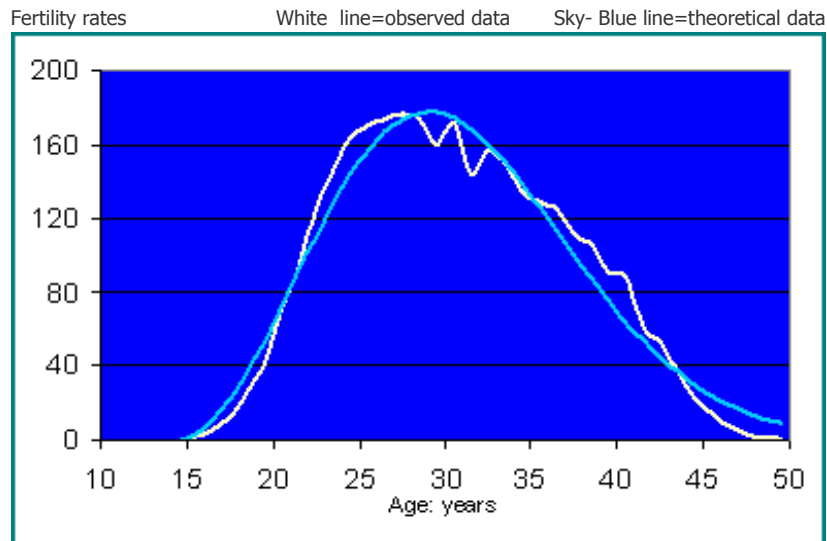


FERTILITY FUNCTIONS

(Source: Petrioli Luciano, "PRODEMOG 3.0-Demographic software for Windows", EMMECI-SIENA-ITALY,(2000).

MAXWELL - BOLTZMANN



Age-specific fertility rates: Italy, year 1933

The function of Maxwell-Boltzmann uses the following expression for the distribution of density:

$$f(x) = (C/A) \sqrt{2/\pi} [(X-B)/A]^2 e^{-0.5 [(X-B)/A]^2} \quad [1]$$

where $-\infty < B < +\infty$ is the parameter of transfer, moreover $A > 0$; $C = TFT > 0$.

Mean and variance are respectively:

$$MED = B + A \sqrt{8/\pi} ; DS = [A^2 (3\pi - 8)]/\pi \quad [2]$$

$$\text{from which we have: } A = \sqrt{\pi DS / (3\pi - 8)} ; B = MED - \sqrt{8 \cdot DS / (3\pi - 8)} \quad [3]$$

which are taken as provisional values for proceeding with the development of the program.