Regional Differentials in Fertility Decline in Kenya: The Role of The Proximate Determinants

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Extended Abstract

Kenya's total fertility of 7.9 children in 1978 has declined to a current level of 5. The decline has taken place in both less and more developed regions and socio-economic groups and has occurred with a rapidity many did not anticipate. The explanations so far advanced of this phenomenon are neither clear nor conclusive. Among the salient unaccounted for features of the decline are the marked regional differentials and the large declines in some regions with low contraceptive use. Previous studies (NAS 1993, Brass and Jolly 1993, APPRC 1998, Macrae et al. 2001) were limited to the use of data collected until 1993 and did not seek for clues which might explain the regional fertility differences.

From a theoretical perspective, reproduction among human populations is usually at a level below their fecundity or biological capacity. The actual reproductive performance is influenced by social, economic, cultural, political and environmental factors. The effect of these factors on fertility varies within and between populations and is assumed to be mediated by factors which have a direct impact on fertility. We focus on the role of some of the direct determinants of fertility in explaining regional fertility differentials in Kenya. We use the proximate determinants model to guide our analysis.

Davis and Blake (1956) developed a set of ideas that showed how both direct and indirect factors are related to fertility. Bongaarts (1978) reorganized the ideas developed by Davis and Blake and developed the proximate determinants framework and a method

for assessing the impact of each proximate determinant on fertility. The parameters computed using this method assist in revealing the pathways through which background factors affect fertility. Bongaarts (1982) distinguished four variables that are mainly responsible for fertility variation among populations. These are: the proportion of women married; contraceptive use; induced abortion and postpartum infecundity or duration of postpartum amenorrhea. These four variables were quantified using four coefficients which measure the fertility reducing effect of the respective proximate determinants: C_m is the index of marriage, C_c the index of contraception, C_a the index of abortion and C_i the index of lactational infecundity. Each index equals the ratio between the fertility levels in the presence and the absence of the inhibition caused by the corresponding proximate fertility variable and takes only values from 0 to 1. Bongaarts suggested that in human populations, total fecundity (TF) would have an average value of about 15.3 children per woman, with a range between 13 and17 around this as a result of relatively inconsequential effects of differences in less important variables, namely natural fecundability, spontaneous intra-uterine mortality and permanent sterility. Thus the difference between observed fertility (TFR) and TF can be partitioned into the effects of non-marriage, contraceptive use, induced abortion and lactational infecundability (Bongaarts, 1978, 1982; Bongaarts and Potter, 1983) using the equation

$$TFR = C_m.C_c.C_a.C_i.TF.$$

The objectives of this paper are twofold. Firstly, to show the extent of regional variation in fertility decline in Kenya. Confidence intervals are attached to the estimated regional fertility rates. The second objective is to determine the potential role of the proximate determinants in explaining regional patterns of fertility in Kenya since the 1980s in view of recent work on the calculation of Bongaarts's indices of the proximate determinants. The paper seeks to answer the question as to what is the contribution of each of the proximate determinants in the regional differentials in fertility in Kenya. Induced abortion is not included in the current study due to scarcity of data. The indexes of the modified versions of the original indexes of Bongaarts model namely C_{m*}, the index of marriage in a society with no births outside marriage; C_{c*}, the index of contraception without the infecundability consideration; C_s the index of sterility due to all causes and C_{i*} the index of Postpartum Insusceptibility are also presented. M_o, a measure of the

proportion of births outside marriage, is also computed. A plot of the relationship between total fertility and the indexes of the proximate determinants is presented. We further propose to model total fertility as a function of the index of marriage, postpartum insusceptibility, contraceptive use and pathological sterility and or sterility due to all causes.

We use individual-level Kenya Demographic and Health Survey (KDHS) data collected in 1989, 1993, 1998 and 2003, consistent regional boundaries across all surveys, and exact exposure to risk within a four year window to estimate the fertility rate. Analysis is based on original districts which are treated as regions. Regions which were not consistently covered by KDHS since 1989 are not included in the study. Some districts within the same province are combined into one region to increase sample size. A total of twenty two regions are analyzed but findings for fifteen regions representing all of Kenya's provinces with the exception of North Eastern province are presented.

Preliminary findings show that Kenya's fertility has declined by 37 per cent since 1978 and by 25 per cent since 1989. Kenya's fertility decline stagnated since 1998. Regions predominantly inhabited by pastoral communities show gain in fertility over the period. There is a strong indication that low fertility in the urban regions of Nairobi and Mombasa is partly explained by marital patterns. Fertility decline in rural regions which according to literature have high Human Development Index tends to be explained by contraception. The effect of sterility due to all causes has tended to increase over the period surpassing that of contraception especially in regions with low fertility. The effect of Postpartum Non-susceptibility is highest in regions other than the urban ones. Most regions with high fertility report long durations of breastfeeding. The findings show that postpartum insusceptibility has the highest fertility inhibitive effect in terms of births per woman. But the relationship between total fertility and the index of postpartum insusceptibility unlike other indexes is direct suggesting that the fertility inhibiting effect of postpartum insusceptibility appears to be confounded by other factors not examined in the current analysis. It is expected that a plausible conclusion will emerge from the findings.

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