

# Fertility

**Fertility** refers to the actual reproductive performance of an individual, couple, group, or population, i.e., the ability to produce live births.

It is a **biological and demographic concept**, usually measured by various fertility rates (e.g., crude birth rate, general fertility rate, total fertility rate).

- According to **Hauser and Duncan (1959)**:  
*“Fertility is the actual bearing of children, measured in terms of the number of live births produced by women.”*

## Controlling Factors of Fertility

Fertility is influenced by a wide range of **biological, socio-cultural, economic, and political factors**. These factors either **increase (high fertility)** or **decrease (low fertility)** birth rates.

### 1. Biological Factors

- **Age of women:** Fertility is highest between **15–30 years**, then declines.
- **Health and nutrition:** Malnutrition, poor health, or diseases lower fertility.
- **Fecundity and infertility:** Biological incapacity (e.g., infertility, impotence) reduces fertility.
- **Breastfeeding and lactation:** Prolonged breastfeeding delays ovulation (natural contraceptive).

### 2. Socio-Cultural Factors

- **Marriage age:** Early marriage → longer reproductive span → higher fertility; late marriage → fewer births.
- **Family size preference:** In traditional societies, large families are considered an asset (labor, status).
- **Religion and customs:** Some religions discourage contraception (e.g., Catholicism, Islam in conservative settings), leading to higher fertility.
- **Status of women:** Educated and empowered women tend to delay marriage and childbirth, leading to lower fertility.

### 3. Economic Factors

- **Income level:** Poor families may have more children (for labor/economic support); wealthy families may prefer fewer children (quality over quantity).
- **Occupation:** Agrarian societies → high fertility (children as farm labor); industrial/urban societies → low fertility (cost of raising children).

- **Cost of living:** Higher cost of education, healthcare, and housing reduces family size.

#### 4. Psychological Factors

- **Desire for children:** Cultural and emotional attachment to children encourages higher fertility.
- **Son preference:** In some societies (e.g., India, China), preference for sons increases fertility until a son is born.
- **Child mortality:** High infant mortality encourages parents to have more children as insurance.

#### 5. Political and Policy Factors

- **Government population policies:**
  - **Pro-natalist policies** (France, Singapore earlier) encourage higher fertility.
  - **Anti-natalist policies** (China's one-child policy, India's family planning) reduce fertility.
- **Healthcare policies:** Access to maternal healthcare reduces infant mortality and indirectly lowers fertility.
- **Availability of contraception:** Affordable and widespread contraception lowers fertility.

#### 6. Technological and Medical Factors

- **Contraceptive technology:** Use of birth control pills, IUDs, sterilization → lowers fertility.
- **Assisted reproductive technologies (ART):** IVF, surrogacy → increase fertility for infertile couples.
- **Medical advancement:** Reduces maternal and infant mortality, affecting fertility decisions.

**Fertility** = Actual number of live births in a population.  
Its **controlling factors** include **biological** (age, health, fecundity), **socio-cultural** (marriage, religion, customs), **economic** (income, occupation), **psychological** (desire for children, son preference), **political** (population policies), and **technological** (contraceptives, medical care).

# Measurement of Fertility

Since fertility refers to **actual births (live births)**, demographers measure it using **statistical rates and ratios**. These indicators help compare fertility across regions, time, and populations.

## 1. Crude Birth Rate (CBR):

- **Definition:** Number of live births per 1,000 people in a population in a given year.
- **Merit:** Simple, widely used.
- **Limitation:** Does not consider age/sex composition → may misrepresent fertility levels.

## 2. General Fertility Rate (GFR):

- **Definition:** Number of live births per 1,000 women of reproductive age (15–49 years) in a year.
- **Merit:** More accurate than CBR, as it focuses only on women capable of giving birth.
- **Limitation:** Still ignores age differences within 15–49.

## 3. Age-Specific Fertility Rate (ASFR):

- **Definition:** Number of live births per 1,000 women in a specific age group in a year.
- **Merit:** Shows fertility patterns by age → helps identify peak childbearing ages.

## 4. Total Fertility Rate (TFR):

- **Definition:** The **average number of children a woman would have** if she experienced the current ASFRs throughout her reproductive life (15–49 years).
- **Merit:** Most widely used measure of fertility; directly comparable across countries.
- **Benchmark:** Replacement-level fertility  $\approx$  **2.1 children per woman**.

## 5. Gross Reproduction Rate (GRR):

- **Definition:** Average number of **daughters** a woman would have if she passed through her lifetime experiencing current fertility rates.

- **Limitation:** Does not account for female mortality before completing childbearing age.

## 6. Net Reproduction Rate (NRR):

- **Definition:** Average number of daughters a woman would have, **adjusted for mortality** of women up to the end of childbearing years.
- **Benchmark:**
  - $NRR = 1$  → population replaces itself.
  - $NRR > 1$  → population grows.
  - $NRR < 1$  → population declines.
- **Merit:** Best indicator for **population replacement**.

## 7. Child-Woman Ratio (CWR):

- **Definition:** Ratio of number of children (0–4 years) to women of childbearing age (15–49 years).
- **Use:** Indirect fertility measure, useful where birth registration is poor.

## 8. Other Specialized Measures:

- **Cohort Fertility Rate:** Measures fertility of a specific group of women born in the same year/period.
- **Parity Progression Ratio (PPR):** Probability that a woman with  $n$  children will go on to have another child.