«Birth and fertility»

Chapter 6

Factors affecting the birth rate

- Natural and biological
- Socio-economic
- Demographic (structural)

Fertility is the ability of the population to increase its number in a unit of time due to the appearance of new individuals in the process of reproduction.

- Characteristics of the birth rate of the entire population of the country and its individual groups.
- The study of the dynamics of the birth rate.
- Analysis of the impact of individual factors on the change in fertility.
- Characteristics of the influence of fertility on socio-economic processes and the demographic structure of the population.
- Research of reproductive attitudes of the population.
- Construction of probabilistic demographic models (tables of fertility).

Data sources that characterize the birth rate

- Population census
- Specially organized sample surveys

The system of fertility indicators includes the following groups of indicators:

- absolute number of births
- relative indicators of the structure of births
- average values
- birth rate indicators (birth rates)
- chronological indicators
- characteristics of reproductive plants
- mathematical-statistical models of fertility (tables of fertility)

The basis of fertility and reproduction of the population is fertility.

FERTILITY - the biological ability of a woman, a man, a married couple to conception and Birth living children.

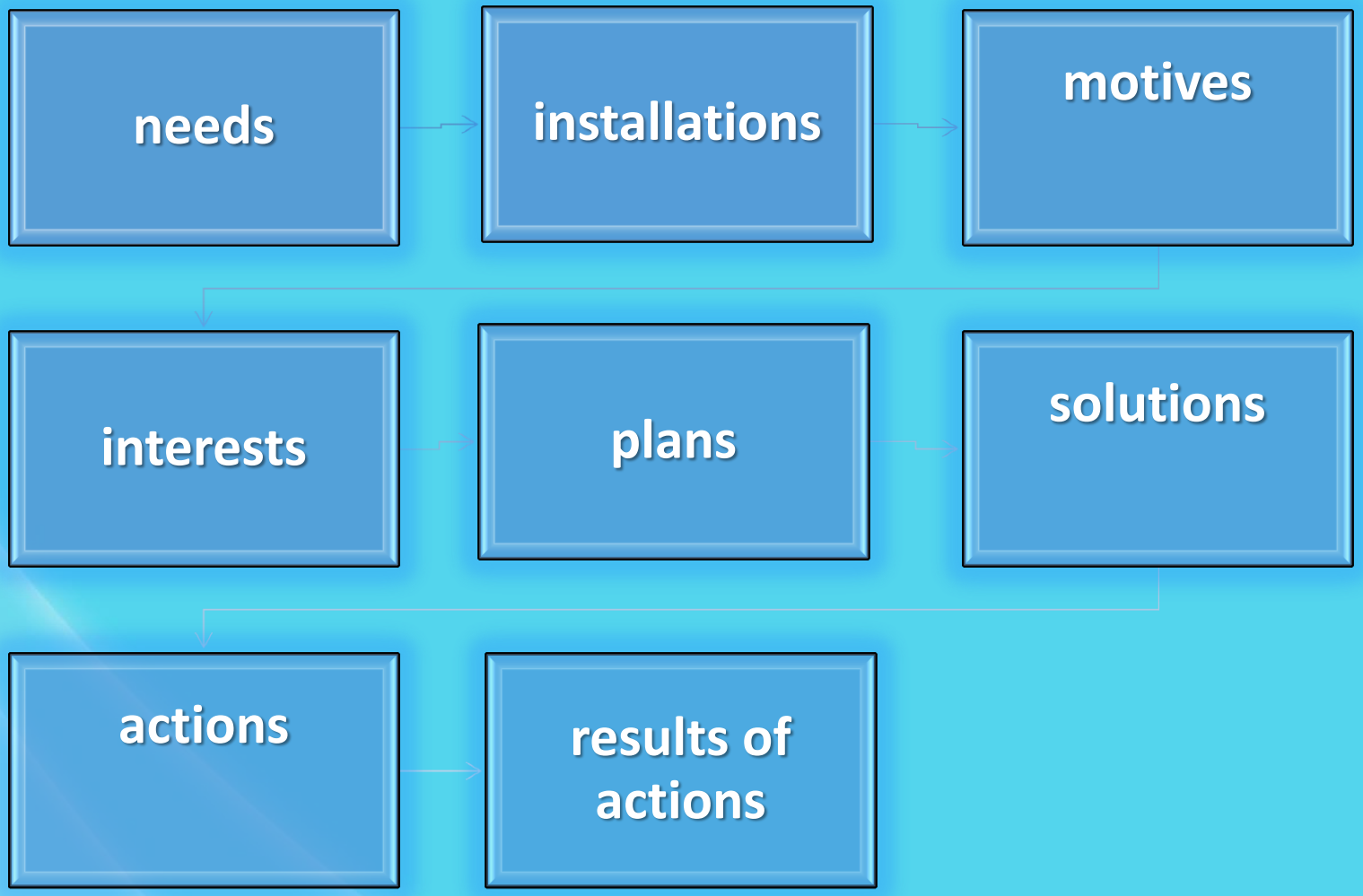
Fertility happens:

female;

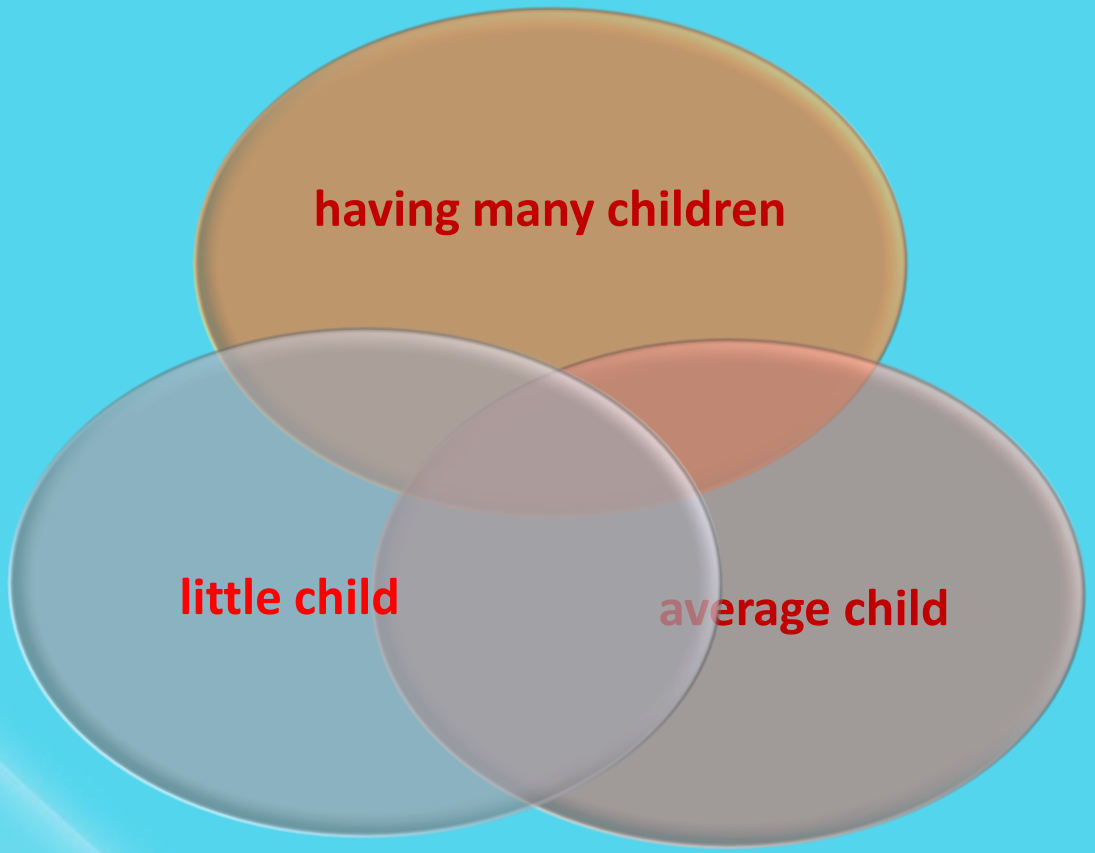
for men.

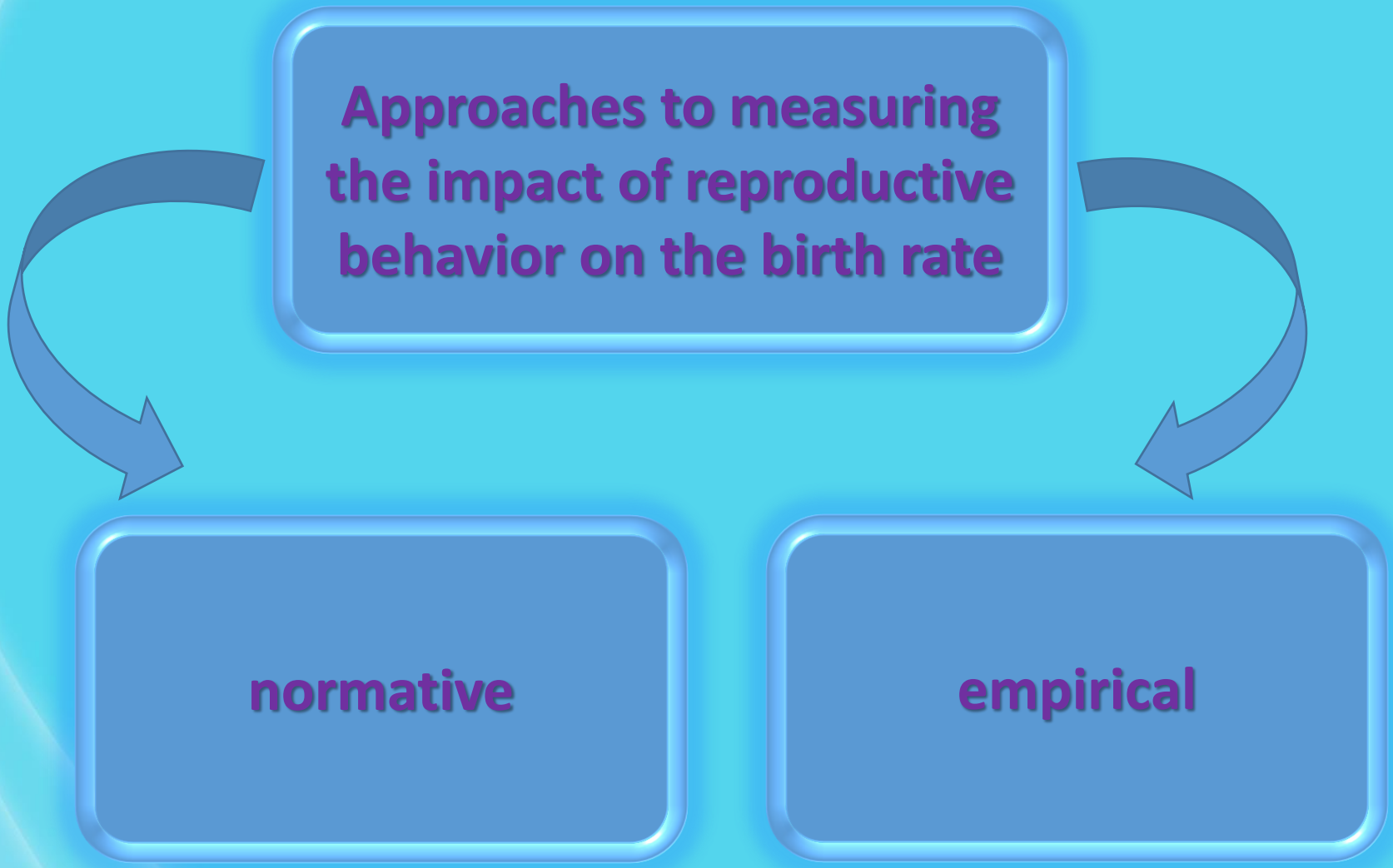
Reproductive behavior is a system of actions and relationships that determine the birth or rejection of the birth of a child in marriage or out of wedlock.

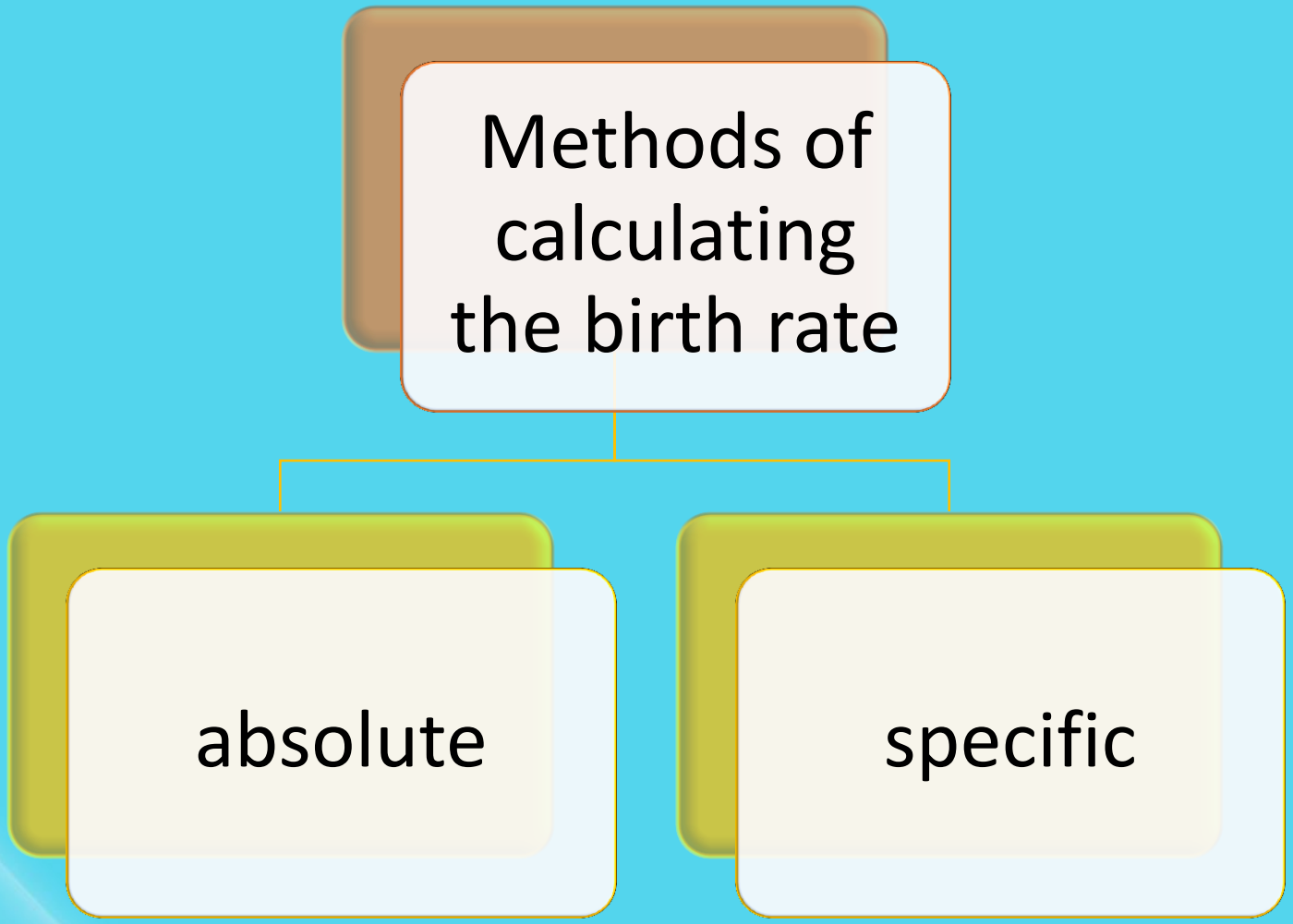
Structure of reproductive behavior



Types of reproductive behavior




Approaches to measuring the impact of reproductive behavior on the birth rate
normative
empirical


Methods of calculating the birth rate
absolute
specific

absolute fertility

$$B=A\times N_n/A_t,$$

- $A\times N_n$ The number of individuals that appeared in the population over time A_t ;
- A_t - analyzed time period.

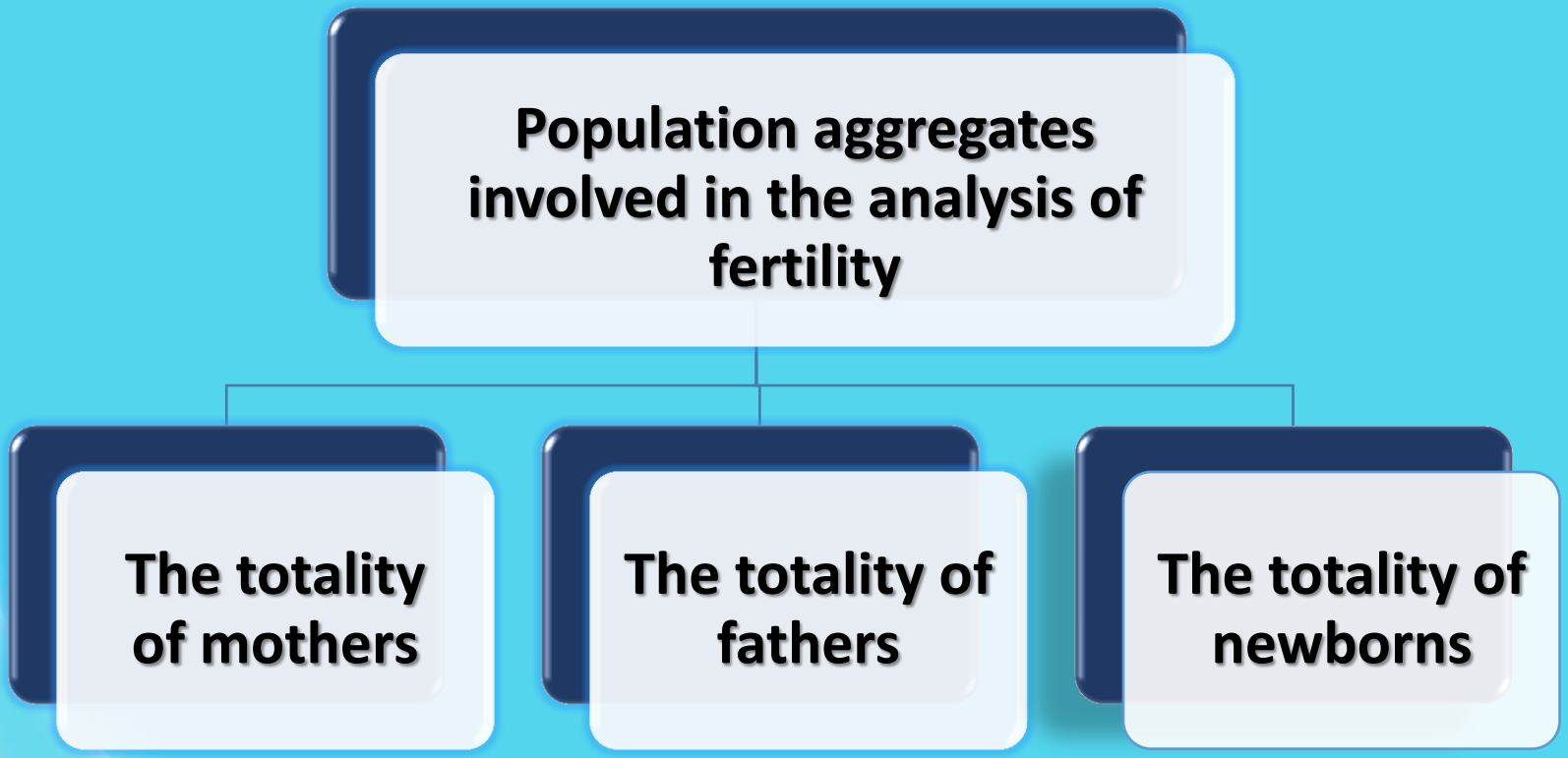
The formula for calculating the specific fertility

$$B=A\times N_n/(A_t\times N_0)=B/N_0$$

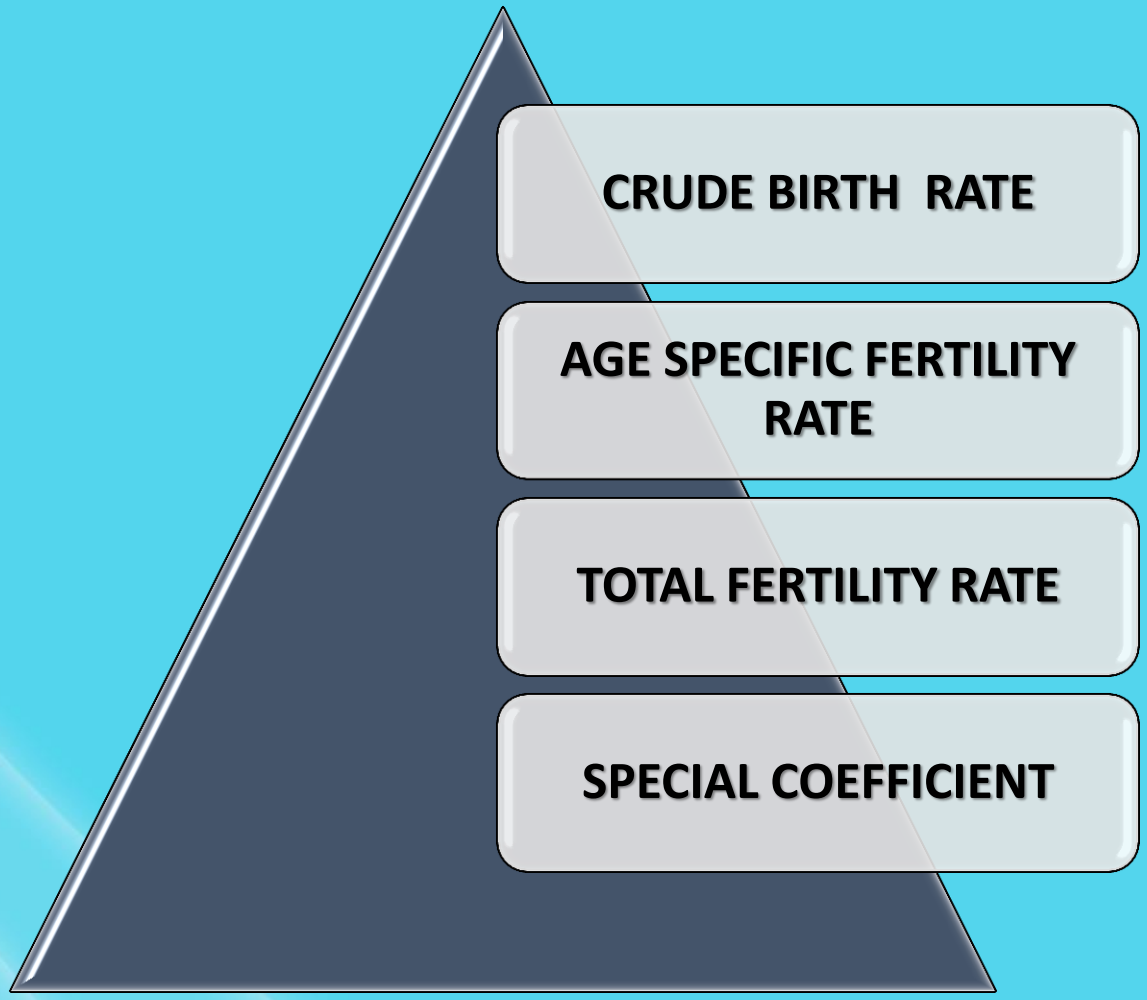
- B - absolute fertility;
- N_0 - initial population size

Types of fertility depending on conditions

- Physiological (maximum)
- Ecological (realized)


Population aggregates involved in the analysis of fertility
The totality of mothers
The totality of fathers
The totality of newborns

The system of indicators characterizing of the birth rate



Crude birth rate (CBR)

$$K_b = \frac{B}{\bar{S}} \cdot 1000;$$

- B - number of children born;
- S – average annual population

The scale of assessing the birth rate of the population by the value of the Crude fertility rate.

The value of the crude fertility rate, ‰	Characteristics of the birth rate
less than 16	low
16 – 25	average
25 – 29	above average
30 – 39	tall
40 and more	very tall

General fertility rate (GFR)

$$K_{GFR} = \frac{B}{\bar{W}_{15-49}} \cdot 1000;$$

where, W15-49 is the total number of women of child bearing age 15-49 at the mid point of the year in a given geographical area

The scale of assessing the birth rate of the population by the value of the special birth rate

The value of the special birth rate, ‰	Characteristics of the birth rate
less than 64	low
64 – 100	average
101 – 120	above average
121 – 160	tall
161 and more	very tall

The relationship between the total fertility rate and the fertility rate

$$K_b = CBR * \mathrm{d}$$

AGE-SPECIFIC FERTILITY RATE

$$Fx/x+y = \frac{Nx/x+y}{TWx/x+y} \times 1000$$

- Nx/x+y- number of births of children in the mother from x to x + y years inclusive;
- TWx/x+y- number of women of this age

General marital fertility rate (GFR)

$$K_{GMFR} = \frac{B}{\overline{W}_{15-49}} \cdot 1000;$$

where, W 15-49 is the total number of married women of child bearing age 15-49 at the mid point of the year. Like in GFR.

Age-Specific Fertility Rate (ASFR)

$$ASFR({}_{n}f_{x}) = \frac{{}_{n}B_{x}}{{}_{n}W_{x}}$$

where, ${}_{n}f_{x}$ *: is the age-specific fertility rate of women aged x to x+n years.* ${}_{n}W_{x}$*: is the number of women aged x to x+n years at mid-year in a given year and geographical area* ${}_{n}B_{x}$*: is the number of births in a year to the women of ages x to x+n years in a given years and geographical region; n is usually taken as 5 years.*

Total Marital Fertility Rate (TMFR)

$$TFR = 5 \times \frac{\sum_{(15\text{-}19)}^{(45\text{-}49)} ASMFR}{1000}$$

TOTAL FERTILITY RATE

$$TFR = 5 \times \frac{\sum ASFR_{(15\text{-}19)}^{(45\text{-}49)}}{1000}$$

Thank you for attention!