

# **THEORIES OF DEMOGRAPHY**

## **Social, cultural and Economic Theories of Demography**

### **Malthusian Theory 1798**

- Thomas Robert Malthus, first economist to propose a systematic theory population
- Essay on the Principles of Population - 1798

#### **Assumptions for the theory**

- Food is always necessary for mankind
  - Population growth is limited by means of subsistence
  - Population increase should be proportional to increase in food supply
- Passion between both the sexes remains at same levels of intensity throughout history
  - Birth rates remain at relatively high levels

#### **Relation between two assumptions?**

- While food production increases in arithmetic ratio, the population will grow in geometric ratio
- Result –Gap between population and food production continuously widens

#### **Consequences?**

- Breakdown of natural ecosystems - famines and floods - Malthusian Catastrophe
- Widening gap between rich and poor
- Humans were doomed to inevitable suffering as they would always maintain a population greater than the available means of subsistence.

#### **The Concept of Checks**

- Malthusian Catastrophe is inevitable unless CHECKS are present
  - POSITIVE CHECKS
    - Largely outside the control of man
    - War, disease and poverty
  - PREVENTIVE CHECKS
    - Within human control
    - Based on man's foresight into distant consequences
    - Self-restraint, birth control, late marriage etc.

## Critique

- His pessimistic conclusions were not borne out by Western European nations where population and production increased due to technology and standards of living has drastically improved
- Arithmetic and geometric proportions failed empirical validity
- Too much emphasis on positive checks which are possible to be controlled by technology
- Cornucopian theory scoffs at the idea of humans wiping themselves out; it asserts that human ingenuity can resolve any environmental or social issues that develop.
- Human ingenuity has been up to the task for thousands of years and there is no reason for that pattern not to continue

## Significance

- Inspired theory building in demography
- Highlighted the importance of stable land-man ratio

### **Theory of Optimum Population Growth - Edwin Canan**

- Population should grow to desired optimum level
- Any increase beyond this level is harmful
- Stage of optimum population is reached when the society is able to run its minimum and essential services
- This is a stage when  $\text{Death Rate} = \text{Birth Rate}$
- There is a close relationship between population size and economic development
- Economic development presupposes optimum utilisation of all resources
- Human resources are employed to exploit natural resources and capital
- In countries with less population, population growth is important to ensure exploitation of all the resources
- This situation where all the available resources are fully utilized is **OPTIMUM POPULATION**
- In the event population grows beyond this point, disturbance of resources and economic development occurs since more labor are available than what is 'ideally' required.

**Classical Theory - David Ricardo**

- Growing demand for labor is responsible for increase in population
- As the labor supply increases, wages decrease
- Ultimately an equilibrium is reached between the demand and supply of labor and everyone gets same wages
- Beyond this point, if population increases, it leads to universal poverty

**Emile Durkheim**

- French Sociologist
- Based his entire social theory on consequences of population growth
- Population growth leads to greater division of labor and more specialization
- The struggle for existence is more severe when there are more people
- In the long term, this leads to greater economic well-being because of competition

**Intergenerational Wealth Flow Theory**

- John Caldwell (1976)
- He argued that the fertility decision of people in any society is rational and is based on the economic worth of the children.
- Fertility patterns depend on the intergenerational flow of wealth and services
- When flows run from children to their parents, parents will want to have large families
- When flows run from parents to their children, parents will want to have small families
- A reversal in the direction of flow of wealth is a precondition for any decline in fertility levels.
- This reversal necessitates emotional and economic nucleation of family.
- Parents become less concerned with ancestors and extended family than with children and grandchildren when this nucleation happens
- In many developing countries this nucleation of family has already begun under the influence of westernisation.

**Marxism**

- Theory of population is a critique of capitalism
- He also rejects Malthusian theory
- The capitalists do not increase their numbers since labor is not an asset to their class
- Poor accumulate labor because it is their only asset
- The more the children, the more is the means of subsistence for basic needs because capitalists exploit the labor by restricting their wages to maximise their profit
- Once the poor uproot the capitalist class, population growth will slow down
- In socialism, there is no need to check the population because everyone is gainfully employed
- Communism – A solution to increasing population (China?)

**Harvey Liebenstein's Cost-Benefit Analysis Theory**

- Incorporating the cost-benefit analysis of children in his theory, Harvey Liebenstein, in 1953, proposed that the fertility decision of a couple is based on the balance between utility and disutility of an additional child.
- According to Liebenstein, there are three types of utilities of an additional child, viz.,
  - as a 'consumption good' where a child is considered as a source of pleasure for the parents;
  - as a 'productive unit' where a child is expected to contribute to the family income after he enters into the labour force; and
  - as a 'source of security' for the parents in their old age.
- On the other hand, the disutility refers to the direct and indirect costs involved in having an additional child.
  - Direct costs relate to the conventional expenses involved in the bringing up,
  - Indirect costs are the opportunities, measured in economic terms, foregone in the event of an additional child.
- Liebenstein states that a couple makes a 'rough calculation' regarding the balance between the utilities and disutility's before deciding for an additional child.
- It should be noted here that Liebenstein's emphasis is mainly on the higher order births.

**Social Capillarity Theory**

- Arsene Dumont (1890)
- In a society characterised by an open system of stratification, there is a constant effort on the part of some individuals to rise in the hierarchy
- The size of the family is determined by the the will of moving up in the social order (social capillarity)
- Aspirational individuals keep their families small as a large family is an obstacle in the process of upward social mobility
- According to Dumont, there are three principles of population that are related to the stages of social development:
- In the preventive stage, the Malthusian theory of population applies where human beings live like animals. They increase in geometrical progression.
- In the intermediate stage, "Population proportions itself automatically." In such a society, population increases as food supply increases because population can produce food itself. Here positive checks do not become necessary.
- In a modern civilized society, Dumont applies his social capillarity principle. In such a society, every individual wants to achieve higher economic and social status.
- For this, a small family is imperative, because one cannot climb high on the social ladder with the burden of more number of kids in the family.
- The principle of social capillarity was the first logical attempt of providing an explanation of fertility transition
- The principle holds good even today in explaining the intra- and inter-country differentials in fertility levels.
- The theory of social capillarity, however, attracted criticism, as it was not backed by sound statistical proof.
- Nevertheless, credit must go to Dumont for underscoring the need of investigating the psycho-logical attributes of individuals in its social context while explaining the fertility levels.

**Theory of Increasing Prosperity**

- In 1910, L. Brentano presented another explanation of fertility differentials in his theory of increasing prosperity.
- According to him, the key to fertility differences is rooted in the differences in material prosperity of different peoples.
- He argues that man is essentially a creature of pleasure, the sources of which vary from group to group.
- The poor with an extremely restricted number of alternative pleasures tend to find compensation of this deprivation in sexual indulgence.
- This explains high fertility level among them.
- On the other hand, the wealthy have a large number of competing pleasures, and in general, their gratification is found outside home.
- Brentano suggested that a general decline in fertility levels is the function of technical, scientific, industrial and commercial progress which makes more and more sources of pleasure available to a growing number of people.
- Brentano has not been successful in differentiating between sexual enjoyment and pleasure of parenthood.

**Biological Theories of Demography****Density and Fecundity Principle - Michael Thomas Sadler**

- A natural evolution theory and is biological (he speaks of fecundity and not fertility)
- Published in 1830 in two volumes "The Laws of Population"
- Was a contemporary of Malthus, much of his work is to refute Malthusian Theory
- According to him, population growth depends not only on food but also on space
- The fecundity of human beings varies inversely with condensation (density) of the population
- When density increases, the capacity to produce children goes down and thus with the increase in density, the fertility rate declines.
- He believed that population adjusts itself with the times.
- In the agriculture based or pastoral countries where the density of population is low, the fertility rate of the population is high.
- In such countries, people have the capacity to work hard and hardworking people give birth to more children.
- With the passing of time, when there is industrialization and the population becomes more civilized and literate, the density of population increases.



- Here people would limit the size of family and in such socio-economic conditions they will be happier and there will be prosperity.
- He did not accept Malthus's concept of positive and preventive checks
- Sadler believed that when the fertility rate of population increases, people will be able to produce food according to their needs and the food supply and population will get adjusted to each other
- Sadler also believed that when the density of population increases the unhealthy atmosphere also increases which leads to the increase in the death rate.
- Further, if the death rate is high, it will lead to increase in the birth rate.
- This happens to compensate for the loss of population.
- And if the death rate is low, the birth rate also goes down.

### **Criticism:**

- Sadler failed to distinguish between fecundity and fertility. But in fact no biological reason is found to prove the idea that density brings down fecundity.
- In urban slums the density is very high and at the same time fertility is also high among slum dwellers.
- In many countries like India (Delhi), density and fertility are also high
- Further, he contradicts himself - density increases mortality also, which stimulates greater fertility to compensate for deaths. How can density both increase and decrease population at the same time?

### **Diet Theory - Thomas Doubleday**

- Biological theory
- Man's increase in numbers is inversely proportional to food supply
- The better the food supply, the slower the increase in population
- It means that the increase in population and food supply are inversely related.
- The fertility of plants and animals depend on their leanness
- He divides the society into three groups The first group includes those who are in a state of affluence and are well supplied with luxuries. Their number is on constant decrease.
- The second group consists of the poor people who have less supply of food. Their number is increasing rapidly. In other words, the constant increase in population is found in the group where people are worst supplied with food.
- The third group has those people who form the mean and median between two opposite states. These fall under the average income group and those who are

tolerably well supplied with good food or who get a normal diet and do not overwork and yet are not idle. Their number is stationary.

- Extends his theory to dietary habits
  - Non – Vegetarians – Less capacity to reproduce
  - Vegetarians – Fertility is highest
- Criticism: Doubleday's observation regarding an inverse relationship between food supply and fertility has no scientific basis.
- In Doubleday's diet theory there is confusion between fertility and fecundity.

### **Jouse De Castro's Protein Consumption Theory**

- Jouse De Castro expressed his views in his book *The Geography of Hunger* regarding the correlation between the fertility and the consumption of protein.
- Castro accepted the findings of R.J. Solankar who conducted experiments on rats in 1920.
- In these experiments Solankar found that with the increase in protein consumption in diet, the fecundity will decrease and it will increase with low protein content in diet.
- Solankar's Experiment
  - When 10 per cent protein was given to a female rat, per mated female rat gave 23.3 births;
  - When 18 percent protein was given to each female rat, per mated female rat gave 17.4 births; and
  - When the quantity of protein was increased to a level of 22 percent to each female rat, the birth per mated female rat reduced to 13.8 births.
- Through these experiments Castro concluded that the fatness is affected by the consumption of protein.
- The fatness increases with the protein rich diet, which leads to lower fertility.
- This concept of Castro is like the Doubleday's diet theory that the rate of population increase is influenced by food supply.
- Moreover, Castro also found a direct relation between the functioning of the liver and that of the ovaries.
- In the words of Castro, "It is known that there is a direct connection between the functioning of the liver and the ovaries. The role of the liver is to inactivate the excess estrogens which the ovaries throw into the blood stream. Fatty degeneration of the liver is the characteristic result of protein deficiency when degeneration of the liver



occurs, it is less effective at its job of inactivating excess estrogens. The result is a marked increase in the women's reproductive capacity."

**Criticism:**

- High fertility has been experienced in many developed countries with the high protein in diet.
- Scientifically, it cannot be proved that protein rich diet or calorie intake leads to lower fecundity.
- Sociocultural factors that play a role in fertility are completely ignored
- Economists like Leibenstien criticize saying that economic development leads to fertility decline. In fact, sustained economic development itself will not happen without fertility rates decline during economic expansion

**Individuation and Genesis - Herbert Spencer**

- A biological theory in his book "The Principles of Biology"
- *Fecundity decreases when complexity of life increases*
- Changes in population occur due to natural changes in the reproductive capacity of humans (like Sadler and Doubleday)
- "There exists an antagonism between individuation (survival and being distinguished from others) and genesis (reproduction)".
- When any individual does hard work for his personal development at his work place, the desire for reproduction decreases.
- In other words, when more energy has been utilised for one's self-development, the energy available for reproduction will be less and consequently the population growth will be less.
- With development of society and one's success and survival (Individuation, distinguishing oneself from another), life becomes more complex resulting in reduction in the capacity to reproduce.
- Rural vs Industrial Societies - This is observed from the fact that fertility is more in rural individuals whose life is not complex
- Whereas fertility is low in an industrial society where life is more complex, the pressure of education is more and the brains are overtaxing.
- We have two different situations which explain the relation between individuation and genesis:
  - The individuation will automatically be low when there is high genesis. This situation we find among the poor.
  - The genesis will be low when there is high individuation. Such a situation we find among the rich.

- According to him, people can be divided in three groups:
- Poor people who live a simple life whose fertility is high;
- Middle class people whose fertility is correspondingly low; and
- People who live developed or complex life whose fertility is fairly low.
- According to Spencer, in societies where people, especially woman, are educated and belong to rich families, their reproductive power is low, as compared to the poor who are uneducated and whose reproductive power is high.
- Spencer believed that if population increases we get more manpower through which natural resources can be exploited and the socio-economic and cultural standards of the people can be raised.
- Thus, he was of the opinion that increase in population was beneficial rather than harmful.

### **Critique**

- Spencer's population theory is a biological theory. The view of Spencer that fertility decreases due to more complex life has no empirical evidence. There is high fertility rate even in rich families or industrialised societies where people's life is more complex.
- The problem of population growth itself is a complex phenomenon and therefore it cannot be explained purely as a biological one.
- Spencer's view that educated women whose individuation is high would prove relatively infertile, is not realistic. Even educated women have high reproductive power.
- Spencer's theory that fertility is affected by the natural process of individuation has no justification because when Spencer propounded this theory the birth rate was high in the western countries.

### **Cyclical Theory - Corrado Ginni**

- Italian sociologist - He had deep interest in the study of population changes which affect the evolution of society and that of a nation.
- Growth of human population follows the cycle of growth of an individual
- Stage 1: Rapid population growth - every nation in its youth is simple and undifferentiated in structure and has people who are highly fecund
- State 2: Decline in population growth - colonisation and war results in loss of young people and increasing upper class which is less prolific than lower class (in reproduction)
- Reason for decline is purely biological - *"sterility of the climbers is not because of social conditions, but rather a weakening of reproductive instinct"*
- Decline in population results in decline in hereditary quality of individuals also

- The rise and fall of population is determined by an inevitable natural growth
- And he thus invokes some sort of mystical biological changes which determine qualitative and quantitative changes in human population

## Theory of Demographic Transition

- Considered a more rational approach because it is based on actual demographic experience of many nations
- Population in any society passes through distinct stages, each with its own peculiarity
- There is however, a divided opinion on number of stages
- Many people contributed to this theory, but the formal form – NOTESTIEN – 1945

## Stages of Population Growth

- **FIRST STAGE - High Death Rate & High Birth Rate**
  - *High Death Rates*
    - Poor diets & sanitation
    - No medical aid
  - *High Birth Rates*
    - Illiteracy / Big family advantage
    - No family planning
    - Early marriages
- Actual growth rate of the population is not very high because high BR is balanced by high DR (high growth potential, though)
- **SECOND STAGE – Low Death Rate & High Birth Rate**
  - *Low Death Rate*
  - Rise in income levels and good diets
  - Economic development & Welfare State
  - Good transport etc.
  - *High Birth Rate*
  - Accelerated Population growth
  - High growth potential of the first stage is realized here
- **THIRD STAGE – Low Birth Rate & Low Death Rate**
  - Economic development from agrarian to industrial
  - Urbanisation
  - Mobility
  - High economic advantage of small families
  - Stage of Incipient Decline

- Transition began around 1700s in Europe
- Not complete in most LDCs (Least Developed Countries)
- Many African and middle eastern nations are in early stage 3
- Some countries in Latin America are moving towards early stage 4 where further drop in fertility happens and death rates stabilise
- Throughout 20th century - high population growth
- In 2014 - 85% of world population lived in LDCs (6 billion)
- 21st Century - share of LDC population will increase

## **Second Demographic Transition**

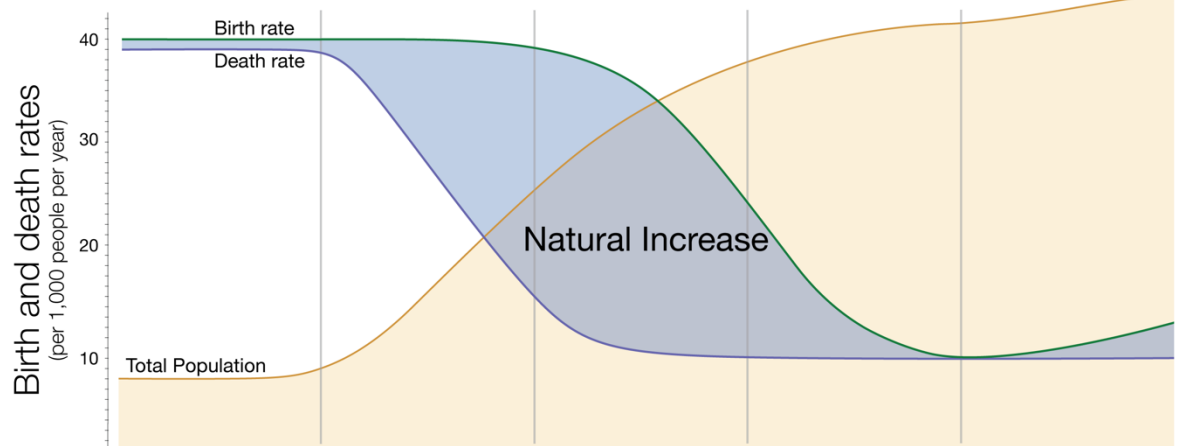
- Introduced by Dirk van de Kaa and Ron Lesthaeghe
- Further fertility declines due to demographic behaviour like
- Increasing age at marriage
- Increase in cohabitation (live ins)
- Increases in divorces
- Same-sex partnerships
- Voluntary childlessness
- Increase in non-marital childbearing

## **Third Demographic Transition**

- David Coleman (2006) further expanded the Demographic Transition Theory
- Increasing tendency of low fertility countries on migration to maintain their populations
- This changes composition of national populations, racial features, culture, social experiences and identities
- Ex... US, Western Europe etc.
- Daniel Lichter (Cornell College of Public Policy) - *The children of the immigrants will be the vanguard of third demographic transition that will remake USA*

# The demographic transition in 5 stages

Our World  
in Data



	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Birth rate	High	High	Falling	Low	Rising again
Death rate	High	Falls rapidly	Falls more slowly	Low	Low
Natural increase	Stable or slow increase	Very rapid increase	Increase slows down	Falling and then stable	Stable or slow increase

VAJIRAM & RAVI