Ghana's Stalled TFR: Does the proximate determinants model offer any answers?

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ABSTRACT

I.   INTRODUCTION

After initial rapid declines in fertility among most developing countries since the 1970s, a number of these countries started experiencing slower declines than expected whilst fertility has stalled in some others (Bongaarts, 2005). In Ghana, reduction in total fertility rate (TFR) has levelled off since 1998. The TFR was 6.4 in 1988 and is still at 4.2 in 2017 after reaching 4.4 in 1998.In most cases, the stall in fertility is regarded as transient, lasting only a few years (Garenne 2008), but in the case of Ghana it lasted almost two decades.

Whilst fertility transitions and their causes have been extensively studied, stalling remains relatively unexplored (Bongaarts, 2005). The few studies about stalling fertility in sub-Saharan Africa have either failed to explain the reason for the stalling TFR in Ghana (Gerane, 2008) or have attributed it to lack of progress in socio-economic development (Bongaarts, 2005). Understanding the stall in Ghana's TFR through the proximate determinants approach is essential for further fertility reduction efforts.

II.   DATA & METHODS

This paper applies the proximate determinants model to explain the determinants of fertility and fertility change using the Ghana Demographic and Health survey, 1988-2014.
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III.   RESULTS

Models specification and validation

The model specification and validity information is presented in Table 1. The measures used in computing the indices and the values for the indices are shown. A comparison of the model TFR and observed TFR does not exceed 0.5 except for 1988. Similarly, estimates of the total fecundity (TF) are within the range of 13-17 for all years except for 1988 where it exceeds 17. The measures contained in the upper panel are used in computing the indexes presented in the lower panel.

Table 1: Model information and validation

Measure	1988	1993	1998	2003	2008	2014
TFR (observed)	6.4	5.2	4.4	4.4	4.0	4.2
TFR (model)	5.2	4.9	4.6	4.2	4.0	3.7
Total marital fertility rate (TM)	8.5	6.99	6.5	6.9	6.8	7.8
Current contraceptive use (u)	0.129	0.203	0.220	0.252	0.235	0.267
Contraceptive effectiveness (e)	0.929	0.938	0.947	0.959	0.959	0.973
Total induced abortion (TA)	0.028	0.028	0.029	0.029	0.029	0.031
Months of postpartum infecundability (i)	18.1	16.2	14	13.8	12.4	10.4
Index	1988	1993	1998	2003	2008	2014
Index of proportion married (Cm)	0.755	0.738	0.683	0.648	0.590	0.538
Index of noncontraception (Cc)	0.871	0.796	0.776	0.739	0.759	0.722
Index of induced abortion (Ca)	0.952	0.939	0.922	0.921	0.910	0.909
Index of lactational infecundability (Ci)	0.546	0.576	0.615	0.619	0.647	0.692
Combined Indices	0.342	0.318	0.301	0.273	0.264	0.244
Total Fecundity (TF)	18.7	16.3	14.6	16.1	15.2	17.2

Source: Obtained or calculated using data from GDHS1988-2014

Estimating the fertility inhibiting effect of each proximate determinant

The information on percent of births averted is presented in Figure 1.The figure shows the inhibiting effect of lactation has reduced drastically over time (56.3% to 26.1%). The inhibiting effect of marriage and contraception are in the opposite direction. The inhibiting effect of marriage increased whilst that for contraception has increased rather slowly from 1988 to 2014.
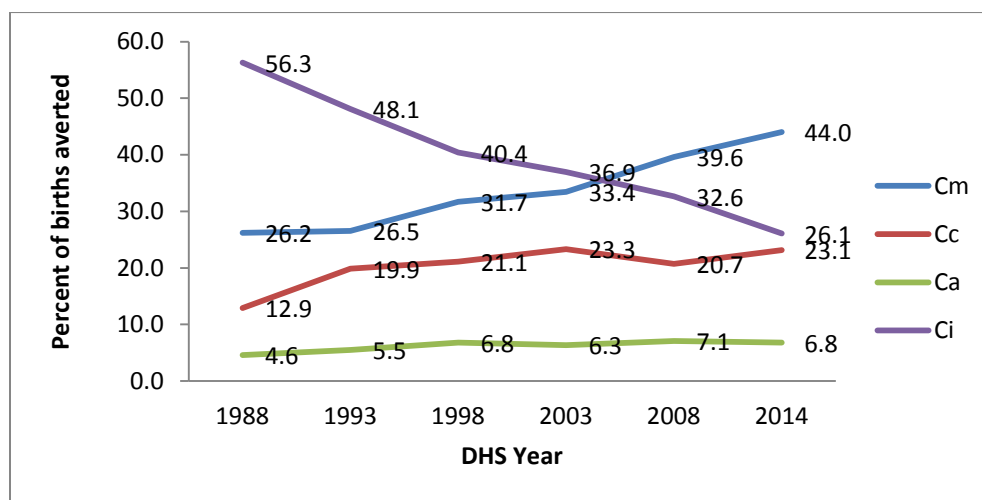

Figure 1: Trend in fertility inhibiting effect of the proximate determinants
Source: Calculated using data from GDHS 1988-2014

Decomposition of the Change in the total fertility rate between 1993 and 2014
Table 2 decomposes the change in TFR for various durations according to the contribution of each index. It shows the contribution of each proximate determinant to the fertility change.

Table 2: Decomposition of the Change in the total fertility rate, 1993-2014

1993-2014			
Factors responsible for fertility change	(1) Percent of change in TFR	(2) Distribution of percent change in TFR	(3) Absolute change in TFR
proportion of women married	-27.2	-141.3	-1.41
Index of noncontraception (Cc)	-9.4	-48.9	-0.49
Index of induced abortion (Ca)	-3.2	-16.6	-0.17
Index of lactational infecundability (Ci)	20.1	104.4	1.04
Other proximate determinants	5.3	27.6	0.28
Interaction	-4.8	-25.2	-0.25
Total	-19.2	100	-1
1993-2003			
Factors responsible for fertility change	(1) Percent of change in TFR	(2) Distribution of percent change in TFR	(3) Absolute change in TFR
Index of proportion married (Cm)	-12.2	-79.3	-0.63
Index of noncontraception (Cc)	-7.2	-46.9	-0.38
Index of induced abortion (Ca)	-1.9	-12.3	-0.10
Index of lactational infecundability (Ci)	7.4	48.3	0.39
Other proximate determinants	-1.5	-9.4	-0.08
Interaction	-0.1	-0.4	0.00
Total	-15.4	100	-0.80
2003-2014			
Factors responsible for fertility change	(1) Percent of change in TFR	(2) Distribution of percent change in TFR	(3) Absolute change in TFR
Index of proportion married (Cm)	-17.1	-375.2	-0.75
Index of noncontraception (Cc)	-2.3	-51.7	-0.10
Index of induced abortion (Ca)	-1.3	-29.3	-0.06
Index of lactational infecundability (Ci)	11.8	258.8	0.52
Other proximate determinants	6.9	151.1	0.30
Interaction	-2.4	-53.7	-0.11
Total	-4.5	100	-0.20

Source: Calculated using data from GDHS1993-2014

The first, second and third panels of the table decompose the change between 1993-2014, 1993-2003 and 2003-2014 respectively. The TFR reduced by 1 between 1993 and 2014, representing a 19.2% decline. The decline can be decomposed into a 27.1% decline due to decrease in proportion of women married, 9.4% decline due to increase in contraception, 3.2% decline as a result of increase in abortion and 20.1% increase due to shortening of the postpartum infecundable period. The remaining proximate determinants caused a 5.3% increase whilst the interaction of all factors reduced TFR by 4.8%.

The duration of 1993-2014 is further broken into two components: 1993-2003 and 2003 and 2014 in the second and third panels of the table. Between 1993 and 2003, the TFR declined by 15.3%. This decline in TFR can be decomposed into reduction caused by decline in proportion of women married (12.2%), increase in contraception (7.2%), increase in induced abortion (1.9%). The remaining proximate determinants and the effect of all interaction also led to decline in fertility by 1.5%. The shortening of the postpartum infecundable period has caused TFR to increase by (7.4%).

From the last panel of Table (2) there was 4.5% reduction in TFR between 2003 and 2014 A decomposition of the change shows 17.1% reduction in TFR from reduction in proportion of women married; 2.3% reduction because of increase in contraception; 1.9% reduction due to increase in induced abortion; and 2% reduction from the effect of interaction among all proximate determinants. The main increase in fertility in this period was caused by shortening of the postpartum infecundable period (11.8%).

IV.   DISCUSSION & CONCLUSION

TFRs transit mainly because proportions marrying decline and proportions using contraceptives and induced abortion increase (let us say that these factors have a minus or decreasing effect on fertility). On the other hand, the postpartum infecundable period reduces because of change in breastfeeding practices. This has a positive or increasing effect on fertility. Every change in TFR is the outcome of the net result of these plus (+) and minus (-) signs.

Study of the decomposed change in TFR showed the fertility reduction effect of contraception and induced abortion declined (-7.2% for 1993/2003 to -2.3% for 2003/2014); for marriage, the decreasing (fertility inhibiting) effect increased from -12.2% to -17.1%. However, the positive (+) or fertility increasing effect of postpartum infecundability has increased with time. We notice that the increasing effect of shortening of the postpartum infecundability on change in TFR increased from 7.4% (1998-2003) to 11.8% (2003-2014), which is enough to erode most of the combined effect of marriage, contraception abortion. Therefore, the stall in the TFR of Ghana since 1998 can largely be attributed to the fertility increasing effect of the drastic reduction in postpartum infecundable period.

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