**Hazard functions of HIV transmission and conception events**

Suppose  is the sex-frequency component shared by HIV transmission and conception events:



= baseline sexual frequency;

 = age of the male j;

 = age of the female j;

= number of children conceived by the female j.

(1) Hazard of HIV transmission:



(2) Hazard of conception:



is log of pregnancy propensity per sex

(3) Hazard of birth