growth
- Comparisons of national graphs development
- Health, nutrition and population Growth
- Biological factors and population
- Stages of Growth

Higher Secondary Stage

- Population growth
- Economic development and population growth
- Health, nutrition and population growth
- Biological factors and population
- Social development and population growth

The following teaching methods can be adopted for Population Education:

- Correlational method
- Direct and indirect method of teaching
- Co-curricular activities
- Extra-curricular activities
- Discussions
- Debates and Seminars

NOTES

Role of teacher in Population Education

Let’s have a look at the role of the teacher who will be concerned with the concept of population education:

NOTES

- Should have an in-depth knowledge about population education
- Should have a clear picture about the prevailing socio-economic status of the country
- Should be ready to play a very effective and powerful role for bringing about a social change
- Should have the qualities of being progressive, tolerant, skilled, creative and far-sighted
- Should have an active interest in population education.
- Should have interest to be a part of family welfare programmes.
- Should act against the population explosion with self-confidence and scientific attitude.
- Should have the stability and integration of thoughts, words and action.

Confusion of the Concept Seminars and Symposia should be organized It should be able to cater clear-cut idea about the aims of population education	Inadequate Curriculum NCERT, SCERT and allied organizations should meet this need. Preparation of guidelines for the use of teachers at various stages should be taken seriously	Lack of Materials and New Technology Audio-visual aids, teaching materials, text books, literatures for mass media like radio, television, etc should be prepared. Educational institutions should meet the need with enough literature materials for population education
Confusion of the Concept Seminars and Symposia should be organized It should be able to cater clear-cut idea about the aims of population education	Inadequate Curriculum NCERT, SCERT and allied organizations should meet this need. Preparation of guidelines for the use of teachers at various stages should be taken seriously	Lack of Materials and New Technology Audio-visual aids, teaching materials, text books, literatures for mass media like radio, television, etc should be prepared. Educational institutions should meet the need with enough literature materials for population education

Fig. 14.3 Problems of Population Education and their Solutions

14.4.4 Population Education Programme in India

- Education is the principal solution for tackling the problem of growing the rates of population.
- The Ministry of Education launched a Population Education Programme with effect from April 1980.
- It was designed to introduce population education along with the formal education system.
- The main objective of the programme was to create in the younger generation an adequate awareness of the populations problems and realization in this regard of its responsibilities towards their nation.
- It was a planned scheme in the central sector of ministry of education which was developed in collaboration with the UNFPA (United Nations Funds for Population Activities).
- The state level programmes are implemented by state governments with the technical assistance of NCERT.
- Ten states/union Territories namely Bihar, Gujarat, Haryana, etc. joined for the programme in April 1980 and nine others like Odisha, Kerala, Tamil Nadu, West Bengal etc. joined in April 1981.

NOTES

National Policy of Education on Population Education (1992 & 1996)

The following Paragraphs mentioned Population education

- Para (1.13): “The growth of our Population need to be brought down significantly over the coming decades.
- The largest single factor that could be help to achieve. This is the spread of literacy and education among the women”.
- Pare (4.11) : Relating to adult education Programmes States that these Programmes will be linked with.....Observance of small family norms.”

World Population Day

- In 1989, the Governing Council of the United Nations Development Programme recommended that 11 July be observed by the international Community as world Population Day, a day to focus attention on the urgency and importance of **Population issues**.
- World Population Day 2018 observed the theme, “Family planning is a **human** right.”

Hence, we can conclude that population education is an exploration of knowledge and attitudes about population and family Living, reproduction education and basic values. It means educating the students about large population or ever-increasing population.

NOTES

Check Your Progress

6. List the major areas of population education.
7. Which day is celebrated as the World Population Day?
8. Enumerate some of the difficulties arising due to over population.

14.5 ANSWERS TO CHECK YOUR PROGRESS QUESTIONS

1. Population policy can neither be universal nor can it be eternal because two countries with same size of population and same rate of growth may find it prudent to pursue two different courses, one encouraging and the other discouraging further rise in growth rate, in the interest of their respective populations even though their cultural ethos may be same.
2. The effect the population rise on natural resources may be assessed in two ways. One is when one takes into account only the land area of the country. Second is when one examines these resources in a broader sense to include, all that man has been endowed by Nature.
3. It was the ninth plan under which younger couples, who are reproductively most active, were made the focus of attention.
4. Sweden, France, Romania and Hungary are some of the countries with pro-natalist population policy.
5. In Asia, Japan is perhaps the only country with a pro-natalist policy, Japan's fertility affecting policy has been unique in the world.
6. The following are the six major areas of population education:
 - Population growth
 - Economic development and population growth
 - Social development and Population growth
 - Health, nutrition and population
 - Biological factor—family life and population
 - Population Programmes—national and international
7. 11 July is celebrated every year as the World Population Day.
8. Some of the educational problems and difficulties due to over population are:
 - (a) Too many pupils at all levels
 - (b) Poor building, furniture and equipment

- (c) Wastage and stagnation
- (d) Poor - staff
- (e) Unemployment
- (f) Poor quality of education
- (g) Student indiscipline and other allied problems at various stages of education

NOTES

14.6 SUMMARY

- Policy is a definite course or method of action selected from among alternatives and is supposed to guide and determine, in the light of given conditions, present and future decisions. It is said to be a set of objectives along with the measures and means to achieve them.
- Population policies are said to be measures programmes designed to contribute to the achievement of economic, social, demographic, political and other collective goals, through affecting critical demographic variables—the size and growth of population, its geographical distribution (national and international) and its demographic variables, either directly or indirectly, in order to modify population phenomena.
- Though it is not possible to decide as to what is the optimum size of population for India under the existing conditions, no one denies the fact that the existing population of the country is larger than that can be sustained at its current level of development. Furthermore, the population explosion during the past five decades has somewhat nullified the gains of economic growth. This situation demands a clear and straight forward population policy.
- It is often argued that one should not ignore this fact that countries like Japan and England have a higher population density than India, yet it has not blocked their development. However, one should also not ignore the fact that these are industrialized countries—where it is possible to accommodate a much larger population and ensure a higher standard of living, but India is predominantly an agricultural country with an economy, which can at best be put as laggard and poor.
- Importance of the family planning programme as a device to control population explosion is universally recognized, so much so that even the decision makers in communist countries have shed their bias against it and have become receptive to the idea of small family norm.
- During the first decade of economic planning, family planning programme was taken upon a modest scale with clinical approach. The experience during the emergency once again proved that the family planning programme cannot be a substitute for development any attempt to force its pace without

NOTES

ameliorating the economic condition of the poor and changing the consequences of the people by educating the poor will have little chance of success.

- The National Population Policy, 2000 has outlined immediate medium-term and long-term objectives. The immediate objective is to meet needs of contraception, health, infrastructure, health personnel and to provide integrated service for basic reproductive and child health care. The medium-term objective is to lower down the total fertility rates to the replacement level by 2010. The long-term objective is to achieve a stable population by 2045.
- As far as fertility as an element in population policy is concerned, two distinct approaches—pro-natalist (fertility influencing) and anti-natalist can easily be distinguished. The low-fertility level countries, in general, adopt pre-natalist approach in order to stimulate growth in population. As against this, for the high-fertility countries, it becomes imperative to adopt anti-natalist approach in order to restrain growth in their population.
- Population education is:
 - (i) An exploration of knowledge and attitudes about population, family and sex.
 - (ii) Is all about the integration between Individual, Family, and society.
 - (iii) Includes population awareness, family living, Reproduction, Education, Basic values.
- The following are the six major areas of population education:
 - (i) Population growth
 - (ii) Economic development and population growth
 - (iii) Social development and population growth
 - (iv) Health, nutrition and population
 - (v) Biological factor—family life and population
 - (vi) Population Programmes—national and international

14.7 KEY WORDS

- **Population policies:** These refer to measures or programmes designed to contribute to the achievement of economic, social, demographic, political and other collective goals, through affecting critical demographic variables—the size and growth of population, its geographical distribution (national and international) and its demographic variables, either directly or indirectly, in order to modify population phenomena.

- **Clinical approach:** It is an approach of family planning where family planning clinics are set up and those who needed family planning were expected to take the fullest advantage to these facilities.
- **Cafeteria approach:** It is a family planning approach which provides a range of effective and approved family planning methods according to needs and preferences of the individuals.
- **Pro-natalist policy:** It refers to the policy or practice of encouraging the bearing of children, especially government support of a higher birthrate.

NOTES

14.8 SELF-ASSESSMENT QUESTIONS AND EXERCISES

Short-Answer Questions

1. How do scholars classify policy measures?
2. Write a short note on the major point of the National Population Policy, 1976.
3. Briefly discuss the Family Planning Programme as carried out in India.
4. What were the aims of the National Population Policy, 2000?
5. What are the indirect measures of anti-natalist policy to reduce fertility?
6. Write a brief note on the Population Education Programme in India.

Long-Answer Questions

1. Examine the population policy under the five-year plans in India.
2. Critically appraise India's Population Policy.
3. Discuss the kinds of population policy in terms of anti-natal and pro-natal policies.
4. Describe the meaning, importance and characteristics of population education.
5. Discuss the problems of population.
6. What is the interdisciplinary or integrated or infused approach to population education?
7. How is population education taught at different levels in schools?

14.9 FURTHER READINGS

Bhende, Asha A. and Tara Kanitkar. 1994. *Principles of Population Studies, Sixth Edition*. Mumbai: Himalaya Publishing House.

NOTES

Heer, David M. 1987. *Society and Population, Second Edition*. Delhi: Prentice-Hall India.

Raj, Hans. 1984. *Fundamentals of Demography (Population Studies with Special Reference to India), Third Edition*. Delhi: Surjeet Publications.

Kumarasena, Harsha. 2004. *Population Education*. Delhi: Dominant Publishers and Distributors.