

## **Revisiting the proximate determinants of fertility in Nigeria: Does the method of estimation matter?**

**Author: Latifat D.G. Ibisomi**

**Demography and Population Studies Programme,  
University of the Witwatersrand, Johannesburg.**

In view of the recent socio-economic changes that have taken place in Nigeria in the last couple of decades, we re-examined the proximate determinants of fertility in the country at large as well as by socio-demographic characteristics. The 1990, 1999 and 2003 Nigeria Demographic and Health Survey (NDHS) data sets of women aged 15-49 years were used in the analyses of this work. The Bongaarts et al 1984 framework for the proximate determinants of fertility and its Stover's reformulation were used for this purpose as well as to examine the effect of recent changes in childbearing behaviours on the proximate determinants. The basic difference between the two formulations is that Bongaarts et al used marriage while the Stover used recent sexual activity as factors governing exposure to intercourse. In addition, Stover modified the components used in the calculation of the index of abortion and the index of contraception

The two models relate total fertility to total potential fertility (referred to as total fecundity in the Bongaarts et al model and potential fertility in the Stover's model) reduced by a number of indices, each of which reflects the fertility inhibiting effect of a proximate determinant. The indices range from 0 to 1 for most of the proximate determinants. The lower the index, the more influential the proximate determinant is in reducing the total fecundity/potential fertility (i.e. the level of fertility that would occur in the absence of all the proximate determinants). An index of 0 implies total reducing effect on fertility and index of 1 implies no effect whatsoever.

Analysis of the mean durations of breastfeeding, amenorrhea, abstinence and postpartum insusceptibility in the two groups indicate that these postpartum practices last

substantially longer than in many parts of the world although there is wide variation between the sub groups in the country. Among the proximate determinants indices (from using both models), the index of postpartum insusceptibility has the greatest inhibiting effect, followed by that of marriage/sexual activity, contraception and then sterility. A notable exception to the general order in this study was found among women with tertiary level of education. This could be accounted for by later age at union, higher prevalence of contraceptive practice and shorter duration of postpartum insusceptibility among this group of women. The proximate indices jointly reduced total fecundity by 12.46 births in the total sample of married women in 1990; 8.90 births in 1999 and 9.45 births in 2003 in the Bongaarts model while the indices reduced potential fertility by 17.69 births in the total sample of sexually active women in 1990; 16.06 births in 1999 and 16.50 births in 2003 in the Stover's reformulation.

All the indices estimated using the Bongaarts et al formulation are higher when compared to their equivalents in the Stover's refinement. This implies that the Stover's indices should be more influential in reducing total potential fertility and this is translated into higher potential fertility (PF) in the Stover's model compared to total fecundity (TF) in the Bongaarts et al formulation.

A number of factors contributed to the differences in the proximate determinants indices in the two models although the relationships of these factors to the indices are not consistent, such that explaining them could be difficult. First is the use of currently married women for the index of marriage in the Bongaarts et al formulation and using sexually active women for its equivalent in the Stover's refinement. Apart from the fact that the percentage married is generally higher than those that are sexually active, the percentages of currently married among sexually active women are quite high and higher than percentages of those that are sexually active among currently married women on the average. This implies a lower percentage of married women that are not sexually active and could be additional reason why the indices of marriage were greater than those of sexual activity.

The contraceptive and postpartum behaviour of married women certainly differ from those that are not married. Since they are in a stable union, they are easily exposed to sexual activity and the level of use of contraception will be much lower as childbearing is a major fall out of marital union especially in a setting such as Nigeria where marriage and childbearing is almost universal. In addition to the difference in the contraceptive behaviour of the two groups of women, the Bongaarts et al formulation adjusted for infecundity in the calculation of the contraceptive index. This translates into lower value of the index, which actually increased the value of total fecundity. This adjustment factor was omitted from the Stover's model to avoid possible overlap (especially at age group 45-49) of sterilization and infecundity.

The range for the value of total fecundity in the Bongaarts et al formulation also differs from Stovers'. Other reasons that could account for the wide variation in estimates of total fecundity and potential fertility include: the exclusion of abortion in the model, errors in the data set or in the measurement of some variables as well as biases within the proximate determinants model.