M.A. 3rd Semester
Economics (CBCS)

DSC Course Code: ECON234

Economics of Population

Lessons 1-22

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ECONOMICS OF POPULATION

Unit-I

Early theories of population (Malthus, Ricardo, Marx, J.M. Keynes and others). Effect of Pre- industrial technological and institutional changes on population. Demographic transition. The concept of optimum population.

Unit-II

Economic determinants of fertility: new household economics (Leibenstein theory and Gary Seeker's Theory). Alternative economic approaches to fertility theory (Easterlies and Caldwell's theories).

Unit-III

Cost and values of children and their effects on fertility, Supply of children and elements of uncertainty for the parents, economic determinants of Nuptiality (marriages and divorce), Gary Seeker's model. Economic determinants of mortality.

Unit-IV

Economic determinants of migration (Regenstein's, Lee's and Todaro's Model). Economic consequences of population growth (General views of Malthus, Marx, Simon Kuznets). Economic consequences of population growth (Dual sector models of Lewis, Ranis Fei and Jorgenson's).

Unit-V

Effects of population growth on Savings and investment, population growth and Labour supply, population growth and distribution of income. Effects of population growth on educational and human capital input facilities. Economic consequences of slowing population growth and population decline. Policy issues related to population and economic growth.

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Chapter-1
Theories of Population-I

Structure

1.0 Learning Objectives
1.1 Introduction
1.2 Factors influencing Malthus
1.3 Malthusian Theory of Population
1.3.1 Assumptions of the Malthusian Theory
1.3.2 Salient Features of the Malthusian Theory
1.4 Checks to Population Growth
1.4.1 Preventive Checks
1.4.2 Positive Checks
1.5 Equilibrium Population
1.6 Criticism of the Theory
1.7 Theory of Ricardo on Population
1.7.1 Malthusian Context
1.8 Key Concepts in Ricardo's Theory of Population
1.8.1 Ricardo's Theory of Population Dynamics
1.8.2 Implications and Critiques of Ricardo's Theory
1.9 Summary
1.10 Glossary
1.11 Answers to Self-check Exercises
1.12 Suggested Readings
1.13 Terminal Questions

1.0 Learning Objectives:

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

- Understand various factors Influencing Malthus.
- Know about the Malthus Theory Population.

1.1 Introduction

Thomas Robert Malthus (1766-1834) was born at Rockery near Darking, England on 14th February, 1766. Keynes called him the first of the Cambridge economists. His father Daniel Malthus was a rich man and was friend of philosophers like Hume and Rousseau. Thomas Robert Malthus enunciated his views about population in his famous book 'An

Essay on *the Principle of Population as it Affects the Future Improvement of Society'* published in 1798. He was the first economist to propound systematic theory of population. In the words of Gide and Rist, "Malthus must be regarded as the founder of the science of demography. The influence of his book upon all economic theories, both of production and distribution was enormous." He argued that population growth is potentially exponential while the growth of food supply is linear. If left unchecked, population will outgrow its resources.

1.2 Factors Influencing Malthus

Malthus had a better understanding of the existing economic problems. He suggested suitable remedies to solve those problems. The main factors which influenced his economic ideas are the following:

1. **Industrial Revolution:** Industrial revolution in England created a wide gap between capitalists and poor workers. Workers were being exploited. The problems of unemployment, hunger, diseases and class conflicts were increasing.
2. **Social Conditions:** Social and economic conditions in England were getting deplorable. These conditions made him pessimistic.
3. **Natural Factors:** Natural factors like wars and famines made England's conditions worse. So, Malthus wanted to find remedies to all.
4. **Effect of Mercantilists and Physiocrats:** Mercantilists and Physiocrats were optimistic. They favoured increase in population to increase development. Malthus was not satisfied with their ideas.
5. **Effect of William Godwin:** William Godwin was a political philosopher. He believed that a perfect society will produce perfect people. Malthus revolted against the prevailing optimism shared by his father and Godwin that a perfect state could be attained if human restrains were removed.

1.3 Malthusian Theory of Population

The great Greek thinkers Plato and Aristotle visualized the possibility of over population. Plato had the notion that if population rose beyond the optimum number required for a city-state, the new colonies might be established. Xenophan was in favour of large population. Mercantilists considered large population for two purposes- war and increasing output. The Physiocrats thought that men constituted the power of the state.

The Malthusian Theory of population has its glimpses developed from the mind of Giovanni Botero of 1589. Botero prognosticated that means of subsistence will restrict the excessive growth of population. The law of geometric progression was suggested by William Petty's 'Essays concerning the Multiplications of Mankind (1686)'. Adam Smith believed that every species of animals naturally multiplies in proportion to the means of their subsistence. Thus, we see that before Malthus, the ideas of population were scattered and not systematic. Thomas Robert Malthus was the first economist who propounded a systematic theory of population.

1.3.1 Assumptions of the Malthusian Theory

(i) The desire of human beings to reproduce remains stable. The development of science and progress of civilization cannot alter it.

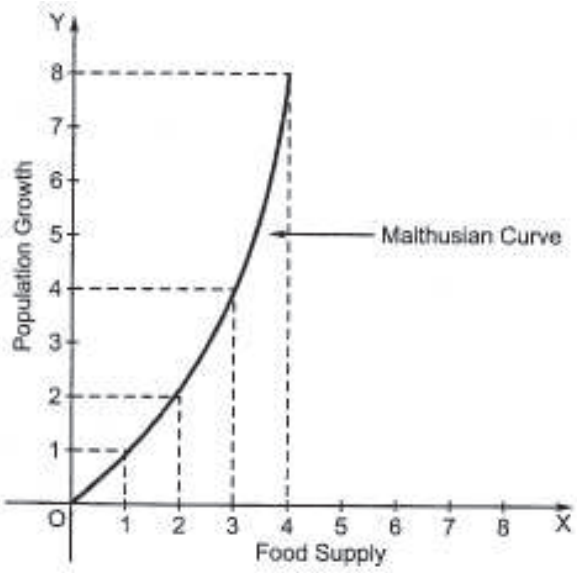
(ii) There is direct positive correlation between standard of living and population growth.

(iii) Agriculture is subject to law of diminishing returns.

1.3.2 Salient Features of Malthusian Theory

The following are the main features of Malthusian theory of population:

1. **Population increases in Geometric Progression:** There is biological sex instinct in human beings which increases at faster rate. Malthus proposes that population increases in geometric progression (1, 2, 4, 8, 16, 32, 64, 128, 256,..). On the basis of American data, he concluded, if not checked, population will tend to double itself every 25 years or will grow at the rate of 3 per cent annually.
2. **Food Supply Increases in Arithmetic Progression:** Since the supply of land is inelastic and law of diminishing returns applies in agriculture, therefore, food supply will increase in arithmetic progression (1, 2, 3, 4, 5, 6, 7, 8, 9...).
3. **Problem of Over Population:** Since population increases in geometric progression and food supply in arithmetic progression, population will outrun food supply. Consequently, there will be problem of over-population. In the words of Malthus, "It is the constant tendency in all animated life to increase beyond the nourishment prepared for it." The imbalance can also be shown in a diagram as below:



1.4 Checks to Population Growth

Malthus classified the checks to population growth into preventive checks (which lower the birth rate) and positive checks which increase the death rate.

1.4.1 Preventive Checks: Preventive checks are those checks on the growth of population which man adopts by using his intellect and rationality. Malthus has categorized these checks in two parts: vice and moral restraint.

(a) Vice: All improper arts, such as, homosexuality, prostitution, abortion, etc., are considered as Vice. Malthus considered these methods as 'improper arts'. He regarded them as conjugal fraud.

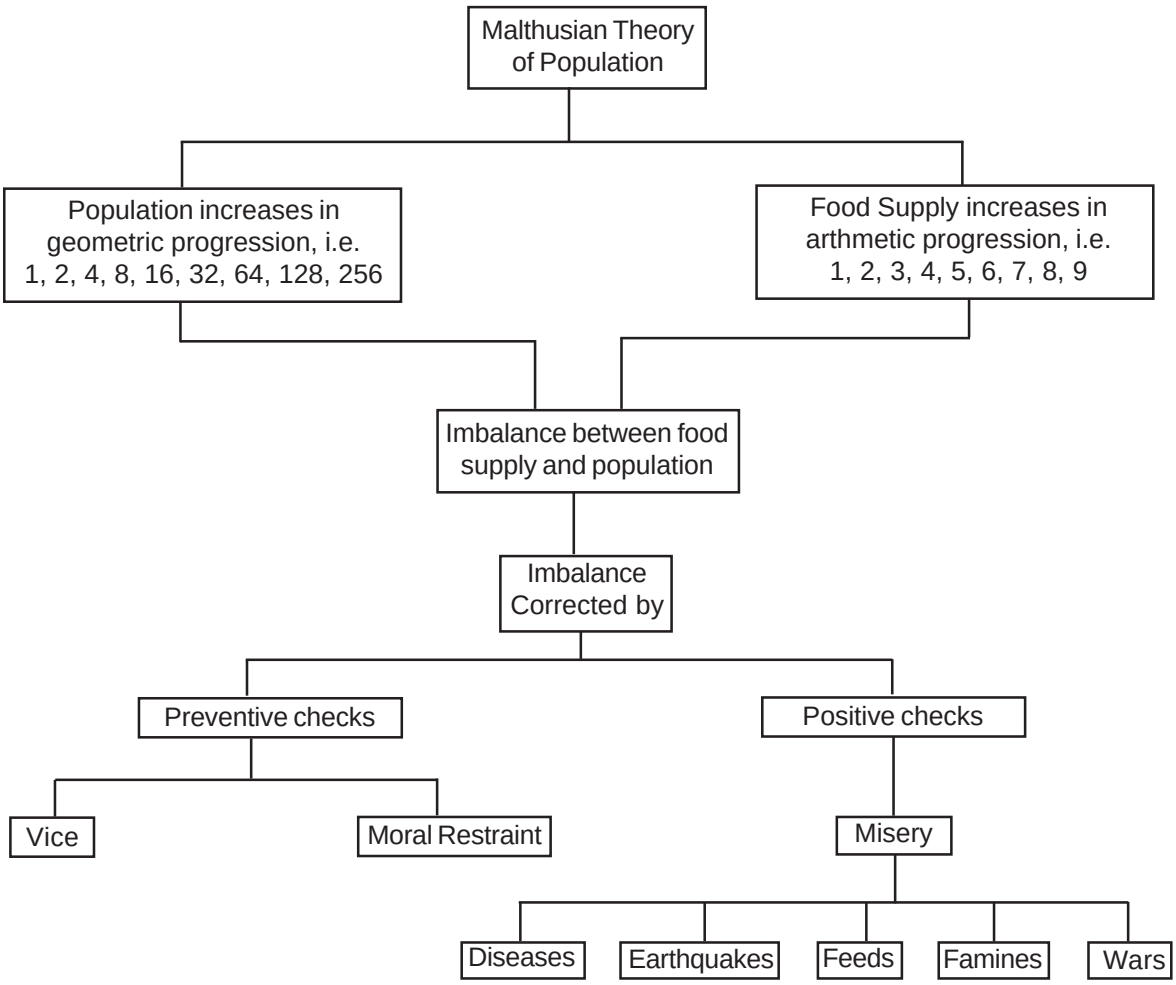
(b) Moral Restraint: Checks which reduce birth rate through moral restraint were highly commended by Malthus. These include late marriages, celibacy, self control and foresight. The persons who practice moral restraint are industrious and have favourable effect on the supply of food. But Malthus was doubtful about the general practice of this method.

1.4.2 Positive Checks: If preventive checks fail to control population growth, positive checks in the form of misery, e.g., diseases, famines, wars, floods, and other natural calamities are bound to occur. Malthus has termed them as misery. All these are positive checks and they increase the death rate.

Population, thus, may grow leading to fall in the standard of living. Diseases, famine, wars, floods, etc., will outbreak. Malthus put them under 'Misery'. These positive checks will increase death rate. According to Malthus, "The table of nature is laid for limited number of guests and those who come un-invited must starve." Malthus appealed to the people to adopt preventive checks and avoid vice and misery.

1.5 Equilibrium Population

Limited food supply brings preventive and positive checks into operation. If disequilibrium persists (Births exceed Deaths), preventive and positive check will set in operation and population will reach at equilibrium level. Malthus was not very hopeful about falling birth rate. He emphasized the inevitability of increasing death rate through positive checks. Misery helps the population to attain equilibrium. Such is the pessimistic system of Malthus.



1.6 Criticism of the Theory

The Malthusian theory has been criticized on the following grounds:

- **Historically Wrong:** Malthusian ratios have been proved wrong historically. In many countries, food supply has increased more than in the arithmetic progression. Population growth has not been doubled in 25 years.
- **Ignored the Effect of Technical Progress:** Malthusian theory is static and does not apply in dynamic condition when technical progress takes place. The law of diminishing returns in agriculture can be postponed if technical progress occurs.
- **Not Applicable to Open Economies:** In open economies, the importance of international trade has increased. Food shortage can be met by imports.
- **Not Satisfactory:** Malthusian theory of population growth is demand regulated and cost aspect of child bearing is ignored. Thus, it is unsatisfactory.
- **Sexual Desire to Re-produce is not Stable:** Sexual urge relies upon age, health and psychological factors. Thus, sexual desire to reproduce is not stable.

- **False Prophet:** Malthus conclusions have been disapproved in western countries. In such countries, food supply has out-stripped population growth. Thus, Malthus has been proved a false prophet.
- **Family Planning Measures:** Preventive checks do not contain only moral restraint as has been highlighted by Malthus. In modern time, family planning measures for birth control are very popular.
- **Neglected the Manpower Aspect of Population:** Malthus neglected the manpower aspect of population. He forgot that a baby comes to the world not only with a mouth and stomach, but also with a pair of hands. Increase in manpower helps in increasing agricultural, well as industrial output in the economy.

1.7 Theory of Ricardo on Population

David Ricardo (1772-1823) was a prominent economist and one of the key figures us economic thein classical economics. He made significant contributions to varioories, including international trade, comparative advantage, and the distribution of wealth. Among his numerous contributions, Ricardo's thoughts on population play a crucial role in understanding his overall economic framework.

Ricardo's ideas on population were influenced by the socio-economic conditions of his time, which included the Industrial Revolution and concerns about the implications of population growth. His writings on this topic are found in his major works, such as "Principles of Political Economy and Taxation" (1817). In this work, he discusses the interactions between population growth, land availability, and economic outcomes.

1.7.1 Malthusian Context

To understand Ricardo's theory of population, it's important to recognize the broader context of the time, particularly the ideas put forth by another economist, Thomas Malthus. Malthus had proposed the Malthusian theory of population, which argued that population tends to grow exponentially while resources only grow linearly. This would eventually lead to a point where population growth would outstrip the availability of resources, resulting in famine, disease, and other forms of population checks.

Ricardo's theory of population interacts with Malthusian ideas but introduces distinct economic mechanisms and implications.

1.8 Key Concepts in Ricardo's Theory of Population

- **Law of Diminishing Returns:** A cornerstone of Ricardo's thought is the law of diminishing returns. This economic principle posits that as more of a variable input (like labor) is added to a fixed input (like land), the marginal productivity of the variable input will eventually decline. This means that, at some point, additional labor applied to a fixed area of land would result in smaller and smaller increases in output.

- **Rent Theory:** Another critical concept is Ricardo's theory of economic rent. Ricardo argued that as population increased, the demand for food and resources would grow. To meet this demand, less fertile land or less productive resources would be brought into use. This less productive land would require the same amount of labor but yield lower output compared to better-quality land. The difference in output between the best and worst land is what Ricardo referred to as "economic rent" This concept laid the foundation for his thoughts on population and its effects on land utilization.
- **Wage Theory:** Ricardo also addressed the relationship between population and wages. He believed that wages tended to settle at a subsistence level - the minimum necessary for workers to survive and reproduce. With an increasing population, more workers would be available, potentially leading to downward pressure on wages due to higher labor supply relative to demand.

1.8.1 Ricardo's Theory of Population Dynamics

Ricardo's theory of population dynamics revolves around the interplay between population growth, land utilization, and economic outcomes. He proposed that population growth could lead to both positive and negative consequences, primarily mediated by the availability of land and the law of diminishing returns.

- **Initial Stages of Growth:** In the initial stages of population growth, when there is ample fertile land available, output can increase without a significant reduction in productivity. This is because the law of diminishing returns has not yet come into full effect.
- **Diminishing Returns:** As the population continues to grow, the demand for food and resources increases. This leads to the cultivation of less fertile land, where the law of diminishing returns becomes more pronounced. The additional labor applied to this marginal land results in diminishing increases in output, which is reflected in rising economic rents.
- **Wage Pressure:** With more workers available due to population growth, the supply of labor increases. This can lead to a situation where wages are pushed down to subsistence levels due to the surplus of labor. This aspect is closely tied to Ricardo's view that wages tend to stabilize at a level necessary for workers to survive and reproduce.
- **Rent and Profits:** Ricardo's theory implies that as population grows and economic rents increase due to the utilization of less productive land, the proportion of total output going to landowners in the form of rent also grows. This comes at the expense of both profits (returns to capital) and wages (returns to labor).

1.8.2 Implications and Critiques of Ricardo's Theory

Ricardo's theory of population has several important implications and has sparked debates and critiques:

- **Optimal Population:** Ricardo's theory suggests that there might be an optimal population level where the benefits of population growth are balanced against the negative effects of diminishing returns on land. Beyond this point, further population growth could lead to reduced economic well-being due to declining wages and rising rents.
- **Industrialization and Urbanization:** Some scholars argue that Ricardo's focus on agriculture and land-related concerns overshadowed the potential positive effects of industrialization and urbanization. These processes could, in theory, mitigate the negative impact of diminishing returns by shifting economic activities away from land-intensive sectors.
- **Technological Progress:** Ricardo's theory largely assumed a static technological environment. Critics argue that technological progress can counteract the effects of diminishing returns by increasing productivity and resource efficiency, potentially allowing for sustained population growth without a decline in living standards.
- **Ethical Considerations:** Ricardo's theory raises ethical questions about the treatment of workers and the distribution of wealth. Critics contend that focusing on subsistence wages could perpetuate poverty and inequality.

1.9 Summary

In summary, Ricardo's theory of population contributes to our understanding of the complex interactions between population growth, land utilization, and economic outcomes. His ideas were heavily influenced by the Malthusian context of his time, and he built upon the concept of diminishing returns to explore the consequences of increasing population on economic dynamics. Ricardo's theory highlights the importance of balancing population growth with the availability of productive resources and the potential impacts on wages, rents, and profits.

However, it's important to view Ricardo's theory within the historical and intellectual context of his time. While his insights provide valuable perspectives on population and economic processes, subsequent economic developments, technological advancements, and shifts in societal structures have also influenced the dynamics of population and resources. As with any economic theory, Ricardo's thoughts on population are subject to ongoing discussion and interpretation as scholars continue to analyze their relevance in a changing world.

1.10 Glossary

- **Preventive Checks:** are those checks on the growth of population which man adopts by using his intellect and rationality.
- **Positive Checks:** are those adopted by a population itself whereas positive checks are due to environmental pressures.

1.11 Answers to Self-Check Exercises

1.12 Suggested Readings

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1.13 Terminal Questions

1. Critically explain Malthusian Theory of population.
2. Critically explain theory of Ricardo on population.

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Chapter-2
Theories of Population-II

Structure

2.0 Learning Objectives

2.1 Introduction

2.2 Marxian Theory of Population

- 2.2.1 Assumptions of the Marxian Theory
- 2.2.2 Explanation of the Marxian Theory

2.3 Criticism of the Theory

2.4 Population Theory of J.M. Keynes

2.5 Highlights of the Theory

2.6 Effect of Pre-industrial Technological and Institutional Changes on Population

- 2.6.1 Technological Innovations and Population
- 2.6.2 Institutional Changes and Population
- 2.6.3 Population Challenges and Constraints

2.7 Summary

2.8 Glossary

2.9 Answers to Self-check Exercises

2.10 Suggested Readings

2.11 Terminal Questions

2.0 Learning Objectives:

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

- know the Marxian Theory of Population
- understand Population Theory of J.M. Keynes

2.1 Introduction

A number of sociologists and economic thinkers have expressed their views about the growth of population. In this chapter, two important theories of population, viz Marx and that of Leibenstein have been discussed. The later part of the lesson deals with Gary Becker's economic analysis of fertility.

2.2 Marxian Theory of Population

Karl Marx was the greatest intellectual of the 19th century. He published 'Das Capital' which is more or less a complete statement of Marxian system. In the words of **Paul Sweezy,** "Marxism is *the only genuine and comprehensive science of history and society."* He was the founder of scientific socialism.

Marx did not propound separately any theory of population. **He asserted,** *"Every special historic mode of production has its own special laws of population, historically valid, within its limit alone."* His theory of relative surplus population can be deduced from his analysis of capitalist development. Capitalist mode of production created a definite amount of unemployment and surplus labour. Marx criticized Malthusian theory of population as well as classical assumption of wage price flexibility. In his theory, he asserts that the rate of growth of constant capital is higher than the rate of growth of variable capital. Capital can be substituted for labour. When constant capital grows, labour becomes surplus. This leads to surplus population.

2.2.1 Assumptions of the Marxian Theory

(1) The economy is working under capitalistic system of production.

(2) Labour and capital can be substituted.

(3) Capital accumulation displaces labour.

(4) The organic composition of capital (the ratio of constant to total capital) goes on increasing in a capitalist economy.

2.2.2 Explanation of the Theory

Before deducing the relative surplus population theory from the theory of capitalistic development, it is essential to differentiate between variable capital, constant capital and the organic composition of capital.

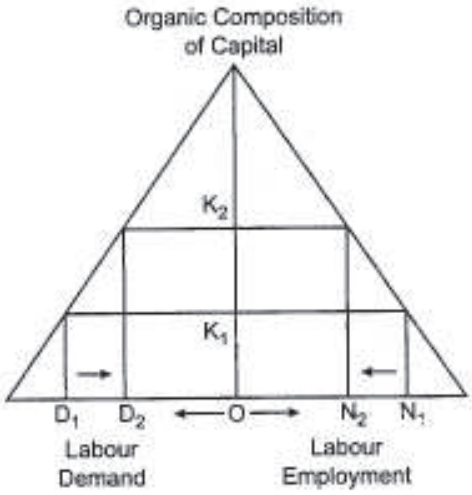
(i) **Variable Capital:** It is the value of labour power. Labour power is purchased with variable capital. Variable capital is productive. According to Marx, surplus value is derived entirely from variable capital. It is represented by 'V'.

(ii) **Constant Capital:** Constant capital represents the value of means of production, such as, factories, plants, machines, raw material, etc. This does no more than transfer its own value to the product. Basically, it is barren capital. Marx opines that it is not in the interest of capitalists to accumulate constant capital, because it will not create surplus value. The value of constant capital is represented by 'C'.

(iii) **The Organic Composition of Capital** (C/C+V): It is the ratio of constant to total capital.

Marx opines that increase in population in a country is not due to increase in fertility rate, but due to the capitalistic economic system. A capitalist gives to the labour as a wage small share of its productivity. In this way surplus value is created. It is the value which labour produces over and above required for its subsistence. The capitalists introduce more and more machinery, that is, constant capital to increase surplus value of labour productivity. When more and more machinery is introduced, unemployment increases, and consequently, the reserve army of labour is created. Wage level goes down further. In this way, a large part of population becomes virtually surplus. When the production of food is not adequate, population growth becomes a problem. "It is the working population which, while affecting

the accumulation of capital, also provides the means where by it is itself rendered relatively superfluous and is turned into a relative surplus population. This is law of population peculiar to the capitalistic method of production," When the organic composition of capital goes up in the capitalistic economy, the demand for labour falls. Employment of labour falls down. Consequently, labour becomes surplus.



The diagram shows that as organic composition of capital (C/C+V) goes up from OK_1 to OK_2 labour demand falls to OD_2 and employment to ON_2. Now, the logic question arises is why does the organic composition of capital goes up? The following reasons may be given to support it:

(i) Capital deepening increases the productivity of labour,

(ii) It reduces cost of production,

(iii) It gains supremacy in the market,

(iv) Competition among capitalists to increase profit compels them to enhance the level of organic composition of capital.

Marx's View on Falling Rate of Profit: The rate of profit depends upon two main variables, namely, the rate of surplus value and the organic composition of capital. P=S' (1-q). Here P is the rate of profit, S' is the rate of surplus value and q is the organic composition of output. As q rises, P would fall and vice-versa. With the accumulation of capital, the process of production becomes increasingly mechanized. Constant capital increases. Consequently q also rises. This would reduce profits. Increase in employment of constant capital takes place mainly because of the desire of the capitalists to accumulate more and more capital and to keep wages low. The introduction of machinery on a large scale causes unemployment and misery for the working class. All these factors would tend to create an industrial reserve army or relative surplus population under capitalism. The larger the industrial reserve army, the larger the surplus population and worse are the conditions of employed labourers.

Marx identified three forms of relative surplus population: (i) The floating surplus consists of those people who were displaced by machinery, (ii) The latent surplus category signifies that agricultural population which is on the verge of migrating to cities, (iii) The stagnant surplus comprised workers with highly irregular employment. According to Marx, "The relative over population of the capitalistic mode of production would disappear when capitalism was superseded by a collective mode of production."

The socialist and Marxist thinkers have generally attributed human misery not to excessive" population growth, but to the mal-distribution of income and other defects of capitalistic economic system. They vehemently opined that under socialism, adequate preventive checks on population growth would operate.

2.3 Criticism of the Theory

The following criticisms may be leveled against the Marxian theory of relative surplus population:

1. **Theory of Relative Surplus Labour:** This theory explains surplus population in terms of demand for industrial labour. Marx talks about surplus labour and not surplus population.
2. **Not Applicable in other Modes of Production:** This theory is applicable under capitalistic economic system only. It does not analyze the behavior of population for other modes of production.
3. **Ignored Population Dynamics:** Marx ignored population dynamics relating to birth rate, death rate, migration, etc. Therefore, his analysis is narrow.
4. **Does not Explain Labour Absorbing Technology:** Labour can be absorbed in the production process. Changes in techniques of production may not necessarily be labour displacing.
5. **Full Employment not Possible:** Full employment, strictly speaking, is existing nowhere in the world. Even in the socialistic countries, unemployment prevails. China, the largest socialist country of the world, has been faced with the problem of over-population.
6. **Unrealistic Theory:** This theory is based on the principle of surplus value. The concept of; surplus value has been subject to severe criticism.

Thus, in the end it can be concluded that the relative surplus population is related to the demand for labour in capitalistic mode of production. It is not applicable in other economic systems.

2.4 Population Theory of J.M. Keynes

John Maynard Keynes (1883-1946) was a British economist whose work had a profound impact on the field of economics, particularly in the realm of macroeconomic theory. While Keynes is not typically associated with a specific "population theory," his

economic ideas can be examined in relation to population dynamics and their implications for economic stability, growth, and government policy. This exploration will delve into the ways in which Keynesian economics intersects with population considerations and how his theories offer insights into understanding the relationships between population, employment, consumption, investment and government intervention.

2.5 High Lights of the Theory

- **Aggregate Demand and Consumption:** Keynes's most influential work, "The General Theory of Employment, Interest and Money" (1936), focused on understanding the determinants of aggregate demand and how it affects economic output At the core of Keynesian economics is the concept of effective demand — the total amount of spending in an economy that contributes to output and employment.
- **Population Growth and Consumption:** Population dynamics play a crucial role in determining the level of consumption in an economy. As a population grows, there is an increased demand for goods and services to meet the needs and wants of individuals. This growing demand can contribute to higher levels of aggregate demand, which, in turn, can lead to increased economic activity and output.
- **Employment and Unemployment:** One of Keynes's primary concerns was explaining periods of high unemployment during economic downturns. He argued that inadequate aggregate demand could lead to reduced production, causing firms to lay off workers. This, in turn, would lead to a decrease in consumer spending, creating a vicious cycle of declining demand and increasing unemployment.
- **Population Growth and Labor Force:** Population growth influences the size of the labor force — the number of people who are willing and able to work. An expanding labor force can either alleviate or exacerbate unemployment, depending on the pace of job creation. If the economy is not generating enough jobs to accommodate the growing labor force, unemployment rates could rise.
- **Investment and Population:** Keynes emphasized the importance of investment as a driver of economic growth. Investment includes expenditures on capital goods, infrastructure, and business expansion. As population grows, there is often a need for increased investment to support the growing demands of a larger population. This could involve building new housing, expanding infrastructure, and creating new businesses to provide goods and services.
- **Government Intervention and Population:** Keynes advocated for government intervention to manage economic fluctuations and stabilize the economy. He proposed that during times of low aggregate demand and high unemployment, governments should increase their own spending to stimulate economic activity. This approach, known as fiscal policy, aims to boost demand and create jobs.

- **Population Growth and Fiscal Policy:** Population growth can influence the effectiveness of fiscal policy. In a growing population, the government might need to implement policies that align with the changing needs of society. For example, increased population might require additional investments in education, healthcare, and infrastructure to support the well-being and productivity of the expanding population.
- **Long-Term Growth and Technological Progress:** Keynes's primary focus was on short-term economic management, but his ideas also have implications for long-term economic growth. As population grows, technological progress becomes increasingly important to sustain economic growth. Advancements in technology and productivity are essential to prevent diminishing returns from population growth.
- **Social Welfare and Income Distribution:** Keynesian economics has implications for social welfare policies and income distribution. As population increases, ensuring equitable access to basic needs and services becomes crucial. Keynesian policies such as unemployment benefits and social safety nets can help address the challenges posed by population growth, ensuring that individuals have the means to maintain their consumption even during economic downturns.
- **Demographic Transition and Economic Change:** While Keynes did not formulate a comprehensive population theory, his ideas can be related to demographic transitions — the shifts in birth and death rates that countries experience as they develop economically. Demographic changes impact population size, age structure, and labor force participation, all of which have implications for economic growth, consumption patterns, and government policies.

2.6 Effect of Pre-Industrial Technological and Institutional Changes on Population

The pre-industrial era was marked by significant technological advancements and institutional changes that had profound effects on human societies and their populations. This paper examines how these changes influenced population dynamics during this pivotal period. The pre-industrial era, roughly spanning from the emergence of agrarian societies to the Industrial Revolution, witnessed innovations in agriculture, health, and governance that shaped population growth, distribution, and overall well-being.

2.6.1 Technological Innovations and Population:

1. Agricultural Advancements: The development of more efficient farming techniques, such as the plow and irrigation systems, led to increased food production. This surplus allowed larger populations to be sustained and contributed to the growth of settled communities. However, fluctuations in agricultural productivity due to climatic changes could still lead to periods of famine and population decline.
2. Health Improvements: Pre-industrial societies made advancements in health practices that impacted population growth. The development of rudimentary medical knowledge, sanitation systems, and the establishment of quarantine measures helped

mitigate the spread of diseases. Consequently, infant mortality rates decreased and life expectancies improved, contributing to population growth.

3. Technological Diffusion: The spread of technological innovations was often influenced by trade, conquest, and cultural exchange. Regions with better access to new technologies experienced faster population growth as improved living conditions and increased food production attracted migrants.

2.6.2 Institutional Changes and Population:

1. Feudalism and Land Ownership: Feudal systems of governance influenced population dynamics by defining land ownership and labor relationships. Serfs, who were bound to the land they worked, formed the backbone of agricultural production. Changes in land ownership and rights could lead to migrations and shifts in population distribution.
2. Religious Institutions: Religious institutions played a significant role in pre-industrial societies. They influenced population growth through their teachings on contraception, family size, and gender roles. Additionally, religious organizations often provided healthcare and social support, indirectly affecting population dynamics.
3. Urbanization and Trade: The growth of towns and cities facilitated by trade encouraged population movement from rural to urban areas. Urban centers offered economic opportunities, but crowded living conditions also led to higher mortality rates due to disease and unsanitary conditions. Urbanization contributed to changing demographics and population growth.

2.6.3 Population Challenges and Constraints:

1. Resource Limitations: Despite technological and institutional advancements, the carrying capacity of pre-industrial environments was finite. Periodic resource scarcity, such as limited arable land, could lead to competition, conflict, and population stagnation or decline.
2. Epidemics: While health improvements occurred, pre-industrial populations were still vulnerable to devastating epidemics. Diseases like the Black Death (Bubonic Plague) had catastrophic effects on populations, causing significant declines and altering societal structures.

2.7 Summary

Marx's Response to Malthus Thesis:

The debate about the Malthusian theory has continued down to the present. Economists such as J.S. Mill and J.M. Keynes supported his theory whereas others, especially, sociologists, have argued against it. According to them, the widespread poverty and misery of the working class people was, not due to an eternal law of nature as propounded by Malthus but to the misconceived organization of society.

Karl Marx went one step further and argued that starvation was caused by the unequal distribution of the wealth and its accumulation by capitalists. It has nothing to do with the population. Population is dependent on economic and social organization. The problems of overpopulation and limits to resources, as enunciated by Malthus, are inherent and inevitable features associated with the capitalist system of production.

Marx's contention that food production could not increase rapidly was also debated when new technology began to give farmers much greater Sdelds. French sociologist E. Dupreel (1977) argued that an increasing population would spur rapid innovation and development to solve problems, whereas a stable population would be complacent and less likely to progress.

During the depression of the 19305, the debate changed somewhat because the birth rate fell sharply in industrial (western) nations. Some predicted that human species would die out. Schemes were proposed to encourage families to have more children by giving them allowances for each child born. The birth rate rose sharply World War II, especially in the underdeveloped nations like India, Africa and Bangladesh. Birth control programmes were instituted to control the population so as to eliminate starvation.

Despite the criticisms, the Malthusian thesis gained widespread currency during his lifetime. His ideas had profound effects on public policies, on the classical and neo-classical economists, on demographers and evolutionary biologists led by Charles Darwin.

His principle of population has been successful in highlighting the urgency to maintain a balanced relationship between population growth and means of subsistence. The critics of Malthus failed to realize that it was because of a large measure of truth in Malthusian principle of population that men today feel the need of resorting to contraception to keep their families within reasonable limits. Another main contribution of Malthus was to give a new line of thinking whereby the dynamics of population growth were viewed in the context of man's welfare.

2.8 Glossary

- **SURPLUS POPULATIONS :** Changes in the organic composition of capital, however, are not the only cause of surplus populations. Welfare-state policies, the product of successful class struggles and of the capitalist classes' effort to avert social unrest and even revolution in the aftermath of die Great Depression, had unintended demographic consequences. *By* providing social services and minimal income payments to the unemployed, disabled, and poor, such policies contributed to the growth, through natural increase, of a large and relatively stable population of poor and near-poor people, unemployed and largely unemployable.
- ***Demographic transition*** **(DT):** Is the *transition* from high birth and death rates to lower birth and death rates as a country or region develops from a pre-industrial to an industrialized economic system.

2.9 Answers to Self-Check Exercise

1. What is Marx's theory of Population?
2. Discuss the Keynsian view on Population Growth and Consumption.

2.10 Suggested Readings

- Bhat, P.N.M. (2002), Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
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- Keyfitz, 1978: Applied mathematical demography John Willy, New York.
- Bose 1996: India's basic Demographic statistics, B.R. Publishing Cop., New Delhi.
- Census of India: Various issues

2.11 Terminal Questions

1. Critically explain Karl Marx's theory of Relative Surplus Population.
2. Discuss in detail Population Theory of J.M. Keynes.

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Chapter-3
Theory of Demographic Transition

Structure

3.0 Learning Objectives

3.1 Introduction

3.2 Theory of Demographic Transition

3.3 Stages of Theory of Demographic Transition

3.4 Criticism of the Theory of Demographic Transition

3.5 Population and Economic Development

- 3.5.1 Impact of Population on economic development
- 3.5.2 Increase in population is a growth Promoting Factor
- 3.5.3 Increase in Population is an obstacle to Economic development
- 3.5.4 Impact of economic development on Population

3.6 Summary

3.7 Glossary

3.8 Answers to Self-check Exercises

3.9 Suggested Readings

3.10 Terminal Questions

3.0 Learning Objectives:

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

- understand theory of demographic transition
- assess the impact of population on economic development
- assess the impact of economic development on population

3.1 Introduction

Population is both the "means" and *the "end"* of economic activities. It is, therefore, the most important factor of economic development. Whereas population of a country, on the one hand, may prove helpful in its economic development; on the other hand, it may nullify all its attempts of economic development. Unfortunately, population of India has been proving to be a great obstacle to the economic development and to the growth rate of the economy. Before we undertake the study of the problem of population and economic development, the study of the Theory of Demographic Transition may prove more beneficial.

3.2 Theory of Demographic Transition

Theory of Demographic Transition is a theory that throws light on changes in birth rate and death rate and consequently growth rate of population. Along with the economic

development, tendencies of birth rate and death rate are different. Because of it, growth rate of population is also different. In an underdeveloped economy, both birth rate and death rate are high; hence growth rate of population is low. (Birth rate means the number of children born per 1,000 persons per year; Death rate means the number of people who die per 1,000 persons per year). In the initial state of economic development, standard of living of the people begins to rise, medical facilities are readily available, people's health gets improved. Because of all this, death rate begins to fall but birth rate continues to be high. As a result, growth rate of population begins to rise rapidly. However, with rise in the growth rate of the economy, the standard of living of the people begins to rise still higher, there is high rate of literacy, etc. Because of all this, birth rate begins to fall. Consequently, growth rate of population begins to decline and gradually reaches at zero level. In the words of E.G. **Dolan,** "Demographic transition *refers* to a *population cycle that begins with a fall in death rate, continuous with a phase of rapid population growth and concludes with a decline in the birth rate."* The Theory of demographic transition has many versions. It has been propounded by W.S. **Thomson and F.W. Notestein.** They explained the theory in three stages. Karl Marx has given four stages whereas C.P. **Blacker** has propounded five stages. Here we are explaining five stages of the theory of demographic transition given by C.R Blacker.

3.3 Stages of Theory of Demographic Transaction

Theory of demographic transition has following

(1) First Stage or Stage of High Birth Rate and High Death Rate: *In the first stage of demographic transition "A high birth rate and a high death rate leave* ***little room for population expansion."*** In this stage, the country is at low level of economic development. Agriculture which is the main occupation of the people is in a backward state, per capita income is low, standard of living of the people is low, balanced diet is not sufficiently available to the masses. Death rate is high because of lack of medical facilities, epidemics, famines and illiteracy. Birth rate is also high because of social and economic reasons. The main cause of it is that owing to joint family system, people face no problem in bringing up large-sized families. Because of high death rate in this stage, people are not sure whether their offspring's will survive. Hence, they are always keen to have large families. Besides, children of small age serve as helping hands in farming activities. Male children in the family are considered essential from social security point of view.

(2) Second Stage or Stage of High Birth Rate and Low Death Rate or Stage Population Explosion: In the second stage of demographic transition, because of high birth rate and low death rate, growth rate of population is very high. Growth rate of population in this stage ranges between one and three per cent. Such a situation is called **Population Explosion.** It is a situation of disequilibrium that cannot stay for long. In this stage, income begins to rise and economic activities expand. On account

of better health facilities and nourishing diet, death rate falls rapidly. There is modernization of agriculture and expansion of trade, transport and industry. Birth rate in this stage of economic development remains high and constant because the customs of the people, their rituals religious beliefs, and view regarding size of the family, etc remain unchanged. India and many other underdeveloped countries are passing through this stage at present.

(3) Third Stage or Stage of Declining Birth Rate and Low Death Rate: In the thirds stage of demographic transition, a declining birth rate and low death rate lead to low population growth. It is so because along with the economic development of the country, structural changes in its economy begin to take place. Large number of industries are set up in the country. Large part of the population begins to reside in urban areas. Most of the people are literate, their mobility increases and in place of large family system they prefer small family norms. People consider more children as liability than asset. Consequently, birth rate begins to fall and death rate is low. Thus, **growth rate of population declines.**

(4) Fourth Stage or Stage of Low Birth Rate and Low Death Rate: In the fourth stag of demographic transition, a low birth rate and low death rate lead to **stationary population.** It is called a stage of *stationary population.* In this stage, because of economic development standard of living of the people becomes very high. There is a considerable change in the social outlook of the people under the impact of urbanization, industrialization and high rate of literacy. In this stage, people's perception of children is: One happy, two crowd and three unmanageable. No wonder, birth rate and death rate both remain low and population becomes stationary at low rate. For example, growth rate of population in China is only 0.5 percent, in U.K. 0.4 per cent, Japan 0.1 per cent, Denmark 0.3 per cent, Sweden 0.4 per cent and Germany zero per cent.

(5) Fifth Stage or Stage of Declining Population: In fifth and last stage, population **begins to decline.** In this stage, birth rate is lower than the death rate. Some countries like Poland Romania, Russia, Bulgaria, Ukraine, Hungary are experiencing this stage.

In the **First Stage,** high birth rate and high death rate neutralize each other. So growth rate of population remains very low. In the **Second Stage,** high and stable birth rate is matched by rapidly falling death rate. So, growth rate of population rises very rapidly. This situation is called **population explosion.** In the **Third Stage,** falling birth rate is coupled with low and stable death rate. As a result growth rate of population begins to decline. In the **Fourth Stage,** low birth rate and low death rate cause the growth rate of population to stabilize at low rate. It is called **Stationary Population Stage.** In Fifth **Stage,** population starts declining as birth rate is even less than the death rate. The stages of demographic transition are explained with the help of Fig. 1.

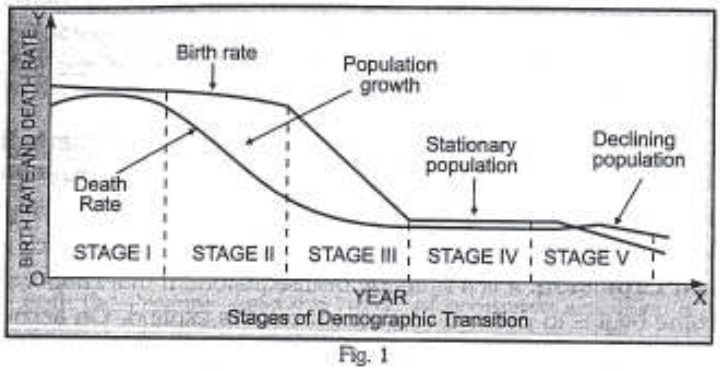

Fig. 1

Most of the developed countries of the world have passed through first three stages. They are presently passing through the fourth stage. Underdeveloped countries of the world are in the second or third stage of population explosion. Underdeveloped countries like India are caught in the **Low Level Equilibrium Trap.** The effect of the trap is that with increase in population, large part of the national income is spent on consumption, causing low rate of saving and investment. Thus, increase in population constitutes great obstacle in the way of economic development. Hence, in order to *accelerate* the rate of economic development, governments of underdeveloped countries will have to take vigorous population control measures. They must formulate pragmatic policy and enforce it firmly. For instance, government of China has succeeded in bringing down the growth rate of population to just 0.5 per cent by adopting a suitable population control policy.

3.4 Criticism of the Theory of Demographic Transition

The theory of demographic transition has been criticized on the following grounds:

1. **Ignores Time Period of Different Stages:** This theory does not throw light on the time period of different stages.
2. **Sequence of Stages not Uniform:** Empirical evidences show that the sequence of stages has not been uniform. For example, in some East and South European countries, the fertility rates declined even when mortality rates were high.
3. **Demographic Transition also Effects Development:** The theory says that economic development leads to demographic transition. But critics maintain that demographic transition also determines economic development.
4. **Not a General Theory:** This theory can not be accepted as a general theory. It is not necessary that every country will pass through these five stages. Thus, it is not applicable in all countries at all times.
5. **Differences on Fourth Stage:** The intellectuals differ on the conclusions of fourth stage. Some believe that population increases in fourth stage while few believe that it remains constant.

Conclusion: The theory of demographic transition is most acceptable theory of population growth. It is superior to Malthusian and optimum theories of population. It is

optimistic theory. It is superior to other theories because it is based on actual trends of population growth in different phases of economic growth of a country. On the basis of this theory economists have developed economic demographic models. It is logical in the sense that it takes into consideration all factors-economic, institutional, social, biological, etc. which influence the growth of population of a country.

3.5 Population and Economic Development

Population is closely related to economic development. Population influences economic development and economic development influences population. Accordingly, study of this problem will be done in two parts:

(1) Impact of Population on Economic Development,

(2) Impact of Economic Development on Population.

3.5.1 Impact of Population on Economic Development

There is difference of opinion among economists regarding the effect of population on economic development. These opinions are broadly classified into two categories: (1) Increase in Population is a Growth Promoting Factor, (2) Increase in Population is an Obstacle to Economic Development.

3.5.2 Increase in Population is a Growth Promoting Factor

Economic development of the country calls for full utilization of the available labour power of the country. It is usually said, "Manpower is the power of the nation" or "Manpower is nation's wealth." In this respect, Lewis is also of the view that, *"Growth is the result of human efforts."* Population may prove helpful to economic development in the following ways:

(i) Increase in Production: As population increases, opportunities of division of labour increase correspondingly. Division of labour results in large-scale production. The producers enjoy external and internal economies. As a result, cost of production falls, price of the product falls per unit and the size of the market expands. Wide extent of the market means more production.

(ii) Increase in Labour Supply: Population is the source of labour supply. Economic development depends upon many factors like natural resources, capital, technology, human resources, etc. Of these, the most important factor is trained and efficient labour. It is on the efficiency of the labourer that the optimum use of other factors depends.

(iii) Increase in Demand: Whereas population is a source of production, it is also a source of consumption. Increase in population leads to increase in consumption. It increases level of demand in the economy. When demand increases, size of the market expands which encourages large scale production and the pattern of production diversifies. This results in increase in employment and an incentive for economic development. **Increase in Labour Productivity:** Trained and efficient

labour is treated as **human capital.** Improvement in the qualities of manpower has a great contribution towards economic growth. Physical capital formation depends largely on human capital formation. As a result of the process of human capital formation, productivity of labour increases and the volume of production in the economy goes up. Rise in population adds to the number of producers, scientists, entrepreneurs, engineers, professionals, traders, etc. The recent growth of Indian economy is the result of increase in productivity of its human capital. Thus rise in productivity of population is an important source of economic development.

(v) Indirectly Helps in Capital Formation: Disguised unemployment is found in underdeveloped countries because of large population. **Nurkse** and **Lewis** are of the view that disguised unemployment in these countries is a source of potential saving. Disguised unemployed persons can be deployed in capital formation activities. If disguised unemployed persons are shifted from villages and deployed in industries at subsistence level of wages, which are less than the prevailing wage rate in the market, then industries will have more saving. By investing these savings, capital formation can be enhanced.

It is evident from the above description that if increase in population is followed by corresponding increase in production, then increase in population is a blessing for economic development.

3.5.3 Increase in Population is an Obstacle to Economic Development

Increase in population has proved an obstacle to the economic development of underdeveloped countries. Long back in 1778, **Malthus** had opposed rise in population and suggested measures to prevent it. Increase in population is an obstacle to economic development due to following reasons:

(i) Low Per Capita Income: Rise in population adversely affects per capita income. If national income remains constant, increase in population will bring down per capita income. It is so because per capita income is calculated by dividing the national income by total population. Per capita income will also fall if the growth rate of national income is less than the growth rate of population. Although the growth rate of national income of underdeveloped countries is more or less the same as that of the developed countries yet the growth rate of their per capita income is very low and they remain poor. It is so because growth rate of population in underdeveloped countries is much higher than in developed countries.

(ii) Reduces the Rate of Capital Formation: Composition of population in underdeveloped countries proves hindrance in capital formation. Because of high birth rate and low average expectancy of life in these countries, ratio of dependents in total population is very high. In underdeveloped countries, between 40 per cent and 50 per cent of population consists of persons below 15 years of age. Most of these persons are dependent on others for their subsistence. They only consume

but do not produce. This burden of dependents lowers the capacity of people to save. Consequently, rate of capital formation is low. (iii) **Food Problem:** Rapid rate of population growth gives rise to food problem in underdeveloped countries. Rise in the rate of food production is less than the rise in the rate of population growth. Per capita availability of food grains goes on falling. On account of low per capita availability of food, people do not get sufficient nutritive diet. It tells upon their health and their productivity falls. Fall in productivity means low per capita income and hence poverty. To meet their food shortage, underdeveloped countries are compelled to import food grains. Thus, a large part of foreign exchange and foreign capital is spent on the import of food grains. Acute shortage of foreign exchange is felt for the import of heavy machines and raw materials which are badly needed for economic growth.

(iv) **Unemployment:** Underdeveloped countries are already overpopulated. With increase in population, supply of labour also increases correspondingly. But, due to lack of capital resources in the country, it becomes difficult to provide gainful employment to all working population. This results in rise in the number of unemployed. In underdeveloped nations, because of rising population, land-labour ratio also declines and the problem of disguised unemployment arises in villages.

(v) **Housing Problem:** With increase in population, while land remaining the same, the problem of housing aggravates. The housing problem becomes very serious in urban and metropolitan cities. In urban areas, the rates of property go beyond the reach of common man. People have to live in small flats.

(vi) **Poor Quality of Human Resources:** In overpopulated countries, quality of human resources is poor. Poor families having more children cannot provide good quality education, health facilities, professional training to their children. So large share of population remains unskilled.

(vii) **Problem of Social Overhead Facilities:** With increase in population, all problems of social overhead facilities like, transport, health and education facilities, water supply, etc., also crop up. Thus, a large part of available capital is invested on these social overhead facilities. Resources become scarce for projects producing basic goods. It therefore becomes difficult to speed up the rate of economic growth.

(viii) **Vicious Circle of Poverty:** It is the ever increasing population that is largely responsible for vicious circle of poverty in underdeveloped countries. On account of growth of population people have to spend a large part of their resources in the bringing up of their children. As a result, saving and rate of capital formation remain low. Shortage of capital renders the task of improvement in technique of production impossible. Level of production per worker, therefore, remains low. No improvement is effected in agricultural technology, Agriculture thus becomes backward. Again, it is due to increase in population that capital is not available for setting up of the industries. Thus, it becomes impossible to break the vicious circle of poverty.

(ix) **Imbalanced Development:** Large burden of rising population in underdeveloped economies falls on agricultural sector. On account of shortage of capital resources in underdeveloped countries, it is not possible to absorb the rising population in manufacturing industries. Thus, country's development is imbalanced. In India, about 49 per cent of the population is engaged in agriculture which is a clear indication of imbalanced development.

(x) **Increase in Prices:** On account of large population and high growth rate of population, prices of the commodities rise steeply in underdeveloped countries. Because of paucity of capital in these countries, productivity is low. Production of different kinds of goods is therefore low. But demand rises under the impact of increasing population. As a result, prices begin to rise abnormally.

(xi) **Adverse Effect on Environment:** Due to rapid population growth, unemployed persons go to areas which are sensitive from the viewpoint of environment, e.g., hilly regions and thick forests, for their subsistence. They cut the forests for cultivation and thus pose a danger to the environment.

(xii) **Non-economic Problems:** Overpopulation creates many non-economic problems like law and order problem, communal riots, poor sanitation, etc.

3.5.4 Impact of Economic Development on Population

Economic development has also its effect on the growth rate of population. Theory of Demographic Transition explains the effect of economic development on the growth rate of population. The theory states that with increase in rate of economic development, growth rate of population goes on diminishing. Consequently, per capita income increases and standard of living of the people improves. In developed nations like Italy, UK, Japan, Sweden, Germany, Canada, etc., population growth rate has come down. In some developed countries like Poland, Romania, Russia, population growth rate has become negative, while population growth rate is high in underdeveloped nations. All this reflects that economic development has significant impact on growth rate of population. With increase in level of economic development, population growth rate decreases because of following reasons:

(1) **Consciousness about Standard of Living:** With increase in level of development standard of living of masses improves. To maintain the higher standard of living, people prefer to have small family.

(2) **Increase in Number of Working Women:** With increase in level of economic development literacy level improves. The number of working women also increases. The literate and working women prefer to have small family.

(3) **Nuclear Families:** With industrial development and development of industrial and service hubs like Mumbai, Bengaluru, Delhi, etc., people migrate to the industrial towns in search of jobs. So joint families break down into nuclear families. In nuclear families, parents find it difficult to bring up the children. So, they go in for small family.

(4) **Busyness and Long Working Hours:** With economic development, the private sector grows. In the private sector, the working hours are very long. People remain busy in their jobs and they don't find much time to look after their children. So, they prefer to have small family.

(5) **Increase in Awareness:** With higher level of development, people become more aware about family planning methods and benefits of small family. It results in small family size.

3.6 Summary

The theory of demographic transition is the most acceptable theory of population growth. It neither lays emphasis on food supply like the Malthusian theory, nor does it develop a pessimistic outlook towards population growth. It is also superior to the optimum theory which lays an exclusive emphasis on the increase in per capita income for the growth of population and neglects the other factors which influence it. The demographic transition theory is superior to all the theories of population because it is based on the actual population growth trends of the developed countries of Europe. Almost all the European countries of the world have passed through the first two stages of this theory and are now in the final stage. Not only this, this theory is equally applicable to the developing, countries of the world.

Very backward countries in some of the African states are still in the first stage whereas all the other developing countries of the world are in the transitional stage two it is on the basis of this theory that economists have developed economic-demographic models so that underdeveloped countries should enter the final stage and attain the stage of self-sustained growth. Thus this theory has universal applicability.

3.7 Glossary

- **Demographic transition:** is a long-term trend of declining birth and death rates, resulting in substantive change in the age distribution of a population.
- **Population Explosion:** It is a sudden increase in number of individuals in a specific area at a given time.
- **Vicious Cycle of Poverty:** refers to a self-perpetuating pattern in which individuals or families experience poverty and find it difficult to escape from it. It involves a combination of economic, social, and psychological factors that create barriers and keep people trapped in poverty across generations.

3.8 Answers to Self-check Exercises

1. Write Short note on the Different stages of theory of demographic Transition.
2. Explain the Impact of population on Economic development.
3. Write the Impact of economic development on population.

3.9 Suggested Readings

- Bhat, P.N.M. (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
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3.10 Terminal Questions

1. Critically explain the Theory of Demographic Transition.

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Chapter-4
Theory of Optimum Population

Structure

4.0 Learning Objectives

4.1 Introduction

4.2 Explanation of the Theory

4.3 Optimum Population is Static or not

4.4 Superiority of Optimum Theory of Population over the Maithusian Theory

4.5 Criticism of the Theory

4.6 Summary

4.7 Glossary

4.8 Answers to Self-check Exercises

4.9 Suggested readings

4.10 Terminal Questions

4.0 Learning Objectives:

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

- understand Theory of Optimum Population
- discuss the superiority of Optimum Theory of Population over Maithusian Theory

4.1 Introduction

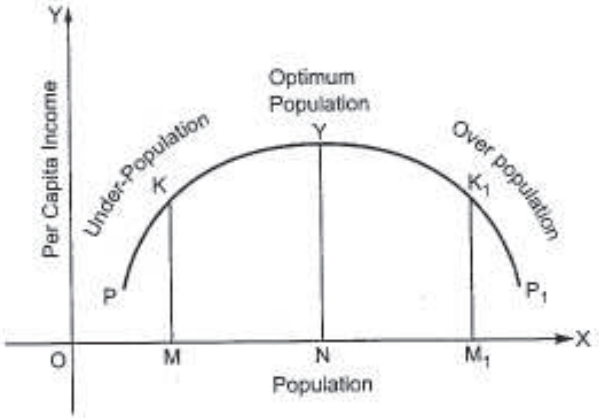
The theory of optimum population is one of the recent theories of population growth. The theory was propounded by Edwin Cannan in his book 'Wealth' published in 1924. He first used the word optimum and explained the concept in a systematic way. He asserted, "At any given time, the population which can exist on the given extent of land, consistent with the greatest productiveness of industry *at* that time, is definite." The theory has been popularized by Robbins, Dalton, Carr-Saunders. The theory studies the optimum population of a country. The optimum population is that population which combined with *other* available resources of the country yields the maximum per capita income.

Assumptions of the theory

1. The natural resources of a country are given at a point of time but change over time.
2. The technique of production remains constant.
3. Capital stock remains constant.
4. The ratio of working population to total population remains constant.
5. The habits and tastes of the people do not change.
6. Working hours of labour remain constant.

4.2 Explanation of the Theory

The optimum population is that ideal size of population which provides the maximum income per head. According to Cannan, "At any given time, increase in labour up to a certain point is attended by increasing proportionate returns and beyond that point further increase in labour is attended by diminishing proportionate returns." Other things remaining the same, any deviation from this optimum level of population will decrease the per capita income. If an increase in population is followed by the increase in income per capita, the nation is said to be under-populated. It can afford to increase its population till it touches the optimum level. On the other hand, if an increase in population leads to decrease in per capita income, the country is over populated. In this case, a country needs a decrease in population till per capita income is maximized.



In the figure, population is measured along the horizontal axis and per capita income on the vertical axis. Initially per capita income increases with population growth. It signifies under-population. At OM level of population, per capita income is MK which is less than maximum per capita income level (NY). Country can afford to increase its population. The ON size of population represents the optimum level where per capita income NY is maximum. If population increases beyond ON level, the law of diminishing returns applies to production. Consequently, the per capita income declines. At OM_1 level of population, per capita income has declined to M_1K_1. Therefore, NM_1 Population is over-populated. A country needs a decline in population till per capita income level reaches at its maximum level. Moving right or left from the point of optimum population signifies disequilibrium. Professor Dalton has given following formula to explain this disequilibrium:

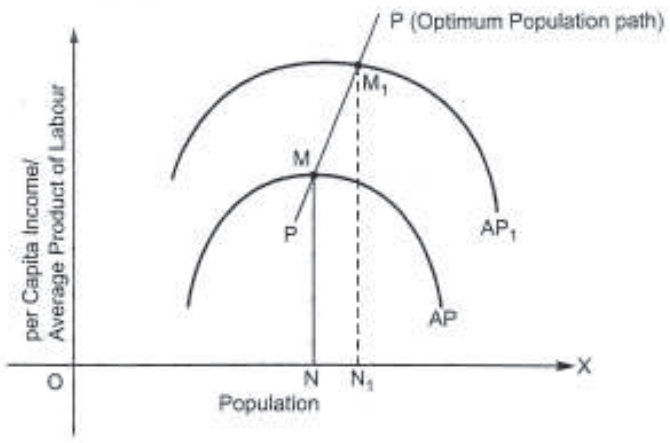
$$M = \frac{(A-O)}{O}$$

Here M = Disequilibrium in population, A= Actual population, O= Optimum population.

If the value of M is positive, it means population is more than optimum. This signifies over population. On the other hand, negative value of M signifies under population. Zero value of M denotes optimum population.

4.3 Optimum Population is Static or Not

Now the logic question arises is that how long this optimum level of population will remain static? Is optimum population once determined remains optimum forever? The answer is 'No'. In real world the resources in an economy undergo rapid change. For instance, if there are improvements in the methods and techniques of production, the output per capita will rise and the optimum point will shift upward. Every country under normal conditions witnesses economic progress. Therefore, optimum population changes with economic development. This is shown in the following diagram:



The size of population is measured on the horizontal axis and average product of the labour on vertical axis. AP is the average product of labour or income per head. ON is the optimum level of population. However, ON is not a static point. Improvement in the techniques of production increases the average product of labour and pushes the level of per capita real income upwards. Consequently, the optimum point of real per capita income rises. At ON_1 level of population, AP_1 curve represents higher; average product of labour. Scientific and technological advancements further push up the optimum point; to M_1. By joining these optimum points, we get optimum population path. Thus, the point of optimum population does not remain static. Rather, it is a dynamic point.

4.4 Superiority of the Optimum Theory of Population over the Malthusian Theory

The optimum theory of population is superior to the Malthusian theory on the following basis:

- **Particular Study:** Malthusian theory is a general study of population problem. It does not take into consideration the economic condition of a country. The optimum theory studies the population problem in relation to the economic condition of a particular country.
- **Wider Outlook:** Cannan's theory has a wider outlook. He related the problem of population to the gross output of the country whereas Malthus confined his study to food supply.

- **Dynamic**: The optimum theory of population is dynamic theory. It studies per capita income over a period of time. Per capita income may rise over a period of time with improvement in physical and human capital, technology, etc. Malthusian theory is static.
- **Optimistic Theory:** Malthus portrayed a gloomy picture about the future of mankind. The optimum theory adopts an optimistic and practical attitude towards the problem of population when it relates population to wealth of a country.
- **Practical:** Malthus regards all increase in population bad. It brings miseries and vice to the masses. Malthus doctrine is simply theoretical. On the other hand, the optimum theory is very practical. It considers an increase in population necessary for the maximum utilization of country's natural resources.
- **Free from Un-necessary Checks on Population:** As per optimum theory, so long as the actual population is less than the optimum, the increase in population is safe and good. It is only when actual population exceeds the optimum that the increasing population needs control.

4.5 Criticism of the Theory

The theory of optimum population is criticized on the following grounds:

- **Impossible to Measure Optimum Level:** It is very difficult to measure the optimum level of population quantitatively as has been elucidated by this theory. In the words of Professor Bye, "It is impossible to calculate it with any semblance of exactness for any country at any time."
- **Ambiguous:** Optimum level of population implies a qualitative as well as quantitative ideal population of a country. The theory ignores qualitative variables in its approach which are subject to change. Thus, the theory is ambiguous and vague.
- **Difficult to Measure Per Capita Income:** It is difficult to measure changes in per capita income. The data on per capita income are often inaccurate, unreliable and misleading. This makes the concepts of optimum as one of doubtful validity.
- **Neglects the Distributional Aspect:** The theory does not take into consideration the distributional aspect of an increase in per capita income. The increase in per capita income and population might prove harmful to the economy if as a result of increase in per capita income inequalities in the distribution of income and wealth widens.
- **Optimum Level of Population not Fixed:** With the change in factors like technique of production, stock of capital, natural resources, the habits and tastes of the people, etc. the level of optimum population also changes. The optimum level of population changes over time.
- **Does not Explain Determinants of Population Growth:** The theory does not explain the reasons for rise or fall in birth rates, death rates. The impact of factors like urbanization and migration on population growth has been ignored.

- **No Reference in State Policies:** Modern governments are welfare governments but no reference of optimum population has been made in their policies.
- **Neglects Social and Institutional Conditions:** The population of *a* country is also influenced by social and institutional factors. A lower level of optimum population may be justified from the economic view points, but may be harmful keeping in view the defence considerations of a country.
- **Static Concept:** The concept of optimum population is essentially a static concept, based on the assumption that there is an optimum limit of technology, resources, foreign trade and social structure.

4.6 Summary

The optimum theory of population was propounded by Edwin Cannan in his book Wealth published in 1924 and popularized by Robbins, Dalton and Carr-Saunders. Unlike the Maithusian theory, the optimum theory does not establish relationship between population growth and food supply. Rather, it is concerned with the relation between the size of population and production of wealth. The Maithusian theory is a general theory which studies the population problem of a country in keeping with its economic conditions. Thus the optimum theory is more realistic than the Maithusian theory of population.

4.7 Glossary

Given these assumptions, the optimum population is that ideal size of population which provides the maximum income per head. Any rise or diminution in the size of the population above or below the optimum level will diminish income per head.

Given the stock of natural resources, the technique of production and the stock of capital in a country, there is a definite size of population corresponding to the highest per capita income. Other things being equal, any deviation from this optimum-sized population will lead to a reduction in the per capita income.

If the increase in population is followed by the increase in per capita income, the country is under-populated and it can afford to increase its population till it reaches the optimum level. On the contrary, if the increase in population leads to diminution in per capita income, the country is over-populated and needs a decline in population till the per capita income is maximized.

It changes with a change in any of the factors assumed to be given. For instance, if there are improvements in the methods and techniques of production, the output per head will rise and the optimum point will shift upward. What the optimum point for the country is today, may not be tomorrow if the stock of natural resources increases and the optimum point will be higher than before. Thus the optimum is not a fixed but a movable point.

According to Cannan, "At **any given time, increase of labour up to a certain point is attended** by **increasing proportionate returns and beyond that point further increase of o labour is attended by diminishing proportionate returns."** The per capita income is the highest at the point where the average product of labour starts falling. This point of maximum returns is the point of optimum population.

4.7 Glossary

- **Optimum Population:** is *a* concept where the human population is able to balance maintaining a maximum population size with optimal standards of living for all people.
- **Under Population:** having a lower density of population than is normal or desirable.
- **Overpopulation:** is the state whereby the human population rises to an extent exceeding the carrying capacity of the ecological setting.

4.8 Answers to Self-check Exercises

1. Explain the main assumptions of the Optimum Theory of Population.
2. In what way, Theory of Optimum Population is superior to Malthusian theory?

4.9 Suggested Readings

- Bhat, P.N.M. (2002), Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
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4.10 Terminal Questions

1. Critically explain theory of Optimum Population. How far it is an improvement over Malthusian theory?

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Chapter-5
Economic Determinants of Fertility

Structure

5.0 Learning Objectives

5.1 Introduction

5.2 Economic Determinants of Fertility

5.3 Socio-Economic Factors affecting Fertility

5.3.1 Education Attainment and Fertility

5.3.2 Economic Status and Fertility

5.3.3 Occupation of Husband and Fertility

5.3.4 Employment of Wife and Fertility

5.3.5 Religion, Caste, Race and Fertility

5.4 Summary

5.5 Glossary

5.6 Answers to Self-check Exercises

5.7 Suggested readings

5.8 Terminal Questions

5.0 Learning Objectives:

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

- understand economic determinants of fertility.
- know the socio-economic factors affecting fertility.

5.1 Introduction

The motivational factors mentioned above are supported by the low level of economic and social development which exists in most developing countries today in spite of the fact that the process of industrialization has already commenced in these countries. In most developing countries, there is still widespread poverty, and the literacy rates are low. (India, Pakistan, Bangladesh, Burma, Indonesia, Thailand are some examples.) The status of women is also quite low, leading to their unquestioning acceptance of excessive child-bearing without any alternative avenues for self-expression. The general low level of living leads to an apathetic state of mind, and there is hardly any desire to improve the standard of life. Lack of education acts as a constraint on rational and secular living, and the influence of religious dogmas persists. The result of all these factors is that the size of the family grows without any inhibiting influences.

Taking all these factors into account, the governments, of most developing countries have launched official family planning programmes to educate their people to accept, in keeping with the changing times, the small family norm. Though these family planning programme cannot be a substitute for economic and social development, and are definitely not meant to be so, they can be quite effective in augmenting the control of fertility.

It *has* been observed that the levels and patterns of fertility vary considerably in various sub-groups of the same population. These sub-groups may be based on residence, whether urban or rural, social and economic status in terms of educational attainment, occupation, income, size of land holding, religion, caste, race etc. A study of differential fertility is useful in identifying the factors which determine fertility levels among various sub-groups. The information so provided gives us some idea of the future proportion of each group in the total population and also helps us to project more accurately the future population size of the entire country. A study of differential fertility is also important from the point of view of the implementation of family planning programmes because it helps us to identify high fertility groups on which the programme efforts can be concentrated. In this connection, it is interesting to note that in the 1930s, when birth rates were at the lowest levels, research was concentrated on those groups which had the lowest fertility with a view to uncovering clues for the formation of policies for the encouragement of high fertility among these very groups.

In the section that follows the following important items are considered for a study of differential fertility: (1) Ecological factors: (a) regional differences in fertility; and (b) rural-urban residence and fertility; (2) Socio-economic factors: (a) educational attainment and fertility; (b) economic status and fertility; (c) occupation of the husband and fertility; (d) employment of women and fertility; (e) religion, caste, race and fertility. It may be noted that fertility differentials may be due to demographic factors such as the age and sex structure of the population and/or ecological and socio-economic factors. While studying fertility differentials, it is necessary, therefore, to ensure that the effects of age/sex distribution among the various sub-groups are eliminated as far as possible. For this reason, a study of differential fertility according to various ecological arid socio-economic variables is undertaken by using standardized measures, such as the total fertility rate, the average number of children ever born to women who have completed their reproductive cycle, standardized average number of children ever born or average number of children ever born for each age group.

5.2 Economic Determinants of Fertility

The phenomenon of fertility decline in the now developed countries is very complex. Several interacting and overlapping economic and social factors were responsible for the transition from high to low fertility. It follows therefore that no single factor can be held responsible for this fertility decline. In what follows, some economic and social factors are

reviewed in the context of fertility declines. These are: (i) industrialization; (ii) urbanization; (iii) rising levels of living and increased costs of bringing up children; (iv) family functions and structure; (v) relationship between mortality and fertility; and (vi) social mobility.

The process of industrialization began towards the middle of the eighteenth century, first in England and later throughout Europe and North America. It brought in its wake several far-reaching economic and social changes, which in turn brought about fertility declines. Most important, the process of industrialization initiated the process of modern economic growth; the per capita productivity increased and real income rose. Advancements in science and technology further improved the productivity of labour, for they created conditions in which workers received better education and training, worked shorter hours as a result of social reforms, and had better nutrition because of increased availability of food supplies. Several structural changes also took place about the same time. The share of agriculture to total product and that in the labour force decreased; there was a corresponding rise in the share of industry and other non-agricultural sectors. Industrialization was accompanied by urbanization. Declines in mortality were registered because of agricultural, economic and social development that came in the wake of industrialization.

Several changes accompanied growing industrialization and urbanization, which had implications for fertility decline. Of particular interest are the changes which took place in the structure and functions of the family — the basic unit of society. The family lost its function as an economic unit, in the sense that it ceased to be a producing unit and became only a consumer unit. With the introduction of laws which prohibited child labour and made education compulsory, the economic usefulness of children to their parents was drastically reduced. In fact, they became a liability because of the increasing costs and lengthening duration of education. At the same time, there were, declines in mortality, specially infant and child mortality; more children survived and the burden of bringing them up fell entirely on the nuclear family. Parents soon realized that, because of declining mortality, there was no need to have a large number of children in the hope that a few at least would survive. They therefore had fewer children. The advantages of rising real incomes flowing from industrialization were in danger of being nullified by large families, specially because of the rising costs of bringing up children. A large family was, therefore, seen as a threat to maintenance of a certain standard of life, and couples responded to this threat by having a smaller number of children. Rising costs of child rearing was thus an important factor in fertility declines in developed countries. Certain measures initiated by the Governments of various countries also contributed to changes in the attitudes of parents towards their children. Financial responsibility, for medicines and medical treatment, provision of old age security, etc., which were originally shouldered by the family, were taken over by the State in many countries. Children, therefore, were no longer the only source of old age security. With the spread of education among women, social attitudes to women, as well as the attitudes of women to themselves, underwent profound changes. It was realized that a woman need not be restricted to her age-old role of homemaker and bearer of children.

Women began to participate in gainful employment which provided and alternative to child-bearing and child-rearing. Education was also responsible for bringing about a rational outlook, *(free* from religious dogma; and this rational outlook facilitated the acceptance of the idea of fertility control. Moreover, flowing from educational opportunities and rising prosperity was the aspiration on the part of the individual to rise in the social scale. Too many children were perceived to be an obstacle in the attainment of this objective to climb the social ladder; and the natural result was the limiting of the size of the family.

According to frank W. Notestein, the noted demographer, the growth of a huge and mobile city population largely changed the corporate family way of traditional society; instead came individualism, which was characterized by increasing personal aspirations to move upward. Large families became "a progressively difficult undertaking; expensive and difficult for a population ever increasingly freed from old^ taboos and increasingly willing to solve its problems rather than/accept them." Notestein pointed out in 1953 that the decline in fertility in the West occurred as a result of the growth of an urban industrial society. He concluded that the development of technology was the underlying factor for fertility transition. He also pointed out that industrialization and urbanization, resulted in "the development of rational and secular point of view; the growing awareness of the world and modern techniques through proper education improved health, and the acceptance of alternatives to early marriage and child-bearing as a means of livelihood and prestige of women."

The reasons for the recent declines and low current levels of fertility in most of the developed countries may be summarized as follows: (1) Development of improved methods of fertility control and increasing use of the most effective methods; (2) Liberalized abortion laws and extensive grounds and facilities for abortion; (3) Decreasing desire for large families; (4) Rising costs of rearing child; (5) The increasing trend of women's employment in paid jobs outside the home; (6) Instability and changes in the values attached to the rewards and penalties of parenthood in the context of other needs and aspirations.

5.3 Socio-Economic Factors Attending Fertility

5.3.1 Educational Attainment and Fertility: The educational attainment of couples has a very strong bearing on the number of children born. Educational attainment, especially of women, is one of the indicators of modernization and the status of women in society. In low fertility countries, historically the relationship between fertility and the educational attainment of the wife has been a negative one, in the sense that the higher the educational level, the lower was the family size. In some more recent investigations, however, it has been observed that the curve tended to go up slightly at the highest educational levels.

In the high fertility countries, such as Egypt, Taiwan and Chile (Greater Santiago) a distinct negative relationship has been observed between the educational attainment of the woman and the number of children born to her. In a high fertility country like India, not many studies have been conducted on the relationship between the educational attainment of the

woman and her family size. So far it has been possible to study the effects of the educational attainment of woman on fertility in urban areas, especially in big-sized cities and metropolitan areas, where educational programmes have been taken advantage of by almost all sections of the population.

5.3.2 Economic Status and Fertility: General studies in the past have highlighted the inverse relationship between the economic status of the family and fertility. This traditional relationship is now undergoing substantial changes as far as the developed countries are concerned. In India, very few studies have gone into this question of the relationship between the income of the family and fertility. In three rounds of the National Sample Survey (1959-60, 1960-61, and 1961-62), the Fertility and Family Planning Study conducted in Greater Bombay (1966) and in the studies of fertility differentials in India conducted by the Registrar-General, the traditional inverse relationship between economic status and fertility has been observed. In Table 9.10, the crude birth rate in rural India (1959-1960) and in urban India (1960-1961 and 1961-1962) on the basis of per capita monthly household expenditure in rupees, and the total marital fertility rate and standardized general marital fertility rates, for rural and urban India (1979) are presented. It is obvious that as per capita monthly household expenditure increases, the fertility rate goes down. Thus an indirect relationship between income and fertility has been confirmed.

5.3.3 Occupation of Husband and Fertility: In developed countries occupation, especially that of the husband is used as an indicator of social economic status, and differential fertility is studied according, to the occupation of the husband. Studies conducted in Europe around 1970 indicated that the wives of farmers and farm workers recorded a higher fertility that the wives of men engaged in non-agricultural occupations. Even amongst those engaged in agriculture, the fertility of the group of (farm workers was higher than that of the group of farmers. These differences were more pronounced in France and the United States than in the other countries. Manual workers were also found to have, on an average, more children than non-manual workers. In the non-manual class, the differences between the higher and the lower grades either did not exist or were negligible.

In India, some studies have tried to investigate the relationship between the occupation of the husband and fertility. It was generally observed that the wives of those engaged in professional, jobs had the lowest fertility. Agarwala found that cultivators and labourers, had, on an average, 7.4 children, and those who reported their occupation as “service” and those who were professionals had, on an average, 6.6 children. Driver’s findings indicated that the wives of unskilled workers, agriculturists and artisans had higher fertility than’ the wives of clerks.

5.3.4 Employment of Wife and Fertility: It has been found in several studies that the gainfully employed women have a smaller number of children than those who are not employed. Though this relationship has been quite distinct in many industrialized countries, the exact

nature of this relationship is not yet known. Is it that women who have smaller number of children tend to take paid jobs outside their homes, or is it that those who have already paid jobs restrict their family size to the very minimum, so they can work? It is difficult to say anything very firmly.

5.3.5 Religion, Caste, Race and Fertility: Religion is considered to be an important factor affecting fertility. The study of differential fertility of various religions as well as ethnic groups has important social and political implications. In a democratic society where each person has the right of vote, the size of a particular religious, caste or ethnic group may be an important factor in determining the political power-structure. Several studies have been conducted in developed as well as developing countries to investigate the influence of affiliation to a particular religion on the fertility behaviour of the people.

At one time, all the religions of the world, except Buddhism, were pro-natalist or "populationist." The injunctions laid down in various religions indicate the importance of high fertility. Some illustrations are: "Be fruitful, multiply and replenish the earth" (Judaism and Christianity); "Marry a woman who holds her husband extremely dear and who is richly fruitful" (Islam); "Make the bride the mother of good and fortunate children, bless her to get ten children and make the husband the eleventh one" (Hinduism). It may, however, be pointed out that all these religions have their roots in the distant past, which was a period of high mortality. As such, the emphasis on prolific fertility was a functional adjustment to high mortality in order to ensure the continuation of the group. Resistance to human interference with fertility is common to all religions. As pointed out by Lorimer and Osborn, however, this resistance has been less persistent in those religious groups where there was an absence of a central authority, as in the case of Judaism and the Protestant sect of the Christian religion. This same reason, namely the absence of a central authority, may be attributed to the absence of opposition to birth control among the Hindus.

Various studies in the West, which is essentially dominated by the Christian-Hebraic tradition, show that the fertility of Catholics has exceeded that of non-Catholics in almost every country and socio-economic group. The studies conducted in the United States and Canada have clearly pointed out that the fertility of Roman Catholics has been higher than that of either Protestants of Jews. Recent findings, however, indicate that in most of the European countries as well as in Canada, differentials in fertility by religious affiliation are narrowing. (In the United States, on the other hand, the gap is widening.) The reason for this narrowing of differences may be due to modifications in the religious sanctions relating to the ideology and practice of birth control and the weakening of the influence of religious doctrines and traditions. It may also be that the influence of other socio-economic factors, such as urban residence, educational attainment, etc., on fertility is on the wane, with the result that fertility differentials are narrowing.

5.4 Summary

India may be taken as an illustration from the developing countries. In most of the studies conducted in India to study the 'fertility behaviour of various religious groups, it was observed that the Muslims had a higher fertility rate than the Hindus or the Christians. An analysis of census data from 1881 to 1971 indicates that the Muslims have invariably had higher growth rates for each decade, and these have been attributed to their higher fertility. In pre-partition India, the fertility of Muslims was about 15 per cent higher than that of the Hindus. Recent rounds of the National Sample Survey and other small-scale surveys have confirmed this finding. The Fertility and Family Planning Study conducted in Greater Bombay in 1966 also found that the marital fertility of Muslim women was significantly higher than that of Hindu women. No differences were observed between the fertility of Hindu and Christian women. The fertility of Zoroastrian (Parsee) women was the lowest among all the religious groups studied.

Some sociologists are of the opinion that minority religious groups may tend to have higher fertility rates to gain more political power. This, however, does not hold true in all cases. Two minority communities, that is, the Zoroastrian community in India and the Jewish community in the United States, have always shown lower fertility rates than the majority group. Other socio-economic factors, such as the educational attainment of the wives, the status of women, the degree of modernization of the community, etc., are found to" affect the fertility of the sub-groups in a particular society. When, for instance, in the Greater Bombay Study, the educational level of women was "controlled with a view to studying fertility differentials by religion, it was found that, for each religious group, a negative association existed between fertility and the educational attainment of the woman. It was also observed that the differences in the fertility of the Hindu and Muslim women narrowed, though they did not disappear completely.

From this discussion, it is obvious that it is difficult to determine the exact role of religion in influencing fertility and that the role of religion, in causing fertility differentials, though not negligible, is quite limited.

As caste is an important indicator of social status in India, attempts have been made in several studies to observe fertility differentials by caste. In a study conducted in Lucknow City, it was observed that upper caste Hindus had, on an average, 3.8 live births, while the lower caste Hindus had, on an average, 4.1 births.

In multi-racial societies, differences in fertility have been found among various racial groups. In the United States, for example the Negroes show a higher fertility than the white community. These differences, however, have been explained away by socio-economic factors.

Inter-relationship between Socio-Economic Variables Affecting Fertility: In the discussion on differential fertility only one variable at a time has been taken into consideration with a view to explaining the differences in fertility among various sub-groups in any population.

It must, however, be recognized that all these variables are closely interrelated. For example, when the husbands are highly educated, they tend to have educated wives. Higher educational levels are related to higher incomes and more gainful occupations, leading to higher standards of life. In a community in which women are educated, the influence of religious dogma is likely to be less rigid, while if the community has a high proportion of illiterate women, religious influences tend to be strong and affect fertility. Age at marriage is also closely associated with the educational attainment of wives.

When fertility differentials are studied in relation to various ecological, socio-economic and cultural factors, it is found that, in many developed countries, they are narrowing, and the latest trend is towards uniformity. On the other hand, in a developing country like India, fertility differentials have, in recent times, become increasingly pronounced. Amos Hawley has identified three phases in the trends in fertility differentials. In the first phase, various socio-economic classes either had identical fertility rates or the relationship between socio-economic status and fertility was positive. In the next phase, which began with industrialization and the resulting socio-economic development, it was the highly educated urban elite group which first began to show declines in fertility thus showing a wave of fertility differentials. In the final phase, which is in existence now in many Western countries, there appears to be a positive association between socio-economic status and fertility. India is at present in the transitional stage of declining fertility and, therefore, differentials among various socio-economic classes are becoming increasingly more pronounced.

5.5 Glossary

- **Fertility:** is the quality or state of being fertile.
- **Ecological Factors:** are components of the environment that can influence the organisms directly or indirectly.
- **Social Mobility:** is the movement in time of individuals, families, or other social units between positions of varying advantage in the system of social stratification of a society.

5.6 Answers to Self-check Exercises

1. Discuss relationship between educational attainment and fertility,
2. Discus relationship between economic status and fertility.

5.7 Suggested Readings

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5.8 Terminal Question

1. Discuss in detail economic determinants of fertility.
2. Discuss in detail various socio-economic factors affecting fertility.

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Chapter-6
Leibenstien's Economic Theory of Population

Structure

6.0 Learning Objectives

6.1 introduction

6.2 Explanation of Leibenstien's Economic theory of Population Growth

6.3 Three Types of Utilities (Demand Side)

- 6.3.1 Consumption Utility
- 6.3.2 Productive Utility
- 6.3.3 Old Age Security Utility

6.4 Two Types of Costs (Supply Side)

- 6.4.1 Direct Costs
- 6.4.2 Indirect Costs

6.5 Effects Influencing Utilities

- 6.5.1 Per Capita Income Effect
- 6.5.2 Survival effect
- 6.5.3 Occupational Distribution Effect

6.6 Co-relation Between Per Capita Income and Population Growth

6.7 Criticism of the Theory.

6.8 Summary

6.9 Glossary

6.10 Answers to Self-check Exercises

6.11 Suggested Readings

6.12 Terminal Questions

6.0 Learning Objectives

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

- Understand Economic Theory of Population.
- Understand Correlation between Per Capita Income and Population growth.

6.1 Introduction

Harvey Leibenstein has endeavored to correlate changes in population to economic development. He points out that demographic factor cannot be ignored in considering economic development problem. Leibenstein's theory of population growth is an integral part of his Critical Minimum Effort Thesis on economic development. Higher the population of an under-

developed economy more will be the requirement of critical minimum efforts to come out of low living level. The rate of growth of population is a function of the level of per capita income which, in turn, depends on the stage of economic development. As economic development gains momentum, per capita income rises. Consequently, both fertility and mortality rates decline. Mortality declines because of development of medical facilities. In the early stages, fertility does not so easily change due to traditions, culture, attitude and environment which are very rigid and fertility oriented. But the decline in mortality rate is faster than decline in fertility rate. This fertility gap continues to widen for quite some time. Leibenstein's motivational theory assumes that at low level of income, there is greater motivational power on the part the parents to have an additional child. This motivation continues up to a critical minimum level of per capita income. As the per capita income increases beyond that critical level, this motivation declines. This theory, therefore, is also known as motivational theory of population.

6.2 Leibenstein's Economic Theory of Population in Growth

According to Harvey Leibenstein, an adequate theory of population should have following two properties: (i) It can be integrated into the theories of economic development, and (ii) It should also be in a position to explain the changes in demographic factors during the course of development.

The population theory of Leibenstein explains: (i) The rationale behind the high birth rate at the early stage, and (ii) The rationale of changing motivations during economic development. Leibenstein propounded an economic theory of population in terms of utility and cost of every child.

6.3 Three Types of Utilities (Demand Side)

"Every child involves three types of utilities. In other words, parents derive three types of benefits from an additional child. These are:

6.3.1 Consumption Utility: A child has a consumption utility to the parents. Parents get this utility out of love and pleasure by rearing a child. This utility does not change with the economic development. Love and pleasure of child remain almost constant irrespective to the stage of development.

6.3.2 Productive Utility: When child starts earning it becomes a source of family income. This utility decreases with increase in income. But, it does not become zero.

6.3.3 Old Age Security Utility: In the old age child gives utility as a source of security. This utility decreases with rise in income. This also does not become zero.

6.4 Two Types of Costs (Supply Side)

The cost of bringing up an additional child is of two types:

6.4.1 Direct Costs: The direct costs are the rearing and maintenance costs of an additional child.

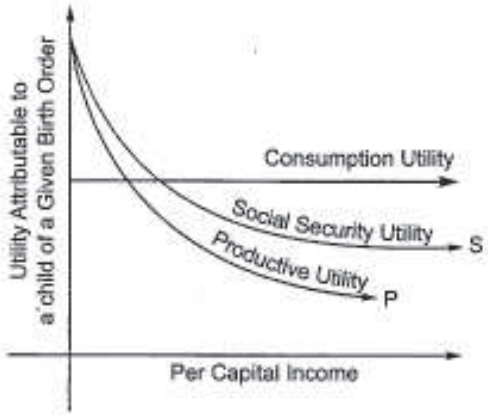
6.4.2 Indirect Costs: Indirect costs are the opportunities foregone due to the presence of an additional child. They are in the form of inconveniences and decreased mobility of parents.

On the whole, the cost of bringing up an additional child is less to parents with low per capita income and high with higher per capita income.

6.5 Effects influencing Utilities

There are three types of effects which influence the utilities and costs of an additional child as development gains momentum. They are income, survival and occupational distribution effects.

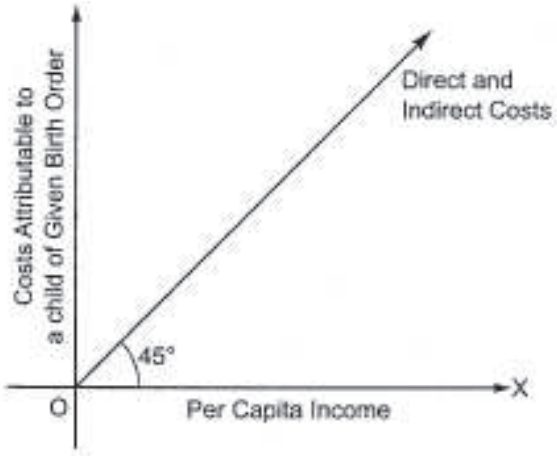
6.5.1 Per Capita Income Effect: Per capita income effect is shown in the following diagrams:



(i) The consumption utility curve is assumed to be constant. It is the pleasure and satisfaction that the parents get in bringing up a child. It has nothing to do with the level of economic development and thus per capita income.

(ii) The curves S and P show security utility and income utility. These utilities decline as per capita income rises. As per capita income rises, parents become wealthier and their dependence on the child decreases. Similarly, with the increase in per capita income in a family, there is no need for the child to earn. Child becomes less valuable as a productive agent.

(iii) The direct and indirect costs of bringing up an additional child go up in proportion to the increase in per capita income of the family. This is depicted in the following diagram:



6.5.2 Survival Effect: The increased survival rates raise the three utility curves. Survival effect reduces the motivation to have an additional child on the part of parents.

6.5.3 Occupational Distribution Effect: An increase in income increases mobility and specialization. The opportunities for child labour become limited and training becomes costly.

Therefore, the size of the family has to be smaller so that the parents can take advantage of new opportunities. This motivates the parents for family limitation.

6.6 Correlation between Per Capita Income and Population Growth

In terms of motivation, Leibenstein has developed following correlation between per capita income and population growth:

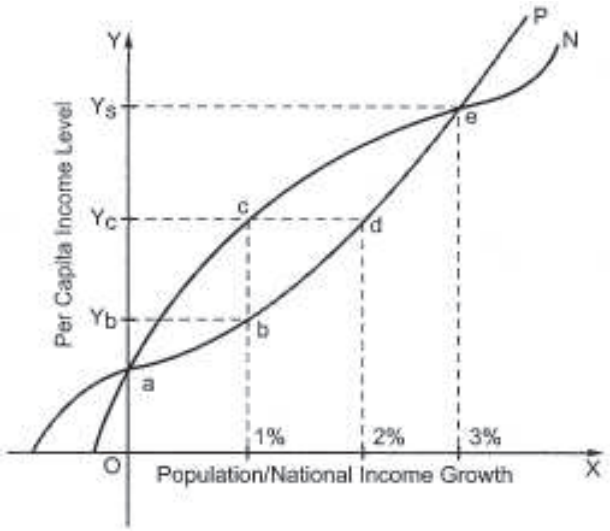
(i) At very low income the mortality rate is high. The birth rate too is very high. The utilities from additional child are very high, whereas the cost of additional child is very low.

(ii) As income level increases, mortality rate declines. Fertility rate does not decrease immediately. The result is an increase in the growth rate of population.

(iii) When income increases further, and when more children survive, the utilities of an additional child decline. On the other hand, the cost of child increases. Thus, fertility tends to decline.

(iv) At a very high rate of income, the gap between fertility and mortality gradually reduces. Both fertility and mortality become lower and development becomes self-sustained.

According to Leibenstein, there is a biological determined maximum growth rate of population between 3 and 4 per cent. To overcome it, there should be a larger increase in per capita income. This contention is proved in the following diagram:



(i) The curve N measures the level of per capita income and P indicates the rate of grow of population at each level of per capita income.

(ii) Point 'a' represents the subsistence equilibrium point. If per capita income is raised to OY_b, the income growth rate is less than population growth rate which is 1 per cent. At OY_C level or per capita income, the rate of population growth is 2 per cent whereas; the rate of growth of per capita income is 1 per cent. In other words, the rate of population growth (Y_cd) is greater than the rate of growth of Per capita income (OY_CC).

The rate of per capita income should be raised as to increase the national income by more than the population growth. This is possible after OY_S level of per capita income. Leibenstein has assumed biologically determined growth rate of population at 3 per cent as is shown at point 'e'. OY_S is, therefore, the critical minimum per capita income level corresponding to sustained economic development.

In the end, if can be stated that beyond critical minimum level of per capita income, the motivation to have an additional child declines due to increase in cost of bringing up an additional child and decline in productive: and security utilities.

6.7 Criticism of the Theory

Leibenstein's theory of population has been criticized on the following grounds:

(i) Reduction in Mortality not the Function of Increase in Per Capita Income: Leibenstein perceives that increase in income up to *a* point leads to an increase in population. But this is not so. Population increases because of reduction in mortality rate which is the outcome of improvement in public health and advancement in medical science.

(ii) Socio-Cultural and Institutional Factors Ignored: To reduce population in under developed countries, what is more important is a changed and improved socio-cultural institutions, attitudes, outlook, education and intellectual perception. These factors have been ignored by leibenstein.

(iii) Ignores State's Effort to Reduce Fertility: This theory ignores the government's efforts to reduce fertility. No under-developed country waits for per capita income to rise above the critical minimum level so that the process of development becomes self-sustained. Governments in under developed nations have been making strenuous efforts to reduce fertility by executing family welfare programmes.

(iv) Economic Development Leads to Population Control: In under developed countries, resources are underutilized. Per capita income cannot be significantly increased unless population growth is first controlled.

Despite above limitation, it can be stated that Leibenstein's theory is based on economic considerations and can play an important role in policy making.

6.8 Summary

Thus Leibenstein's motivational theory states that at the low level of per capita income, there is a greater motivational force on the part of parents to have an additional child as a productive agent and a source of security. This motivation continues up to a particular level of per capita income.

But as per capita income increases beyond that level, the motive to have an additional child declines because the direct and indirect costs of bringing up an extra child increase while productive and security utilities decline. These sequences are closely related to the different stages of economic development.

6.9 Glossary

- **Child as consumption Utility:** A child has a consumption utility to the parents. Parents get this utility out of love and pleasure by rearing a child.
- **Child as Productive Utility:** when child starts earning it becomes a source of family income.
- **Old Age Security Utility:** in the old age child gives utility as a source of security.
- **Shocks:** refer to those forces which reduce the level of output, income, employment and investment etc. They depress development forces which reverse the wheel of development.
- **Stimulants:** refer to those forces which raise the level of income, output, employment and investment etc. In other words, Stimulants impress and encourage development forces. They are called 'Income Generating forces' which lubricate the wheel of development.

6.10 Answers to Self-check Exercises

1. Explain three types of utilities which parents derive from children as per Leibenstien's population theory.
2. Explain Leibenstien's views on correlation between per capita income and population growth.

6.11 Suggested Readings

- Bhat, P.N.M. (2002), Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
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6.12 Terminal Questions

1. Critically explain Leibenstien's Theory of Population.

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Chapter-7
Carry Seeker's Theory of Fertility

Structure

7.0 Learning Objectives

7.1 Introduction

7.2 Gary Seeker's Economic Analysis of Fertility

7.3 Human Capital Theory and Fertility

7.3.1 Children s Human Capital Investments

7.3.2 Quality-Quality Trade-Off

7.4 Factors Influencing Fertility Decisions

7.4.1 Economic Factors

7.4.1.1 Opportunity Cost of Child Bearing

7.4.1.2 Education and Human Capital Accumulation

7.4.1.3 Income and Wealth

7.4.2 Non-Economic Factors

7.4.2.1 Cultural and Social Norms

7.4.2.2 Child-rearing Costs and Benefits

7.4.2.3 Contraceptive Technology

7.5 Implications of Seeker's Model

7.6 Criticism of the Theory

7.7 Summary

7.8 Glossary

7.9 Answers to Self-check Exercises

7.10 Suggested Readings

7.11 Terminal Questions

7.0 Learning Objectives

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

- understand Gary Seeker's Economic Analysis of Fertility;
- know about Human Capital theory and Fertility; and
- list the factors Influencing Fertility Decisions

7.1 Introduction

Gary Becker, a Nobel laureate in economics, made substantial contributions to the field of human capital theory and its applications to various aspects of human behavior,

including fertility choices. His groundbreaking work on fertility theory provided new insights into the interplay between economic factors, individual decision-making, and population dynamics. This essay delves into the core concepts of Gary Becker's theory of fertility, exploring its key components, implications, and relevance in understanding the complex factors that influence fertility decisions.

7.2 Gary Becker's Economic Analysis of Fertility

The economic theories on population are basically based on the assumption that fertility behavior of couples in a population is based mainly on economic considerations. Gary S Becker, in his paper entitled An Economic *Analysis of Fertility* published in 1960, proposed that the micro consumption theory in Economics is applicable to fertility also. He asserts that variation in fertility can be understood within the framework used by economists in the analysis of demand for durable goods. The household choice of fertility is made after considering the utilities and opportunity costs of an additional child. Thus, Becker's theory is an attempt to explain fertility with *reference* to economic factors.

• Assumptions

(i) Fertility behavior purely depends on economic considerations.

(ii) Income and fertility levels are positively correlated.

(iii) Tastes of the parents do not change.

(iv) Price is not affected by the consumption goals of households.

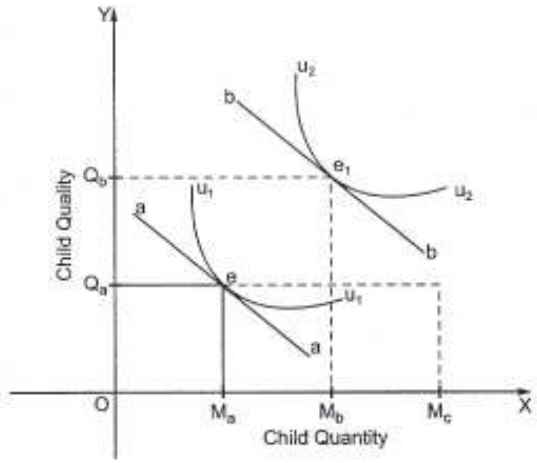
(v) Income and time act as main constraints in increasing the size of the family.

• Explanation

According to Becker, people behave as regards fertility as they would in purchasing consumers durables. With an increase in income, the parents will have more of children, i.e., the, income effect is positive. *Becker* asserts that additional child will involve additional expenditure. It has been observed that higher income groups can afford more children, but they have frequently less children. The reason behind is that higher income families want quality children. They want to spend more on education and health of the child. Higher quality children are more expensive. The crux of the theory is that the price effect of higher quality children is more important than the income effect.

Becker's analysis states that demand for children is function of the potential income of the family and the price or cost of child. The higher the income of the family, the higher would be demand for children. The higher the cost of children, the lower would be their demand. However, as income increases, parents will show a preference for child quality rather than quantity. The cost will include both monetary as well as loss of time. The cost of child is derived by taking into account the opportunity cost, i.e., potential loss of income of the family as a consequence of conception, gestation and delivery. Mother cannot go out to work due to child birth. In high income societies this loss is more. This is the reason why at a high relative income, parents are reluctant to have more children.

Becker observes that the satisfaction from children depends both on their quantity as well as the quality. It has been observed that whenever the income of the parents rises, they want to increase the average expenditure on their child. This increases the cost of rearing the child in desired manner. The increasing cost of raising children with a good standard of living will offset effect of higher income on the demand for additional child. The birth of an additional child is a calculated move on the part of the parents when the utility from the expected child exceed the cost. An increase in income normally should increase both the quantity and quality of children. In the Becker's model, this is shown in the following diagram:



The diagram shows that with the increase in income, both the quantity and quality of children increase. As income increases, the quantity of children increases from OM_a to OM_b, and the quality of the children would be raised from OQ_a to OQ_b,. But, if the quality is kept constant, the quantity of children can be increased from OM_a to OM_C. This makes the inference clear that people at higher level of income have less desire for an additional child as they want quality children in place of quantity.

7.3 Human Capital Theory and Fertility

Gary Becker's theory of fertility is rooted in his broader framework of human capital theory. Human capital refers to the skills, knowledge, and attributes that individuals accumulate through education, training, and experience, and which enhance their economic productivity and potential earnings. Becker extended this concept to fertility decisions by viewing children as an investment in human capital.

7.3.1 Children as Human Capital Investments

Becker proposed that individuals approach fertility decisions as rational economic agents. He argued that parents make decisions about the number of children they have based on a cost-benefit analysis. Children are seen as investments in human capital, as they require substantial investments of time, effort, and resources. These investments are aimed at improving the future earning potential of children.

7.3.2 Quality-Quality Trade-Off

Becker introduced the concept of the "quality-quantity" trade-off, suggesting that parents face a trade-off between the quality and quantity of children they choose to have. Investing more resources in fewer children can enhance their education and overall human capital, potentially leading to higher future earnings. On the other hand, having more children might dilute the available resources, resulting in lower investment per child but potentially contributing to a larger labor force.

7.4 Factors Influencing Fertility Decisions

Becker's theory identifies several economic and non-economic factors that influence fertility decisions. These factors shape the cost-benefit analysis parents undertake when deciding how many children to have:

7.4.1 Economic Factors

7.4.1.1 Opportunity Costs of Childbearing Becker emphasized that childbearing comes with opportunity costs, particularly for women. The time spent raising children reduces the time available for pursuing education and career opportunities, potentially affecting women's lifetime earnings.

7.4.1.2 Education and Human Capital Accumulation Education is a critical factor in Becker's theory. Higher levels of education often lead to delayed childbearing and fewer children. Education enhances individuals' earning potential, which affects the perceived costs of raising children.

7.4.1.3 Income and Wealth Income and wealth play a significant role in fertility decisions. Higher income levels can lead to greater investments in children's education and well-being. Additionally, economic stability can reduce the uncertainty associated with childbearing costs.

7.4.2 Non-Economic Factors

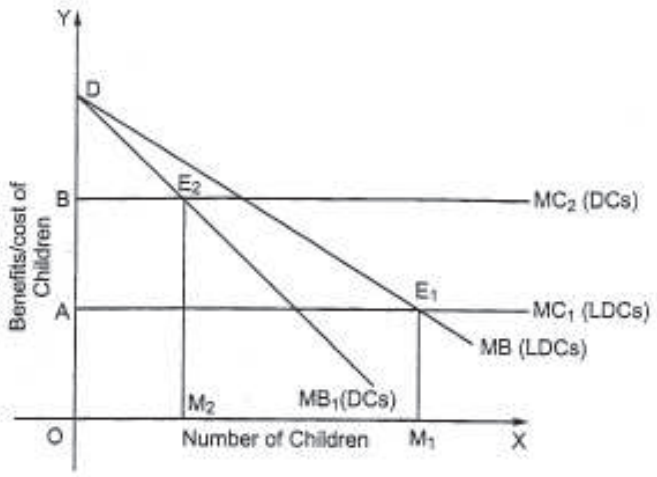
7.4.2.1 Cultural and Social Norms Cultural and social norms regarding family size and gender roles can influence fertility decisions. Norms that encourage larger families or traditional gender roles might impact the number of children a couple decides to have.

7.4.2.2 Child-rearing Costs and Benefits The perceived costs and benefits of child-rearing influence fertility decisions. Factors such as the availability of childcare, family support systems, and the perceived joys of parenting can play a role.

7.4.2.3 Contraceptive Technology The availability and effectiveness of contraceptive methods impact family planning choices. Access to contraception can empower couples to control the timing and number of children they have.

7.5 Implications of Becker's Model

1. Becker's model helps us to reach a determinate theory of population. Population growth depends on benefit and cost of children. The cost-benefit approach to population growth is elaborated in the following diagram:



(i) OA is the cost of child in under developed country and OB in developed country. OD is the benefit from the first child in both the countries.

(ii) The costs have been assumed to be constant.

(iii) Marginal benefits (MB) for an additional child drop at a slow rate for parents in under developed country and at faster rate for the parents in developed country. The equilibrium for an under developed family is at E_1, and for family in developed country is at E_2.

(iv) The diagram reveals the fact that less developed countries will have higher growth rate of population as compared to developed countries ($OM_1 > OM_2$).

2. Becker's work is of paramount significance in providing some insights into the determination of expenditure on children.

3. His analysis of choice between child quantity and child quality helps to understand *HamaneyHypothesis* about the effect of mortality reduction on investment per child.

7.6 Criticism of the Theory

1. **Difficult to Measure Quality of a Child:** Becker's theory does not say as to how the quality of child is to be measured. Thus, the theory seems to be unreal.
2. **Subsidized Costs Ignored:** Modern governments are welfare governments. The main quality input, education, is provided free or at subsidized costs. Quality of child cannot be known ex-ante.
3. **Wrong to Compare Child with Consumer Good:** The utility from child cannot be calculated in the same way as the utility from the consumer good. It is also difficult to calculate the opportunity cost of a child.
4. **Subjective:** The theory is subjective in its intend. Utility itself is subjective concept. Thus the theory is not objective.

Despite above shortcoming, Becker's theory is an important theory as it takes into consideration economic factors in explaining fertility analysis.

7.7 Summary

Gary Seeker's theory of fertility revolutionized the way economists and social scientists understand the intricate relationship between economic factors, human capital, and fertility decisions. By viewing children as investments in human capital, Becker provided a rational framework to analyze how individuals navigate the complex terrain of family planning. His theory continues to shape discussions on population dynamics, gender equality, and policy interventions aimed at influencing fertility rates. While the theory has received critiques for oversimplification, it remains a foundational pillar in the study of demographic behavior, highlighting the enduring impact of Becker's contributions to -economics and beyond.

7.8 Glossary

- **Opportunity Costs of Time:** Becker emphasized the opportunity costs associated with time spent on child-rearing. Individuals allocate their time between market work, household chores, and leisure activities. Having children requires a substantial investment of time and effort, particularly for women who traditionally bear a significant portion of childcare responsibilities. The decision to have more children involves a trade-off between allocating time to child-rearing activities and engaging in other productive or leisure activities.
- **Cost of Childrearing : Raising** a child involves direct and indirect costs, including expenses related to food, education, healthcare, and clothing. These costs can vary depending on societal norms, cultural expectations, and economic conditions. Becker's theory suggests that couples evaluate their financial resources and assess whether they can afford to raise additional children while maintaining their desired standard of living.
- **Child Quality - Qualify Trade - Off:** Becker introduced the concept of a "child quality-quantity trade-off. This idea proposes that parents face a decision between having a larger number of children (quantity) and investing more resources in each child to ensure better quality of upbringing (quality). As family size increases, the available resources per child tend to decrease, potentially affecting the overall well-being and opportunities of each child.
- **Human Capital Investment:** Becker argued that parents make fertility decisions based on their expectations of future returns from investing in their children's human capital. This aligns with the idea that children are an investment in the parents' old age, as they can provide support and care. Parents consider the potential benefits of having children who can contribute economically and emotionally to the family's well-being.
- **Income and Substitution Effects:** Becker's theory takes into account income and substitution effects. An increase in income can have different impacts on fertility decisions. While a rise in income might make raising children more affordable, it can also lead to an income effect where parents choose to have fewer children to maintain their desired lifestyle. The substitution effect refers to the potential change in fertility choices due to variations in the cost of childrearing relative to other expenses.

- **Gender Roles and Bargaining Power:** Becker's theory recognizes the importance of gender roles and bargaining power within the household. The division of labor, decision-making power, and control over resources can influence fertility choices. If women have more control over household decisions, it could impact fertility behavior, particularly as women's opportunities in the labor market increase.

7.9 Answers to Self-check Exercises

1. Explain the Becker's economic analysis of fertility.

2. Discuss various the economic and non-economic factors influencing fertility decisions.

7.10 Suggested Readings

- Bhat, P.N.M. (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
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7.11 Terminal Questions

1. Critically explain Gary Seeker's economic analysis of fertility.

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Chapter-8
Alternative Economic Approaches to Fertility Theory

Structure

8.0 Learning Objectives
8.1 Introduction
8.2 The Easterlin Paradox: Basic Concepts
    8.2.1 Relative Income Hypothesis
    8.2.2 Income and Aspirations
8.3 Empirical Evidence and Insights
    8.3.1 Cross Country Comparisons
    8.3.2 Cohort Studies
    8.3.3 Fertility and Economic Growth
8.4 Criticisms and Limitations
    8.4.1 Simplification of Human Behavior
    8.4.2 Causality and Reverse Causation
    8.4.3 Changing Social Norms
8.5 Policy Implications and Future Research
    8.5.1 Policy Relevance
    8.5.2 Income Distribution and Inequality
    8.5.3 Integration with Other Theories
8.6 Conclusion
8.7 Caldwell's Theory of Fertility
8.8 Foundations of Caldwell's Theory
    8.8.1 The Changing Value of Children
    8.8.2 Shifts in Reproductive Decision Making
8.9 Three Phases of the Theory
8.10 Empirical Support for Caldwell's Theory
8.11 Limitations of the Theory
8.12 Policy Implications of the Theory
8.13 Summary
8.14 Glossary
8.15 Answers to Self-check Exercises
8.16 Suggested Readings
8.17 Terminal Questions

8.0 Learning Objectives

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

- understand the Easterlin's Theory of Fertility;
- understand the empirical evidence and insights of the Fertility Theory; and
- Understand policy implications of the Fertility Theory.

8.1 Introduction

The study of fertility and its connection to economic and demographic factors has been a subject of substantial research. Richard Easterlin, a prominent economist, contributed significantly to this field by proposing a theory that challenges traditional assumptions about the relationship between economic growth, income, and fertility rates. Easterlin's theory, often referred to as the "Easterlin Paradox," suggests that income and economic development do not j necessarily lead to higher fertility rates. This essay delves into Easterlin's theory of fertility, exploring its core concepts, empirical evidence, criticisms, and implications for understanding the complex dynamics between economic factors and demographic behavior.

8.2 The Easterlin Paradox: Basic Concepts

Easterlin's theory of fertility is rooted in his examination of the relationship between income levels and fertility rates across different countries and time periods. The Easterlin Paradox challenges the conventional assumption that economic growth leads to higher fertility rates. Instead, Easterlin observed a U-shaped pattern between income and fertility, where fertility rates are highest at both the lowest and highest levels of income, with a dip in the middle-income range.

8.2.1 Relative Income Hypothesis

Easterlin proposed the "relative income hypothesis," which suggests that people's fertility decisions are influenced by their relative income and social comparisons rather than absolute income levels. He argued that people compare their income and living standards to those of their peers and make fertility decisions based on their perceived relative position in society.

8.2.2 Income and Aspirations

According to Easterlin, individuals aspire to achieve a certain level of economic well-being, which is often influenced by societal norms and comparisons. When income levels rise, people adjust their aspirations, which can lead to a delay in family formation and a reduction in fertility rates.

8.3 Empirical Evidence and Insights

Easterlies theory has been supported by empirical studies that analyze fertility behavior across countries and time periods. Some key insights include.

8.3.1 Cross-Country Comparison: Cross-country analyses have shown that countries with higher income levels tend to have lower fertility rates. However, this relationship is not linear, as the U-shaped pattern proposed by Easterlin is often observed.

8.3.2 Cohort Studies: Easterlin's theory has been validated by cohort studies that track fertility decisions within specific generations. These studies reveal that changes in relative income and aspirations significantly impact fertility choices.

8.3.3 Fertility and Economic Growth Empirical evidence indicates that rapid economic growth can lead to shifts in fertility behavior. Initially, fertility rates might rise due to increased income and optimism. However, as aspirations adjust and people delay family formation, fertility rates tend to decline.

8.4 Criticisms and Limitations

Easterlin's theory of fertility has not been without criticism. Some of the key critiques include:

8.4.1 Simplification of Human Behaviori Critics argue that Easterlin's theory oversimplifies the complex factors that influence fertility decisions. It focuses primarily on income comparisons and does not adequately address the role of cultural, social, and policy factors.

8.4.2 Causality and Reverse Causation The relationship between income and fertility can be bidirectional. While Easterlin's theory emphasizes that income influences fertility, it's also plausible that fertility decisions can impact income levels by affecting workforce participation and labor market outcomes.

8.4.3 Changing Social Norms: The theory's focus on relative income might not fully account for changing societal norms and values that impact fertility decisions. Cultural shifts, gender roles, and the availability of family planning methods can play significant roles.

8.5 Policy Implications and Future Research

8.5.1 Policy Relevance: Easterlin's theory has implications for family planning policies and government interventions. Policies aimed at addressing fertility rates should consider not only economic incentives but also the broader socio-cultural context in which fertility decisions are made.

8.5.2 Income Distribution and Inequality: Easterlies focus on relative income brings attention to the role of income inequality in shaping fertility behavior. Policies that address income disparities might indirectly influence fertility patterns by affecting individuals' perceptions of relative income.

8.5.3 Integration with Other Theories: Future research could explore how Easterlin's theory interacts with other theories of fertility, such as the human capital theory or the theory of demographic transition. This could provide a more comprehensive understanding of the complex factors at play.

8.6 Conclusion

Richard Easterlin's theory of fertility, encapsulated in the Easterlin Paradox, has significantly contributed to the study of demographic behavior and its connection to economic

factors. By emphasizing the role of relative income and aspirations in shaping fertility decisions, Easterlin challenged conventional assumptions and provided a nuanced perspective on the relationship between income levels and fertility rates. Empirical evidence supports the U-shaped pattern he proposed, but the theory has also faced criticism for oversimplification and neglect of certain factors. Nevertheless, the theory's insights remain relevant for understanding fertility trends, policy formulation, and the interplay between economic growth, income distribution, and demographic behavior.

8.7 Caldwell's Theory of Fertility:

The study of fertility and its relationship with socioeconomic factors and cultural change has been a subject of significant scholarly inquiry. One influential theory in this realm is Caldwell's theory of fertility, which seeks to explain the complex interplay between socioeconomic development, cultural transformations, and shifts in fertility behavior, Proposed by Australian demographer John Caldwell, this theory offers a nuanced perspective on how changing societal dynamics influence fertility patterns and contribute to the demographic transition. This essay provides an in-depth exploration of Caldwell's theory of fertility, elucidating its core components, empirical support, critiques, and broader implications for understanding demographic transitions across diverse societies.

8.8 Foundations of Cardwell's Theory of Fertility

Cardwell's theory emerged as a response to the limitations of earlier fertility theories, such as the demographic transition theory and the economic development model. While these theories provided valuable insights, Caldwell sought to integrate socioeconomic, cultural, and reproductive aspects into a comprehensive framework. His theory proposes that fertility behavior undergoes distinct stages as societies transition from traditional to modern settings.

8.8.1 The Changing Value of Children

Caldwell's theory begins with the premise that the perceived value of children evolves over time. In traditional societies, children are viewed as assets for agricultural labor and security in old age. However, with the onset of socioeconomic development and urbanization, the economic utility of children diminishes, leading to changes in fertility motivations.

8.8.2 Shifts in Reproductive Decision-Making

Caldwell argues that as societies modernize, the decision-making process regarding reproduction shifts. Traditional norms that encouraged larger families give way to aspirations for smaller families. Urbanization, education, and increased women's empowerment contribute to changes in fertility preferences and behavior.

8.9 Three Phases of the Theory

Caldwell's theory of fertility unfolds in three distinct phases, each corresponding to a stage of societal development:

Stage 1: Pre-Transition Phase In traditional agrarian societies, high mortality rates and the need for agricultural labor drive high fertility rates. Children are seen as a form of social security and contribute to household income through labor.

Stage 2: Transition Phase As societies undergo socioeconomic development, urbanization, and improvements in healthcare, mortality rates decline. This leads to a temporary increase in population growth, characterized by a decline in mortality and a lag in fertility decline.

Stage 3: Post-Transition Phase In fully modernized societies, fertility rates eventually decline as cultural norms change, Education, urbanization, and women's empowerment lead to shifts in fertility behavior, resulting in smaller family sizes.

8.10 Empirical Support for Caldwell's Theory

Caldwell's theory of fertility has received empirical support from various case studies and demographic research:

Case Studies Several historical and contemporary case studies across diverse societies have exhibited patterns consistent with Caldwell's theory. Countries like Japan, South Korea, and parts of Europe have experienced fertility declines corresponding to stages of socioeconomic development and cultural transformation.

Gender and Education Empirical evidence highlights the role of women's education and empowerment in shaping fertility behavior. As women's educational attainment increases, they often delay childbirth and opt for smaller family sizes, aligning with Caldwell's theory.

Urbanization and Family Size Urbanization and shifts from agrarian to industrial economies have been associated with declining fertility rates. The economic role of children changes in urban settings, contributing to changes in fertility motivations.

8.11 Critiques and Limitations

While Caldwell's theory offers valuable insights, it has faced critiques:

Simplification of Cultural Change: Critics argue that the theory oversimplifies the complexities of cultural change and may not fully account for the persistence of traditional values and norms in modern societies.

Contextual Variability: The theory's applicability can vary across cultures and contexts. Not all societies follow the same trajectory of fertility decline, and factors like religion and government policies can influence fertility behavior.

Causality Challenges: The theory's causal relationships are not always straightforward/While socioeconomic development can influence fertility behavior, fertility decisions can also impact socioeconomic outcomes, leading to bidirectional causality.

8.12 Policy Implications

Caldwell's theory holds important implications for policy-making and understanding demographic transitions:

Family Planning Programs: The theory underscores the importance of family planning programs that consider cultural norms and women's empowerment Successful initiatives should be contextually tailored to address specific fertility motivations.

Education and Gender Equality: Promoting education, especially for women, and ensuring gender equality can accelerate the transition to lower fertility rates. Education empowers women to make informed fertility decisions and contributes to cultural change.

Fertility Projections: Caldwell's theory aids in making informed projections about future fertility trends in developing countries as they undergo socioeconomic development. It helps policymakers anticipate changes in fertility behavior.

8.13 Summary

Caldwell's theory of fertility provides a comprehensive framework for understanding how socioeconomic development cultural change, and changing values influence fertility behavior. By offering a multi-dimensional perspective on the demographic transition, the theory contributes to a more nuanced understanding of the complex interplay between societal dynamics and reproductive choices. While subject to critique, the theory's empirical support and policy implications underscore.

8.14 Glossary

- Caldwell's theory of fertility is centered on the concept of the "social production of fertility." He argues that fertility behavior is a product of socio-cultural factors rather than just the outcome of economic development or access to contraception. Caldwell's theory challenges the idea that fertility decline is solely a consequence of modernization and instead highlights the significance of cultural shifts.
- **Socio-economic Development and Ideational Change:** Caldwell's theory posits that fertility transition is closely linked to socioeconomic development. However, he introduces the concept of "ideational change," which refers to shifts in values, beliefs, and norms that influence reproductive behavior. Economic growth alone does not lead to fertility decline; it must be accompanied by changes in cultural norms that favor smaller family sizes.
- **Diffusion of Ideational Chang:** Caldwell emphasizes the diffusion of new ideas and values across societies as a catalyst for fertility transition. These ideas often challenge traditional beliefs about the value of large families and emphasize the importance of investing in the education and well-being of fewer children.
- **Easterlin Paradox:** states that at a point in time happiness varies directly with income, both among and within nations, but over time the long-term growth rates of happiness and income are not significantly related,
- **Relative Income Hypothesis:** states that an individual's attitude toward consumption and saving is influenced more by their income than others.

8.15 Answers to Self-check Exercises

1. Explain basic concepts of Easterlin Paradox
2. Discuss three phases of Caidwell's Theory

8.16 Suggested Readings

- Bhat, P.N.M. (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
- Bhende, A. (2001). Principles of Population Studies. Revised edition. Himalaya Publishing House.
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8.17 Terminal Questions

1. Critically explain Easterlin's theory of Fertility
2. Critically explain Caldwell's theory of Fertility.

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Chapter-9
Cost and Values of Children and their Effects on Fertility

Structure

9.0 Learning Objectives
9.1 Introduction
9.2 Costs of Children
    9.2.1 Economic Costs
    9.2.2 Opportunity Costs
    9.2.3 Children Care Costs
9.3 Values and Perceptions of Children
    9.3.1 Cultural and Social Values
    9.3.2 Emotional and Psychological Values
    9.3.3 Interpersonal and Gender Values
9.4 Effects on Fertility decisions
    9.4.1 Delayed Childbearing
    9.4.2 Small Family Norms
    9.4.3 Cultural and Religious Factors
    9.4.4 Impact of Government Policies
9.5 Complex Interplay and Policy Implications
    9.5.1 Interdisciplinary Approach
    9.5.2 Gender Equality and Work - Life Balance
    9.5.3 Family Planning Programme
9.6 Summary
9.7 Glossary
9.8 Answers to Self-check Exercises
9.9 Suggested Readings
9.10 Terminal Questions

9.0 Learning Objectives

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

- Understand the costs of Children
- Understand the values and perceptions of children
- Understand the effects on fertility decisions

9.1 Introduction

The decision to have children is a multifaceted choice influenced by a range of factors, including economic considerations, cultural norms, personal values, and societal expectations. The cost and values associated with raising children play a crucial role in shaping fertility decisions. This essay delves into the intricate interplay between the costs and values of children and their effects on fertility choices, examining how economic, social, and psychological factors contribute to the complex dynamics of family planning.

9.2 Costs of Children

9.2.1 Economic Costs: Raising children incurs various economic expenses, such as healthcare, education, clothing, and food. These direct costs can impact a couple's financial stability and influence their decision-making process regarding family size. Economic constraints may lead to delayed childbearing or fewer children as couples strive to provide a comfortable standard of living for their offspring.

9.2.1 Opportunity Costs: The decision to have children often involves trade-offs in terms of career opportunities and personal aspirations. Women, in particular, may face significant opportunity costs as they balance the demands of motherhood with their professional goals. The opportunity cost of childbearing can lead to decisions to delay or limit family size.

9.2.3 Childcare Costs: The availability and affordability of childcare services influence fertility decisions. High childcare costs or inadequate support systems can deter couples from having additional children, particularly when both partners are engaged in the workforce.

9.3 Values and Perception of Children

9.3.1 Cultural and Social Values: Societal values and cultural norms play a pivotal role in shaping perceptions of the importance of children. In some cultures, large families are valued as a source of social support and status. In contrast, other cultures prioritize individual achievement and may promote smaller family sizes.

9.3.2 Emotional and Psychological Values: Personal values related to family, companionship, and; emotional fulfillment contribute to fertility choices. Some individuals may derive great joy and satisfaction from parenthood, viewing children as a source of happiness and purpose.

9.3.3 Interpersonal and Gender Values: The values assigned to gender roles and division of responsibilities within a family influence fertility decisions. Couples' alignment on these values affects their decisions about family size and the roles each partner will assume in raising children.

9.4 Effects on Fertility Decisions

9.4.1 Delayed Childbearing: The economic costs associated with raising children, such as education and healthcare expenses, can lead to delayed childbearing as couples strive to establish financial stability before starting a family. This trend is particularly evident in urban and developed areas.

9.4.2 Small Family Norms: In societies where individual achievement and career aspirations are emphasized, couples may opt for smaller families to maintain a balance between personal and parenting responsibilities.

9.4.3 Cultural and Religions Factors: Cultural and religious values can strongly influence fertility decisions. Societies with a cultural emphasis on larger families or religious teachings encouraging procreation may have higher fertility rates.

9.4.4 Impact of Government Policies: Government policies mat address the costs of child-rearing, such as subsidized childcare and parental leave, can mitigate the economic burden of raising children and influence fertility decisions.

9.5 Complex Interplay and Policy Implications

9.5.1 Interdisciplinary Approach: Understanding the effects of the costs and values of children on fertility requires an interdisciplinary perspective that encompasses economics, sociology, psychology, and anthropology.

9.5.2 Gender Equality and Work-Life Balance: Promoting gender equality and providing supportive work environments can reduce the opportunity costs of childbearing and empower couples to make fertility decisions aligned with their values.

9.5.3 Family Planning Programs: Family planning programs that consider both economic constraints and cultural values are essential for offering individuals and couples the resources and information needed to make informed decisions about family size.

9.6 Summary

The decision to have children is a multifaceted process influenced by a complex interplay of economic, social, cultural, and personal factors. Central to this decision are the costs and values associated with raising children, which can significantly impact fertility behavior. This essay delves into the intricate relationship between the costs and values of children and their effects on fertility decisions. Through an extensive exploration of economic, social, cultural, and psychological dimensions, we will examine how individuals and couples evaluate the trade-offs between the financial burdens and emotional rewards of parenthood, and how these evaluations shape fertility patterns.

9.7 Glossary

- **Opportunity Cost:** refers to what you have to give up to buy what you want in terms of other goods or services.
- **Child care cost:** means amounts paid by the family for the care of minors under 13 years of age where such care is necessary to enable *a* family member to be employed or for a household member to further his/her education.
- Psychological Value: relates to the emotional or psychological benefits a product or service provides to the customer. It includes factors such as the product's aesthetics, sensory appeal, self-expression, and the emotional response that it elicits.

9.8 Answers to Self-check Exercises

1. Explain the various effects of costs and values on fertility patterns.
2. Discuss the various economic costs of raising children

9.9 Suggested Readings

- Bhat, P.N.M. (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
- Bhende, A. (2001). Principles of Population Studies. Revised edition. Himalaya Publishing House.
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- Bogue, D.J. (1969). Principal of Demography. John Wielly, New Delhi.
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- Galor, O. (2011). Unified Growth Theory. Princeton University Press.
- Jha, R. (2014). The Economics of Health and Healtheare in India. Oxford University Press.
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- Malthus, T. R. (1798). An Essay on the Principle of Population. Penguin Classics.
- Murthi, M. (2002). Fertility Change in Tamil Nadu, India: An Econometric Analysis. Princeton University Press.
- Srinivasan, T. N. (2005). India's Population: Aspects of Quality and Control. Oxford University Press.

9.11 Terminal Questions

1. Explain costs and values of children exploring their effects on fertility decisions.

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Chapter-10
Supply of Children and Elements of Uncertainty for Parents

Structure

10.0 Learning Objectives

10.1 Introduction

10.2 Economic Considerations: Balancing Costs and Benefits

- 10.2.1 Direct Financial Costs
- 10.2.2 Opportunity Costs
- 10.2.3 Income Uncertainty
- 10.2.4 Investment in Human Capital

10.3 Social and Cultural Norms : Societal Expectations and Family Traditions

- 10.3.1 Cultural Expectations
- 10.3.2 Filial Obligations
- 10.3.3 Gender Dynamics

10.4 Psychological Factors : Navigating Uncertainty and Emotional Well-Being

- 10.4.1 Risk Aversion and Uncertainty
- 10.4.2 Parental Well-Being
- 10.4.3 Emotional Satisfaction

10.5 Health and Medical Uncertainty: Fertility and Reproductive Health

- 10.5.1 Fertility Health
- 10.5.2 Healthcare Access

10.6 Summary

10.7 Glossary

10.8 Answers to Self-check Exercises

10.9 Suggested Readings

10.10 Terminal Questions

10.0 Learning Objectives

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

- understand the balancing costs and benefits;
- know the societal expectations and family tradition; and
- understand the fertility and reproductive health.

10.1 Introduction

The decision to bring children into the world is a complex process influenced by various factors, including economic considerations, cultural norms, and personal aspirations. Amidst these multifaceted dynamics, the concept of the "supply of children" emerges as a central theme. The supply of children refers to the willingness and ability of parents to have and raise children, taking into account both the benefits and costs associated with parenting. This essay delves into the intricacies of the supply of children and explores the elements of uncertainty that parents face when making decisions about family planning. By examining economic, social, and psychological factors, we aim to illuminate how uncertainty shapes fertility decisions and how individuals and couples navigate the complexities of parenthood in an uncertain world.

10.2 Economic Considerations: Balancing Costs and Benefits

10.2.1 Direct Financial Costs: The direct financial costs of raising children include expenses for food, clothing, education, healthcare, and extracurricular activities. These costs vary significantly based on factors such as location, income level, and the number of children in the family.

10.2.2. Opportunity Costs: Raising children involves trade-offs that extend beyond monetary expenditures. Opportunity costs arise as parents allocate time and energy to child-rearing instead of pursuing career advancement, further education, or personal interests.

10.2.3 Income Uncertainty: Economic fluctuations and uncertainty in the job market can influence fertility decisions. Parents may delay having children during periods of economic instability, as income uncertainty affects their ability to provide for their family.

10.2.4 Investment in Human Capital: The decision to have children is often influenced by the parents' perception of future income potential. Education, career opportunities, and the potential to invest in human capital play a role in determining when and how many children to have.

10.3 Social and Cultural Norms: Societal Expectations and Family Traditions

10.3.1 Cultural Expectations: Cultural norms and expectations regarding family size, gender roles, and intergenerational support influence the supply of children. Societies that prioritize large families might exert pressure on individuals to have more children.

10.3.2 Filial Obligations Cultural traditions emphasizing the importance of children as a source of support in old age contribute to the supply of children. The expectation that children will care for their parents in later life can influence family planning decisions.

10.3.3 Gender Dynamics: Gender roles and expectations within a society can impact fertility decisions. Societies with traditional gender norms might place more responsibility on women for child-rearing, affecting their willingness to have children.

10.4 Psychological Factors: Navigating Uncertainty and Emotional Well-Being

10.4.1 Risk Aversion and Uncertainty: Uncertainty about the future — economic, health-related, or otherwise — can make individuals more risk-averse in their fertility decisions. Concerns about the ability to provide for children amidst uncertainty can lead to delayed or reduced fertility.

10.4.2 Parental Well-Being: The psychological well-being of parents is a crucial consideration. The emotional toll of raising children, coupled with concerns about work-life balance, can impact fertility choices and the overall supply of children.

10.4.3 Emotional Satisfaction Despite the challenges, the emotional satisfaction and joy associated with parenthood are important factors. Many parents find fulfillment in raising children, which can mitigate some of the uncertainties and challenges they face.

10.5 Health and Medical Uncertainty: Fertility and Reproductive Health

10.5.1 Fertility Health Health-related factors, such as fertility issues or concerns about pregnancy complications, can introduce uncertainty into family planning decisions. Fertility treatments and assisted reproductive technologies can influence the supply of children.

10.5.2 Healthcare Access: Access to quality healthcare and medical services can affect fertility decisions. Societies with robust healthcare systems might encourage parents to have more children due to increased confidence in their ability to provide adequate care.

10.6 Summary

The supply of children is a dynamic concept shaped by economic, social, and psychological factors, each intertwined with varying degrees of uncertainty. Fertility decisions are not made in isolation; they reflect the complex interactions between individual aspirations, cultural expectations, and external realities. By recognizing and addressing the elements of uncertainty that parents face, societies and policymakers can create supportive environments that enable individuals and couples to make informed and meaningful decisions about family planning. In this uncertain world, understanding the dynamics of the supply of children empowers families to navigate their parenthood journey with confidence, resilience, and hope for the future.

10.7 Glossary : Addressing Uncertainty for Families

- **Family Support Programs:** Governments can implement family support policies that mitigate the financial burden and uncertainty associated with raising children. Subsidized childcare, parental leave, and child allowances can positively impact the supply of children.
- **Healthcare Access and Reproductive Services:** Ensuring access to reproductive health services, including fertility treatments and prenatal care, can help alleviate medical uncertainty and empower couples to make informed family planning choices.
- **Education and Gender Equality:** Promoting education and gender equality has a multifaceted impact Educated women often have greater control over their reproductive choices, and gender equality can encourage shared parenting responsibilities.

10.8 Answers to Self-check Exercises

1. Explain the fertility and reproductive health.
2. Discuss the societal expectations and family traditions.

10.9 Suggested Readings

- Bhat, P.N.M. (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
- Bhende, A. (2001). Principles of Population Studies. Revised edition. Himalaya Publishing House.
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10.10 Terminal Questions

1. Discuss the various elements of uncertainty for the supply of children.

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Chapter-11
Economic Determinants of Nuptiality of Gary Becker

Structure

11.0 Learning Objectives

11.1 Introduction

11.2 Economic Approach to Nuptiality

- 11.2.1 Marriage as an Investment Decision
- 11.2.2 Specialization and Comparative Advantage
- 11.2.3 Income Sharing and Risk Pooling

11.3 Economic Determinants of Nuptiality

- 11.3.1 Income and Marital Choices
- 11.3.2 Human Capital and Matching
- 11.3.3 Opportunity Costs and Marriage Timing
- 11.3.4 Gender Roles and Household Production

11.4 Implications

- 11.4.1 Family Stability and Economic Considerations
- 11.4.2 Fertility and Household Choices

11.5 Criticism

- 11.5.1 Oversimplification of Human Behavior
- 11.5.2 Gender Dynamics

11.6 Policy Implications and Future Directions

- 11.6.1 Economic Support for Families
- 11.6.2 Gender Equality and Employment
- 11.6.3 Balancing Economic and Emotional Consideration

11.7 Summary

11.8 Glossary

11.9 Answers to Self-check Exercises

11.10 Suggested Readings

11.11 Terminal Questions

11.0 Learning Objectives

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

- understand the economic approach to Nuptiality; and
- understand the economic determinants of Nuptiality.

11.1 Introduction

Gary Becker, a Nobel laureate in economics, made significant contributions to the field of family economics, including the study of marriage and nuptiality. His economic approach to understanding family decisions, known as the "new household economics," provided insights into how individuals make choices about marriage based on economic considerations. This essay delves into the economic determinants of nuptiality as proposed by Gary Becker, highlighting the key concepts, implications, and critiques associated with his theory.

Gary Becker, an influential economist, developed a groundbreaking theory known as the "New Home Economics" or "Beckerian Theory of Fertility." This theory applies economic principles to the study of fertility decisions, offering insights into how individuals and families make choices regarding the number of children to have. Becker's work revolutionized the field of family economics and provided a framework for understanding the factors that influence fertility behavior within a society.

Becker's theory is rooted in the premise that individuals make rational decisions based on a cost-benefit analysis. He extended this concept to fertility decisions, arguing that people weigh the costs and benefits of having children just like they do for other economic choices. The key components of Becker's theory on fertility include.

11.2 Economic Approach to Nuptiality

Seeker's approach to nuptiality and marriage is grounded in the principles of utility maximization and rational decision-making. He applied economic reasoning to analyze how individuals weigh the costs and benefits of marriage, taking into account factors such as income, human capital, and personal preferences.

11.2.1 Marriage as an Investment Decision: Becker viewed marriage as an investment decision, where individuals choose partners based on their potential contributions to household production and consumption. Marriage involves the pooling of resources, which can lead to efficiency gains.

11.2.2 Specialization and Comparative Advantage Becker's theory emphasizes the idea of specialization within the household. Individuals marry those who have complementary skills and strengths, allowing them to specialize in their respective roles and achieve greater efficiency.

11.2.3 Income Sharing and Risk Pooling By pooling resources through marriage, individuals can better manage risks and uncertainties. Shared income allows couples to better navigate economic challenges and unexpected events.

11.3 Economic Determinants of Nuptiality

11.3.1 Income and Marital Choices: Income plays a significant role in nuptiality decisions. Higher income levels can increase the attractiveness of marriage by improving individuals' ability to provide for themselves and their potential spouses.

11.3.2 Human Capital and Matching! Human capital, including education and skills, affects marriage choices. Individuals often seek partners with similar human capital, as this facilitates better matching in terms of economic and household contributions.

11.3.3 Opportunity Costs and Marriage Timing: The timing of marriage is influenced by opportunity costs, particularly for women. Seeker's theory suggests that women may delay marriage to invest in education and career development, seeking higher earning potential.

11.3.4 Gender Roles and Household Production Gender roles and traditional expectations about household production influence nuptiality. Individuals may marry partners whose roles align with their comparative advantages, leading to efficient specialization.

11.4 Implications

11.4.1 Family Stability and Economic Considerations Becker's theory highlights the role of economic stability in promoting family formation and stability. Individuals with secure financial prospects are more likely to consider and commit to marriage.

11.4.2 Fertility and Household Choices: Nuptiality decisions influence fertility choices. Marital partners make decisions about family size based on their economic circumstances and the division of household responsibilities.

11.5 Criticizes

11.5.1 Oversimplification of Human Behavior Critics argue that Becker's economic approach oversimplifies the complexity of human relationships and emotions, neglecting the influence of cultural, social, and emotional factors on nuptiality decisions.

11.5.2 Gender Dynamics Backer's theory, while influential, has been criticized for its limited consideration of power dynamics within marriages and the evolving roles of women in society.

11.6 Policy Implications and Future Directions

11.6.1 Economic Support for Families Policies that enhance economic stability and support families can align with Seeker's theory. Access to quality education, job opportunities, and social safety nets can influence individuals' decisions about marriage.

11.6.2 Gender Equality and Empowerment: Promoting gender equality and women's empowerment can lead to more equitable nuptiality decisions. When; both partners have access to education and economic opportunities, marital choices are better aligned with preferences and compatibility.

11.6.3 Balancing Economic and Emotional Considerations Future research can explore the interplay between economic factors and emotional considerations in nuptiality decisions. A comprehensive understanding should encompass both rational economic choices and the emotional dimensions of partnerships.

11.7 Summary

Gary Backer's economic determinants of nuptiality provide valuable insights into how economic considerations influence marriage decisions. His rational approach, rooted in the principles of utility maximization and specialization, sheds light on how individuals weigh costs, benefits, and opportunities when deciding to enter into marriage. While his theory has been critiqued for its simplifications, it has influenced the study of family economics and shaped discussions about the interplay between economics and personal relationships. As society continues to evolve, Becker's insights remain relevant for understanding the complex factors that contribute to the dynamics of nuptiality.

11.8 Glossary

- **Opportunity Costs of Time:** Becker emphasized the opportunity costs associated with time spent on child-rearing. Individuals allocate their time between market work, household chores, and leisure activities. Having children requires a substantial investment of time and effort, particularly for women who traditionally bear a significant portion of childcare responsibilities. The decision to have more children involves a trade-off between allocating time to child-rearing activities and engaging in other productive or leisure activities.
- **Cost of Childrearing:** Raising a child involves direct and indirect costs, including expenses related to food, education, healthcare, and clothing. These costs can vary depending on societal norms, cultural expectations, and economic conditions. Becker's theory suggests that couples evaluate their financial resources and assess whether they can afford to raise additional children while maintaining their desired standard of living.
- **Child Quality-Quality Trade-off:** Becker introduced the concept of a "child quality-quantity trade-off." This idea proposes that parents face a decision between having a larger number of children (quantity) and investing more resources in each child to ensure better quality of upbringing (quality). As family size increases, the available resources per child tend to decrease, potentially affecting the overall well-being and opportunities of each child.
- **Human Capital Investment:** Becker argued that parents make fertility decisions based on their expectations of future returns from investing in their children's human capital. This aligns with the idea that children are an investment in the parents' old age, as they can provide support and care. Parents consider the potential benefits of having children who can contribute economically and emotionally to the family's well-being.
- **Income and Substitution Effects:** Becker's theory takes into account income and substitution effects. An increase in income can have different impacts on fertility decisions. While a rise in income might make raising children more affordable, it can also lead to an income effect where parents choose to have fewer children to maintain their desired lifestyle. The substitution effect refers to the potential change in fertility choices due to variations in the cost of childrearing relative to other expenses.

- **Gender Roles and Bargaining Power:** Becker's theory recognizes the importance of gender roles and bargaining power within the household. The division of labor, decision-making power, and control over resources can influence fertility choices. If women have more control over household decisions, it could impact fertility behavior, particularly as women's opportunities in the labor market increase.

11.9 Answers to Self-check Exercises

1. What is economic approach to Nuptiality?
2. What do you know by economic determinants of Nuptiality?

11.10 Suggested Readings

- Bhat P.N.M. (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
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11.11 Terminal Questions

1. Critically examine the Gary Becker's model of Nuptiality.

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Chapter-12
Economic Determinants of Mortality

Structure

12.0 Learning Objectives

12.1 Introduction

12.2 The Socio-Economic Gradient of Health : An Overview

- 12.2.1 The Social Determinants of Health
- 12.2.2 The Gradient of Health Inequality
- 12.2.3 Life Course Perspective

12.3 Income and Mortality: The Role of Economic Resources

- 12.3.1 Income Inequality and Health Disparities
- 12.3.2 Income as a Health Resource
- 12.3.3 The Health Gradient

12.4 Education and Health : Empowerment and Knowledge

- 12.4.1 Educational Attainment and Health
- 12.4.2 Health Literacy and Empowerment
- 12.4.3 Early- Life Education and Empowerment

12.5 Access to Healthcare : Addressing Inequities

- 12.5.1 Healthcare Access and Mortality
- 12.5.2 Healthcare Inequalities and Preventable Mortality
- 12.5.3 Healthcare systems and Economic Development

12.6 Unemployment and Work Conditions : Impact on Health

- 12.6.1 Unemployment and Mental Health
- 12.6.2 Work Conditions and Health Risks
- 12.6.3 Income Insecurity and Health

12.7 Health Behavior and Economic Determinants

- 12.7.1 Behavioral Pathways to Mortality
- 12.7.2 Influence of Economic Stressors
- 12.7.3 Policy Interventions for Health Behavior Change

12.8 Policy Implications and Future Directions

12.9 Summary

12.10 Glossary

12.11 Answers to Self-check Exercises

12.12 Suggested Readings

12.13 Terminal Questions

12.0 Learning Objectives

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

- understand the socio-economic determinants of health;
- know the relationship between income and mortality;
- understand the relation between education and health; and
- understand the access to healthcare.

12.1 Introduction

The intricate relationship between socioeconomic factors and mortality rates has long been a subject of investigation within the realms of public health, economics, and social sciences. This essay delves into the economic determinants of mortality, exploring the multifaceted connections between income, education, healthcare access, and other economic factors that shape life expectancy. By examining the pathways through which economic conditions influence health outcomes and mortality rates, we aim to unravel the complex interplay between socioeconomic status and the fundamental human experience of mortality.

12.2 The Socioeconomic Gradient of Health: An Overview

12.2.1 The Social Determinants of Health: Health is influenced by a multitude of factors, including genetics, lifestyle, environment, and access to healthcare. Socioeconomic status (SES) emerges as a critical determinant, shaping health outcomes across different strata of society.

12.2.2 The Gradient of Health Inequality: The concept of the "socioeconomic gradient of health" illustrates the inverse relationship between SES and health outcomes. Individuals with higher socioeconomic status tend to experience better health and longer life expectancy.

12.2.3 Life Course Perspective Economic determinants of mortality operate across the life course, from early childhood to old age. Early-life conditions, education, employment opportunities, and access to healthcare all contribute to long-term health trajectories.

12.3 Income and Mortality: The Role of Economic Resources

12.3.1 Income inequality and Health Disparities: Income inequality impacts health disparities within societies. Individuals with lower income levels often face barriers to accessing quality healthcare, leading to higher mortality rates.

12.3.2 Income as a Health Resource: Higher income provides individuals with resources to afford better nutrition, housing, and healthcare services. Adequate income reduces stressors that contribute to chronic diseases and premature mortality.

12.3.3 The Health Gradient The health gradient illustrates the positive correlation between income and health outcomes. As income increases, the likelihood of chronic diseases, disabilities, and mortality decreases.

12.4 Education and Health: Empowerment and Knowledge

12.4.1 Educational Attainment and Health: Education influences health outcomes by empowering individuals with knowledge, critical thinking skills, and the ability to make informed health-related decisions. Higher education is associated with better health behaviors and reduced mortality.

12.4.2 Health Literacy and Empowerment: Education enhances health literacy, enabling individuals to understand health information, make preventive choices, and navigate Healthcare systems effectively.

12.4.3 Early Life Education and Lifelong Health Early childhood education and access to quality schooling have long-term effects on health. Education contributes to cognitive development, socio-emotional skills, and overall well-being, influencing health behaviors and mortality risks.

12.5 Access to Healthcare; Addressing Inequities

12.5.1 Healthcare Access and Mortality Socioeconomic disparities in access to Healthcare can lead to differential health outcomes and mortality rates. Individuals with limited resources may delay seeking medical care, leading to worsened health conditions.

12.5.2 Healthcare Inequities and Preventable Mortality Inequities in healthcare access contribute to preventable mortality. Timely medical interventions, screenings, and preventive care are more accessible to individuals with higher SES.

12.5.3 Healthcare Systems and Economic Development Effective healthcare systems are integral to reducing mortality rates. Countries with robust healthcare infrastructure and universal access to medical services tend to have better health outcomes.

12.6 Unemployment and Work Conditions: Impact on Health

12.6.1 Unemployment and Mental Health Economic instability resulting from unemployment can have adverse effects on mental health, leading to stress, depression, and anxiety. These mental health conditions impact physical health and mortality.

12.6.2 Work Conditions and Health Risks: The quality of work conditions, including job security, workplace safety, and benefits, influences health outcomes. Unsafe work environments and job-related stress contribute to mortality risks.

12.6.3 Income Insecurity and Health: Economic uncertainties, such as income fluctuations and job insecurity, can lead to poor health outcomes. The stress of financial instability can contribute to chronic diseases and premature mortality.

12.7 Health Behavior and Economic Determinants

12.7.1 Behavioral Pathways to Mortality: Economic determinants impact health behaviors that contribute to mortality. Health-related decisions, such as smoking, diet, physical activity, and substance use, are influenced by socioeconomic conditions.

12.7.2 Influence of Economic Stressors: Economic stressors, such as poverty and financial strain, can drive unhealthy behaviors as individuals seek coping mechanisms that negatively impact health and mortality.

12.7.3 Policy interventions for Health Behavior Change: Economic policies that address socioeconomic disparities can indirectly influence health behaviors. Interventions that alleviate poverty, improve education, and provide access to affordable housing can positively impact health choices.

12.8 Policy Implications and Future Directions

- **Social Safety Nets and Healthcare Access** Expanding social safety nets, including income support and unemployment benefits, can mitigate the adverse effects of economic shocks on health and mortality.
- **Education Equity and Health Promotion:** Investment in education, especially in disadvantaged communities, can improve health literacy, promote health-enhancing behaviors, and reduce health disparities,
- **Universal Healthcare and Preventive Services** Implementing universal healthcare systems and increasing access to preventive services can address healthcare inequities and enhance overall population health.
- **Holistic Approaches to Public Health** Addressing economic determinants of mortality requires a holistic approach that integrates economic policies, healthcare systems, education, and social interventions.

12.9 Summary

The economic determinants of mortality underscore the profound influence of socioeconomic factors on health outcomes and life expectancy. The intricate web of income, education, healthcare access, and work conditions shapes individuals' health trajectories, leading to disparities in mortality rates across different segments of society. Understanding the complex interplay between economics and health is essential for crafting effective policies that promote health equity, reduce preventable mortality, and enhance the well-being of populations. As societies continue to evolve, the exploration of economic determinants remains a critical endeavor in ensuring that every individual has the opportunity to achieve optimal health and longevity.

12.10 Glossary

- **Mortality:** the state of being human and not living forever.
- **Mortality Rate:** the number of deaths in a given area or period, or from a particular cause.

- **Social Gradient in Health:** is a term used to describe the phenomenon whereby people who are less advantaged in terms of socioeconomic position have worse health (and shorter lives) than those who are more advantaged.

12.11 Answers to Self-check Exercises

1. What do you understand by the relationship between Income and Mortality.
2. Discuss Impact of Unemployment on Mental Health.

12.12 Suggested Readings

- Bhat, P.N.M. (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
- Bhende, A. (2001). Principles of Population Studies. Revised edition. Himalaya Publishing House.
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- Murthi, M. (2002). Fertility Change in Tamil Nadu, India: An Econometric Analysis. Princeton University Press.
- Srinivasan, T. N. (2005). India's Population: Aspects of Quality and Control. Oxford University Press.

12.13 Terminal Questions

1. Discuss in detail the various economic determinants of Mortality.

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Chapter-13
Economic Determinants of Migration- Lee's and Todaro's Model

Structure

13.0 Learning Objectives

13.1 Introduction

13.2 Economic Rationality and Migration Decision Making

- 13.2.1 Neo Classical Economics and Migration
- 13.2.2 Cost-Benefit Analysis
- 13.2.3 Push and Pull Factors

13.3 Labor Market Dynamics and Migration

- 13.3.1 Wage Disparities and Labor Mobility
- 13.3.2 Global Supply and Demand for Labor
- 13.3.3 Sectoral Shifts and Skill-Based Migration

13.4 Remittances and Economic Development

- 13.4.1 Remittances as Economic Drivers
- 13.4.2 Poverty Alleviation and Social Welfare
- 13.4.3 Transnational Networks and Investments

13.5 Policy Implications and Future Directions

- 13.5.1 Labor Market Integration
- 13.5.2 Skill Matching and Development
- 13.5.3 Remittance Channels and Financial Inclusion
- 13.5.4 Development- Oriented Migration Policies

13.6 Challenges and Criticism

- 13.6.1 Structural Inequalities
- 13.6.2 Human Capital Approach

13.7 Conclusion of Lee's Views on Migration

13.8 Todaro's Model of Rural - Urban Migration

13.9 Functional Model

13.10 Discussion of the Model

13.11 Framework for the Analysis of the Migration Decision

13.12 Limitations
13.13 Summary
13.14 Glossary
13.15 Answers to Self-check Exercises
13.16 Suggested Readings
13.17 Terminal Questions

13.0 Learning Objectives

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

- Understand the economic rationality and migration decision- making;
- Know the labor market dynamics and migration;
- Understand the remittances and economic development; and
- Know about Todaro's model of rural- urban migration.

13.1 Introduction

Charles Lee, a distinguished scholar in the field of migration studies, has contributed significantly to our understanding of the economic determinants of migration. Lee's views on this topic highlight the pivotal role that economic factors play in shaping migration patterns, including individuals' decisions to migrate, the impact of migration on both origin and j destination economies, and the broader implications for policy and development. This essay delves into Charles Lee's perspectives on the economic determinants of migration, examining key concepts, empirical insights, and policy implications.

13.2 Economic Rationality and Migration Decision-Making

13.2.1 Neoclassical Economics and Migration: Charles Lee's views on migration are rooted in neoclassical economic theory. He emphasizes the rational decision-making of individuals when considering migration as a response to economic incentives.

13.2.2 Cost-Benefit Analysis: Lee posits that potential migrants weigh the costs and benefits of moving to a new location. Economic factors, including wage differentials, job opportunities, and the cost of living, are central to this cost-benefit analysis.

13.2.3 Push and Pull Factors Economic "push" factors, such as limited job opportunities and low ' wages in the home country, compel individuals to seek better economic prospects elsewhere. "Pull" factors, such as higher wages and improved living conditions, attract migrants to destination countries.

13.3 Labor Market Dynamics and Migration

13.3.1 Wage Disparities and Labor Mobility: Lee's perspective underscores how wage disparities between origin and destination countries drive labor mobility. Migrants seek locations where their skills and labor are valued at a higher rate, leading to the movement of workers.

13.3.2 Global Supply and Demand for Labor: Economic imbalances in labor supply and demand across countries play a role in migration patterns. Migrants contribute to meeting labor shortages in destination countries, benefiting both migrants and host economies.

13.3.3 Sectoral Shifts and Skill-Based Migration Lee's views acknowledge the importance of sectoral shifts in the global economy. Migration is often influenced by demand for specific skills, leading to skill-based migration that aligns with labor market needs.

13.4 Remittances and Economic Development

13.4.1 Remittances as Economic Drivers: Lee's perspective acknowledges the significant role of remittances — money sent by migrants back to their home countries — in economic development. Remittances can boost the income of families, improve access to education and healthcare, and stimulate local economies.

13.4.2 Poverty Alleviation and Social Welfare: Remittances contribute to poverty alleviation by increasing household income and improving the living standards of families in origin countries. They also serve as a safety net during times of economic uncertainty.

13.4.3 Transnational Networks and Investments: Lee's views recognize that migration fosters transnational networks, facilitating trade, investment, and knowledge exchange between origin and destination countries.

13.5 Policy Implications and Future Directions

13.5.1 Labor Market Integration: Lee's perspectives emphasize the importance of creating policies that facilitate the integration of migrant workers into host country labor markets. Such policies ensure that migrants' skills are effectively utilized and their rights protected.

13.5.2 Skill Matching and Development: Grafting policies that align migrant skills with destination country needs can lead to mutual benefits. Destination countries can tap into specialized talent while origin countries can foster skill development for future migration.

13.5.3 Remittance Channels and Financial Inclusion: To maximize the positive impact of remittances, policies should focus on creating efficient remittance channels and promoting financial inclusion in origin countries.

13.5.4 Development-Oriented Migration Policies: Lee's views suggest that migration policies should be development-oriented, taking into consideration the potential benefits of migration for both origin and destination countries.

13.6 Challenges and Critiques

13.6.1 Structural Inequalities: Critics argue that Lee's economic determinants perspective may not fully address the structural inequalities that contribute to migration. Factors such as colonial history, trade policies, and global power dynamics can shape migration patterns.

13.6.2 Human Capital Approach: Some critics question whether the focus on human capital in Lee's views adequately captures the complexities of migration motivations and ignores other social, political, and cultural factors.

13.7 Conclusion of Lee's view on Migration

CharIes Lee's views on the economic determinants of migration have enriched our understanding of the intricate relationship between economic factors and human movement. By emphasizing rational decision-making, labor market dynamics, remittances, and development implications, Lee's perspectives have contributed to shaping policies and discussions on how societies can harness the potential benefits of migration. However, it is important to recognize that migration is a multifaceted phenomenon influenced by a range of economic, social, and political factors. As migration continues to shape the global landscape, Lee's insights serve as a valuable foundation for ongoing research and policy considerations.

13.8 Todaro's Model of Rural-Urban Migration

John R. Harris and Michael P. Todaro presented the seminal "Two sector model' in American Economic Association, 1970. This model is a pioneering study in the field encompassing rural-urban migration. The classical theory is used in development economics and is an economic illustration of migrants' decision on expected income differentials between rural (agriculture) and urban (manufacturing) areas. The model of rural-urban migration is typically studied in the context of employment and unemployment situation in developing countries. The purpose of the model is to explain the critical urban unemployment problem in developing countries. The key hypothesis of Harris and Todaro's model is that economic incentives, earnings differentials, and the probability of getting a job at the destination have influence on the migration decision. In other words, this theory pins forward that rural-urban migration will occur when the urban expected wage exceeds the rural obtain wage.

The model was an academic investigation to throw light on the events following 'Tripartite Agreement' in Kenya. The newly independent Kenya in the 1960s was increasingly facing a serious situation of unemployment in the major urban cities. To cope with the situation of unemployment, Tripartite Agreement was signed between the government public sector and the private sector. The agreement increased employment in the industrial jobs in exchange for unions agreeing to hold wages at their current levels. The larger number of employment was expected to reduce unemployment, but it appeared that the urban unemployment had increased following the government's agreement. Harris and Todaro subsequently formulated a model to explain rural-urban economic preferences to migrate. The distinctive concept in the model is that the rate of migration flow from rural (agricultural) areas to urban (industrial) areas is determined by the difference between expected urban wages and rural wages.

The rural-urban two-sector model centrally holds the following futures:

1) Real wages (adjusted for cost-of-living differences) were higher in urban, formal sector jobs than in rural traditional sector jobs.
2) To be hired for a formal sector job, it was necessary to be physically present in the urban areas where the formal sector jobs were located.

3) Consequently, from the first two features, more workers searched for formal sector jobs than were actually hired. Employers hired some of the searchers but not all of them.

4) To maintain equality between the expected wage associated with searching for an urban job and the expected wage associated with taking up a lower-paying rural job, the equilibrium arising in such a setting would be characterized by urban unemployment.

5) Any temporary difference in the expected wages between one sector and another would be eroded as workers migrate from the low expected wage labour market to the high expected wage one.

13.9 Functional Model

There are two regions: rural (agricultural) and urban (industrial) in two sector economic model. The crucial assumption of the Harris and Todaro's model is that workers base their migration decision on their expected incomes at urban (industrial) areas. As the basic model is static, the expected income is just the weighted average of the urban wage and the unemployment benefit, the weights being the probabilities to find and not to find an urban job. The model assumes that the rate of rural-urban ($m=M/L_R$) is a function of:

i) The probability that an urban labour can successfully find a modern sector job which can be expressed as a positive function of the current urban employment rate E_U/L_U, or L_U-E_U/L_U, a negative function of urban unemployment rate.

ii) The urban-rural real income differential is expressed

as-Y_U/Y_R= W (W greater than 1),

Besides, migration will also be related to,

iii) Other factors (Z), such as distance, personal conduct, urban amenities.

Where

m = Rate of migration from rural to urban areas

M = Actual volume of rural-urban migration

L_R = Rural labour force

E_U = Level of urban employment

L_U = Urban labour force

Y_U = Urban real income

Y_R = Rural real income

W = Ratio between rural/urban real income

Therefore, the basic rural-migration migration model is expressed as: (rural-urban migration) m = function of (current urban employment rate, urban-rural real income differential, and personal factors).

Thus, (rural-urban migration rate) m= f (E_U/L_U, W,Z) 1.1

= f (E_U/L_U) (holding W and Z constant)

= Function of the ratio between the level of urban employment and urban labour force.

Where

f (E_U/L_U) is greater than Zero;

f (W) is greater than Zero, and

f (Z) may have +ve or - ve values;

(here f is the time derivative of three elements)

That is, migration rate is a function of the ratio between the level of urban employment and urban labour force, or the probability to find a job in an urban industrial sector.

Besides, urban labour force growth can be expressed as:

$l_U/L_U = r + L_R/L_U$ (m) = $r + L_R/ L_U$ f (E_U/L_U) 1.2

r = natural growth rate of rural/urban labour force

l_U = time derivative of L_U (urban labour force)

That is, time derivative of urban labour force growth rate is a function of urban labour force growth rate and (he probability of finding a job in a modern urban sector (as derived from equation 1.1 above)

The model, then tried to compare the live path of equation (1.1) or (1.2) with the growth rate of urban employment, and discussed rural-urban migration and urban employment under the different assumption of population and employment growth rates.

13.10 Discussion of the Model

The fundamental contribution of Harris and Todaro's rural-urban two sector migration model was to build a model that fit the stylized facts of the labour market. On the lines of the theory, developing countries adopted program on integrated rural development which encouraged an increase in the rural traditional sector wage. The theory proves that the higher the unemployment rate, the lower is the probability of new migrants from the countryside actively seeking formal sector employment who are unable to find it. The significant findings of the theory are: first, if the expected urban wage equals rural income, there is no incentive to migrate. Second, if the expected urban wage is greater than rural income, there is a great incentive to move from rural to urban area. Third, if the expected urban wage is less than rural incomes, there would be an incentive to move in other direction. Fourth, the expected urban wage depends on what type of job migrant is engaged in. Therefore, the Harris Todaro's model helps policy-makers to avoid two mistakes. One is to assume that development efforts should necessarily be channeled to the sectors where the poor are. The other is to assume that efforts should necessarily be focused on getting the poor out of the sectors in which they presently are.

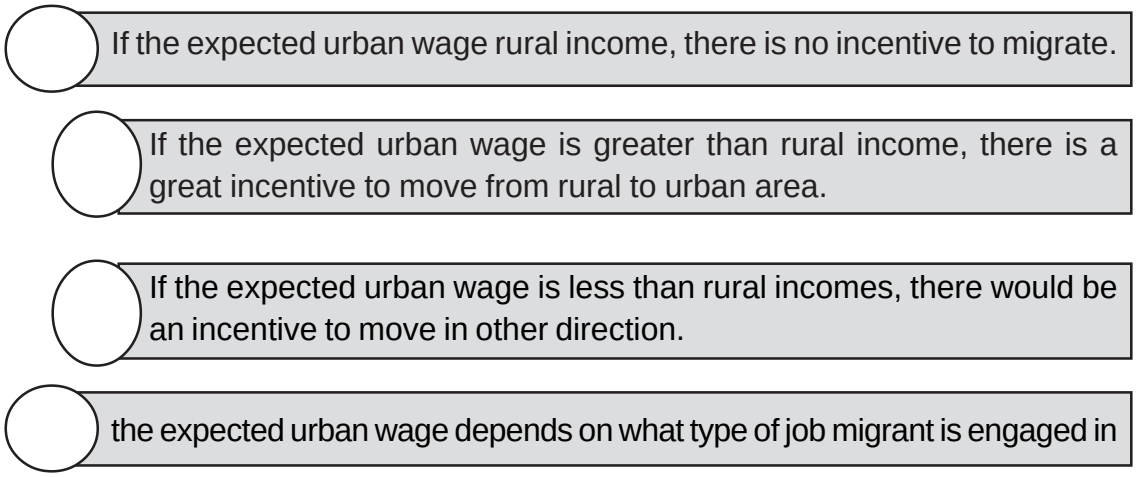


Figure : Significant finding of Harris Todaro theory

Starting from the assumption that migration is based primarily on privately rational economic calculations despite the existence of high urban unemployment, the Todaro model postulates that migration proceeds in response to urban-rural differences in expected rather than actual earnings. The fundamental premise is that as decision-makers migrants consider the various labor-market opportunities available to them as, say, between the rural and urban sectors, choosing the one that maximizes their "expected" gains from migration. Expected gains are measured by the difference in real incomes between rural and urban work opportunities and the probability of a new migrant's obtaining urban job. A schematic framework describing the multiplicity of factors affecting the migration decision is portrayed in figure. While the factors illustrated in figure include both economic and non-economic variables, the economic ones are assumed to predominate.

The "thought process" of the Todaro model can be explained as follows. Suppose the average unskilled or semiskilled rural worker has a choice between being a farm laborer (or working his own land) for an annual average real income of, say, 50 units per year, and migrating to the city where a worker with his skill or educational background can obtain wage employment yielding an annual real income of, say, 100 units. The more traditional economic models of migration that place exclusive emphasis on the income differential factor as the determinant of the decision to migrate would indicate a clear choice in this situation. The worker should seek the higher-paying urban job. It is important to recognize, however, that these migration models were developed largely in the context of advanced industrial economics and, as such, implicitly assumed the existence of full or near-full employment in urban areas. In a full-employment environment the decision to migrate can in fact be predicated solely on securing the highest-paying job wherever it becomes available, other factors being held constant. Simple economic theory would then indicate that such migration should lead to a reduction in wage differentials through geographic changes in supply and demand, both in areas of out-migration (where incomes rise) and in points of in-migration (where they fall).

Unfortunately, such an analysis is of most Third World nations. First of all, these countries are beset by a chronic and serious problem of urban surplus labor, so that many migrants cannot expect to secure high- not very realistic in the context of the institutional and economic framework paying urban jobs immediately upon arrival. In fact, it is much more likely that upon entering the urban labor market many migrants will either become totally unemployed or will seek casual and part-time employment in the urban traditional sector for some time.

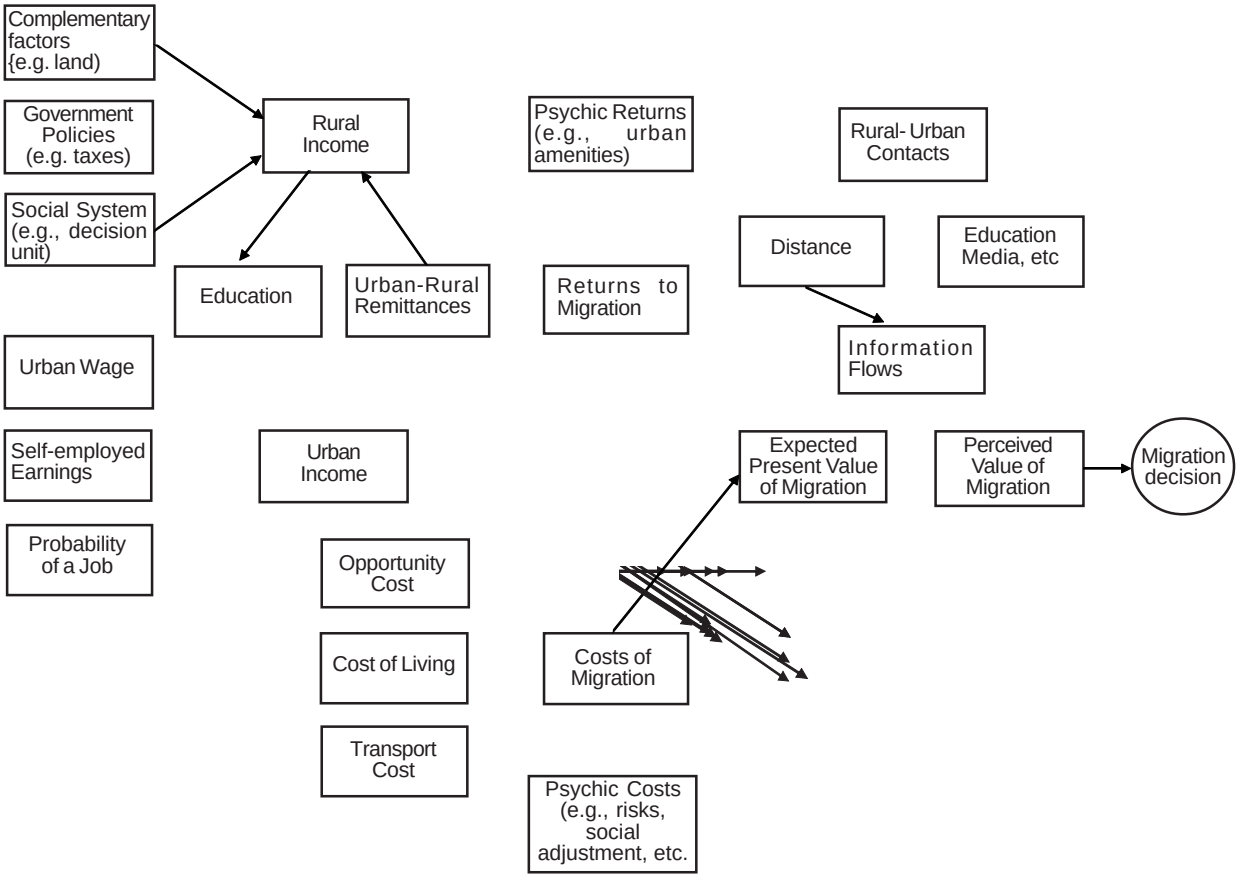
Consequently, in his decision to migrate the individual must in effect balance the probabilities and risks of being unemployed or underemployed for a considerable period of time against the positive urban-rural real-income differential. That it is possible for our hypothetical migrant to earn twice as much annual real income in an urban area as in his rural environment may be of little consequence if his actual probability of securing the higher-paying job within a year is one chance in five. In such a situation the migrant's actual probability of being successful in securing the higher-paying urban job is 20%, so that his "expected" urban income for the one-year period is in fact 20 units, not the 100 units that a migrant in a full-employment urban environment might expect to receive. Thus, with a one-period time horizon and a probability of success of 20% it would be irrational for this migrant to seek an urban job even though the differential between urban and rural earnings capacity is 100%. On the other hand, if the probability of success were, say, 60%, so that the expected urban income is 60 units, it would be entirely rational for such a migrant with his one-period time horizon to try his luck in the urban job "lottery" even though urban unemployment may be extremely high.

Returning now to the more realistic situation of longer time horizons for potential migrants, especially considering that the vast majority are between the ages of 15 and 24. It is argued that the decision to migrate should be represented on the basis of a "permanent income" calculation. If the migrant anticipates a relatively low probability of finding regular wage employment in the initial period but expects this probability to increase over time as he is able to broaden his urban contacts, then it would still be rational for him to migrate even though expected urban income during the initial period or periods might be lower than expected rural income. As long as the present value of the net stream of expected urban income over the migrant's planning horizon exceeds that of the expected rural income, the decision to migrate is economically justified. This, in essence, is the "thought process" that is schematically depicted in figure.

Rather than wage adjustments bringing about an equilibrium between urban and rural incomes, as would be the case in a competitive model, it is further argued that rural-urban migration itself must act as the ultimate equilibrating force. With urban wages assumed to be inflexible in a downward direction, rural and urban "expected" incomes can be equalized only by falling urban job probabilities resulting from rising urban unemployment. For example, if average rural wages are 60 units and urban wages are institutionally set at a level of 120 units, then in a one-period model a 50% urban unemployment rate would be necessary to

vitiate the private profitability of further migration. Since expected incomes are defined in terms of both wages and employment probabilities, argument is that it is not only possible but likely to have continued migration in spite of the existence of sizable rates of urban unemployment. In the above numerical example, migration would continue even if the urban unemployment rate were 30 or 40%.

13.11 Framework for the analysis of the migration decision



13.12 Limitation

Some of the assumptions of the Harris-Todaro's model were judged to be too restrictive. The model also assumes that potential migrants are risk neutral where the poor migrants will likely be risk averse, as in they are indifferent between a certain expected rural income and an uncertain expected urban income of the same magnitude. The assumption that there exists a perfect competition in rural agriculture sector is not realistic.

13.13 Summary

Todaro's Model of rural-urban migration, formulated by economist Michael Todaro, provides insights into the factors influencing migration from rural to urban areas in developing countries. It posits that individuals make migration decisions based on expected income differentials between rural and urban locations. In this model, urban areas offer the prospect

of higher wages and better job opportunities, but also come with higher living costs and urban unemployment risks. As a result, migration is driven not only by current income disparities but also by the perception of better prospects in cities. Government policies and urban development initiatives play crucial roles in shaping migration patterns and urbanization trends in developing nations.

13.14 Glossary

- **Rural-urban Remittances:** refers to the portion of their income that rural-urban migrants obtain in an urban area and transfer to a rural area.
- **Psychic Cost:** is a subset of social costs that specifically represent the costs of added stress or losses to quality of life.
- **Psychic Returns:** something apart from money that you get from your job, and which gives you emotional satisfaction such as a enjoying urban amenities.
- **Opportunity Cost:** refers to what you have to give up to buy what you want in terms of other goods or services.
- **Cost of Living:** is the amount of money needed to cover basic expenses such as housing, food, taxes, and healthcare in a certain place and time period.

13.15 Answers to Self-check Exercises

1. Discuss Lee's views on migration.
2. Discuss the various economic determinants of rural-urban migration
3. explain the features of Todaro's model of rural-urban migration

13.16 Suggested Readings

- Bhat, P.N.M. (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
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13.18 Terminal Questions

1. Critically examine Todaro's Model of Rural-Urban Migration particularly in the case of India.
2. Discuss in details Lee's views on migration.

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Chapter-14
General Views on Economic Consequences of Population Growth

Structure

14.0 Learning Objectives

14.1 Introduction

14.2 Malthus Theory of Population

- 14.2.1 Malthusian Population Growth
- 14.2.2 Checks on Population

14.3 Migration as a response to Population Pressure

- 14.3.1 Internal Migration
- 14.3.2 International Migration

14.4 Malthus View on Emigration

- 14.4.1 The Benefits of Emigration
- 14.4.2 Colonizatoion and Emigration

14.5 Critiques and Controversies

- 14.5.1 Ethical Concerns
- 14.5.2 Lack of Cultural Sensitivity
- 14.5.3 Disregard for Technological Progress

14.6 Malthusian Ideas in Modern Context

- 14.6.1 Population and Resource Dynamics
- 14.6.2 Contemporary Migration

14.7 Conclusion of Malthus Theory

14.8 General Views of Kart Marx on Migration

14.9 Marxism and Capitalism

- 14.9.1 The Capitalist Mode of Production
- 14.9.2 Class Struggle and Alienation

14.10 Migration Within the Capitalist System

- 14.10.1 Urbanization and Industrialization
- 14.10.2 Displacement and Exploitation

14.11 Marx's Views on Immigration

- 14.11.1 Immigration and Labor Supply
- 14.11.2 Divide and Rule

14.12 Marx's Views on Emigration
14.12.1 Emigration as an Escape
14.12.2 Emigration as a Capitalist safety Valve
14.13 Critiques and Controversies
14.13.1 Reductionism and Economic Determinism
14.13.2 Lack of Attention to Human Agency
14.13.3 Historical Specificity
14.14 Marx's Ideas in a Modern Context
14.14.1 The Global Capitalist System
14.14.2 Intersectionality and Migration
14.14.3 Migration and Social Change
14.15 Conclusion of Karl Marx Theory on Migration
14.16 Simon Kuznets on Population Growth
14.17 Demographic Transition and Economic Development
14.17.1 Demographic Transition Theory
14.17.2 Early stages of Development
14.17.3 Late stages of development
14.18 Urbanization and Fertility decline
14.18.1 Urbanization and Population Movement
14.18.2 Reduced Fertility in Urban Areas
14.19 Income Growth and Fertility
14.19.1 Income and Fertility Decisions
14.19.2 Income Redistribution and Fertility
14.20 Education and Fertility Choices
14.20.1 Educational Attainment
14.20.2 Empowerment of Women
14.21 Policy Implications and Development Strategies
14.21.1 Investment in Education
14.21.2 Healthcare and Family Planning Services
14.21.3 Promoting Gender Equality
14.22 Critiques and Contemporary relevance
14.22.1 Simplification of Factors
14.22.2 Changing Context
14.23 Summary

14.24 Glossary
14.25 Answers to Self-check Exercises
14.26 Suggested Readings
14.27 Terminal Questions

14.0 Learning Objectives:

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

- understand the Malthusian theory of population
- know the Malthusian ideas in modern context
- Understand the general views of Kart Marx on migration
- Understand Marx's ideas in a modern context

14.1 Introduction

Thomas Robert Malthus (1766-1834), an English economist and demographer, is primarily known for his groundbreaking work, "An Essay on the Principle of Population," published in 1798. While Malthus is famous for his theories on population growth and its implications for food production, his ideas also touched upon the subject of migration. In this comprehensive analysis, we will explore Malthus's general views on migration, examining how his theories on population dynamics and resource scarcity influenced his perspective on this crucial aspect of human movement.

14.2 Malthus's Theory of Population

14.2.1 Malthusian Population Growth : Malthus's work was rooted in the belief that population growth tends to outstrip the available resources for subsistence. He argued that while population grows exponentially, the production of food and other resources increases linearly, leading to a situation where the population is constantly pressing against the limits of available resources. This foundational principle sets the stage for his views on migration.

14.2.2 Checks on Population : Malthus proposed two categories of checks on population growth: preventive and positive. Preventive checks include practices such as late marriage and abstinence, while positive checks encompass factors like disease, famine, and war. Malthus believed that these checks would naturally limit population growth. Migration, as a form of preventive check, emerges as a possible solution to the pressure of overpopulation on resources.

14.3. Migration as a Response to Population Pressure

14.3.1. Internal Migration: Malthus acknowledged that migration could serve as a release valve for population pressure, particularly in densely populated regions. He noted that individuals and families often migrated from rural areas to urban centers in search of employment and better living conditions. This internal migration, Malthus argued, could help alleviate the strain on resources in rural areas.

14.3.2. International Migration: While Malthus primarily focused on internal migration, he also considered international migration in the context of colonial expansion. He believed that the colonization of new territories could provide an outlet for excess population, allowing people to settle in less crowded regions and potentially easing the strain on resources in their home countries.

14.4 Malthus's Views on Emigration

14.4.1 The Benefits of Emigration: Malthus viewed emigration, or the movement of people from one country to another, as a means to balance population growth with resource availability. He argued that emigration could help alleviate overpopulation-related problems, such as poverty and food scarcity, by allowing individuals to seek new opportunities in less crowded areas.

14.4.2 Colonization and Emigration: Malthus was a proponent of colonization, believing that it could serve as a solution to overpopulation and resource scarcity. He saw colonization as a way for surplus populations from industrializing nations to settle in newly acquired territories, thereby expanding their nations' resource base and reducing the pressure on resources at home.

14.5 Critiques and Controversies

14.5.1. Ethical Concerns: Malthus's views on population and migration have been criticized for their ethical implications. His emphasis on population checks, including famine and disease, as mechanisms for regulating population growth, has been seen as morally troubling. Critics argue that advocating for population control through such means is inhumane.

14.5.2 Lack of Cultural Sensitivity: Malthus's ideas on migration did not always consider the cultural and social factors that influence people's decisions to move. His theories often overlooked the complexities of migration, including the push and pull factors, and the role of culture, identity, and community ties.

14.5.3. Disregard for Technological Progress: Critics have also pointed out that Malthus did not adequately account for technological advancements and their potential to increase food production and resource availability. Overtime, innovations in agriculture and industry have disprove some of Malthus's dire predictions about resource scarcity.

14.6 Malthusian Ideas in Modern Context

14.6.1 Population and Resource Dynamics: While some of Malthus's specific predictions have not materialized, his core insight into the relationship between population growth and resource availability remains relevant. The global challenges of food security, environmental sustainability, and resource allocation continue to be influenced by these dynamics.

14.6.2. Contemporary Migration: Modern migration patterns, shaped by factors such as economic disparities, conflict, and climate change, bear some resemblance to Malthus's ideas about migration as a response to resource scarcity and overpopulation. However, contemporary migration is influenced by a broader array of factors and occurs on a much larger scale than Malthus could have anticipated.

14.7 Conclusion of Malthu's Theory

Thomas Malthus's views on migration, rooted in his theories of population growth and resource scarcity, provide valuable historical context for understanding contemporary discussions on migration and population dynamics. While his ideas have been criticized for their ethical implications and limited applicability to the complexities of migration in the modern world, Malthus's work remains a cornerstone in the study of population, resources, and human movement. As global challenges related to population growth arid resource allocation persist, Malthus's insights continue to inform discussions on migration and its relationship to the dynamics of population and resources.

14.8 General Views of Karl Marx on Migration

Karl Marx (1818-1883), a renowned philosopher, economist, and political theorist, is best known for his contributions to the field of Marxism and his critique of capitalism. While Marx's primary focus was on issues related to class struggle, labor, and the structure of society, his writings also contain insights into the phenomenon of migration. This analysis explores Karl Marx's general views on migration, shedding light on how his theories on capitalism, labor, and social change influenced his perspective on this vital aspect of human movement.

14.9 Marxism and Capitalism

14.9.1 The Capitalist Mode of Production: Central to Marx's thought was the examination of the capitalist mode of production. He argued that capitalism is characterized by private ownership of the means of production, wage labor, and the pursuit of profit. In this context, Marx's views on migration emerge as part of a broader critique of capitalism's impact on society.

14.9.2 Class Struggle and Alienation: Marx's work emphasized the inherent conflict between capitalists (owners of the means of production) and the proletariat (working-class laborers). He believed that the capitalist system led to the alienation of workers from the products of their labor, as well as from their own human potential. This perspective informs his views on migration as a response to the conditions created by capitalism.

14.10 Migration within the Capitalist System

14.10.1 Urbanization and Industrialization

Marx observed the rapid urbanization and industrialization that accompanied the rise of capitalism. As people moved from rural areas to cities in search of wage labor in factories, they became part of a growing urban proletariat. This internal migration was driven by economic factors and the need for employment.

14.10.2 Displacement and Exploitation

Marx recognized that many migrants faced displacement and exploitation in the capitalist system. Rural populations were often forced off their land due to changes in property ownership and the enclosures movement. Once in urban areas, migrants frequently endured harsh working conditions, long hours, and low wages.

14.11 Marx's Views on Immigration

14.11.1 Immigration and Labor Supply: Marx considered Immigration in the context of labor supply within capitalist economies. He argued that the influx of immigrant labor could serve as a mechanism for capitalists to maintain or increase their profits by expanding the pool pf available workers. This could lead to wage suppression and heightened competition among workers.

14.11.2 Divide and Rule

Marx also saw the potential for capitalists to use immigrant labor to divide the working class. By pitting native-born and immigrant workers against each other, capitalists could weaken labor solidarity and prevent unified action against exploitative working conditions and low wages.

14.12 Marx's Views on Emigration

14.12.1 Emigration as an Escape: In certain cases, Marx viewed emigration as a form of escape for individuals seeking relief from the harsh conditions of capitalism. He believed that some people chose to emigrate to escape unemployment, poverty, and exploitation in their home countries, with the hope of finding better opportunities elsewhere.

14.12.2 Emigration as a Capitalist Safety Valve: Marx also saw emigration as a safety valve for capitalism. When economic crises or social unrest occurred in one country, emigration could help release social and economic pressures by allowing surplus populations to settle in other regions or countries. This could temporarily alleviate domestic tensions and maintain stability.

14.13 Critiques and Controversies

14.13.1 Reductionism and Economic Determinism: Critics argue that Marx's views on migration can be reductionist and overly focused on economic factors. They contend that his emphasis on class struggle and exploitation sometimes overshadowed the diverse motivations and experiences of migrants, including cultural, social, and political factors.

14.13.2 Lack of Attention to Human Agency

Marx's framework is often criticized for not giving enough attention to the agency of migrants. Critics argue that his analysis sometimes portrays migrants as passive actors responding solely to economic forces, neglecting their capacity to make choices based on their own aspirations and circumstances.

14.13.3 Historical Specificity

Another critique is that Marx's views on migration may be historically specific to the 19th century industrialization and capitalism. The contemporary dynamics of migration are shaped by a wider range of factors, including globalization; geopolitics, and social issues, which Marx did not directly address.

14.14 Marx's ideas in a Modern Context

14.14.1 The Global Capitalist System: Jay's globalized capitalist system has facilitated the movement of labor across borders on an unprecedented scale. Marx's analysis of capitalism's impact on labor remains relevant as contemporary migration patterns are influenced by economic disparities, labor exploitation, and the search for better living conditions,

14.14.2 Intersectionality and Migration: Modern discussions on migration increasingly consider intersectional factors, such as gender, race, and ethnicity, which Marx's work did not explicitly address. Contemporary scholars emphasize the importance of understanding how these intersecting identities impact the experiences of migrants.

14.14.3 Migration and Social Change: Marx's views on migration can also be seen in the context of social change. Migration has historically played a role in shaping societies, and contemporary migration continues to have profound implications for cultural diversity, labor markets, and social dynamics,

14.15 Concision of Karl Marx's Theory on Migration : Karl Marx's general views on migration provide an important perspective within the broader context of his critique of capitalism and class struggle. While his analysis of migration is rooted in economic determinism and class dynamics, it offers insights into the historical relationship between capitalism and human movement. Critics argue that his views may oversimplify the complexities of migration, but Marx's work remains relevant for understanding the economic and social forces that shape contemporary migration patterns and the experiences of migrants in the global capitalist system

14.16 Simon Kuznet on population growth

Simon Kuznets, a Nobel laureate in economics, made significant contributions to the field of economics, including his insights on population growth and its relationship to economic development Kuznets is perhaps best known for his work on income inequality and economic growth, but he also offered valuable perspectives on population dynamics. This essay delves into Simon Kuznets' views on population growth, examining his key concepts, theories, and the implications of his work for understanding the interplay between population trends and economic development.

14.17 Demographic Transition and Economic Development

14.17.1 Demographic Transition Theory: Kuznets recognized the importance of the demographic transition theory, which explains the historical shift from high birth and death rates to low birth and death rates as countries undergo economic development. He emphasized the role of economic changes in driving this transition.

14.17.2 Early Stages of Development: In the early stages of development, Kuznets believed that improvements in public health and living conditions lead to a decline in mortality rates. While birth rates initially remain high, this results in population growth.

14.17.3 Late Stages of Development: As countries continue to develop, birth rates eventually start declining due to factors such as urbanization, increasing education levels, and changing social norms. This marks the later stages of the demographic transition.

14.18 Urbanization and Fertility Decline

14.18 Urbanization and Population Movement: Kuznets observed that as economies modernize, rural populations migrate to urban centers in search of better economic opportunities. This urbanization process can contribute to a decline in fertility rates.

14.18.2 Reduced Fertility in Urban Areas: Urbanization often leads to changes in lifestyle and family structure. As individuals move to cities, they may delay marriage and childbirth due to factors like education, employment, and access to contraception.

14.19 Income Growth and Fertility

14.19.1 Income and Fertility Decisions: Kuznets proposed that as income levels increase with economic development, fertility rates tend to decline. Higher incomes enable families to invest more in the education and well-being of fewer children.

14.19.2 Income Redistribution and Fertility: Kuznets argued that as economies grow, income distribution becomes more equitable, reducing the need for larger families to provide social security in old age. This redistribution further contributes to fertility decline.

14.20 Education and Fertility Choices

14.20.1 Educational Attainment: Kuznets highlighted the importance of education in shaping fertility decisions. As educational opportunities increase, individuals tend to prioritize their own careers and invest in the education of fewer children.

14.20.2 Empowerment of Women: Kuznets recognized that education empowers women, giving them greater control over family planning decisions. Educated women are more likely to delay childbirth and have fewer children.

14.21 Policy Implications and Development Strategies

14.21.1 Investment in Education: Kuznets' views suggest that investing in education can have far-reaching effects on population growth and economic development Education contributes to fertility decline, empowers women, and enhances human capital,

14.21.2 Healthcare and Family Planning Services: Providing access to quality healthcare and family planning services is crucial for promoting fertility control. These services help individuals make informed decisions about family size.

14.21.3 *Promoting* Gender Equality Kuznets work underscores the importance of gender equality in driving demographic transitions. Policies that promote women's rights, empower women economically, and ensure access to education contribute to fertility decline.

14.22 Critiques and Contemporary Relevance

14.22.1 Simplification of Factors Critics argue that Kuznets' views on population growth may oversimplify the complex interplay of economic, social, and cultural factors that influence fertility decisions.

14.22.2 Changing Context Kuznets' work was conducted in an era with different demographic and economic dynamics. While some of his insights remain relevant, changes in family structures, migration patterns, and cultural norms warrant updated perspectives.

14.23 Summary

Simon Kuznets views on population growth offer valuable insights into the relationship between demographic transitions and economic development His emphasis on the role of income growth, urbanization, education, and gender equality in shaping fertility decisions has informed discussions and policies related to population dynamics and sustainable development. While his work has been critiqued and needs to be considered in the context of evolving trends, Kuznets' contributions continue to contribute to our understanding of the intricate relationship between population trends and economic progress.

14.24 Glossary

- **Preventive Checks:** are those checks on the growth of population which man adopts by using his intellect and rationality.
- **Positive Checks:** are those adopted by a population itself whereas positive checks are due to environmental pressures.
- **Overpopulation:** is the state whereby the human population rises to an extent exceeding the carrying capacity of the ecological setting.
- **Mode of production:** refers to the different ways of producing the means of subsistence to enhance social being and survival by human beings.

14.25 Answers to Self-check Exercises

1. Discuss views of Malthus on Internal and International Migration.
2. Discuss views of Malthus on Emigration.
3. Why does migration take place within the capitalist system? Discuss views of Karl Marx.
4. Discuss Simon Kuznet's view on Population growth

14.26 Suggested Readings

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14.27 Terminal Questions

1. Critically discuss Malthusian Theory of Population growth and Migration.
2. Critically discuss the theory of Karl Marx on Migration.

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Chapter-15
Dual Sector Model of Lewis and Ranis-Fei

Structure

15.0 Learning Objectives

15.1 Introduction

15.2 Assumptions of the Model

15.3 The Working of the Model

15.4 Role of Bank Credit

15.5 Slowing of the Pace of Expansion of the Capitalist

15.6 Impact of the Open Economy

15.7 Critical Review of the Lewis Model

15.8 Ranis - Fei Model

15.9 The Initial Position

15.10 Lewis Turning Point

15.11 Analytical Difference Between the Lewis Model and the Ranis-Fei Model

15.12 Impact of increase in Productivity of Agriculture Labour on the Labour Supply Curve for the Industrial Sector.

15.13 The Growth Path

15.14 Critical Review of the Ranis-Fei Model

15.15 Summary

15.16 Glossary

15.17 Answers to Self-check Exercises

15.18 Suggested Readings

15.19 Terminal Questions

15.0 Learning Objectives:

After reading this chapter, you will be able to:

- Understand the dual sector model of Lewis; and
- Know the Renis-Fei model of dual sector.

15.1 Introduction

In his model, Lewis divides the economy in an underdeveloped country in two sectors namely the sector subsistence sector and the capitalist sector. Subsistence is identified with the agricultural sector of the economy while the capitalist sector implies mainly the manufacturing sector of the economy. Capitalist sector also includes plantations and mining where hired labour is employed for purposes of production. The capitalist sector can either

be private or public in nature. Subsistence sector, that the agricultural sector is considered to be labour intensive. It does not use reproducible capital. It uses poor techniques of production and has very low productivity.

15.2 Assumptions of the model

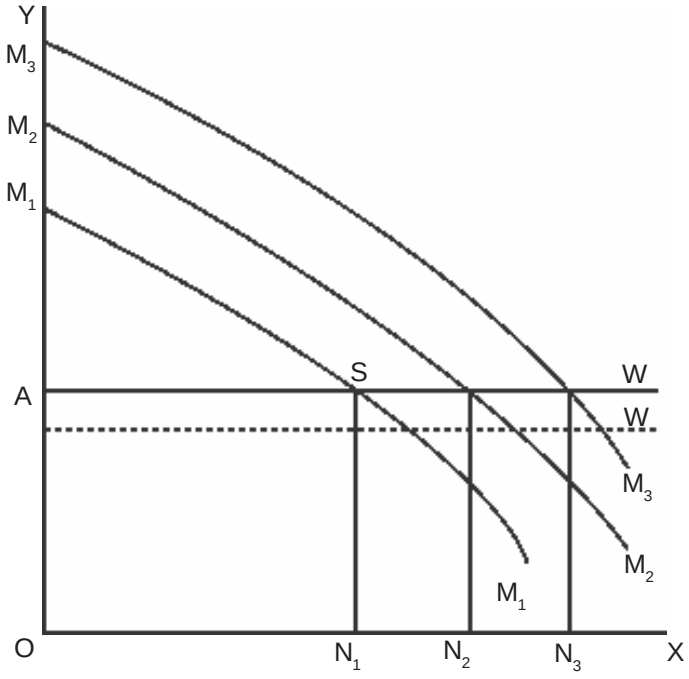
(A) The basic assumption of the model is that there exists surplus labour in the subsistence sectors. It includes labour whose marginal productivity is zero as well as that whose marginal productivity is positive but is less than the institutional wage. This labour comprises farmers, agricultural labourers, petty traders domestic servants and women. The surplus labour in the agriculture sector acts as a source of unlimited supply of labour for the manufacturing sector. By unlimited supply of labour. Lewis means that the supply of labour is perfectly elastic at a particular wages. This particular wage is somewhat higher than the institutional wage which each worker in the agricultural sector gets. Lewis calls its as an institutional wage because every worker gets this wage because of some institutional, arrangements. This wage is equal to an average share of each worker in the total output in the subsistence sector. If market forces were allowed to operate in the subsistence sector labourers with zero marginal productivity or those with a very low marginal productivity would not have received this wage.

(B) Importance of saving : Another important assumption that Lewis makes is about the savings generated in the capitalist sector and in the subsistence sector. The capitalist sector invests all its savings for its further expansion. Those, in the subsistence sector, on the other hand squander away their saving, if any in purchase of jewellary & for construction of temples etc. The propensity to save of the people in subsistence sector is also lower when compared with that of those in the capitalist sector. Lewis in fact so much fascinated by the higher propensity to save of the capitalist sector that he even advocates a transfer of income from the subsistence sector to the capitalist sector. He feels that steps have to be taken to raise the rate of savings from 10% to 15% if the development of the economy has to be smooth.

15.3 The working of the model:

The explanation of working of the Lewis model is quite simple. He feels that if a wage, higher than the institutional wage prevailing in the subsistence sector, by a certain proportion of the institutional wage, is fixed in the capitalist sector, the capitalist sector will be able to attract in an unlimited quantity, the labour from subsistence sector. This will enable the capitalist sector of expand. Ft will, in turn lead to the generation of more savings in the capitalists sector The additional saving, will not only help the entrepreneurs to invest more but also to improve the quality of capital invested. This will result in more employment of labour from the subsistence sector. This will lead to generation of more savings in the capitalist sector which can be further invested leading to employment of more surplus labour and so on.

Diagram 15.1 Explains the process of expansion of the Capitalists sector



EMPLOYMENT

In the diagram AW is the wage rate fixed in the capitalist sector. It is higher than W which represents the institutional wage. The wage in the capitalist sector "has to be higher than the intuitional wage because only such higher wage can attract labour from the subsistence sector. At first, ON-I labour is employed. This will lead to the generation of surplus equal to AM_1S, after the wages at the rate W have been paid. According to Lewis this surplus AMIS will be reinvested cither in old type of capital or may even be used to improve the existing techniques. All this will result in marginal productivity curve of labour moving M_2 M_2. Now more labour at wage. We can employed. ON_2 amount of labour will now be employed. More surplus will then be generated. It would be reinvested. Marginal productivity of labour curve will shift to M_3 M_3 more labour can now be employed. Still more surplus will be generated and reinvested and so on. The process of transfer of labour from the subsistence sector to the capitalist sector will continue for some time till some obstacles, hindering this transfer appear.

15.4 Role of Bank Credit

From the above analysis, one might get the impression that it is only through the surplus generated in the capitalist sector that the development of the capitalist sector takes place. This however is not correct. The process of development can also start if the capitalist sector initially does not invest its savings in the capital but borrows from the banks. According to Lewis the basic problem is to employ the labour from the subsistence, sector and this can be initially done through investment of funds borrowed from the banks.

Lewis is conscious of the fact that creation of bank credit will give rise to inflationary increase in prices. However, he is not much perturbed by this prospect. He is of the view that inflationary pressures will not continue forever. A time will come when the additional savings generated by the investment of borrowed funds become equal to these very funds. At that time, prices will stop rising further. As he says, an equilibrium is reached when savings generated through the investment of additional bank credit become equal to the amount of bank credit itself.

He is also ware of another fact. If inflation can make the distribution of income unfair. However, he says, it will be good for the manufacturing sector if the distribution of income moves in favour of the capitalists. Of course, if inflation tilts the distribution of income in favour of the traders it will be bad for the economy. It will only lead to more speculative activities.

15.5 Slowing of the Pace of expansion of the Capitalist Sector

According to Lewis, expansion of the capitalist sector will continue unhindered so long as the supply curve for labour from the subsistence sector is perfectly elastic i.e. so long as the labour can be transferred to the capitalist sector at a constant wage. Lewis, of course is conscious of the fact that under certain circumstances, the supply curve for labour can turn upwards. These circumstances are:

(i) The pace of expansion of the capitalist sector is more rapid when, compared with the rate of growth of population in the subsistence sector. The surplus labour in that case will ultimately be fully exhausted.

(ii) Technological development in the subsistence sector raise the predictability of labour with in that case will raise. We too will have to be raised then.

(iii) As population increase, due to law of decreasing marginal return, prices of food and raw materials will rise. This will increase both W and W.

(iv) When workers in the capitalist sector start imitating the living pattern of the capitalist themselves, they may ask for higher wages.

If any of the above four factors start operating, then according to Lewis, the expansion of the capitalist sector will slow down.

15.6 Impact of the Open economy

The open economy can encourage the immigration of labour. If this happens, it will help in the expansion of the capitalist sector. But immigration may not be so easy. If, in that case the pace of expansion of the capitalist sector slows down, capital may move out of the country as the economy is an open one. This may in turn lead to balance of payments problems and the problem of stability of rate of exchange.

15.7 Critical Review of the Lewis's Model

Some of the objections against Lewis's model are as follows :—

(1) The assumption that disguised unemployment exists in the agriculture sector has not been accepted by many economists. Schultz, Viner, Heberler and Hopper are a few of such economists. According to them, the production in the subsistence sector will be affected when labour is withdrawn from it. With this will change.

(2) Lewis ignored the cost involved in training the unskilled worker transferred from the subsistence sector. Even if it is obtained at a constant wage rate, so for as its transfer from the subsistence sector is concerned, the supply curve may slope upwards so for as the capitalist sector is concerned if the cost of training rises is more and more labour is transferred.

(3) When labour is transferred from the subsistence sector share of agricultural output falling to each one left in the agricultural sector will go an rising. This means the institutional wage will go on rising with every transfer and so will be the wages paid in the capitalist sector.

(4) The model assumes that, besides labour, there is unlimited supply of entrepreneurs in the capitalist sector. This is not true in the case of many of the underdeveloped countries.

(5) It is wrong to assume that a capitalist will, always re-invest their profits. They to can indulge in Un-productive pursuits. They can use their profits for speculative purposes.

(6) It is also wrong to assume that landlords always squander away their savings. The role of land lords of Japan in industrialization of the country is well known.

(7) The model assumes that there already exists a market for in the industrial products in the country. This is wrong. People of an underdeveloped country may not be able to purchase the products produced by the expanding capitalist sector. Foreign markets, too, may not be available for the capitalist sector in the beginning.

(8) Inflation is not liquidating, as has been assumed by Lewis. Experience of various countries shows that if once prices start rising, it becomes difficult to control them.

(9) It is not easy to transfer labour from the subsistence sector to the capitalist sector by offering them an incentive of a little higher wage. Mobility of labour is very low. Many factors like family affection, difference in language, caste, religion etc, affect it adversely.

(10) Every underdeveloped country does not have surplus labour in the subsistence sector. As such, the model does not apply to countries which are sparsely populated.

The only positive point in the model is its 'general" emphasis on the role of saving in economic development and on the potential that over populated countries have in developing themselves with the help of surplus labour.

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15.8 Ranis-Fei Model

We have earlier studies Lewis' model of Economic development. We have studied in that model that transfer of labour from the agricultural sector helps the development of the industrial sector. Lewis has ignored one important point in his model. He did not analyze as to what happened in the agricultural sector when labour was transferred from the agricultural sector, to the industrial sector. Such an analysis has been attempted by Ranis and Fei in their model. They have also examined how the changes that take place in the agricultural sector, consequent upon transfer of labour from it affect development of the industrial sector.

The model assumes that an underdeveloped economy is predominantly an agricultural economy. It is a labour surplus and resources poor economy.

The model assumes a close economy. In the model, the economy is divided into two parts, namely the agricultural sector and the industrial sector. The agriculture sector is assumed to produce only food grains. The model further assumes that disguised unemployment exists in the agricultural sector. It is also assumed that the law of diminishing marginal returns to labour applies in the agricultural sector from the very beginning and that after a point, the marginal productivity of labour falls to zero.

The industrial sector is assumed to depend upon the labour in the agriculture sector, for its development. In this the model follows Lewis.

15.9 The Initial Position

On the assumption that there is disguisedly unemployed labour in the agriculture sector and that the development of the industrial sector is yet to start, the situation in the two sector can be shown by diagram 1 In figure 15.2 the process of the development of the industrial sector has been shown. Along OP, the marginal productivity of labour and wages have been shown in real terms. Curve dt and d't' are the marginal value productivity curves as shown in the Lewis model Stt's. is the labour supply curve. This supply curve shows that labour is available at constant wage OS up to St. and at a rising wage level after this point, thus indicates the turning point for the labour supply curve as assumed by Lewis.

This model, with the help of other figures i.e. fig. 15.3. & 15.4 explains, why is the turning point for labour supply curve for the industrial sector.

For this, we may first of all look at diagram 15.4. In this diagram, OA (read from 0 to A) is the total labour force in the agriculture sector. Curve RGCFX shows the total productivity of this labour. It is assumed that law of diminishing marginal returns to labour operate in agriculture. AD is the zero value labour because total production remains unchanged after.

The model assumes, like Lewis, that each labour whether disguisedly unemployed or not gets an equal share in the total agricultural output. The authors call this share, again like Lewis, the institutional wage. Slope of the line OX (i.e. AX/OA) shows the value of the industrial wage.

In fig 15.4 we can also fine a point beyond which along OA the marginal productivity of labour becomes less than the institutional wage. Thai point obviously is the one where the slope of the total productivity curve (i.e. the marginal productivity) is equal to the slope of the line OX, this point is accordingly reached when OP labour is used. Curve OQ is the marginal productivity curve for labour which falls below the line OX beyond Q. We can say that at the prevailing institutional wage rate, labour beyond OP i.e. PA, according to the author of the model is disguisedly employed.

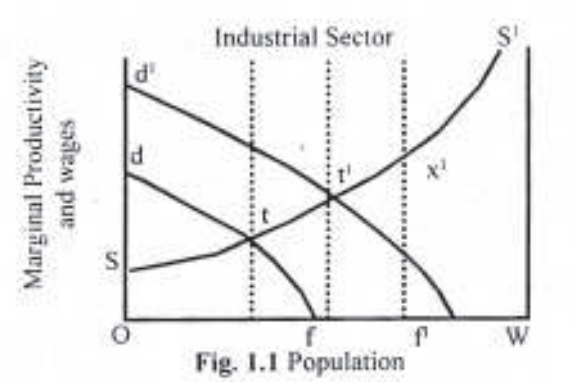


Fig. 1.1 Population

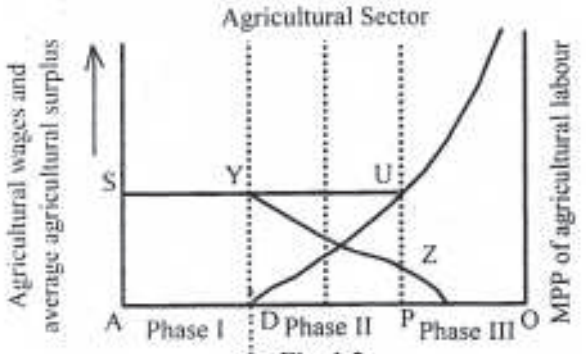


Fig. 1.2

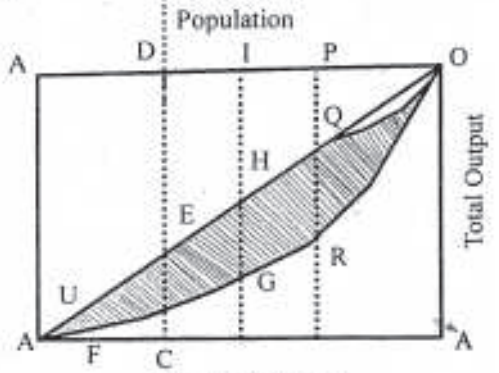


Fig. 1.3 Diagram

We must note here that the three figures i.e. 15.2., 15.3 and 15.4 lined i.e. these are related to each other through the employment of. labour. Whatever labour is not employed in the agriculture sector is deemed to have been transferred to the industrial sector and employed there. If for example, only OD labour is employed in agricultral sector, then AD is deemed to have been employed in the industrial sector.

Fig. 15.3 represent a link between the agricultural sector and the industrial sector. It tries to show. OH the one hand, how much of food grains can be released by the agricultural sector for the industrial sector. On the one hand, it shows marginal physical productivity of labour in the agricultural sector.

We may in the first instance, look at the food grams released by the agricultural sector on average basis i.e. per labour, transferred to the industrial sector. In the diagram (2,3) for AD labour, this average is just equal to its institutional wage, simply because the labour left in the agricultural sector will get only the institutional wage and redundant labour (i.e. zero value labour) will bring the balance with it. It will thus, bring its own share of

institutional wages. So average surplus will be equal to the institutional wage itself. As shown the institutional wage in fig. 15.3 and the AD labour get an average surplus equal to it. The authors of the model call it as the first phase of transfer of labour. In fig. 15.3 the average surplus released by the agriculture sector falls after the transfer of redundant labour is over. It falls simply because now labour with positive productivity is transferred to the industrial sector. As the labour left in agriculture sector 'will continue to get the industrial wage. As there will be no cut in its share, all the cut will be faced by the labour that is transferred. So average surplus beyond AD in fig. 15.3 will fall, this will continue to fall till another bunch DP labour is transferred. The authors do point out that P in fig. 15.2. shows the end of the 2nd phase of labour transfer. The phase signifies the point where marginal productivity of agricultural labour become equal to the institutional wage. After the second phase, the average surplus falls at still higher rate because now the labour left in the agricultural sector will not be paid wages equal to the institutional wage. After the second phases, the average surplus falls at still a higher rate because now the labour left in the agricultural sector will not be paid wage equal to the institutional wage but higher than this simply because marginal productivity of labour in the agricultural sector is higher than the institutional wage. This will further cut down the share of the labour transferred to the industrial sector SYZO shows the complete curve for average agricultural surplus.

In fig. 15.3. VDA is.the marginal productivity of labour in the agricultural sector (read from O to A), it falls as more and more labour is used and becomes equal to zero when OD labour is used. We know that beyond D towards A, the labour is zero value labour. We may now look at the curve SYUV in fig. 15.3. This can be taken as the curve showing the wages paid to the workers in the agricultural sector during various phases. We have alreadv explained that during phase 1 and 2 the agriculture labourers will get wage equal to the institutional wage. This is shown in fig 15.4. as the curve SYU. After that they get wages equal to their marginal productivity. This is indicated by UV part of the curve. The authors call point U point P as the point of commercialization of agriculture because if the labour transferred to the industrial sector is such that hi the agricultural sector only OP labour is left, then its wages will be determined by its marginal productivity (indicating a commercial motive) and will not be equal to the institutional wage. This is phase III which according to the authors can be called phase of commercialization of agriculture.

15.10 Lewis Turning Point:

We may look at fig. 15.2 again. The labour has to be transferred from the agricultural sector to the industrial sector. The industrial sector, therefore must pay to the labour, the wages at least equal to the wages that it gets in the agricultural sector. Of course, it is presumed that the labour in the industrial sector will be paid in terms of the industrial products. In fig. 15.2, OS indicates the level of institutional wages of course, expressed in terms of industrial products. In the first phase, the transferred labour bring with it the average surplus equal to the institutional wage. So long as the transferred labour brings this

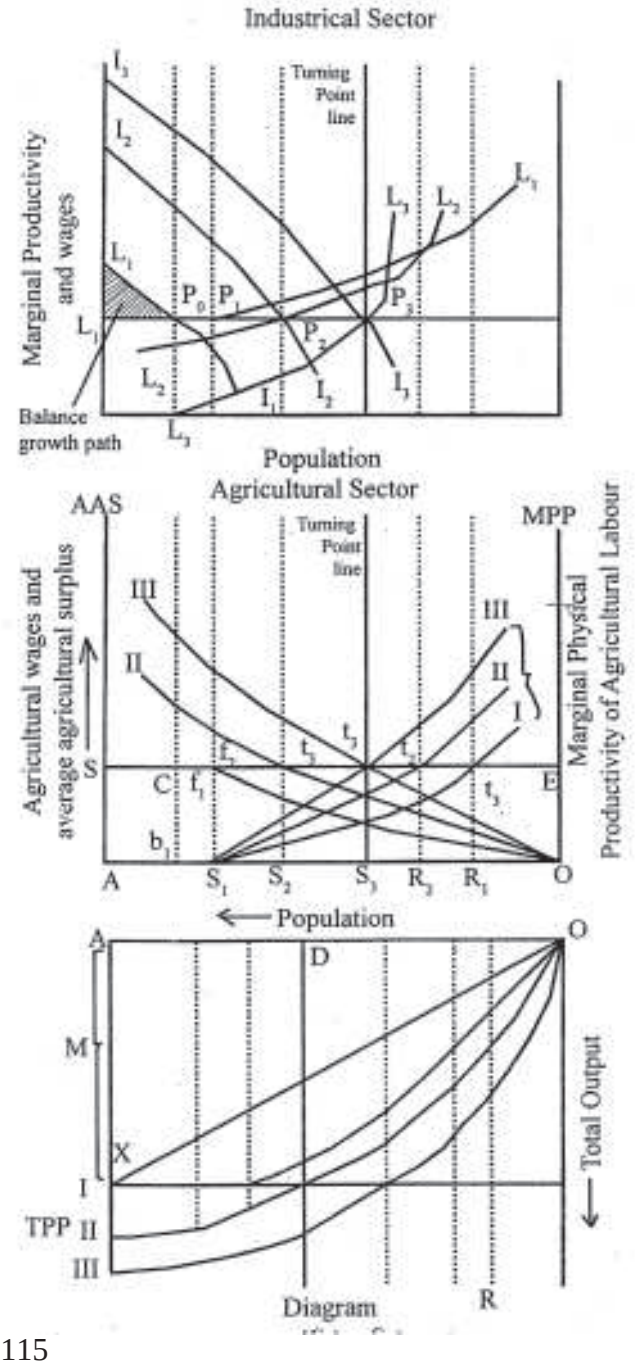
constant level of surplus with it, it will go on getting tie same wage of course, in terms of industrial products. The rate at which the wages in terms of industrial products are determined will be governed by the terms of trade between the agriculture products (food grains in this case) and the industrial products. If terms of trade remains constant (as is the case in the 1st phase) the level of institutional wage expressed in terms of industrial products will remain the same. This what we find in fig 15.4 up to point *t* OS continue: to be the constant wage rate (equal to the institutional wage paid to the agriculture labour but expressed in terms of the industrial products. Here the term of trade between agriculture and industry remain unchanged. This is because, according to the authors of this model, the terms of trade between the two sectors depends upon the fluctuations in the average agriculture surplus. If the average agricultural surplus remains unchanged, so will be the wages paid to the industrial workers. This very explanation follows for changes in the phase *2.* As soon as the 2nd phase starts, average agriculture surplus released for each transferred labourer falls. This creates a shortage of food grains for the industrial sector. Terms of trade will rise for the agricultural sector.

Now we have already seen that agricultural labour in the 2nd phase of labour transfer is also paid wages equal to the institutional wage. So labour in the industrial sector should also be paid wages equal to the institutional wage, though expressed in terms of industrial products. Now, as the terms of trade have started moving against the industrial sector (i.e. for the agricultural sector) when the second phase slarts and this movement continues with every further transfer of labour, more, and more of industrial products have to paid as wages per labourer so that their value remains equal to the institutional wage as paid to the agricultural worker in phase II. This is the reason why the supply curve for labour in the industrial sector goes on rising upwards after point. In phase 3, this curve becomes still more steep. This because not only do the terms of trade continue to turn against the industrial sector, the labour in the agriculture sector also starts getting wages which are higher than the institutional wage. This is the reasons why in fig. 1.1 the supply curve for it labour becomes till steeper after t.

15.11 Analytical difference between the Lewis' model and the Ranis-Fei model

According to Ranis-Fei model point tend of the first phase) in fig. 15.2 shows the Lewis turning point i.e. the point after which the supply curve of labour in the industrial sector will turn upwards. However Lewis himself did not consider this point as the upward turning point. For him all labour in the agriculture sector whose marginal productivity was either zero or was less than the institutional wage was available to the industrial sector at the institutional wage (or at a rate a little above it.) He never pointed out that as soon as the zero value labour was transferred to the industrial sector (i.e up to the end of phase I in the present model) the supply curve for labour will start turning upwards. For him, some other labour too (whose marginal productivity was less than the institutional wage, was also available at a constant wage rate. The reason for tins difference in the views of the authors of two models

is that unlike Ranis and Fei. Lewis did not take into account the effect of changing terms on trade on the supply price, of labour in the industrial sector. He totally ignored it, he assumed as if the wages to the transferred labour will be paid in agricultural products and as the institutional wages fixed in terms of agricultural produce, the labour transferred to the industrial sector will continue to be available at the constant wage rate i.e. that institutional wage. Ranis and Fei, on the other hand assumed that the "labour in the industrial sector will be paid, in terms of the industrial products and they had to bring the hanging terms of trade into the picture So We find that whereas according to Ranis and Fei, Lewis" turning point appears as soon as phase in their model ends, according to Lewis himself, the turning point will appear at the end of the phase II. If i.e. up to the point where labour in the agricultural sector is paid institutional wages.



15.12 Impact of increase in productivity of agricultural labour on the labour supply curve for the industrial sector.

Ranis and Fei refer to two factors that put off the Lewis turning point, i.e. the end of first phase when terms of trade changing against the industry. These factors are (1) the increase in population and the (2) the increase in the productivity of agricultural labour. Increase in population by supplying more redundant labour can put off 'the end of the phase I. In this lesson script, we will pay our sole attention in the 2nd factor i.e. increase in labour productivity. For this purpose we use diagram II. This diagram contains all that have been included in diagram I as the starting point. At the same time, it tries to show the impact in agricultural productivity on various aspects of the model.

Before we proceed further, we may refer to certain assumptions that the authors make while discussing the impact of increase in agricultural productivity on the process of transfer of labour from the agriculture sector to the industrial sector. The first assumption is that even when the productivity of agricultural labour increases,

the size of the labour force that has positive marginal productivity remains the same or in other words, the size of the zero value labour force in the agriculture sector remains-unchanged. This is obviously a questionable assumption. Second assumption is also questionable. It is assumed that when the labour productivity increases, the institutional wage in the agricultural sector remains unchanged. Every body will be getting the same old wage even why now there is more to share.

Now, we may have a look on diagram 2. In the first instances we examine fig 15.4, shows how the increase in the productivity of agricultural labour effects the total productivity curve. Curve I shows the original total productivity curve. Curves II and III show the total productivity. After the increase in labour productivity has taken place in the agricultural sector. It is clear from the fig. 15.4 that as per assumption 2 described above, marginal productivity of labour becomes zero (i.e. total productivity curve becomes maximum, at the same point of labour, use i.e. OD labour and the institutional wage (as per assumption 2) is represented by the slop of the old line OX.

Diagram 15.3 shows how the average agricultural surplus and the marginal physical productivity of labour is affected by increase in labour productivity. So far as Marginal Physical productivity of labour is concerned, curve MMP_1 shows the original marginal physical productivity of labour. The two other curves MPP_{11} and MPP_{111} are the two new curves showing an upward movement in productivity of labour. As it has been assumed that the size of the zero value labour is the same all the marginal productivity curves reach zero point on OA as soon the first phase of transferred labour ends.

So far as the average agriculture surplus curves are concerned. St is the original Average Agricultural surplus curve. As now agricultural productivity of labour has incased the curve shifts upwards. As curves II and ill show the average agricultural surplus curves corresponding to the increased total productivity curves in fig 15.4. It may be noted that curves AAS II and III have not part parallel to OA as the AASI curve has Rather, the curves are higher than the original one and slope downwards to the right from the very beginning. This is because, in the first instance, as the labour left in the agricultural sector still gets only the institutional wages in phase I the balance passed after increase in labour productivity will than the-institutional wage as was the case in the original situation. The average surplus will then goes on declining even in the first phase because in the first phase, the total additional output due to increase in labour productivity' is the same throughout. This total addition goes to the share of the transferred labour as we have just pointed out. However, when more and more labour is transferred in the first phase, the share of this additional output going 13 the transferred labour will go on falling. The result will be that each worker, original!) in the first phase will be getting along with it an average agricultural surplus, which be over and above institution wage that it had receive earlier and that this; additional average will go on declining as the tabour is transferred from. In the agricultural sector to the industrial sector in the old phase I.

When we go through the increased average agricultural surplus curves i.e AAS_1 and AAS_{11} we will note one more point. In each curve, the average agriculture surplus is equal to the institutional wage at a point to the right of the original, point Y in diagram I (Pt fi in fig. 15.3). This means that increase in the average agricultural surplus shifts the end of phase I (Original) towards the right. For example only after point of 2 in fig 15.3, the average agricultural surplus will be less then institutional wage (when we consider AAS_{11}. Similarly, if we consider curves AAS_{111} it will show that the end of phase I has shifted to point f3.

We may again look at the marginal productivity of labour curve in fig. 15.3, We have seen that as agricultural productivity of labour increase, these curves shift towards the left. This shift indicates another change. With every leftward shift, marginal productivity of labour rises and therefore the point where marginal productivity of labour institutional wage becomes equal to each other is reached with comparatively smaller number of workers being transferred to the industrial sector when we compare this situation with the original one. For example, in fig. 15.3 originally at point. Marginal productivity of labour was equal lo the institutional wage A.S, After the increase in the productivity of labour to this point shifts to the left i.e. to 12. And ..... MPP_{111}, this point further shifts to the left i.e. to t3. This has an important implication for further analysis. We know that the point where institutional wage and the marginal productivity of labour are equal lo each other, has been treated by the author of the model as beginning of phase in so far as the transfer of labour from the agricultural sector to the industrial sector-is concerned. We can therefore say mat with every increase in the productivity of labour, the beginning of II shifts left wards. Or hi other words, the starting point of phase III is reached earlier when an increase in labour productivity lake place.

The preceding discussion throws up an important point. We have seen that where an increase in productivity of agricultural labour pushed the end point of the first phase (also called the shortage point) to the right through increase in average agricultural surplus, it also pushed the point of commercialism of this agriculture towards the left. According to the authors of this model, there is bound to be particular increase hi productivity of labour which will make the end of 1st phase and the beginning of HI phase confided with each other. In other words, the II phase will, then disappear. In diagram 15.3, this point is reached at S3 where average Agricultural surplus and marginal productivity of labour are both equal to institutional wage. The authors call it the ‘turning point’. (This point is not the same as been referred to the model given by Lewis. This point is arrived at, after there is a certain amount of increase in agricultural productivity). This is a very important concept in this model. However we shall explain the importance of this point only alter we have discussed the impact of increase in the productivity of agricultural labour on the labour supply curve for the industrial sector. This impact can be read through diagram 2.1.

In diagram 2.1 $L_1P_1L_1$ is the original labour supply curve OL_1 is the equivalent of the institutional wage prevailing in the agricultural sector but paid in term of industrial goods. Now, as the average agricultural surplus increases due to increase in labour productivity in the agricultural sector, terms of trade will change in favour of the industrial sector (i.e.

against the agricultural sector). A smaller basket of industrial goods will have to be paid for ensuring the equivalence of the old institutional wage (For that mailer, even for wages higher than this) in the agricultural sector. Of course, as the average agricultural surplus declines with more and more transfer of labour to the industrial sector, the terms of trade will change in favour of agriculture and wages paid to the transferred labour in terms of industrial goods will go on rising.

The new supply curve for industrial labour (because of increase in the productivity of labour in the agricultural sector) will thus start from a point below the old wage OS in the industrial sector and go on moving upward to the right (L_2L_2 and L_3L_3 are the new labour supply curves for the industrial sector). There is no horizontal portion in the new supply curves of labour.

We may note one more point with regard to the new supply, curves for labour for the industrial sector. Each curve, based on a relatively greater increase in the productivity of agricultural labour, thought lying below the previous curve (showing, comparatively a small increase in the productivity) in the beginning, intersects this curve at some point on or intersects above the level of institution wage. For example curve $L_3 L_3$ intersect both $L_2 L_2$ & $L_1 L_1$ curves and curves $L_1 L_1$ insects curve $L_1 L_2$. In other words, new labour supply curves do not lie below the previous labour supply curves throughout. This is because, according to the authors of this model, in the first instance, each change in the terms of trade against agriculture due to its increasing average agricultural surplus because of increase in the productivity of agricultural labour will push down the supply curve of industrial labour. But at the same time increase in agriculture productivity will make the new supply curve for industrial labour move upwards to the right more steeply especially for that part of the transferred labour which is paid not the institutional wage but an amount equal lo its marginal productivity while in the agricultural sector. Following this, the authors of the model imply that greater the increase in [he productivity of agricultural labour, lower will be supply curve for industrial labour in the beginning and greater will be its gradient in its later pan and as a result, it will be ultimately intersecting the curve corresponding lo a smaller increase in agricultural productivity at one point or the other.

Another point needs explanation, With new supply curves for labour, its is quite possible that the wage determined in industrial sector though the changed supply curve of labour and the demand curve for labour (as represented by its marginal productivity) are lower than before. However, even the lower wage so determined because of a favourable terms of trade for the industrial sector, due to increased productivity of agriculture labour, will ensure an amount of food grains equivalent to the institutional wage prevailing in the agriculture sector. If the marginal productivity curve of industrial labour also moves higher due to more investment in the industrial sector, the wages can rise back to the old level of institutional wage when paid in terms of industrial goods. In other words, one can say that now more labour can be employed at the old institutional wage in the industrial sector when

labour productivity rises in the agricultural sector or we can say that Lewis upward turning point is postponed with increase in the productivity of labour in the agricultural sector. However, an important point must be noted in this regard. Every increase in the productivity of agricultural labour will not push this point to the right. The 'turning point' as defined by the authors of this model is the ultimate limit. As soon-as this point is crossed, wage in the industrial sector must become higher than the original institutional wage prevailing in the industrial sector.

This is simply because wages in the competing agricultural sector, after the 'turning point' are above the institutional wage itself. It may further be noted that the analysis in the model implies that this turning point for labour supply in the industrial sector will remain unchanged, other things remaining the same, even if the increase in productivity of agricultural labour is more' than that winch has brought about this point it can neither move to the right not to the left. New labour supply curves for industrial labour of course, will appear with every further increase in the productivity of agricultural labour but they will all be passing through the turning point itself.

15.13 The Growth Path

The horizontal line in diagram 15.2 showing the institutional wage in the industrial sector has been called the balanced growth path up to the turning point. The authors of the model suggest that the two sectors should grow in such a manner that wages in the industrial sector coincide with the old institutional wage up to the turning point. If only the agricultural sector develops, the industrial wage can, no doubt, fall below the original institutional sector wage. But once this lower wage is fixed the industrial sector will not be able to employ more labour than that which is available at this wage. More labour is available to the industrial sector only at a higher wage. The industrial sector, therefore should expand and increase the marginal productivity of its labour, Because it is only thon mat it can afford a higher wage in terms of industrial goods. Similarly, if the industrial sector wage are higher than the institutional wage (as fixed originally in the industrial sector) these should be brought down if the industrial sector is to grow up to the turning point smoothly. In case this is not done, higher wages will unnecessarily cat up the surplus in the industrial sector. It is possible to reduce the wages in the industrial sector by increasing productivity of labour in her agricultural sector and there by to shift supply curve for industrial labour to the right. The authors, thus, suggest that me ideal solution before the 'turning point' is to develop both the sectors in such a way, may be one at a time-that the initial advantage (or disadvantage) in terms of trade accruing to the two sector is maintained and the institutional wage (as originally paid in term of industrial products) prevails in the industrial sector.

After the 'turning point' has been reached, the institutional wage loses its importance. Agriculture becomes commercialized and wages in this sector are higher than the institutional wage and so will be wages in the competing industrial sec or Wages in the industrial sector cannot be constant after the turning point.

15.14 Critical Review of the Rains FCI Model

The model is, in a way, a pioneer in analyzing how changes take place in the agricultural sector as well as in the industrial sector and also in studying how the relations between the two sectors change when labour is transferred from the agricultural sector to the industrial sector. However, it suffers from certain limitations. Few of them are listed below :-

(1) The model assumes that labour will shift from the agricultural sector to the industrial sector at the same wage same wage which it is getting in the agricultural sector. This assumption is not correct. Without some additional incentives no labourer will ever leave its original place of work.

(2) There is another wrong assumption which underlies the model. The model assumes that when the redundant labour or the disguisedly unemployed labour leaves the agricultural sector, the labour left behind the agricultural sector will continue to get wages equal to the institutional wage. This will never happen. It passes comprehension why should the agricultural sector, voluntarily spare the surplus over what the institutional wager determine for the labour left behind in the agricultural sector, for the industrial sector. The logical conclusion appears to be that when some labourers have left the agricultural sector those left behind will try to consume more of what was being produced by the agricultural sector. There per head consumption will then go above that indicated by the institutional wage. In other words, diagrammatically, a new line greater with a slope than that of OX (dig. 15.3) will come into existence, thereby reducing the agricultural surplus available for workers transferred to the industrial sector (below what the mode! assumes).

(3) The demand of the labour for agriculture surplus transferred to the industrial sector can also go up even when their wages are not higher than what they were getting in agricultural sector. Lewis gives a reason for this increase. The industrial workers may start imitating their capitalist employees and demand more of everything. This increase in turn, may effect the terms of trade etc. The model does not consider this aspect at all.

The above discussion, in fact leads to another important conclusion which too goes against; the model. The model assumes that the terms of trade change only when production falls, says with the beginning of phase II. However, according to above analyses, the terms of trade will change in favour of the agricultural sector even with the beginning of the first phase, not due to fall in production but due to increase in demand for agricultural surplus.

(4) The model assumes that increase in productivity of labour is nothing to do with the transfer of labour from the agricultural sector. This, however, may not be true. With the reduction in labour, there might be a reorganization of agriculture which in turn may lead to an improvement in the productivity of labour.

(5) The model assumes a closed economy. It is assumed that neither there is an export of manufactured goods to the other country, nor there is an import of food grains from outside. If both these assumptions are dropped, the terms of trade will not move in favour of agriculture to the extent, as assumed under the model. Import of food grains will add to the supply of agriculture surplus, thus' changing the terms of trade against agriculture. Same will be the case if manufactured goods are exported to other countries.

(6) The assumption that the agricultural surplus is limited is also questionable. There may be more surplus than what the transferred labour really needs. Is the extra surplus is exported to foreign countries, capital goods can be imported in exchange for it this will hasten the pace of economic transformation.

(7) The model assumes that the agricultural surplus-will be automatically transferred to the industrial sector when labour is transferred to it. This is a questionable assumption. However, it has been suggested that if taxes in kind are imposed on the agriculturalists, some surplus can be collected by the government and the industrial sector.

(8) In the analysis of the model, we come across another assumption. It is that even when there; is an improvement in agricultural productivity of labour, none of the zero value labour will give a positive productivity. It will still remain a zero value labour. This assumption is not correct. The logic says that when the productivity of all labour with positive marginal productivity increase, some labour, earlier with zero marginal productivity should now start yielding positive marginal productivity. It is quite possible that the new technology responsible for improvement in agricultural productivity is at the same time labour using. This is what was the case with Japanese technology for rice cultivation or with the recent seed-cum fertilizer technology adopted in India.

(9) The model assumes that institutional wage will remain unchanged when the productivity of agricultural labour rises. This assumption is not correct. It seems unlike that the agricultural labour which increases the total production will be debarred from sharing in the additional produce. However, this is one of me basic assumption of the model. If this assumption is dropped, the model will fail to arrive at its various conclusions. The whole model will become topsy-turvy.

(10) The model assumes that zero value labour exists in the agriculture sector. Many economists like Schultz have questioned this assumption.

(11) The model further assumes that only food grains are produced in the agricultural sector. This is against facts.

(12) Mellor feels that what the model tries to prove, is nothing new. It is all a matter of common sense. It is always true that when labour is transferred from the agriculture sector to the industrial sector, demand for food grains will rise and this will turn the terms of trade against industry. It is also a matter of common knowledge that if agricultural productivity rises, food grains will become cheaper and this will reduce the hindrance in fie way of development of the industrial sector.

15.15 Summary

No doubt the model suffers from many infirmities and empirically its conclusions cannot be substantiated. Still-it has some home truths. For instance, it is correct in saying that efforts must be made to ensure that agricultural surplus available for the industrial sector should increase as the industrial labour force increases. Similarly, agricultural productivity should be increased if the industrial development is to be smooth. Again the suggestion that steps should be taken to change the terms of trade for one sector at one time and for the other at another time is also quite sound.

15.15 Glossary

- **Subsistence Sector:** a sector in which economic surplus is minimal and only used to trade for basic goods, and there is no industrialization
- **Capitalist Sector:** refers to an economic system where private businesses can have ownership of capital goods.
- **Surplus Value:** the excess of value produced by the labour of workers over the wages they are paid.
- **Marginal Product of Labour:** Is the change in output that results from employing an added unit of labor.

15.17 Answers to Self-check Exercises

1. Discuss Role of Bank Credit in Lewis Model.
2. Discuss the turning point of Lewis

15.18 Suggested Readings

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15.19 Terminal Questions

1. Discuss the Lewis model of dual sector of rural development.
2. Critically examine the Renis- Fei model of dual sector.

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Chapter-16
Jorgenson's Model of Dual Sector

Structure

16.0 Learning Objectives
16.1 Introduction
16.2 Assumptions of the Model
16.3 Agriculture sector
16.3.1 Its Policy Implications
16.3.2 Agriculture Surplus
16.4 Manufacturing Sector
16.5 Rate of Capital Accumulation
16.6 Critical Review of the Model
16.7 Summary
16.8 Glossary
16.9 Answers to Self-check Exercises
16.10 Suggested Readings
16.11 Terminal Questions

16.0 Learning Objectives:

After going through this chapter you will be able to:

- Understand the Jogerson Model
- Understand the relationship between Jogerson and Fei Model.

16.1 Introduction

Prof, D, W. Jorgensonl has presented a theory of development of a dual economy. He divides the economy into two sectors — the modern or manufacturing (industrial) sector, and the traditional or agricultural sector. There is asymmetry in the production relations in the two sectors. The agricultural sector is a function of land and labour alone; and the manufacturing sector of capital and labour alone. Population growth depends on the supply of food per capita only. If the food supply is more than sufficient for the population, there exists an agricultural surplus and labour is free from the land for employment in the manufacturing sector. If there is no agricultural surplus, all labour remains on the land. On the other hand, if an agricultural surplus exists, the labour force migrates from the agricultural sector to the manufacturing sector for employment But the labour force available for employment in the manufacturing sector grows at a rate which is equal to the growth rate of the agricultural surplus. Due to a steady migration of labour from the backward agricultural sector to the modern sector, labour may demand higher wages in the latter sector. Therefore,

there may be some wage differential in the two sectors. This differential is proportional to the manufacturing wage rate and is stable in the long run. This differential determines the terms of trade between manufacturing and agricultural sectors, and thereby the rate of investment in the manufacturing sector of a closed economy.

However, the decline of the economy to its trap level of output can also be traced with the diminution of the agricultural surplus. As the agricultural surplus begins to diminish, the agricultural labour force grows at a rate which is more rapid than the growth rate of population. The labour force declines absolutely in the manufacturing sector and returns to the agricultural sector. The output in the manufacturing sector drops to zero and capital is decumulated at the rate given by the rate of depreciation. Ultimately, the process of capital accumulation comes to a halt Food output per capita declines to a stationary level and population growth is reduced from its maximum rate. This is a low level equilibrium trap situation.

16.2 Assumptions of the Model

The Jorgenson model is based on the following assumptions:

1. The economy consists of two sectors — the agricultural sector and the manufacturing sector.
2. The output of the agricultural sector is a function of land and labour.
3. All land is fixed in supply.
4. The output of the manufacturing sector is a function of capital and labour.
5. Agricultural activity is subject to the law of diminishing returns to scale.
6. The manufacturing activity is subject to the law of constant returns to scale.
7. Technical changes take place at some constant rate and all changes are neutral.
8. It assumes a closed economy in which trade is in balance for goods of both sectors.

16.3 Agricultural Sector

First we start with the agricultural sector characterized by constant returns to scale with all factors variable as given by the Cobb-Douglas production function:

$$Y = e^{at} L^{\beta} P^{1-\beta} \quad \ldots\ldots\ldots\ldots\ldots (1)$$

where, Y represents agricultural output; e^{at} is technical change which takes place at a constant rate (á) in the time (t); *L* is fixed quantity of land available in the economy; β is the share of landlords in the product which takes the form of rent; *P* is total population in this sector; and 1- β is the share of labour in the product paid.

Since the supply of land *(L)* is fixed, equation (1) can be written as

$$Y = e^{at} P^{1-\beta} \quad \ldots\ldots\ldots\ldots\ldots (2)$$

To obtain agricultural output per man, we divide both sides of the above equation (2) by P, and we have,

$$\frac{Y}{P} = e^{at} P^{1-\beta}$$

or $y = e^{at} P^{1-\beta}$ $\left[\because \frac{Y}{P} = y\right]$

Now differentiating with respect to time,

$$\dot{y} = \alpha e^{at} P^{-\beta} + e^{at}(-\beta)$$

$$= e^{at} P^{-\beta}\left[\alpha \frac{\beta}{P}\dot{P}\right] \qquad \left[\because p^{-1} = \frac{1}{P}\right]$$

$$= y\ \alpha - \beta\frac{p}{P} \qquad \left[\because y = e^{at}P^{-\beta}\right]$$

or ..... (3)

where, α is the rate of technical progress, β is the share of landlords in the product and ε is the net reproduction rate of population.

According to Jorgenson, depending on the conditions of production and the net reproduction rate, the agricultural sector is characterized either by a low level equilibrium trap in which output of food per head is constant and population and food supply are growing at the same positive rate (α-$\beta\varepsilon$), or by a steady growth equilibrium in which output per head is rising and population is growing at its physiological maximum rate. The necessary and sufficient condition for a positive growth of output in the agricultural sector is $\alpha - \beta\varepsilon > 0$.

$$\left[\because \varepsilon\alpha = \beta\varepsilon\right]$$

16.3.1 Its Policy Implications. The policy implications of the above analysis are that a backward agricultural economy can change its system by altering the parameters of its system. If the economy is in a low level equilibrium trap and P remains constant, it can come out of the trap situation by increasing the rate of technical change (α) so that the sign of the expression $\alpha - \beta\varepsilon$ is changed from negative to positive, and there is a steady increase in the output of food per head. Or the reproduction rate of population *(ε) may be reduced by birth control measures. So long as the rate of technical progress (α) is greater than the reproduction rate (ε), the growth of food output per head will take place. If they are equal* ($\alpha = \varepsilon$), the system will be in low level equilibrium trap.

16.3.2 Agricultural Surplus. It is only when food output per head is constantly rising, an agricultural surplus is generated. Jorgenson explains the agricultural surplus per member of the agricultural labour force as:

$$y - y^{+} = s$$

where, *y* is the agricultural output per man, y^{+} is the level of output of food at which the net reproduction rate of population is the maximum, and s is the agricultural surplus.

If total agricultural output exceeds this rate, part of the labour force may be freed from the land to the manufacturing sector to produce goods with no decrease in the growth rate of the total labour force. If we denote the agricultural population by A and the manufacturing population by M, then the total population will be P = A + M. Where *A = P,* the whole labour force is engaged in agricultural production.

According to Jorgenson, in a dual economy, labour may be freed from the land at a rate which is just sufficient to absorb the agricultural surplus. But if the growth of manufacturing is not sufficiently rapid, some of the excess labour force will remain on the land and part or all of the surplus may be consumed in the form of increased leisure by the agricultural workers and there will be virtual destruction of the manufacturing activity. However, this dual economy model assumes a balance between the expansion of manufacturing labour force and the production of food which is described as:

$$\frac{y^{+}}{y} = \frac{A}{P}$$

This relationship holds only when an agricultural surplus exists. In other words, when there is a positive agricultural surplus rather than a shortage of food, and $y > y^{+}$.

16.4 Manufacturing Sector. Now we take the conditions of production and capital accumulation in the manufacturing sector. The production function for the manufacturing sector is based on the assumption of constant returns to scale and is in the form:

$$X = f(K, K, t) \qquad \dot{A} = \lambda A \ldots\ldots (4)$$

where, *X is* the manufacturing output, *K* is the capital stock, M is the manufacturing labour force, and t is time.

If the relative share of labour in manufacturing output is constant and all technical change is neutral, then the production function becomes

$$X = A(t)\, K^{\sigma} M^{1-\sigma} \qquad \ldots\ldots\ldots\ldots (5)$$

where, *A(t)* is some function of time and 1 — σ is the relative share of labour force *(M).*

If the rate of growth is constant, then

$$\frac{\dot{A}}{A} = \lambda$$

or

By solving this as a differential equation, we have

$$A(t) = e^{\lambda t} A(O)$$

Substituting the value *of A(t)* in equation (5), we have

$$X = e^{\lambda t} A[O]\, K^{\sigma} M^{1-\sigma} \qquad \ldots\ldots\ldots\ldots (6)$$

Dividing *X* and *K* by M, and representing output per man by *x* and *k* respectively, and changing the units of *X* so *that A(O) — 1,* the production function becomes

$$x = e^{\lambda t} K^{\sigma}$$

This is a technical progress function which expresses output per man as a function of capital per man.

16.5 Rate of Capital Accumulation

Next Jorgenson studies the determination of the rate of capital accumulation. According to him, the first approach is through the fundamental *ex post* identity between the sum of investment and the consumption of manufactured goods, on the one hand, and manufacturing output, on the other. He assumes with Kaldor that industrial workers do not save and property owners do not consume out of their property income. Then, the consumption of manufactured goods, in both the manufacturing and agricultural sectors, is equal to the share of labour in the product of the manufacturing sector. The industrial wage rate is determined by the marginal productivity condition:

$$\frac{\partial M}{\partial X}(1-\sigma)x = w$$

where, *x is* output per man, 1 — α is the relative share of labour in the total product, and *w is* the industrial wage rate. The necessary condition for the maximization of profits is that the industrial wage rate should be equal to the marginal product of labour. It is assumed that profits are maximized in the manufacturing sector and not in the agricultural sector. The agricultural workers can be expected to respond to wage differentials between industry and agriculture only if industrial wages are greater than agricultural come. It is, therefore, assumed that the differential which is necessary to cause movement of agricultural labour into the industrial sector is roughly proportional to the industrial wage rate.

$$wM + \mu wA = (1\text{-}\sigma)X + qY$$

where, wM is the industrial wage bill, μ wA is total agricultural income expressed in manufactured goods, (1 — σ) *X* is total consumption of manufactured goods by workers in both sectors, and *qY* is the value of agricultural output measured in manufactured goods. The variable q is the terms of trade between agriculture and industry. It is assumed that all agricultural income, whether in the form of rent or wages, is consumed. So investment in the manufacturing sector is financed entirely out of the incomes of property-holders in that sector.

Jorgenson points out that once the share of labour in industrial output is distributed to workers in the form of food and consumption goods, and agricultural workers have received the proportion of industrial output which must be traded for food, the remainder of industrial output is available for capital accumulation or investment He defines capital accumulation as investment less depreciation, and depreciation is regarded as a constant fraction of capital stock:

$$\dot{K} = I\ \eta K$$

..... (8)

where, η is the rate of depreciation, I is investment, and *K* is net capital accumulation.

The total industrial output is equal to consumption plus investment:

$$X = (I - \sigma)X - I \qquad \text{..... (9)}$$

where, *X* is the total industrial output, (l- σ) *X is its* consumption and *I* is investment.

This equation implies the following relation between output and capital stock By substituting equation (8) in equation (9), we have

or $X = X - \alpha X - \dot{K} - \eta K$

or ..... (10)

In the above equation (10), σ *X* represents saving, while investment is made up of two components: one, net capital accumulation , and two, replacement investment ηK.

By using the production function $X\text{-}e^{at}\ K^{\sigma}\ M^{2-\sigma}$ to eliminate X, the level of output in the manufacturing sector in the above equation (10), we have

which is the fundamental equation for the development of a dual economy.

16.7 Summary

A backward traditional economy grows when there is a positive and growing agricultural surplus and capital accumulation. Once the economy starts growing, it continues to grow. The actual pattern of growth is determined by two fixed initial conditions: first, the size of the total population at the time when sustained growth begins; and *second,* the size of the initial capital stock Of these, only the influence of the initial capital stock dies out quickly. The greater the rate of depreciation and the greater the relative share of labour (1- σ), the more rapidly the effects of the initial capital endowment disappear. Further, there is no critical level of initial capital endowment below which no sustained growth is possible. Even the smallest initial capital stock gives rise to sustained growth. In other words, the combination of a positive and growing agricultural surplus and a small positive initial capital endowment gives rise to take-off into self-sustained capital accumulation and increase in output. For long run equilibrium growth, capital and output grow at the same rate, even when there is neutral technical progress. When there is technical progress, population grows at its maximum rate, and capital and output grow at a more rapid rate, i.e., λ/(1 - σ) + ε, where λ is the rate of technical progress and (1- σ) is the share of labour. The rate λ/ (1- σ) + ε is like Harrod's natural growth rate Gn.

Finally, the condition which is necessary and sufficient for sustained growth of output in both the agricultural and manufacturing sectors is $\alpha - \beta\varepsilon > O$, where *a* is the rate *of* technical progress, ε is the maximum rate of population growth and $1 - \beta$ is the share of labour in the product Thus the development of a dual economy depends not only on the existence of an agricultural surplus in the agricultural sector but also on technical conditions in the manufacturing sector. The more rapid the rate of technical progress, the higher the saving ratio, and the more rapid the rate of population growth, the more rapid is the pace of growth in the industrial sector. Ultimately, the industrial sector develops more, dominates in the economy, and becomes more and more like the advanced economic system described by the Harrod-Domar growth theory.

Another feature of Jorgenson's dual economy model which characterizes long run equilibrium is the absence of a 'critical minimum effort' necessary for a take-off into self-sustained growth of the Leibenstein type. Whatever the initial capital endowment of the manufacturing sector, sustained growth must continue. In fact, the beginning of growth of manufacturing output is invariably accompanied by a "big push" of activity with an extraordinary high rate of growth of the output.

16.6 Critical Review of the Model

Jorgenson expounded a theory of development of a dual economy based on the neo-classical production function, and applicable to the historical situation of Japan and countries of South East Asia. His model is superior to the dualistic models of Boeke, Lewis, Rei-Fanis among others. This is because these models deal with 'special situations' or 'unsolved problems' created by concentration on a single output or *a* single production relation. On the other hand, his model is more realistic because it takes into consideration population, labour force, capital and technical change in discussing the development of a dual economy. However, he admits that his model does not present the universal theory of economic growth and development but a theory which is applicable to a well defined and empirically significant situation.

Its Weaknesses. However, the Jorgenson model has the following weaknesses:

1. Jorgenson's claim that his model is superior to the classical models of a dual economy, as it is based on the empirical evidence of the Japanese economy, cannot be accepted because he compares the short-run predictions of the classical models with the asymptotic results of bis neo-classical model.
2. Jorgenson rules out the possibility of capital accumulation in agriculture and in support cites the case of the Japanese economy and Asian agriculture. As such, he excludes capital from the production function of the agricultural sector. This is unrealistic because a number of empirical studies, such as by Shukla for India, Nakamura for Japan, and Hansen for Egypt have shown that the use of capital has made rapid increases in labour productivity and farm production.

3. Another weakness of Jorgenson's model is that he assumes the supply of land as fixed in his agricultural production function. But the supply of land even in a backward agricultural economy can be increased over the long run through land reforms and land reclamation, thereby increasing the area under cultivation. This may result in a larger agricultural surplus,
4. Jorgenson's model is weak in that it emphasises the role of only supply factors such as labour, capital and technical change, and neglects the demand factors which also play an important role in the development of a dual economy,
5. Jorgenson also neglects the important role played by the service sector in the development of agricultural and industrial sectors of a dual economic system.

16.8 Jorgenson Vs. Fei-Ranis

The Fei-Ranis model divides the process of economic development into three stages. But it differs from Jorgenson's model only with regard to the first stage. Jorgenson skips the first stage of the F-R model and assumes from the beginning of Ms analysis that the transfer of labour from agriculture to industry will actually result in a decline in the total agricultural output unless offset by an increase in productivity. If agricultural technology is assumed constant, the problem of feeding the labour force in the urban sector and the shortage of capital for non-farm jobs can delay the process of economic transformation.

Jorgenson's argument is more forceful than F-R that the process of capital formation (or accumulation) and economic development cannot proceed smoothly without technological change in the agricultural sector. Only when technological changes raise agricultural productivity to a level where agricultural output is sufficient to feed not only those who remain in agricultural but also the migrating workers from agriculture to industry will the necessary condition for economic transformation be satisfied.

It is common to both the Jorgenson model and the Fei-Ranis model that the process of economic transformation initiated by the withdrawal of surplus labour from agriculture can be disrupted by an alteration in the domestic terms of trade against industry and in favour of agriculture. As John Mellor points out, a change in the domestic terms of trade towards agriculture is likely to have three different effects which may delay or interrupt the process of economic development First, if savings in the agricultural sector are lower than in the non-farm sector, a transfer of resources from the latter to the former because of a change in the domestic terms of trade between the two sectors would slow down the rate of capital formation. However, it is possible that the rise in agricultural prices, as compared with industrial prices, would encourage the entrepreneurial class to become interested in the modernization of agriculture, which would lead to large agricultural output and surpluses. Second, a relative rise in domestic agricultural prices will no doubt adversely affect the exports of primary products which constitute the bulk of exports of the developing countries. If this happens, it will reduce the country's net foreign exchange earnings and have adverse repercussions on the development of the economy as a whole. *Third,* higher food prices will

discourage the migration of farm workers to the urban sector. Higher food prices will also raise the level of normal wages in industry. This will put a downward pressure on profit. Low profit and high wages will retard the process of economic transformation.

16.8 Glossary

- **Subsistence Sector:** an economy which produces only enough output for its own consumption and does not attempt to accumulate wealth.
- **Capitalist Sector:** a sector based on the private ownership of the means of production and their operation for profit.
- **Technological Dualism:** the use of different production functions in the advance sector and in the traditional sectors of Less Developed Countries.
- **Surplus Value:** the excess of value produced by the labour of workers over the wages they are paid.
- **Marginal Productivity:** refers to the net input made to total production by producing an additional output unit.

16.9 Answers to Self-check Exercises

1. What do you understand by agricultural surplus.
2. What do you understand by rate of capital accumulation

16.10 Suggested Readings

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16.11 Terminal Questions

1. Critically examine the Jorgenson's model of dual economy.

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Chapter-17
Effects of Population Growth on Savings and Investment

Structure

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- 17.2.3 Fertility Rates
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17.5 Case Studies: Population Growth and Saving/ Investment

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17.0 Learning Objectives:

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

- Understand the dynamics of population growth
- Understand the effects of population growth on savings and Investment

17.1 Introduction

Population growth is a phenomenon that has profound implications for economies and societies worldwide. As the global population continues to expand, reaching over 7.8 billion as of my last knowledge update in September 202.1, understanding the effects of this growth on savings and investment becomes increasingly important. This essay explores the multifaceted relationship between population growth and these key economic variables, delving into the various factors that influence this dynamic, interplay. Population growth is a fundamental driver of economic change, it influences a wide range of economic factors, from labor force dynamics to consumption patterns and resource allocation. Among the many economic variables affected by population growth, savings and investment stand out as critical determinants of long-term economic growth and development. Understanding the complex and often nuanced effects of population growth on savings and investment is essential for policymakers, economists, and anyone interested in the economic well-being of societies.

17.2 Population Growth Dynamics

Before delving into the effects of population growth on savings and investment, it is essential to understand the dynamics of population growth. Population growth rates vary significantly across regions and countries, and these variations can have substantial implications for economic outcomes.

17.2.1 Natural Increase: Natural increase refers to the difference between births and deaths in a population. When births outnumber deaths, the population grows naturally. Factors such as birth rates, death rates, and *life* expectancy play crucial roles in determining natural increase.

17.2.2 Migration: Migration, both internal and international, can significantly impact population growth. Migration patterns can be influenced by economic opportunities, political stability, and demographic factors, among others.

17.2.3 Fertility Rates: Fertility rates, the average number of children born to a woman during her reproductive years, vary widely. High fertility rates can to rapid population growth, while low fertility rates can result in population stagnation or decline.

17.2.4 Age Structure: The age distribution within a population also plays a crucial role in population growth. A youthful population with a high proportion of working-age individuals can contribute to economic growth, while an aging population may pose challenges related to Healthcare and retirement.

17.3 Savings and Investment: The Basic

To understand the effects of population growth on savings and investment, it is important to define these terms and their significance within an economic context.

17.3.1 Savings: Savings can be broadly defined as income that is not spent on consumption, it represents the portion of income that individuals, businesses, and governments set aside for future use. Savings are a crucial source of funds for investment.

17.3.2 Investment: Investment on the other hand, refers to the allocation of resources, typically financial capital, to create or enhance productive assets. Investment can take various forms, including business investment in machinery and technology, government investment in infrastructure, and personal investment in education or financial assets.

Savings and investment are intertwined and are critical drivers of economic growth. High levels of savings can provide the necessary capital for investment, which, in turn, can to increased productivity and economic expansion. Conversely, low savings can constrain investment and limit economic growth.

17.4 The Effects of Population Growth on Savings and Investment

The relationship between population growth and savings and investment is complex and multifaceted. It is influenced by a wide range of factors, including cultural norms, government policies, and economic conditions. Below, we explore various ways in which population growth can impact savings and investment:

17.4.1 Labor Force Dynamics: One of the most direct effects of population growth on savings and investment is through its impact on the labor force. A growing population can result in an expanding workforce, which can be advantageous for an economy. This can to increased production and economic output, potentially driving higher levels of savings and investment.

However, the quality of the labor force matters as much as its quantity. A young and skilled workforce can be a significant for economic development, while a rapidly aging population may to labor shortages and increased dependency ratios, which can strain social safety nets and hinder savings rates.

17.4.2 Consumption Patterns: Population growth can also influence consumption patterns. In societies with a high proportion of young people, there may be greater demand for goods and services, particularly those associated with child-rearing and education. This can stimulate economic activity and drive investment in sectors catering to these needs, such as education and healthcare.

Conversely, in countries with an aging population, there may be a shift toward increased spending on healthcare and retirement-related expenses. While this can create investment opportunities in these sectors, it can also divert resources away from productive investments in other areas.

17.4.3. Savings Behavior

The savings behavior of individuals and households is influenced by demographic factors, including age and family size. Younger individuals and families with children often have higher savings rates as they prepare for future expenses such as homeownership, education, and retirement. As such, population growth can influence aggregate savings rates through changes in the distribution of the population.

Additionally, cultural societal factors can shape savings behavior, in some cultures, there may be a strong tradition of saving, while in others, consumption may be prioritized. Changes in population growth rates can lead to shifts in cultural norms, impacting savings behavior.

17.4.4 Government Policies

Government policies play a crucial role in mediating the relationship between population growth and savings and investment. Policies related to taxation, social welfare, and retirement can influence individuals' incentives to save and invest.

For example, *a* government may implement policies to incentives retirement savings through tax benefits or employer-sponsored retirement plans. Conversely, policies that encourage high levels of consumption, such as subsidies or easy access to credit can to lower savings rates.

17.4.5 Resource Allocation

Population growth can impact resource allocation within an economy. As the population expands, there may be increased demand for resources such as land, energy, and water. This can lead to competition for these resources and potentially affect their availability for investment in sectors like agriculture, renewable energy, and infrastructure.

Efforts to sustainably manage resource allocation in the face of population growth are essential for ensuring that investment opportunities are not constrained by resource scarcity.

17.4.6 Global Implications

The effects of population growth on savings and investment are not confined within national borders. In an increasingly interconnected world, international factors come into play. Global demographic trends, such as population aging in developed countries and youth bulges in some emerging economies, can influence global savings and investment patterns.

For example, an aging population in a developed country may lead to increased demand for safe and stable investment assets, affecting global financial markets. Conversely, countries with youthful populations may attract foreign investment in search of labor-intensive industries and emerging markets.

17.4.7 Environmental Considerations

Population growth also intersects with environmental sustainability concerns, Rapid population growth can place additional pressure on natural resources arid ecosystems, potentially leading to environmental degradation. Investments in sustainable technologies and practices may become increasingly important to mitigate the negative environmental impacts of population growth.

17.5 Case Population Growth and Savings/Investment

To illustrate the effects of population growth on savings and investment, let's examine case studies from different regions of the world.

17.5.1 Case Study 1: India

India, on the other hand, has experienced rapid population growth, with a youthful demographic profile. This has led to:

- **Large Workforce:** India boasts a large and youthful labor force, which can be a source of economic advantage. However, the challenge lies in providing meaningful employment opportunities for this growing workforce.
- **Savings and Consumption:** India has seen a mix of savings behavior, with high savings rates in some segments of the population and relatively low rates in others. The country has also witnessed increased consumption, driven by the aspirations of its youth.
- **Investment in Education:** To harness the potential of its young population, India has invested in education and skill development programs. The success of these investments will be crucial in determining the country's future economic trajectory.

17.5.2 Case Study 2: China

China's experience with population growth and its impact on savings and investment is particularly noteworthy. For decades, China implemented a strict one-child policy to curb population growth, resulting in a demographic shift towards an aging population, As a result:

- **Labor Force Challenges:** China is facing challenges related to an aging workforce and a shrinking labor force. This has prompted concerns about a potential slowdown in economic growth.
- **Savings Rates:** The high savings rates in China, often attributed to cultural factors and a lack of comprehensive social safety nets, have contributed to a high level of domestic savings available for investment.
- **Investment in Infrastructure:** To counter the potential economic impact, of an aging population, the Chinese government has invested heavily in infrastructure projects and technology development, with the goal of transitioning to a more innovation-driven economy.

17.5.3 Case Study 3: Japan

Japan's experience highlights the consequences of a rapidly aging and declining population. With one of the lowest birth rates globally, Japan has:

- **Aging Workforce:** Japan faces the challenge of an aging and shrinking workforce. This has led *to a* labor shortage and a reliance on automation and robotics to maintain economic output.
- **Savings and Investments:** High savings rates in Japan have historically funded domestic investments and enabled the country to accumulate a significant amount of foreign assets.
- **Government Interventions:** The Japanese government has implemented policies to encourage higher birth rates and has also explored immigration as a means to offset demographic decline.

17.6 Policy Implications and Future Considerations

Understanding the effects of population growth on savings and investment has critical implications for policymakers. Here are some key policy considerations:

17.6.1 Promoting Education and Skills Development: Investing in education and skills development is essential to harness the potential of a youthful population. It can lead to higher productivity and increased savings and investment.

17.6.2 Social Safety Nets: Governments should design comprehensive social safety nets that can support individuals during retirement or in times of economic hardship. This can reduce the need for excessive precautionary savings.

17.6.3 Encouraging Sustainable Investment: Given the environmental challenges associated with population growth, promoting sustainable and environmentally responsible investments is crucial for long-term economic viability.

17.6.4 Labor Market Reforms: Policies that promote labor market flexibility and match labor supply with demand are essential for optimizing the utilization of the workforce.

17.6.5 Global Cooperation: As population growth and demographic changes have global repercussions, international cooperation is necessary to address issues such as cross-border labor migration, trade, and resource management.

17.6.6 Innovation and Technology: Investment in innovation and technology can enhance productivity drive economic growth, particularly in countries with aging populations.

17.6.7 Fiscal Policy: Governments should maintain fiscal discipline to ensure that budgetary pressures associated with population aging do not crowd out productive investments.

17.7 Summary

Population growth is a dynamic force with far-reaching implications for savings and investment. Its effects are shaped by a complex interplay of factors, including labor force dynamics, consumption patterns, savings behavior, government policies, and resource allocation. The studies of China., India, and Japan illustrate the diverse ways in which population growth can impact savings and investment.

For policymakers and economists, understanding these effects formulating appropriate strategies to harness the potential benefits and mitigate the challenges of population growth is crucial, As the world's population continues to evolve, so too must our approaches to promoting sustainable economic growth and prosperity.

In a rapidly changing global landscape, the relationship between population growth and savings and investment will remain a central theme in economic research and policy formulation, influencing the well-being of societies and the prosperity of nations for generations to come.

17.8 Glossary

- **Saving:** refers to the money that a person has left over after they subtract out their consumer spending from their disposable income over a given time
- **Investment:** refer to any medium or mechanism used for generating future income, including bonds, stocks, real estate property, or alternative investments.
- **Fertility Rate:** Is the average number of children that would be from to a female over their lifetime
- **Social Safety Nets:** consist of non-contributory assistance existing to improve lives of vulnerable families and individuals experiencing poverty and destitution.

17.9 Answers to Self-check Exercises

1. What do you understand by population growth dynamics
2. Discuss the effects of population growth on savings and Investment

17.10 Suggested Readings

- Bhat, P.N.M. (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
- Bhende, A. (2001). Principles of Population Studies. Revised edition. Himalaya Publishing House.
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- Srinivasan, T. N. (2005). India's Population: Aspects of Quality and Control. Oxford University Press.

17.11 Terminal Questions

1. Discuss in detail the effects of population growth on savings and Investment.

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Chapter-18
Population Growth and Labor Supply

Structure

18.0 Learning Objectives

18.1 Introduction

18.2 Labor Supply

18.3 Population Growth Dynamics

- 18.3.1 Birth rates
- 18.3.2 Death Rates
- 18.3.3 Migration
- 18.3.4 Fertility Rates
- 18.3.5 Age Structure

18.4 Population Growth and Labor Supply: A Complex Interaction

- 18.4.1 Size of Labor Supply
- 18.4.2 Labor Force participation Rates
- 18.4.3 Employment Patterns
- 18.4.4 Wage Dynamics
- 18.4.5 Workforce Demographics
- 18.4.6 Geographic mobility
- 18.4.7 Government policies and Social Interventions

18.5 Global Variations and Case Studies

- 18.5.1 Case Study 1 : India
- 18.5.2 Case Study 2 : Japan
- 18.5.3 Case Study 3 : United States
- 18.5.4 Government Policies

18.6 Policy Implications and Future Considerations

- 18.6.1 Education and Skill development
- 18.6.2 Labor Market Flexibility
- 18.6.3 Immigration Policies
- 18.6.4 Workforce Aging
- 18.6.5 Family Planning and Fertility
- 18.6.6 Social Safety Nets
- 18.6.7 Technological Adaptation

18.6.8 Regional Development
18.7 Summary
18.8 Glossary
18.9 Answers to Self-check Exercises
18.10 Suggested Readings
18.11 Terminal Questions

18.0 Learning Objectives:

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

- Understand the population growth dynamics
- Understand the relationship of population growth and labour supply

18.1 Introduction

Population growth is a pivotal factor influencing various aspects of economies and societies. One of its most profound impacts is on labor supply, a key driver of economic activity and development. This comprehensive analysis explores the intricate relationship between population growth and labor supply, delving into the dynamics, challenges, and opportunities that arise as populations expand. From the effects on employment patterns and wage dynamics to the implications for workforce demographics and social policies, this essay examines the multifaceted interactions between population growth and labor supply on a global scale. Population growth is a fundamental demographic phenomenon that has far-reaching consequences for societies and economies worldwide. As of my last knowledge update in September 2021, the global population stood at over 7.8 billion and was continuing to grow. Understanding the intricate relationship between population growth and labor supply is essential for policy-makers, economists, and anyone interested in the dynamics of the labor market and its implications.

18.2 Labor Supply

Labor supply refers to the quantity and quality of available labor in an economy. It encompasses a range of factors, including the size and composition of the workforce, labor force participation rates, skill levels, and geographic mobility. Labor supply is a critical determinant of economic growth, productivity, and competitiveness.

This comprehensive analysis explores the various dimensions of how population growth affects labor supply, encompassing both the opportunities and challenges it presents. It examines the impact of population growth on employment patterns, wage dynamics, workforce demographics, labor market trends, and the implications for social policies and government interventions.

18.3 Population Growth Dynamics

Before delving into the intricate relationship between population growth and labor supply, it is essential to understand the dynamics of population growth. Several factors contribute to population growth, including.

18.3.1 Birth Rates: The number of births relative to the population size influences natural population increase. Higher birth rates lead to faster population growth, while lower birth rates result in slower growth.

18.3.2 Death Rates: The number of deaths relative; to the population size affects population growth.

Low death rates contribute to population growth, while high death rates lead to population decline.

18.3.3: Migration: The movement of people across borders or within countries also plays a significant role in population dynamics. Net migration can either add to or subtract from population growth.

18.3.4. Fertility Rates: The average number of children born to a woman during her reproductive years is a crucial determinant of population growth. High fertility rates contribute to population expansion, while low fertility rates slow it down.

18.3.5. Age Structure: The distribution of population across different age groups influences population growth. A youthful population with a high proportion of working-age individuals can accelerate economic growth, while an aging population can pose challenges.

18.4 Population Growth and Labor Supply: A Complex

The relationship between population growth and labor supply is intricate and multifaceted. It encompasses various dimensions, each of which has implications for labor markets, employment patterns, and workforce dynamics. Here, we explore these dimensions in detail:

18.4.1 Size of the Labor Force: Population growth directly affects the size of the labor force. As populations expand, the overall labor force tends to grow, potentially leading to increased economic activity and output. However, the mere increase in the number of workers does not guarantee economic prosperity. The quality and skills of the workforce also play a crucial role in determining productivity and competitiveness.

18.4.2 Labor Force Participation Rates: Labor force participation rates, which measure the proportion of the working-age population actively engaged in the labor market, are influenced by population growth. A growing population can result in higher labor force participation rates, particularly among young adults seeking employment. Conversely, an aging population may witness a decline in labor force participation as older individuals retire.

18.4.3 Employment Patterns: Population growth can lead to changes in employment patterns. In economies with expanding populations, there may be greater demand for labor-intensive industries, such as construction, manufacturing, and services. This increased demand can create job opportunities and potentially drive wage growth in these sectors.

Conversely, population aging can lead to shifts in employment patterns, with a growing demand for healthcare, eldercare, and other services catering to older populations. This can result in increased employment opportunities in these fields.

18.4.4 Wage Dynamics: Wages are influenced by the supply and demand for labor. In regions or industries experiencing rapid population growth, the supply of labor may outpace demand, potentially exerting downward pressure on wages. Conversely, in areas with labor shortages due to slower population growth, wages may rise as employers compete for a limited pool of workers.

18.4.5 Workforce Demographics: Population growth can influence the demographic composition of the workforce. A youthful population with a high proportion of young workers can contribute to a dynamic and innovative labor force. However, this demographic advantage comes with the challenge of providing education and employment opportunities for the youth.

Conversely, population aging can lead to an older workforce, which may have implications for productivity, retirement policies, and the need for skill development and lifelong learning to adapt to changing labor market demands.

18.4.6 Geographic Mobility: Population growth can drive geographic mobility as individuals and families seek opportunities in regions with expanding economies and job markets. This mobility can lead to urbanization and regional disparities in labor supply, with some areas experiencing labor shortages while others have surpluses.

18.4.7 Government Policies and Social Interventions: Government policies and social interventions play a significant role in mediating the relationship between population growth and labor supply. Policies related to immigration, family planning, education, and labor market regulations can shape labor force dynamics.

For example, pro-immigration policies can address labor shortages in countries with stagnant or declining populations. Family planning programs can influence fertility rates, impacting the size and composition of future labor forces. Education policies can enhance the skills and productivity of the workforce, while labor market regulations can affect employment patterns and wage dynamics.

18.5 Global Variations and Case Studies

The effects of population growth on labor supply vary significantly across countries and regions. To illustrate these variations, let's examine case studies from different parts of the world:

18.5.1 Case Study 1: India

India is a country with a rapidly growing population, characterized by a large youth demographic. This has significant implications for labor supply:

- **Youthful** Workforce: India's youthful population presents a demographic dividend, with a high number of young workers entering the labor force. This demographic advantage can potentially drive economic growth, provided there are sufficient job opportunities and investments in education and skills development.

- **Employment Challenges:** Despite the demographic dividend, India faces challenges related to providing employment opportunities for its growing workforce. High youth unemployment and underemployment rates highlight the need for policies that foster job creation.
- **Skill Development:** To fully harness the benefits of its youthful population, India has been focusing on skill development programs and initiatives to enhance the employability of its workforce.

18.5.2 Case Study 2: Japan

Japan, in contrast, has experienced population aging and a declining birth rate. This has led to unique labor supply dynamics:

- **Aging Workforce:** Japan's population is rapidly aging, leading to a shrinking workforce. This demographic challenge has contributed to labor shortages in certain industries and regions. Labor Market.
- **Labor Market Reforms:** To address labor shortages and encourage older individuals to remain in the workforce. Japan has implemented labor market reforms, including changes to retirement age and pension policies.
- **Automation and Technology:** Japan has also turned to automation and technology to compensate for labor shortages, particularly in sectors like healthcare and eldercare.

18.5.3 Case Study 3: United States

The United States has experienced population growth primarily driven by immigration. This has shaped its labor supply dynamics:

- **Immigration:** Immigration has been a significant contributor to population growth in the United States. Immigrants often fill labor gaps in various sectors, including agriculture, hospitality, and technology.
- **Demographic Diversity:** The influx of immigrants has contributed to the country's demographic diversity, with a mix of age groups and skill levels in the labor force.
- **Policy Debates:** immigration policies and debates in the United States often center on their impact on labor supply, employment opportunities for native-born workers, and economic growth.

18.6 Policy Implications and Future Considerations

Understanding the intricate relationship between population growth and labor supply has important policy implications. Policymakers and governments can employ a range of strategies to address the challenges and leverage the opportunities presented by population growth:

18.6.1 Education and Skill Development: Investment in education and skill development programs is essential to ensure that the workforce is equipped to meet the evolving demands of the labor market.

18.6.2 Labor Market Flexibility: Labor market policies that promote flexibility, mobility, and adaptability can help workers transition between industries and regions as labor supply dynamics change.

18.6.3 Immigration Policies: Immigration policies can be tailored to address labor shortages, particularly in industries with specialized skill requirements.

18.6.4 Workforce Aging: As populations age, policies that encourage older individuals to remain in the workforce through flexible retirement options and lifelong learning opportunities become increasingly important.

18.6.5 Family Planning and Fertility: Family planning programs and policies can influence fertility rates, which, in turn, shape the size and composition of future labor forces.

18.6.6 Social Safety Nets: Adequate social safety nets can provide support for individuals during transitions in the labor market, such as job loss or retirement.

18.6.7 Technological Adaptation: As technology continues to reshape industries and occupations, policies that promote technological adaptation and digital skills development are crucial.

18.6.8 Regional Development: Strategies to address regional disparities in labor supply and job opportunities can promote more balanced economic growth.

18.7 Summary

Population growth is a fundamental demographic phenomenon with profound implications for labor supply, a critical driver of economic activity and development. This comprehensive analysis has explored the intricate relationship between population growth and labor supply, emphasizing the multifaceted dimensions of this interaction.

From the size and composition of the labor force to employment patterns, wage dynamics, workforce demographics, and policy considerations, population growth exerts a significant influence on labor supply. The case studies of India, Japan, and the United States illustrate how the effects of population growth vary across countries and regions.

As the global population continues to evolve, policymakers, economists, and societies at large must adapt to the changing dynamics of labor supply. Leveraging the opportunities presented by population growth while addressing its challenges is essential for sustainable economic growth and societal well-being in the decades to come.

18.8 Glossary

- **Labour Force:** comprises all persons who fulfill the requirements for inclusion among the employed (civilian employment plus the armed forces) or the unemployed,
- **Skill Development:** acquiring the ability or capacity through sustained and systematic efforts, in order to carry out complex activities or job functions smoothly and adaptively.
- **Demographic Diversity:** refers to the ways in which people are similar or different from each other.

18.9 Answers to Self-check Exercises

1. What do you understand by labour supply.
2. Discuss wage dynamics.

18.10 Suggested Readings

- Bhat, P.N.M, (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
- Bhende, A. (2001). Principles of Population Studies. Revised edition. Himalaya Publishing House.
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18.11 Terminal Questions

1. Discuss in detail the relationship between population growth and labour supply.

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Chapter-19
Population Growth and Distribution of Income

Structure

19.0 Learning Objectives

19.1 Introduction

19.2 Population Growth Dynamics

- 19.2.1 Birth rates
- 19.2.2 Death Rates
- 19.2.3 Migration
- 19.2.4 Fertility Rates
- 19.2.5 Age Structure

19.3 Population Growth and Income Distribution: A Complex Interaction

- 19.3.1 Labor Market Dynamics
- 19.3.2 Wealth Distribution
- 19.3.3 Education and Human Capital
- 19.3.4 Social Policies
- 19.3.5 Globalization

19.4 National and Global Perspectives

- 19.4.1 National Perspective India and China
- 19.4.2 Global Perspective

19.5 Policy Implications and Future Considerations

- 19.5.1 Education and Skill development
- 19.5.2 Labor Market Reforms
- 19.5.3 Progressive Taxation
- 19.5.4 Access to Healthcare
- 19.5.5 Social Safety Nets
- 19.5.6 Family Planning and Reproductive Health
- 19.5.7 Global Cooperation

19.6 Summary

19.7 Glossary

19.8 Answers to Self-check Exercises

19.9 Suggested Readings

19.10 Terminal Questions

19.0 Learning Objectives

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

- Understand the population growth and income distribution
- Understand the national and global perspective of population growth on income.

19.1 Introduction

Population growth is a central demographic phenomenon with far-reaching implications for societies and economies. Among the various aspects it influences, income distribution stands out as a critical issue. This comprehensive analysis delves into the complex relationship between population growth and the distribution of income. It explores the multifaceted dynamics, challenges, and opportunities that arise when populations expand and how these changes affect income inequality. From the effects on labor markets and wealth distribution to the role of education, social policies, and globalization, this essay examines the nuanced interplay between population growth and income distribution on both national and global scales.

Population growth is a fundamental demographic phenomenon that plays a pivotal role in shaping societies and economies. As of my last knowledge update in September 2021, the global population stood at over 7.8 billion and continued to grow. This growth has far-reaching consequences, one of the most significant being its impact on the distribution of income. Income distribution refers to how the total income of a society is divided among its members, and it is a key determinant of social well-being and economic stability.

Understanding the intricate relationship between population growth and income distribution is essential for policymakers, economists, and anyone interested in addressing issues of poverty, inequality, and social justice. This comprehensive analysis explores the various dimensions of this relationship, encompassing both the challenges and opportunities presented by population growth. It examines how population growth influences income inequality through changes in labor markets, wealth distribution, education, social policies, and globalization.

19.2 Population Growth Dynamics

Before delving into the complexities of how population growth affects income distribution, it is crucial to understand the dynamics of population growth itself. Several factors contribute to population growth, including:

19.2.1 Birth Rates: The number of births relative to the population size influences natural population increase. Higher birth rates lead to faster population growth, while lower birth rates result in slower growth.

19.2.2 Death Rates: The number of deaths relative to the population size affects population growth. Low death rates contribute to population growth, while high death rates lead to population decline.

19.2.3 Migration: The movement of people across borders or within countries also plays a significant role in population dynamics. Net migration can either add to or subtract from population growth.

19.2.4 Fertility Rates: The average number of children born to a woman during her reproductive years is a crucial determinant of population growth. High fertility rates contribute to population expansion, while low fertility rates slow it down.

19.2.5 Age Structure: The distribution of the population across different age groups influences population growth. A youthful population with a high proportion of working-age individuals can accelerate economic growth, while an aging population can pose challenges.

19.3 Population Growth and Income Distribution: A Complex Interaction

The relationship between population growth and income distribution is intricate and multifaceted. It encompasses various dimensions, each of which has implications for income inequality. Here, we explore these dimensions in detail:

19.3.1 Labor Market Dynamics: Population growth directly affects labor markets. As populations expand, the labor force typically grows, potentially leading to increased economic activity and output. However, the mere increase in the number of workers does not guarantee equitable income distribution. The quality and stability of employment opportunities, as well as wage levels, are crucial factors.

- **Employment Opportunities:** Rapid population growth can lead to a surplus of labor relative to job opportunities, in such cases, income inequality may increase as competition for jobs intensifies, leading to lower wages and precarious employment.
- **Wage Levels:** In labor markets with a high supply of workers, wages may be suppressed, particularly for low-skilled and unskilled workers. This can exacerbate income inequality as those at the lower end of the income spectrum struggle to earn a living wage.
- **Skill Premium:** On the other hand, population growth can also lead to an increased demand for skilled workers in sectors like healthcare, education, and technology. This can result in a “skill premium,” where highly skilled workers command higher incomes, potentially widening income disparities.

19.3.2 Distribution: Population growth can influence the distribution of wealth within a society. Wealth includes assets such as real estate, investments, and savings. While income measures the flow of resources over time, wealth represents the accumulation of resources over a longer period. Population growth can impact wealth distribution in several ways:

- **Inheritance:** Population growth can lead to larger populations of heirs, potentially resulting in the dispersion of wealth across more individuals. However, inheritance patterns and estate taxation also play a crucial role in determining wealth distribution.
- **Asset Appreciation:** In regions experiencing rapid population growth, demand for real estate may increase, leading to rising property values. This can benefit those who already own property but can be a barrier to wealth accumulation for those seeking to enter the property market.

- **Investment Opportunities:** Population growth can create investment opportunities in sectors related to housing, infrastructure, and services. Those who have the means to invest in these sectors may benefit from capital gains.

19.3.3 Education and Human Capital: Education is a pivotal determinant of income and wealth distribution. Population growth can influence educational opportunities and outcomes, further shaping income inequality.

- **Access to Education:** Rapid population growth can strain educational systems, potentially limiting access to quality education, particularly for disadvantaged populations. Unequal access to education can perpetuate income disparities.
- **Skilled Workforce:** A growing population can lead to a larger pool of skilled workers, potentially attracting investment in education and training. This can result in a more skilled workforce, which may command higher wages and contribute to economic growth.

19.3.4 Social Policies: Government policies and social safety nets play a significant role in mediating the relationship between population growth and income distribution. These policies can either mitigate or exacerbate income inequality.

- **Income Redistribution:** Progressive taxation and social welfare programs can redistribute income from higher-income individuals to those with lower incomes, mitigating income inequality driven by population growth.
- **Access to Healthcare:** Population growth can strain healthcare systems, affecting access to quality healthcare services. Inadequate access to healthcare can lead to income inequality due to differential health outcomes.
- **Family Planning:** Policies that promote family planning and reproductive health can influence fertility rates, potentially impacting the size and composition of future populations.

19.3.5 Globalization: Globalization has created opportunities for both increased income and income inequality. Population growth interacts with globalization in several ways:

- **Labor Mobility:** Population growth can lead to increased labor mobility, with individuals seeking employment opportunities abroad. Remittances from migrant workers can influence income distribution both within their home countries and in the host countries.
- **Trade and Economic integration:** Globalization has facilitated international trade and economic integration. Rapidly growing populations in emerging economies have created new consumer markets, offering opportunities for businesses to expand and increase profits.

19.4 National and Global Perspectives

The effects of population growth on income distribution vary across countries and regions. To illustrate these variations, let's examine both national and global perspectives:

19.4.1 National Perspective: China and India: China and India, two of the world's most populous countries, offer contrasting examples of how population growth can impact income distribution.

China:

- **One-Child Policy:** China's one-child policy, implemented in the late 1970s, was aimed at curbing population growth. While it succeeded in slowing population growth, it also resulted in demographic imbalances, with an aging population and a shortage of working-age individuals.
- **Income Disparities:** China's rapid economic growth has led to significant income disparities between urban and rural areas and among different regions. The rapid expansion of its urban middle class has created a new income gap within cities.
- **Migration and Labor Supply:** China's labor force, despite its size, has experienced labor shortages in certain regions and industries due to population aging and urbanization. This has led to increased demand for migrant workers and wage disparities between urban and rural areas.

India:

- **Youthful Demographic:** India has a youthful population, with a high proportion of young people entering the labor force. This demographic advantage presents opportunities for economic growth but also challenges in providing employment opportunities for the growing workforce.
- **Informal Labor Market:** India's labor market is characterized by a significant informal sector, where workers often face low wages and job insecurity. Income inequality is pronounced, with a substantial wealth gap between the rich and the poor.
- **Skills Development:** To harness its demographic dividend, India has been focusing on skills development and education programs to enhance the employability of its workforce.

19.4.2 Global Perspective:

- Global Income inequality: On a global scale, population growth in emerging economies has contributed to a shift in global economic dynamics. Countries with rapidly growing populations, such as China and India, have become major players in the global economy. This has contributed to reduced global income inequality as emerging economies have experienced significant economic growth.
- **Migrant Workers:** The movement of people across borders in search of employment opportunities has increased, with migrant workers often contributing to both their home countries (through remittances) and host countries (through labor supply).
- **Global Economic Integration:** Globalization and economic integration have created new opportunities for income generation through international trade, investment, and technology transfer. However the benefits of globalization have not been equally distributed, leading to disparities between and within countries.

19.5 Policy Implications and Future Consideration

Understanding the complex relationship between population growth and income distribution has profound policy implications. Policymakers and governments can employ various strategies to address income inequality and leverage the opportunities presented by population growth:

19.5.1 Education and Skills Development: Investment in education and skills development programs is essential to ensure that the workforce is equipped to access higher-paying jobs.

19.5.2 Labor Market Reforms: Labor market policies that promote fair wages, job security, and workers' rights can reduce income inequality.

19.5.3 Progressive Taxation: Progressive taxation systems can redistribute income from higher-income individuals to those with lower incomes, reducing income disparities.

19.5.4 Access to Healthcare: Ensuring universal access to quality healthcare can improve health outcomes and reduce disparities in income related to health.

19.5.5 Social Safety Nets: Comprehensive social safety nets can provide support for individuals during times of economic hardship, reducing the impact of income shocks.

19.5.6 Family Planning and Reproductive Health: Policies that promote family planning and reproductive health can influence fertility rates and the size of future populations.

19.5.7 Global Cooperation: International cooperation on issues such as trade, climate change, and migration can shape the global distribution of income and reduce disparities between countries.

19.6 Summary

Population growth is a fundamental demographic phenomenon with profound implications for income distribution. This comprehensive analysis has explored the intricate relationship between population growth and income distribution, emphasizing the multifaceted dimensions of this interaction.

From labor market dynamics and wealth distribution to education, social policies, and globalization, population growth exerts a significant influence on income inequality. The experiences of countries like China and India highlight how population growth can impact income distribution at the national level while the global perspective underscores the importance of addressing income disparities on *a* global scale.

As the global population continues to evolve, policy-makers, economists, and societies must navigate the complex challenges and opportunities presented by population growth. Leveraging the potential benefits while addressing income inequality is essential for creating more equitable and sustainable societies in the decades to come.

19.7 Glossary

- **Income Inequality:** refers to how unevenly income is distributed throughout a population. The less equal the distribution, the greater the income inequality.

- **Human Capital:** refers to the economic value of a worker's experience and skills. Human capital includes assets like education, training, intelligence, skills, health, and other things employers value such as loyalty and punctuality.
- **Social Welfare:** refers to the holistic development of a human being. It includes protection against unemployment, poverty, old age, disability, among others.
- **Gender Disparity:** Is the differences in women's and men's access to resources, status and well-being, which usually favour men and are often institutionalised through law, justice and social norms.

19.8 Answers to Self-check Exercises

1. What do you understand by Labor market Dynamics
2. What is the relationship between Education and Human Capital

19.9 Suggested Readings

- Bhat, P.N.M. (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
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19.11 Terminal Questions

1. Discuss in detail the process of population Growth and the Distribution of Income.

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Chapter-20
Effects of Population Growth on Educational and Human Capital

Structure

20.0 Learning Objectives

20.1 Introduction

20.2 Population Growth Dynamics

- 20.2.1 Birth rates
- 20.2.2 Death Rates
- 20.2.3 Migration
- 20.2.4 Fertility Rates
- 20.2.5 Age Structure

20.3 Effects of Population Growth on Educational Facilities

- 20.3.1 Increased Demand for Education
- 20.3.2 Infrastructure Development
- 20.3.4 Access to Education
- 20.3.5 Quality of Learning Environments

20.4 Effects of Population Growth on Human Capital Development

- 20.4.1 Quality of education
- 20.4.2 Skill development
- 20.4.3 Economic Productivity

20.5 Government Policies and Mitigation Strategies

- 20.5.1 Investment in Education
- 20.5.2 Teacher Training and Development
- 20.5.3 Digitization of Education
- 20.5.4 Addressing Gender Disparities
- 20.5.5 Labor Market Alignment
- 20.5.6 Social Safety Nets
- 20.5.7 Population Planning

20.6 Summary

20.7 Glossary

20.8 Answers to self check exercises

20.9 Suggested readings

20.10 Terminal Questions

20.0 Learning Objectives:

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

- Understand the effects of population growth on educational facilities.
- Understand effects of population growth on human capital development.
- Understand government policies and mitigation strategies

Abstract:

Population growth is a defining demographic phenomenon that significantly impacts the educational system and human capital development within a society. As the global population continues to expand, it poses both opportunities and challenges for providing adequate educational facilities and fostering human capital development. This comprehensive analysis explores the intricate relationship between population growth and educational infrastructure, examining the effects on access to education, quality of learning environments, workforce skills, and the role of government policies. From overcrowded classrooms to innovative solutions and policy considerations, this essay delves into the multifaceted dimensions of this vital issue.

20.1 Introduction

Population growth is a fundamental demographic factor that has far-reaching implications for societies and economies worldwide. As of my last knowledge update in September 2021, the global population stood at over 7.8 billion and was continuing to grow. This sustained growth presents both opportunities and challenges, particularly in the realm of education and human capital development.

Educational facilities encompass a wide range of infrastructure and resources required to provide accessible and quality education. These include schools, classrooms, teachers, teaching materials, and digital technologies, among others. Human capital refers to the knowledge, skills, and capabilities acquired by individuals through education and training, which contribute to their economic productivity and overall well being.

This comprehensive analysis explores the multifaceted effects of population growth on educational and human capital input facilities. It examines how population growth influences access to education, the quality of learning environments, the development of workforce skills, and the role of government policies in mitigating the challenges posed by demographic expansion.

20.2 Population Growth Dynamics

Before delving into the complexities of how population growth affects educational and human capital input facilities, it is essential to understand the dynamics of population growth itself. Several factors contribute to population growth, including:

20.2.1 Birth Rates: The number of births relative to the population size influences natural population increase. Higher birth rates lead to faster population growth, while lower birth rates result in slower growth.

20.2.2 Death Rates: The number of deaths relative to the population size affects population growth. Low death rates contribute to population growth, while high death rates lead to population decline.

20.2.3 Migration: The movement of people across borders or within countries also plays a significant role in population dynamics. Net migration can either add to or subtract from population growth.

20.2.4 Fertility Rates: The average number of children born to a woman during her reproductive years is a crucial determinant of population growth. High fertility rates contribute to population expansion, while low fertility rates slow it down.

20.2.5 Age Structure: The distribution of the population across different age groups influences population growth. A youthful population with a high proportion of school-aged children can strain educational resources.

20.3 Effects of Population Growth on Educational Facilities

Population growth exerts a profound influence on educational facilities, affecting access, quality, and infrastructure development Here we examine the specific effects on educational systems:

20.3.1 Increased Demand for Education: Rapid population growth leads to an increased demand for education at all levels, from early childhood to higher education. This surge in demand can strain existing educational facilities and resources, leading to overcrowded classrooms, limited access to educational materials, and challenges in accommodating a growing student population.

- **Overcrowded Classrooms:** The pressure to accommodate more students often results in overcrowded classrooms, which can negatively impact the quality of education. Larger class sizes may lead to reduced individual attention from teachers and less effective learning outcomes.
- **Resource Shortages:** Rapid population growth can lead to shortages of textbooks, teaching materials, and even qualified teachers. This can hinder the ability of educational institutions to provide a quality learning experience.

20.3.2 Infrastructure Development: Population growth necessitates significant investments in educational infrastructure, including the construction of new schools, classrooms, and learning facilities. Governments and educational authorities must allocate resources to meet the rising demand for educational services.

- **Urbanization:** Population growth often leads to urbanization, with more people moving to cities in search of economic opportunities. This urban migration places additional pressure on urban educational infrastructure, requiring the expansion and construction of schools and colleges.
- **Digitalization:** The growth of the digital age has prompted investments in digital infrastructure for education, such as access to the internet and digital learning platforms. These investments are crucial for ensuring access to quality education in the 21st century.

20.3.3 Access to Education: While population growth increases the demand for education, it can also impact access, particularly in regions with limited resources or inadequate educational facilities. Ensuring equitable access to education for all segments of the population remains a significant challenge.

- **Rural-Urban Disparities:** In many countries, population growth tends to be more pronounced in urban areas, leading to disparities in educational access between urban and rural regions. Rural areas may face challenges in providing quality education due to resource constraints.
- **Gender Disparities:** Population growth can affect gender disparities in education. Efforts to ensure equal access to education for both boys and girls are essential in addressing these disparities.

20.3.4 Quality of Learning Environments: Maintaining the quality of learning environments is crucial for effective education. Population growth can strain the capacity of educational institutions to provide a conducive learning environment.

- **Teacher-Student Ratios:** Overcrowded classrooms often result in higher teacher-student ratios, which can impact the ability of teachers to provide personalized attention and support to students.
- **Infrastructure Maintenance:** Rapid population growth may divert resources away from maintaining and upgrading educational infrastructure, leading to deteriorating facilities and a less conducive learning environment.

20.4 Effects of Population Growth on Human Capital Development

Human capital development is intricately linked to the quality of education and the skills individuals acquire. Population growth can influence human capital development in several ways:

20.4.1 Quality of Education: The quality of education is a critical determinant of human capital development. Population growth can strain educational resources, leading to challenges in maintaining educational quality.

- **Educational Quality:** Overcrowded classrooms, resource shortages, and inadequate infrastructure can compromise the quality of education provided to students. This can result in lower educational attainment and reduced human capital development.

20.4.2 Skills Development: A growing population presents an opportunity to develop a skilled workforce. However, this potential can only be realized if investments are made in education and skills development.

- **Skills Mismatch:** Population growth can lead to a growing workforce, but if the education system does riot align with the needs of the labor market it can result in skills mismatches and high unemployment rates among the educated population.
- **Skills Shortages:** In some cases, population growth may outstrip investments in education and skills development, leading to shortages of skilled workers in critical sectors.

20.4.3 Economic Productivity

Human capital is a significant driver of economic productivity. Population growth can influence a country's economic productivity by shaping the quality of its workforce.

- **Education-Productivity Link:** Quality education and skills development contribute to higher productivity levels among workers. Conversely, a poorly educated and unskilled workforce may struggle to compete in the global economy.
- **Innovation and Entrepreneurship:** Human capital development also plays a role in fostering innovation and entrepreneurship, which are critical for economic growth and competitiveness.

20.5 Government Policies and Mitigation Strategies

To address the challenges posed by population growth and ensure that it positively contributes to educational facilities and human capital development, governments can implement various policies and strategies:

20.5.1 Investment in Education: Governments should allocate sufficient resources to education, including the construction of new schools, hiring of qualified teachers, provision of teaching materials, and digital infrastructure development. These investments are essential to meet the growing demand for education and maintain its quality.

20.5.2 Training and Development: Investing in teacher training and professional development programs is crucial for improving the quality of education. Well-trained and motivated teachers play a central role in effective learning environments.

20.5.3 Digitalization of Education: The growth of the digital age provides opportunities for expanding educational reach. Governments can invest in digital infrastructure and online learning platforms to enhance access to quality education.

20.5.4 Addressing Gender Disparities: Efforts should be made to eliminate gender disparities in education. This includes policies that promote girls' education, provide gender-sensitive curricula, and address social and cultural barriers to access.

20.5.5 Labor Market Alignment : Educational systems should align with the needs of the labor market to reduce skills mismatches. Collaboration between educational institutions and industries can help tailor educational programs to the demands of the workforce.

20.5.6 Social Safety Nets: Providing social safety nets for vulnerable populations can help ensure that the benefits of education are accessible to all, regardless of socio-economic status.

20.5.7 Population Planning: Family planning and reproductive health programs can influence fertility rates and population growth, helping government's better plan for educational infrastructure development.

20.6 Summary

Population growth is a defining demographic phenomenon that significantly impacts educational facilities and human capital development. This comprehensive analysis has explored the multifaceted effects of population growth on education, including challenges related to access, quality, infrastructure, and human capital development.

To harness the potential benefits of population growth and mitigate its challenges, governments, policymakers, and educational institutions must prioritize investments in education, teacher training, and digital infrastructure. Addressing disparities in access to education and aligning educational systems with the needs of the labor market are essential steps toward ensuring that population growth positively contributes to human capital development and economic prosperity in the years to come.

20.7 Glossary

- **Resource allocation:** is the process of assigning and managing assets in a manner that supports an organization's strategic planning goals.
- **Digital Divide:** is a term that refers to the gap between demographics and regions that have access to modern information and communications technology (ICT), and those that don't or have restricted access.
- **Sustainability:** means meeting our own needs without compromising the ability of future generations to meet their own needs.

20.8 Answers to Self-check Exercises

1. How population Growth has led to increased demand for education.
2. What is the effect of Population Growth on Human Capital development?

20.9 Suggested Readings

- Bhat, P.N.M. (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
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20.10 Terminal Questions

1. Discuss in detail the process of population Growth on educational and Human Capital Input Facilities.
2. Discuss Government Policies and Mitigation strategies to address the challenges posed by population growth.

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Chapter-21
Economic Consequences of Slowing Population Growth and Population Decline

Structure

21.0 Learning Objectives

21.1 Introduction

21.2 Dynamics of Slowing Population Growth and Population Decline

- 21.2.1 Birthrates
- 21.2.2 Death Rates
- 21.2.3 Migration
- 21.2.4 Economic and Social Factors

21.3 Economic Consequences of Slowing population Growth

- 21.3.1 Labor Market Challenges
- 21.3.2 Fiscal Pressures
- 21.3.3 Economic Growth rates
- 21.3.4 Housing Markets

21.4 Economic Consequences of Population Decline

- 21.4.1 Severe Labor Shortages
- 21.4.2 Declining Tax base
- 21.4.3 Impact on Education System
- 21.4.4 Impact on Health Systems
- 21.4.5 Economic stagnation

21.5 Policy Responses and Strategies

- 21.5.1 Promoting Fertility and Family Policies
- 21.5.2 Labor Market Adaptations
- 21.5.3 Social Welfare Reforms
- 21.5.4 Encouraging Immigration
- 21.5.5 Investing in Education and Healthcare
- 21.5.6 Economic Diversification

21.6 Summary

21.7 Glossary

21.8 Answers to Self-check Exercises

21.9 Suggested readings

21.10 Terminal Questions

21.0 Learning Objectives:

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

- Understand the dynamics of slowing population growth and population decline.
- Understand the economic consequences of slowing population growth.
- Understand the economic consequences of population decline

21.1 Introduction

Population dynamics have a profound impact on the economic landscape of nations. While rapid population growth has long been a global concern, there are now regions experiencing the opposite trend—slowing population growth and population decline. This comprehensive analysis explores the economic consequences of these demographic shifts. From labor market challenges and fiscal pressures to implications for economic growth and social welfare systems, this essay delves into the multifaceted dimensions of how demographic changes shape economic outcomes. Additionally, it examines policy responses and potential strategies for managing the effects of slowing population growth and population decline.

Population growth is a fundamental demographic factor that has far-reaching implications for societies and economies. As of my last knowledge update in September 2021, the global population stood at over 7.8 billion and was continuing to grow. However, there are regions and countries experiencing a different demographic trend—slowing population growth and even population decline. These demographic shifts are reshaping the economic landscape and posing unique challenges and opportunities.

This comprehensive analysis explores the economic consequences of slowing population growth and population decline. It examines how these demographic changes influence labor markets, fiscal policies, economic growth, and social welfare systems. Furthermore, it considers potential policy responses to manage the economic effects of these trends.

21.2 Dynamics of Slowing Population Growth and Population Decline

Before delving into the economic consequences, it is essential to understand the dynamics of slowing population growth and population decline. These demographic trends are influenced by several factors, including:

1. **Birth Rates:** Declining birth rates contribute to slowing population growth and can eventually lead to population decline. Factors such as increased access to contraception, delayed childbearing, and changing cultural norms impact birth rates.
2. **Death Rates:** Improvements in healthcare and increased life expectancy can contribute to population aging and slower growth as people live longer but have fewer children.
3. **Migration:** Migration patterns, both domestic and international, can influence population trends. Regions with net outmigration experience population decline, while immigration can offset declining birth rates.

4. **Economic and Social Factors:** Economic conditions, urbanization, and social factors, such as changing gender roles and work-life balance, play a role in shaping birth rates and population growth.

21. 3 Economic Consequences of Slowing Population Growth

21.3.1 Labor Market Challenges

a. **Skills Shortages:** Slowing population growth can lead to labor shortages, particularly in sectors requiring highly skilled workers. This can result in wage increases in these fields, potentially affecting overall labor costs.

b. **Aging Workforce:** An aging population can create challenges related to workforce ; productivity and the provision of healthcare and eldercare services. Older workers may have different skill sets and productivity levels, requiring adjustments in the labor market.

c. **Innovation and Entrepreneurship:** Slower population growth may lead to a decline in the rate of innovation and entrepreneurship, as there are fewer young, creative individuals entering the workforce.

2.1.3.2. Fiscal Pressures

a. **Social Welfare Systems:** Slowing population growth places pressure on social welfare systems, particularly pension and healthcare systems. A larger proportion of elderly citizens can strain the financial sustainability of these programs.

b. **Tax Revenues:** A declining working-age population can reduce tax revenues, potentially necessitating tax increases or reforms to maintain public services and social welfare programs.

21.3.3 Economic Growth

a. **GDP Growth:** Slowing population growth can lead to lower overall economic growth rates. While productivity gains can partially offset this, demographic factors remain a crucial driver of economic expansion.

b. **Consumer Markets:** A smaller and aging population can lead to reduced consumer markets, impacting businesses that rely on domestic consumption for growth.

21.3.4 Housing Markets

a. **Housing Demand:** In regions with slowing population growth or population decline, there may be reduced demand for housing, potentially leading to declining property values and a stagnant real estate market.

b. **Aging Housing Stock:** An aging population may result in a mismatch between housing supply and demand, as older individuals may seek different types of housing than what is readily available.

21.4 Economic Consequences of Population Decline

21.4.1 Severe Labor Shortages

a. **Impact on Industries:** Population decline can result in severe labor shortages across various industries, including healthcare, agriculture, and construction. These shortages can hinder economic productivity and growth.

b. **Immigration:** Some countries address labor shortages caused by population decline by increasing immigration. However, immigration policies and cultural factors can influence the success of such strategies.

21.4.2. Declining Tax Base

a. **Reduced Tax Revenues:** A declining population, especially among working-age individuals, can lead to reduced tax revenues. This can strain government budgets and affect the funding of essential services.

b. **Increased Tax Burden:** To compensate for declining revenues, governments may increase taxes on the remaining population, potentially leading to a higher tax burden and reduced disposable income.

21.4.3. Impact on Education Systems

a. **School Closures:** Population decline can lead to the closure of schools due to a lack of students, resulting in reduced educational opportunities in affected regions.

b. **Quality of Education:** A declining student population can impact the quality of education, as educational institutions may face resource constraints.

21.4.4 Impact on Healthcare Systems

a. **Reduced Access:** Population decline can reduce the availability of healthcare services, particularly in rural areas, leading to decreased access to medical care.

b. **Aging Population:** An aging population places additional strain on healthcare systems, requiring adjustments in healthcare infrastructure and funding.

21.4.5 Economic Stagnation

a. **Reduced Economic Activity:** Population decline can lead to economic stagnation, reduced investment, and decreased entrepreneurial activity, resulting in long-term economic challenges.

b. **Social Services:** Maintaining social services for an aging population can strain government budgets and lead to reduced funding for other essential services.

21.5 Policy Responses and Strategies

Addressing the economic consequences of slowing population growth and population decline requires strategic policy responses:

21.5.1. Promoting Fertility and Family Policies: Governments can implement policies that promote family formation and fertility, including financial incentives, parental leave, and support for work-life balance.

21.5.2 Labor Market Adaptations: Efforts to address labor market challenges may include investing in skills development, encouraging workforce participation among older individuals, and implementing immigration policies to attract skilled workers.

21.5.3 Social Welfare Reforms: Reforms to social welfare systems may be necessary to ensure their sustainability in the face of demographic changes. Options include adjusting retirement ages, introducing means-testing for benefits, and encouraging private retirement savings.

21.5.4 Encouraging Immigration: To address labor shortages and population decline, countries can adopt immigration policies that attract skilled workers and provide pathways to citizenship or permanent residency.

21.5.5 Investing in Education and Healthcare: Investments in education and healthcare systems are critical to ensure access and quality, even in regions experiencing declining populations.

21.5.6 Economic Diversification: Regions affected by population decline can seek to diversify their economies to reduce reliance on sectors vulnerable to labor shortages, such as agriculture or manufacturing.

21.6 Summary

Slowing population growth and population decline have significant economic consequences, affecting labor markets, fiscal policies, economic growth, and social welfare systems. Understanding these consequences and implementing appropriate policy responses are essential for mitigating the challenges posed by demographic changes.

Demographic shifts are complex, and their effects vary from region to region. Policymakers must consider the unique circumstances of their countries and develop strategies that address the specific economic challenges posed by slowing population growth and population decline. By doing so, they can better position their nations for economic resilience and prosperity in an ever-changing demographic landscape.

21.7 Glossary

- **Fiscal policy:** is defined as the policy under which the government uses the instrument of taxation, public spending and public borrowing to achieve various objectives of economic policy.
- **Gross Domestic Product:** is the total monetary or market value of all the finished goods and services produced within a country's borders in a specific time period.
- **Labour Market:** is the place where workers and employees interact with each other.

21.8 Answers to Self-check Exercises

1. Discuss various economic consequences of population decline.
2. Discuss labor market challenges as a result of slowing population growth.

21.9 Suggested Readings

- Bhat, P.N.M. (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
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21.10 Terminal Questions

1. Discuss various economic consequences of slowing population growth and population decline.

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Chapter-22
Policy Issues Related to Population and Economic Growth

Structure

22.0 Learning Objectives

22.1 Introduction

22.2 Demographic Transitions and Economic Growth

- 22.2.1 High Birth and Death rates
- 22.2.2 High Birth rates and Declining death rates
- 22.2.3 Declining birth rates
- 22.2.4 Low birth and death rates

22.3 Policy Issues and Considerations

- 22.3.1 Managing demographic Transitions
- 22.3.2 Labor Markets and Workforce Development
- 22.3.3 Aging Populations
- 22.3.4 Demographic Dividend
- 22.3.5 Sustainable Development

22.4 Case Studies

- 22.4.1 Case Study 1 : India
- 22.4.2 Case Study 2: Japan
- 22.4.3 Case Study 3: Nigeria

22.5 Policy Responses and Strategies

- 22.5.1 Investment in education and Skills development
- 22.5.2 Promote Job Creation
- 22.5.3 Support an Aging Workforce
- 22.5.4 Harness the Demographic Dividend
- 22.5.5 Sustainable Development

22.6 Summary

22.7 Glossary

22.8 Answers to Self-check Exercises

22.9 Suggested Readings

22.10 Terminal Questions

22.0 Learning Objectives

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

- Understand the demographic transition and economic growth
- Understand Policy issues and considerations related to population growth.

22.1 Introduction

Population growth is a fundamental demographic phenomenon that profoundly influences a nation's economic trajectory. Rapid population growth can fuel economic expansion but also pose challenges, while slowing growth or population decline can present opportunities and risks. This comprehensive analysis explores the intricate relationship between population dynamics and economic growth, highlighting the policy issues that policymakers must grapple with. From managing demographic transitions and labor markets to addressing the needs of an aging population and harnessing the demographic dividend, this essay delves into the multifaceted dimensions of population-related policy challenges in the context of economic growth.

Population dynamics play a pivotal role in shaping a nation's economic landscape. As of my last knowledge update in September 2021, the global population stood at over 7.8 billion and was continuing to grow. However, different regions and countries are experiencing varying population trends, ranging from rapid growth to stagnation or decline. Policymakers must navigate the complexities of these demographic transitions to harness the potential benefits and mitigate the challenges for economic growth.

This comprehensive analysis explores the policy issues related to population and economic growth. It delves into the multifaceted dimensions of this relationship, addressing challenges, opportunities, and strategies for policymakers. Key areas of focus include demographic transitions, labor markets, aging populations, the demographic dividend, and sustainable development.

22.2 Demographic Transitions and Economic Growth

Demographic transitions involve shifts in birth and death rates, resulting in changes in population age structures. Four key stages characterize these transitions:

22.2.1 High birth and death rates: In the first stage, birth and death rates are both high, resulting in slow population growth. Subsistence agriculture is often prevalent in these societies.

22.2.2 High birth rates and declining death rates: The second stage sees a reduction in death rates due to improvements in healthcare and sanitation, while birth rates remain high. This leads to rapid population growth.

22.2.3 Declining birth rates: In the third stage, birth rates start to decline due to factors like increased access to contraception and changing societal norms.

22.3 Population growth continues but at a slower pace

22.3.1 Low birth and death rates: The final stage is characterized by both low birth and death rates, resulting in stable or even declining populations. These societies often have advanced healthcare systems and diverse economies.

Each stage presents unique policy challenges and opportunities for economic growth.

22.3 Policy Issues and Considerations

22.3.1 Managing Demographic Transitions

- **Opportunity:** Countries in the third stage of demographic transition often experience a "demographic dividend" as the working-age population expands relative to dependents. This can boost economic growth if harnessed effectively.
- **Policy Challenge:** Managing this transition requires investments in education, healthcare, and job creation to ensure that the expanding workforce is skilled, healthy, and productively employed.

22.3.2 Labor Markets and Workforce Development

- **Opportunity:** A youthful population can provide a competitive advantage, as it means a larger labor force that can support economic growth.
- **Policy Challenge:** To leverage this advantage, policymakers must invest in education and skills development to ensure that the workforce is productive and adaptable. Unemployment and underemployment among youth can pose a significant challenge.

22.3.3 Aging Populations

- **Opportunity:** Longer life expectancy is a positive outcome of demographic transitions. It can lead to an experienced and skilled older workforce, which can contribute to economic growth.
- **Policy Challenge:** Supporting an aging population requires healthcare and pension reforms to ensure financial sustainability. Measures to promote longer working lives can also be considered.

22.3.4 Demographic Dividend

- **Opportunity:** The demographic dividend is a unique window of opportunity for economic growth, it occurs when the working-age population grows faster than the dependent population (children and elderly). Policy
- **Challenge:** To capitalize on the dividend, governments must invest in education, healthcare, and job creation. Failure to do so can result in a missed opportunity or even economic instability.

22.3.5 Sustainable Development

- **Opportunity:** Demographic transitions provide an opportunity for countries to embrace sustainable development practices, such as investing in renewable energy, efficient transportation, and environmentally friendly agriculture.

- **Policy Challenge:** Balancing economic growth with environmental sustainability is a complex challenge. Policymakers must implement regulations, incentives, and public awareness campaigns to promote sustainable practices.

22.4 Case Studies

To illustrate the diverse policy issues related to population and economic growth, let's examine case studies from different regions.

22.4.1 Case Study 1: India

India is experiencing a significant demographic transition. It has a youthful population, with a median age of around 28 years. This presents both opportunities and challenges:

- **Opportunity:** India can harness its demographic dividend by investing in education and skills development to create a productive workforce.
- **Policy Challenge:** Ensuring quality education and job opportunities for its large youth population is a daunting task. Policymakers must focus on education reform, vocational training, and job creation.

22.4.2 Case Study 2: Japan

Japan is at the advanced stage of demographic transition with an aging population and low birth rates:

- **Opportunity:** Japan can tap into the experience and skills of its older population to maintain economic growth.
- **Policy Challenge:** Supporting the elderly with healthcare, pension systems, and enabling longer working lives are pressing challenges. Encouraging work-life balance and addressing labor shortages are also essential.

22.4.3 Case Study 3: Nigeria

Nigeria has a rapidly growing population, and it is in the early stages of demographic transition:

- **Opportunity:** Nigeria has the potential for a demographic dividend if it invests in education and healthcare for its youth.
- **Policy Challenge:** Providing quality education and job opportunities for a growing youth population is critical. Addressing issues like youth unemployment and ensuring equal access to education are key policy concerns.

22.5 Policy Responses and Strategies

Policymakers can adopt a range of strategies to address the policy issues related to population and economic growth:

22.5.1 Invest In Education and Skills Development

- Promote quality education at all levels.
- Emphasize vocational training and lifelong learning to equip the workforce with relevant skills.

22.5.2 Promote Job Creation

- Implement policies that encourage entrepreneurship and support the growth of small and medium-sized enterprises (SMEs).
- Invest in infrastructure development to stimulate economic activity and job creation.

22.5.3 Support an Aging Workforce

- Reform pension systems to ensure their long-term sustainability.
- Promote healthy aging through healthcare initiatives and encourage longer working lives.

22.5.4 Harness the Demographic Dividend

- Implement family planning programs to manage birth rates effectively.
- Promote gender equality in education and the workforce.

22.5.5 Sustainable Development

Implement regulations and incentives to promote environmentally sustainable practices. Invest in renewable energy, efficient transportation, and sustainable agriculture.

Population dynamics are inextricably linked to a nation's economic growth. Policymakers must grapple with a range of policy issues, from managing demographic transitions and labor markets to supporting aging populations and harnessing the demographic dividend. Case studies from different regions illustrate the diversity of challenges and opportunities related to population and economic growth.

Effective policies in areas such as education, job creation, healthcare, and sustainable development are crucial for leveraging demographic trends to foster economic prosperity. The choices made by policymakers today will shape the economic trajectories of nations for decades to come, making it essential to prioritize thoughtful and strategic population-related policies.

22.7 Glossary

- **Economic Growth:** is an increase in the production of goods and services in an economy. Increases in capital goods, labor force, technology, and human capital can all contribute to economic growth.
- **Demographic Dividend:** refers to the growth in an economy that is the result of a change in the age structure of a country's population. The change in age structure is typically brought on by a decline in fertility and mortality rates.
- **Sustainabie Development:** is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

22.8 Answers to Self-check Exercises

1. Discuss various economic consequences of population decline.
2. Discuss labor market challenges as a result of slowing population growth.

22.9 Suggested Readings

- Bhat, P.N.M. (2002). Completing the Fertility Transition: The Case of India. Center for Demography and Ecology, University of Wisconsin-Madison.
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22.10 Terminal Questions

1. Discuss various Policy Issues related to population and economic growth.

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